CITY OF STORM LAKE
REGULAR COUNCIL SESSION MEETING,
CITY HALL
COUNCIL CHAMBERS
JUNE 17, 2024
5:00 PM

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

AGENDA

Access to the official meeting can also be done through the following ways:

BY TELEPHONE: Dial: 1-312-626-6799 or toll-free: 1-888-475-4499 Zoom Meeting ID: 933-2006-3301	BY COMPUTER: https://zoom.us/j/93320063301

Open the Meeting

- **Call to Order**
- **Pledge of Allegiance**
- **Proclamation**

A. **Consideration of Changes in Agenda and Setting the Agenda**

B. **Disclosure by City Council Members**

C. **Hear the Public**

D. **Consent Agenda**

1. Consent Agenda
2. Motion to Approve Storm Lake High School Homecoming Parade Request
3. Motion to Approve the FY2025 PFLAG Grant Agreement
4. Motion to Approve the FY2025 SALUD Grant Agreement
5. Resolution No. 61-R-2023-2024 Authorizing Inter-fund Transfers and Adjustments
6. Buy Local Information
7. SLPD City Code Enforcement Summary

E. **Unfinished Business**

F. **New Business**

1. Motion To Adopt The Iowa Economic Development Authority Downtown Resource Center's 2024 Downtown Assessment Report for The City Of Storm Lake
2. Resolution No. 62-R-2023-2024 Establishing A Downtown Signage Ad Hoc Committee
3. Resolution No. 63-R-2023-2024 Setting the Public Hearing for the Scout Park and Ice House Lift

Station Project Plans, Specifications, and Form of Contract

4. Resolution No. 64-R-2023-2024 Ordering Construction Of The Storm Lake Production Well No. 22, And Fixing A Date For Hearing Thereon And Taking Of Bids Therefor
5. Public Hearing On The Authorization Of A Loan Agreement And The Issuance Of Notes To Evidence The Obligation Of The City Thereunder
6. Resolution No. 65-R-2023-2024 Initiating Proceedings To Take Additional Action For The Authorization Of A Loan and Disbursement Agreement And The Issuance Of Not To Exceed $8,000,000 Water Revenue Capital Loan Notes.
7. Motion to Approve Funding to Storm Lake United for Event Promotion
8. Motion to Approve Agreement with the Lake Animal Hospital for Veterinary Services
9. Ordinance No. 04-O-2023-2024 For A City Ordinance Establishing Regulations For After-hours Businesses That Permit Alcohol Consumption Beyond 2 AM - 3rd Reading
10. Motion to Approve Funding For Lake Monitoring Equipment
11. City Council Work Session to review City Code Sections 8.3 Dogs, 8.4 Cats, an 8.9 Dangerous and Vicious Animals
12. Work Session - Infrastructure Maintenance
13. City Council Requested Items / City Council Updates

G. **Adjourn**

Meeting Protocol

If you wish to speak today, please:

1. To speak on an agenda item please approach the podium when that agenda item is called and upon recognition by the Mayor identify yourself by stating your name and address.
2. If your issue is not a topic on the agenda please approach the podium under the "Hear the Public" agenda item and upon recognition by the Mayor identify yourself by stating your name and address.
3. Please keep your remarks to three (3) minutes or less.
4. If you require accommodation for this meeting including but not limited to translation services, hearing assistance, or accessibility please contact the City Clerk at least four (4) hours prior to the start of the meeting.

**If you have concerns about any of the items on the consent agenda, they may be separated from the consent agenda and voted on individually.*

***Ordinances may be read at three consecutive meetings or readings may be waived and ordinances may be passed at only one or two meetings.*

Find us on Facebook https://www.facebook.com/cityofstormlake Follow us on Twitter @Storm_Lake
Find us on the Web at http://www.stormlake.org

Staff Summary

06/17/2024
Agenda Item # D.1.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Mayra Martinez City Clerk

SUBJECT: **Consent Agenda**

BACKGROUND: The Consent Agenda Includes:

- List of Bills
- King's Pointe & Sunrise Pointe Disbursements ,
- Approve June 3, 2024 City Council Minutes
- Acknowledge the January 2024 Library Minutes
- Acknowledge the January 2024 Airport Minutes
- Approve Renewal Liquor Licenses for Tienda El Mexicano and Sofi's Bakery dba Delicias Bakery
- Approve New Cigarette permit for Hope & Unity Grocery Store LLC
- Approve Renewal Cigarette permits for Sichanh Inc, May Flower Asian Grocery, Hope & Unity Grocery Store LLC, From Earth Wellness, Micronesian Spot, Casey's Store #3679, Walgreens Store 11330, Central Mart/Al's Liquor, Royal Investments/Brew #8, Brew Oil #33, Walmart #1526,
- Acknowledge and Approve the Civil Service 06/13/2024 Minutes and Civil Service Eligibility List
- Approve Renewal Band Trustee Board Application - Dennis Freking - 3 year term
- Approve Renewal Airport Commission Board Application - Nathaniel Kitzrow - 3 year term
- Approve Renewal Civil Service Board Application - Dan Richardson - 4 year term
- Approve Storm Lake High School Homecoming Parade Request
- Approve The FY2025 PFLAG Grant Agreement
- Approve The FY2025 SALUD Grant Agreement
- Approve Resolution No. 61-R-2023-2024 Authorizing Inter-fund Transfers and Adjustments
- Approve Buy Local Information
- Approve Storm Lake Police Department City Code Enforcement Update

FISCAL IMPACT: City Will Pay The Following Expenditures:

- List of Bills: $ 1,195,723.30
- King's Pointe & Sunrise Pointe Golf Course Bills: $406,502.26

City Will Receive The Following Receipts:

- Liquor License Renewals: $1,170.00
- Cigarette Permits: $900.00

RECOMMENDATION: Approve Consent Agenda

ATTACHMENTS:

6/17/2024 City Claims Expense Report.pdf
6.17.2024 KP 5.18.2024 to 6.12.2024.xlsx
06/03/2024 City Council Minutes.docx
Tienda El Mexicano Liquor Application 2024.pdf
Hope & Unity Grocery Store LLC Cigarette Application 2024.pdf
Dennis Freking - Band Trustee Application 2024.pdf
Nathaniel Kitzrow-Airport Commission Board Application 2024.pdf
Dan Richardson - Civil Service Board Renewal Application 2024.pdf
Civil Service Minutes 20240613
Eligibility List
Hope and Unity Grocery Store Cigarette Application 2024.pdf
Sichanh Inc Cigarette Application 2024.pdf
May Flower Asian Grocery Cigarette Application 2024.pdf
From Earth Wellness Cigarette Application 2024.pdf
Micronesian Spot Cigarette Application 2024.pdf
Caseys Store 3679 Cigarette Application 2024.pdf
Walgreens Sore 11330 Cigarette Application 2024.pdf
Central Mart - Als Liquor Cigarette Application 2024.pdf
Royal Investments - Brew #8 Cigarette Application 2024.pdf
Brew Oil #33 Cigarette Application 2024.pdf
Walmart Store 1526 Cigarette Application 2024.pdf

Buy Local_v1

Storm Lake, IA

Payment Date Range: 06/06/2024 - 06/19/2024

Vendor Name	Vendor Number	Payable Description	Total Payments
BVC			
Buena Vista County Recorder	001549	May 2024 Recordings	12.00
Buena Vista County Solid Waste	001035	Recycling	46.40
Joyce's Greenery LLC	001062	Spooner Family Sign Service- May 2024	1,514.79
Mike's Electronics Inc	001196	Grit Washer Service Call	3,571.30
Yards & Etc	001660	Code Enforcement- Mowing Service	100.00
		BVC Total: 5,244.49	
Contract/Agreement			
Bolton & Menk, Inc	001024	Construction Services	143,173.57
Fischer Bros, LLC	002308	Pay #8 of Water Park Repairs 2023	91,382.16
Grell Roofing, LLC	001923	Pay #3 KP Roof Replacement	6,650.00
Municipal Pipe Tool Co., LLC	001413	Vac Truck Parts	13,470.13
Reding's Gravel & Excavating Co., Inc	001132	Rock	765.26
Storm Lake Development Group, LLC	001619	2024 TIF Rebate Agreement	30,046.95
Woodruff Construction, Inc	002132	Pay #2 of WWTP UV Building	110,789.70
		Contract/Agreement Total: 396,277.77	
Local			
A & A Automotive	001022	Service- Less Tax	112.64
Alliant Energy	001173	Gas Services	5,463.44
Buena Vista Regional Medical Center	001124	5/7/2024 Testing- Hernandez	72.00
Central Bank	001025	Services	3,089.94
Community First Broadcasting	001893	Advertising	217.00
Culligan Water Storm Lake	001071	Water Supplies	61.25
EC Mechanical	002475	Water Damage- KP Water Line Repairs	25,257.82
Edwards Storm Lake	001114	Spark Plug Replacement- Less Tax	1,128.59
Fareway Stores, Inc	001535	Supplies	119.70
Fastenal Company	001033	Supplies	42.55
Graffix Inc	001187	Kid Fest Uniforms	656.25
Graham Tire	001093	New Tire	177.00
Growmark Inc New Century FS	001016	Fuel	12,548.90
Iowa Office Supply Inc	001037	Chair	658.23
Jim Bartholomew	001069	June 2024 Airport Contract	6,136.22
King's Pointe Resort	001110	Hometown Pride Meeting	250.00
L & G Products, Inc	001099	Chemicals	3,180.68
Lake Animal Hospital	001029	Bd & Disp Dog	188.20
Long Lines	001077	Fax Line & Emergency Line Service	1,388.63
McCrea Eneterprises	001176	Paint	430.10
Melanders TV & Appliances	001673	Service Call- Less Tax	75.00
Michael P. Reinert	001079	Steel Materials	59.00
North Lake Truck Repair	001177	Transmission Repairs	1,858.17
O'Reilly Automotive Inc	001108	Pliers	21.99
Plumbing & Heating Wholesale, Inc	001126	Tubing	420.93
Qwest Corporation	001070	Phone Service	83.40
Rebnord Technologies, Inc	001091	IT Service Agreement	6,539.81
Rent-All, Inc	001210	Hammer Drill Bit	122.16
Siouxland Certified Testing Services, Inc	001190	Testing Services- Memorial Road	2,695.00
Smith Concrete Service Inc	001134	Concrete	7,310.63
Stanton Electric, Inc	001264	Pickleball Court Lights	13,934.36
Storm Lake Ace Hardware	001216	Supplies	494.28
The Storm Lake Times	001214	May 2024 Publications	1,787.59
Verizon Wireless Services LLC	001075	Cell Phone Service	3,513.04
Visual Edge Inc	001063	Copier Maintenance Agreement	399.92

Buy Local_v1

Vendor Name	Vendor Number	Payable Description	Total Payments
Wiese Plumbing & Heating, Inc	001302	Toilet Repairs	235.05
		Local Total: 100,729.47	
Non-Local			
ABC Pest Control, Inc	001078	Pest Control Services	47.90
Ace Sign Desplays	001808	Pickleball Signs	480.00
Ahlers & Cooney, P.C.	001023	General Legal Services	4,052.70
Alex Air Apparatus 2 LLC	002217	Tilt Mounts	3,653.00
ATCO Manufacturing Company	002172	Supplies	120.21
Baker & Taylor, Inc	001957	Books	84.93
Barnes & Noble Booksellers, USA Inc	001274	Books	9.44
Beck Engineering, Inc	002005	Engineering Services	1,904.75
Bend Mailing Services, LLC	002013	Bill Printing Services	3,227.99
Blackstone Audio, Inc	002008	CDs	112.29
Boji Portable Toilets Inc	001133	Portable Toilet Rental	880.00
Breanna Nieland	001607	FY2024 Uniform Allowance	421.60
Brodart Co.	001009	Books	17.10
Builders Sharpening & Service LLC	001011	Supplies	1,200.00
Central Iowa Distributing, Inc	001026	Cleaning Supplies	340.00
Chem-Sult, Inc	001337	Sodium Chlorite	4,265.60
Chicago, Central & Pacific Railroad Co	001314	Oneida Xing Services	1,937.94
Cimpress USA Incorporated	002212	Engraving	145.35
Cintas First Aid & Safety	001094	First Aid Supplies	311.95
Contractor Solutions, LLC	001797	Pump	109,162.00
CTK Group LLC	002010	Evidence Training Reg- Bravo	1,000.00
Dakota Supply Group	002293	Gaskets	188.14
Demco, Inc	001273	Supplies	74.77
Eastern Aviation Fuels, Inc	001030	Jet Fuel	21,550.23
Ed M. Feld Equipment Company, Inc	001031	Boots	589.19
Electric Pump Inc	001032	Memorial LS Service Call	5,188.50
Foundation Analytical Laboratory, Inc	001100	Testing Services	3,059.75
GCC Alliance Concrete Co, Inc	002256	Concrete	628.00
GPM Environmental Solutions, LLC	001115	Service Call- Sampler	1,460.00
Guardian Alliance Technologies, Inc	002243	Software License	50.00
Hawkins, Inc	001112	Chemicals	16,961.02
HD Supply, Inc	001336	Supplies	66.95
Ingram Library Services, Inc	001268	Books	208.79
Iowa Economic Development Authority	002455	Iowa Downtown Assessment	2,520.00
Iowa Law Enforcement Academy	001036	Basic Training (2)	7,275.00
J.W. Pepper & Son, Inc	001647	Material	159.99
Johnston Automotive & Industrial of Spei	001386	Batteries	283.90
Junior Library Guild	001672	Books	287.00
Kasperbauer Cleaners, Inc	002435	Entrance Mat Services	40.62
Language Line Services, Inc	001624	Interpretation Services	117.20
Laurens House of Print Ltd	002161	Kids Fest- Bottles	3,289.29
Linde Inc	001111	Carbon Dioxide	3,297.35
Martin Marietta Materials, Inc	001429	Roadstone	981.24
Midwest Tape, LLC	001275	DVDs	107.95
Miller Mechanical Specialties, Inc	002467	Gas Detectors	5,388.58
Mississippi Lime Company	001095	Lime	28,015.49
Municipal Supply, Inc	001391	TC SPs	9,509.50
MW Watermark, LLC	001772	Plate Assembly	1,649.45
Northern Balance & Scale, Inc	001651	Calibration Services	667.00
Pitney Bowes	001182	Postage Machine Agreement	244.50
Ray Allen Manufacturing, LLC	001556	Clip	106.98
Rice Signs LLC	001446	Signs	854.40
RJ Thomas Manufacturing Compnay, Inc	001090	Grill	237.00
Salus LLC	001006	May 2024 Memberships	20.00
SGS, LLC	002126	Garbage Services	1,352.62

Buy Local_v1

Vendor Name	Vendor Number	Payable Description		Total Payments
Sioux City Foundry Company	001396	Rebar		1,203.00
Sirchie Acquisition Company, LLC	001437	Kits		109.00
State Industrial Products Corporation	002309	WW Programming		3,284.68
The Knox Company	001757	Knox Box		521.00
Tometich Engineering, Inc	002187	Engineering Services		594.00
ULINE	001609	Evidence Storage		1,197.49
Underground Location Company	001194	Locate Services		98.10
UPS	001121	Shipping		51.72
Vessco, Inc	001458	CO2 Panel		74,794.25
W. W. Grainger, Inc	001085	Blinds		231.53
Winter Equipment Company Incorporate	002483	Plow Edges		23,480.00
		Non-Local Total:	355,369.92	
Payroll/Refunds				
Beth Ann Dawson McPherren	001434	Homebound Deliveries		5.36
Custodian of Petty Cash	001272	Postage		99.54
Custodian of Petty Cash- Jean Cashman	001470	Balance Cash Drawer		3.33
Debesay Gebremedhin	002486	6/10/24 Shelter Refund		220.00
Patrick Diekman	001174	FY2024 Uniform Allowance		140.00
Randy Weflen	001308	FY2024 Uniform Allowance		320.20
Tyler Munden	001530	5/23/2024 Training Safety Course		101.00
		Payroll/Refunds Total:	889.43	
		Grand Total:	858,511.08	

King's Pointe Resort

Claims Publication

From 5/18/2024 to 6/12/2024

Vendor	Description		Amount
A.H. Hermel Wholesale	Supplies	$	855.54
A-1 Preferred LLC	Services	$	1,708.65
ACCO Unlimited Corporation	Supplies	$	14,605.19
Alliant Energy	Utilities	$	222.30
Alpha Media	Supplies	$	800.00
Amazon Capital Services Inc	Supplies	$	1,838.07
Bridgestone Golf Inc.	Supplies	$	263.79
Bunkers Feed Supply Inc.	Supplies	$	293.22
Cintas Corporation	Supplies	$	4,552.71
City of Storm Lake	Utilities	$	5,017.64
Design Environments	Services	$	5,000.00
Doll Distributing LLC	Beverages	$	9,125.55
ECOLAB	Supplies	$	347.82
Fastenal Company	Supplies	$	69.77
Fintech, LLC.	Services	$	257.84
Frigitec Inc.	Supplies	$	922.00
GLOBAL	Supplies	$	29,732.09
Global Industrial	Supplies	$	29,732.09
Grainger	Supplies	$	702.78
Guest Supply	Supplies	$	9,314.71
HyVee	Supplies	$	4,279.58
Imagine The Possibilities Inc	Services	$	120.00
John Byrnes	Refund	$	597.00
Johnson Brothers Beverages	Beverages	$	4,202.40
KAYL FM	Advertising	$	1,052.10
King's Pointe Payroll- 5/31/2024	Payroll	$	94,023.16
KKIA FM	Advertising	$	611.10
KTIV Television Inc.	Advertising	$	1,378.00
Laurens House of Print LTD	Supplies	$	799.45
Long Lines LLC	Utilities	$	1,591.90
Maestro PMS	Services	$	477.00
Marcus Lumber Co	Supplies	$	449.69
Martin Bros	Food	$	72,148.36
Mediacom	Utilities	$	472.90
MidAmerican Energy	Utilities	$	8,074.87
Mike's Lawn Service Inc.	Services	$	132.41
Nelson's Vet Supply	Supplies	$	958.00
Northern Lights Distributing, Inc.	Supplies	$	692.82
Pepsi	Beverages	$	1,193.24
Pest Elimination Division	Services	$	559.45
Plumbing & Heating Wholesale Inc.	Supplies	$	1,504.72
Power Solutions Inc.	Services	$	286.47
Quore Systems LLC	Services	$	317.21
Rebnord Technologies Inc.	Services	$	2,988.33
Rent-All Inc.	Services	$	446.51

S&L Hospitality LLC	Agreement	$	64,925.94
Sceptre Hospitality Resources LLC	Services	$	2,423.18
SGS LLC	Utilities	$	63.00
Storm Lake Ace Hardware	Supplies	$	939.52
Storm Lake Times	Advertising	$	551.40
Symmetry Energy Solutions LLC	Services	$	3,599.69
Sysco Iowa Inc.	Food	$	10,632.49
Tube Pro Inc.	Supplies	$	6,499.00
Verizon Wireless	Utilities	$	327.58
Vizergy	Services	$	1,426.85
Watermen	Refund	$	160.00
Wells Fargo Financial Leasing Inc.	Services	$	235.18
		$	**406,502.26**

CITY OF STORM LAKE REGULAR COUNCIL MEETING, CITY HALL COUNCIL CHAMBERS JUNE 3, 2024, 5:00 PM

Present: Mayor Michael Porsch, Council Members Maggie Martinez, Matt Ricklefs, Maria Ramos, Kevin McKinney, and Meg McKeon (via Zoom). Absent: None.

Staff Present: City Manager Keri Navratil, Assistant City Manager David Derragon, Police Chief Chris Cole, Fire Chief Glenn Schlesser, King's Pointe Manager Amy VonBank, Building and Code Compliance Director Scott Olesen, Development Services Specialist Lee Dutfield, Communications Coordinator Dana Larsen, Public Services Supervisor Scott Bonebrake, Assistant Public Services Supervisor Brandon Ripke, Public Works Director Matt Beckman, Finance Director Brian Oakleaf, Staff Accountant Tyler Gibbins, and City Clerk Mayra Martinez.

Media Present: Ryan Thompson with KAYL, and Allison Moore with The Storm Lake Times Pilot.

Mayor Porsch called the meeting to order at 5:00 pm.

Pledge of Allegiance

Agenda - Moved by Council Member Martinez to approve setting the agenda as presented. Seconded by Council Member Ramos. Vote: All ayes. Motion carried.

Disclosure by City Council Members – No items at this time.

Hear the Public – Joe Kucera with Storm Lake Community Education thanked the volunteer Fire Department for their help with the annual barbeque for the Storm Lake youth program. The Fire Department does more than volunteer to protect us, they definitely stepped up to help the community.

Mayor Porsch also thanked all the youth that went door to door selling tickets.

Consent Agenda - Moved by Council Member McKinney to approve the consent agenda, approve List of Bills Check #'s 81441 through 81501, EFT #'s 1387, and #5269 through 5298, King's Pointe & Sunrise Pointe Disbursements, approve May 20, 2024, regular Council minutes, acknowledge the April 2024 Library minutes and the 2024 Airport minutes, approve renewal liquor licenses for Pizza Hut, Walgreens #11330, Watt Lao Simong Khoun Chanthalaram (Buddhist Temple), Hy-Vee #1634, La Juanita Inc., approve renewal cigarette permits for Storm Lake Vape & Smoke, May Flower Asian Grocery, Sichanh Inc, and From Earth Wellness, approve the Star Spangled Spectacular fireworks permit, approve Buy Local Information, approve Storm Lake Police Department City Code Enforcement Update. Seconded by Council Member Ricklefs. Vote: All ayes. Motion carried.

Unfinished Business – No items at this time.

New Business

Upper Des Moines Donation - Assistant City Manager David Derragon gave an overview of the volunteer activity during May for Storm Lake Proud projects. Mayor Porsch thanked all the city staff who helped during the city-wide cleanup days and also thanked the volunteers who gave their time to help with improvement projects during the month of May.

Mayor Porsch presented a check of $1,622.00 to Upper Des Moines from money collected during the Storm Lake city wide clean up days.

Noise Variances - Moved by Council Member Martinez to approve a noise variance request for the Karen Baptist Church. Seconded by Council Member McKeon. Vote: All ayes. Motion carried.

908 Evergreen Drive – Mayor Porsch entertained a motion to approve a noise variance request for 908 Evergreen Drive. Hearing no motion, the item dies.

Kids' Fest 2024 - Moved by Council Member McKinney to adopt Resolution No. 58-R-2023-2024 to approve street closing for Kids' Fest 2024. Seconded by Council Member McKeon. Roll call vote: All ayes. Motion carried.

Lao Buddhist Temple - Moved by Council Member Martinez to approve the Storm Lake Lao Buddhist Temple noise variance request with the change of hours on June 29th to be from 2:00 pm to midnight (12:00 am). Seconded by Council Member Ramos. Vote: All ayes. Motion carried.

After-hours Businesses That Permit Alcohol Consumption Ordinance - 2nd Reading - Moved by Council Member McKinney to approve on second reading Ordinance No.04-O-2023-2024 for a City Ordinance establishing regulations for after-hours businesses that permit alcohol consumption beyond 2 am. Seconded by Council Member McKeon. Roll call vote: All ayes. Motion carried.

Witter Gallery – Mayor Porsch entertained a motion to approve a request to change the use of funds from Witter Gallery. Hearing no motion, the item dies.

Transit Discount Program - Moved by Council Member McKinney to change the ticket discount price from $1 to $2. Seconded by Council Member Ramos. Vote: All ayes. Motion carried.

Moved by Council Member McKinney to approve agreements with Storm Lake Cab and RIDES for transit services. Seconded by Council Member Ricklefs. Vote: All ayes. Motion carried.

Meridian Manufacturing. - Moved by Council Member McKinney to approve a revised Wastewater Treatment agreement with Meridian Manufacturing adding the three discharge locations. Seconded by Council Member Ricklefs. Vote: All ayes. Motion carried.

WWTP Blower Project - Moved by Council Member Ricklefs to adopt Resolution No. 59-R-2023-2024 approving an agreement with ISG for design and construction services for the Wastewater Treatment Plant blower replacement project. Seconded by Council Member McKeon. Roll call vote: All ayes. Motion carried.

Water Revenue Capital Loan Notes Not To Exceed $8,000,000 - Moved by Council Member Martinez to approve Resolution No. 60-R-2023-2024 fixing a date of June 17, 2024, at 5:00 pm at City Hall Council Chambers for a meeting on the authorization of a loan and disbursement agreement and the issuance of not to exceed $8,000,000 water revenue capital loan notes of the City of Storm Lake, State of Iowa, and providing for publication of notice thereof. Seconded by Council Member Ramos. Roll call vote: All ayes. Motion carried.

Hometown Pride Program - Moved by Council Member Ricklefs to approve a five-year commitment and an amount not to exceed $10,000 for the Hometown Pride program. Seconded by Council Member McKinney. Vote: All ayes. Motion carried.

Work Session - Review of Sign Ordinance - Building and Code Compliance Director Scott Olesen presented to the City Council and staff a copy of the sign ordinance, the Gateway ordinance and pertinent sections from the Downtown Master Plan to review for a work session on sign ordinances. It was discussed that a committee should be formed of business owners and a diverse group of people to be involved with the review of the City sign ordinance.

Work Session - Mobile Vendor - Assistant City Manager David Deragon reviewed and discussed the current City ordinance for mobile vendors with the City Council and the Mayor.

City Council Requested Items- No new items. The future meeting will be regarding Conditions on June 17, 2024, City Council Meeting and sign ordinance.

Adjourn - Moved by Council Member Ramos to adjourn at 6:11 pm. Seconded by Council Member McKinney. Vote: All ayes. Motion carried.

State of Iowa
Alcoholic Beverages Division

Applicant

NAME OF LEGAL ENTITY	NAME OF BUSINESS(DBA)	BUSINESS
Ramon, Inc.	TIENDA EL MEXICANO	(712) 213-1047

ADDRESS OF PREMISES	PREMISES SUITE/APT NUMBER	CITY	COUNTY	ZIP
1509 Lake Avenue North		Storm Lake	Buena Vista	50588

MAILING ADDRESS	CITY	STATE	ZIP
2189 Vernon Voss Road	Denison	Iowa	51442

Contact Person

NAME	PHONE	EMAIL
RAMON PATINO	(712) 269-7130	ramonpatino7@gmail.com

License Information

LICENSE NUMBER	LICENSE/PERMIT TYPE	TERM	STATUS
LG0000727	Class B Retail Alcohol License	12 Month	Submitted to Local Authority

EFFECTIVE DATE	EXPIRATION DATE	LAST DAY OF BUSINESS
Aug 1, 2024	July 31, 2025	

SUB-PERMITS

Class B Retail Alcohol License

PRIVILEGES

ALCOHOLIC BEVERAGES DIVISION State of Iowa

State of Iowa
Alcoholic Beverages Division

Status of Business

BUSINESS TYPE

Corporation

Ownership

- **Individual Owners**

NAME	CITY	STATE	ZIP	POSITION	% OF OWNERSHIP	U.S. CITIZEN
RAMON PATINO	Denison	Iowa	51442	OWNER	100.00	Yes

Insurance Company Information

INSURANCE COMPANY	POLICY EFFECTIVE DATE	POLICY EXPIRATION DATE
DRAM CANCEL DATE	OUTDOOR SERVICE EFFECTIVE DATE	OUTDOOR SERVICE EXPIRATION DATE
BOND EFFECTIVE DATE	TEMP TRANSFER EFFECTIVE DATE	TEMP TRANSFER EXPIRATION DATE

IOWA
Department of Revenue

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor

15

tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 07 / 01 / 24 through 06/30/ 25

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): Hope & Unity Grocery Store LLC

Iowa sales and use tax account number: 306303614

Retail address: 616 Michigan St City: Storm Lake State: IA ZIP: 50588

Mailing address: 616 Michigan St City: Storm Lake State: IA ZIP: 50588

Phone: 712-638-9773 or 712-638-8130

Legal Ownership Information:

Type of ownership: Sole Proprietor ☐ Partnership ☐ Corporation ☐ LLC ☑ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP: Pyu Pyar Nyein

Primary office address: 616 Michigan St City: Storm Lake State: IA ZIP: 50588

Phone: 712-638-9773 Fax: _____ Email: bphugs72522@gmail.com

Retail Information:

Types of Sales: Over-the-counter ☑ Vending machine ☐ Vending machine that assembles cigarettes ☐ Delivery sales of alternative nicotine/vapor products (see instructions) ☐
Mobile sales (see instructions) ☐ VIN: _____ License plate number: _____

Types of Products Sold: (Check all that apply)
Cigarettes ☑ Tobacco ☑ Alternative nicotine products ☑ Vapor products ☐

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☐ Bar ☐ Convenience store/gas station ☐ Drug store ☐
Grocery store ☑ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐
Other (provide description) ☐ _____

Do you have other permits issued under Iowa Code chapter 453A at this retail location? If yes, provide permit number(s):

Retail Food License 219837

Do you intend to make retail sales to ultimate consumers? Yes ☑ No ☐

Include with this application a list of your suppliers of cigarettes, tobacco, alternative nicotine and vapor products on a separate sheet.

Identify partners or corporate officers (up to three) if the business is not a sole proprietorship.

Name: Pyu Pyar Nyein Title: Owner
Address: 707 Maywood Dr
City: Storm Lake State: IA ZIP: 50588
Name: Blue Nice Title: Owner

Address: 697 Hyland Dr

City: Storm Lake State: IA ZIP: 50588

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products.

Signature of Authorized Party

I, the undersigned, declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete. I declare that I am authorized to act on behalf of the taxpayer, and will only act within my authority.

Printed Name/Title: Pyu Ryar Nyain

Authorized Signature: [signature]

Date: 05/30/24 Email: bphugs72522@gmail.com

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: 06-17-24
- Fill in the permit number issued by the city/county: FY 24-25-07
- Fill in the name of the city or county issuing the permit: City of Storm Lake
- New ☒ Renewal ☐

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

Board & Commission Renewal Form

06/11/2024 8:59 AM (CDT)

Board Renewal Application

First Name	Dennis
Last Name	Freking
Street Address	619 Superior Street
City	Storm Lake
State	IA
Zip Code	50588
Phone Number	7122990022
Email	frekingd@gmail.com
Current Board/Commission Serving	Band Trustees

Beginning in 2012 Iowa law requires that government appointed boards and/or commission be gender balanced when and where possible. The City will review all re-appointments for positions based on this state regulation and make re-appointments to comply with that requirement. Should it not be possible to re-appoint you to the same board the City will look at other opportunities to appoint to other boards and/or commissions should you so desire.

Do you still reside within the city limits of Storm Lake?	Yes
Would you like to be re-appointed to the same board/commission if possible?	Yes
Signature	
Date	06/11/2024

Thank you for contacting us. We have received your message and appreciate you reaching out.

Have a great day!

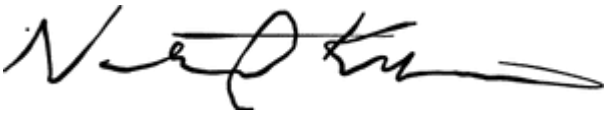
Board & Commission Renewal Form

06/06/2024 10:18 AM (CDT)

Board Renewal Application

First Name	Nathaniel
Last Name	Kitzrow
Street Address	203 W 1st Street
City	Storm Lake
State	Iowa
Zip Code	50588
Phone Number	2624429528
Email	Nat.Kitzrow@meadhunt.com
Current Board/Commission Serving	Airport Commission

Beginning in 2012 Iowa law requires that government appointed boards and/or commission be gender balanced when and where possible. The City will review all re-appointments for positions based on this state regulation and make re-appointments to comply with that requirement. Should it not be possible to re-appoint you to the same board the City will look at other opportunities to appoint to other boards and/or commissions should you so desire.

Do you still reside within the city limits of Storm Lake?	Yes
Would you like to be re-appointed to the same board/commission if possible?	Yes
Signature	
Date	06/06/2024

Thank you for contacting us. We have received your message and appreciate you reaching out.

Have a great day!

Board & Commission Renewal Form

06/13/2024 4:03 PM (CDT)

Board Renewal Application

First Name	Danny
Last Name	Richardson
Street Address	17 Vista Drive
City	Storm Lake
State	IA
Zip Code	50588
Phone Number	7122999868
Email	mollysue@mchsi.com
Current Board/Commission Serving	Civil Service Commission

Beginning in 2012 Iowa law requires that government appointed boards and/or commission be gender balanced when and where possible. The City will review all re-appointments for positions based on this state regulation and make re-appointments to comply with that requirement. Should it not be possible to re-appoint you to the same board the City will look at other opportunities to appoint to other boards and/or commissions should you so desire.

Do you still reside within the city limits of Storm Lake?	Yes
Would you like to be re-appointed to the same board/commission if possible?	Yes
Signature	
Date	06/13/2024

Thank you for contacting us. We have received your message and appreciate you reaching out.

Have a great day!

CITY OF STORM LAKE, CONFERENCE ROOM CIVIL SERVICE MEETING MEETING, JUNE 13, 2024 4:00 PM

Present: Member Di Daniels, Member Dan Richardson, and Member Nancy Johnson.
Staff Present: Police Chief Chris Cole and City Clerk Mayra Martinez,

Commissioner Richardson called the meeting to order at 4:03 pm

Minutes - Moved by Council Member Richardson to approve the December 12, 2023 minutes. Seconded by Council Member Daniels. Vote: All ayes. Motion carried.

New Eligibility List For Patrol Officer Rank - Moved by Council Member Richardson to approve the eligibility list for patrol officer rank that included Oscar Garcia, Sullivan Bailey, and Keely Bergman. Seconded by Council Member Daniels. Vote: All ayes. Motion carried.

Authorize Testing - Moved by Council Member Richardson to authorize testing for rank of Police Patrol Officer. Seconded by Council Member Daniels. Vote: All ayes. Motion carried.

Adjourn - Moved by Council Member Richardson to adjourn at 4:07 pm. Seconded by Council Member Johnson. Vote: All ayes. Motion carried.

Civil Service Eligibility List

06/12/2024 3:19 PM (CDT)

Storm Lake Proud

Civil Service Eligibility List

Rank of	Patrol Officer
Name	Oscar Garcia
Name	Sullivan Bailey
Name	Keely Bergman

Commissioner: _____ **Date:** 6/13/24

Commissioner: _____ **Date:** 6/13/24

Commissioner: _____ **Date:** 6/14/24

Mayor: _____ **Date:** _____

Attest: _____ **Date:** _____

Council Meeting Date: _____

List to expire one year after Council Meeting
Date: _____

IOWA
Department of Revenue

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor

22

tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 07 / 01 / 24 through 06/30/ 25

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): Hope & Unity Grocery Store LLC

Iowa sales and use tax account number: 306303614

Retail address: 616 Michigan St City: Storm Lake State: IA ZIP: 50588

Mailing address: 616 Michigan St City: Storm Lake State: IA ZIP: 50588

Phone: 712-638-9773 or 712-638-8130

Legal Ownership Information:

Type of ownership: Sole Proprietor ☐ Partnership ☐ Corporation ☐ LLC ☑ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP: Pyu Pyar Nyein

Primary office address: 616 Michigan St City: Storm Lake State: IA ZIP: 50588

Phone: 712-638-9773 Fax: _____ Email: bphugs725222@gmail.com

Retail Information:

Types of Sales: Over-the-counter ☑ Vending machine ☐ Vending machine that assembles cigarettes ☐ Delivery sales of alternative nicotine/vapor products (see instructions) ☐
Mobile sales (see instructions) ☐ VIN: _____ License plate number: _____

Types of Products Sold: (Check all that apply)
Cigarettes ☑ Tobacco ☑ Alternative nicotine products ☑ Vapor products ☐

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☐ Bar ☐ Convenience store/gas station ☐ Drug store ☐
Grocery store ☑ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐
Other (provide description) ☐ _____

Do you have other permits issued under Iowa Code chapter 453A at this retail location? If yes, provide permit number(s):

Retail Food License 219837

Do you intend to make retail sales to ultimate consumers? Yes ☑ No ☐

Include with this application a list of your suppliers of cigarettes, tobacco, alternative nicotine and vapor products on a separate sheet.

Identify partners or corporate officers (up to three) if the business is not a sole proprietorship.

Name: Pyu Pyar Nyain Title: Owner
Address: 707 Maywood Dr
City: Storm Lake State: IA ZIP: 50588
Name: Blue Nice Title: Owner

Address: 697 Hyland Dr

City: Storm Lake State: IA ZIP: 50588

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products.

Signature of Authorized Party

I, the undersigned, declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete. I declare that I am authorized to act on behalf of the taxpayer, and will only act within my authority.

Printed Name/Title: Pyu Ryar Nyain

Authorized Signature: [signature]

Date: 05/30/24 Email: bphugs72522@gmail.com

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: 06-17-24
- Fill in the permit number issued by the city/county: FY 24-25-07
- Fill in the name of the city or county issuing the permit: City of Storm Lake
- New ☒ Renewal ☐

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

IOWA
Department of Revenue

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor

tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 07 / 01 / 2024 through 06/30/ 2025

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): Sichanh. INC.

Iowa sales and use tax account number: _____

Retail address: 812 FLINT. Dr City: STORM LAKE State: IA ZIP: 50588

Mailing address: 812. FLINT. Dr City: STORM LAKE State: IA ZIP: 50588

Phone: 712.732-4416

Legal Ownership Information:

Type of ownership: Sole Proprietor ☐ Partnership ☐ Corporation ☑ LLC ☐ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP: _____

Primary office address: 812. FLINT. Dr City: STORM LAKE State: IA ZIP: 50588

Phone: 712.730 6145 Fax: 7127327821 Email: JohnK_inc@yahoo.com.

Retail Information:

Types of Sales: Over-the-counter ☑ Vending machine ☐ Vending machine that assembles cigarettes ☐ Delivery sales of alternative nicotine/vapor products (see instructions) ☐
Mobile sales (see instructions) ☐ VIN: _____ License plate number: _____

Types of Products Sold: (Check all that apply)
Cigarettes ☑ Tobacco ☑ Alternative nicotine products ☐ Vapor products ☐

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☐ Bar ☐ Convenience store/gas station ☐ Drug store ☐
Grocery store ☑ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐
Other (provide description) ☐ _____

Do you have other permits issued under Iowa Code chapter 453A at this retail location? If yes, provide permit number(s):

Liquor Permit # LE0001647

Do you intend to make retail sales to ultimate consumers? Yes ☐ No ☒

Include with this application a list of your suppliers of cigarettes, tobacco, alternative nicotine and vapor products on a separate sheet.

Pamela I need you tell me one more time Tim before I do next steps I believe you Pamela please call me 712-730-6145 John thanks

Sent from Yahoo Mail for iPhone

Identify partners or corporate officers (up to three) if the business is not a sole proprietorship.

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products.

Signature of Authorized Party

I, the undersigned, declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete. I declare that I am authorized to act on behalf of the taxpayer, and will only act within my authority.

Printed Name/Title: John Gauer

Authorized Signature: John K.

Date: 5-17-24 Email: JohnK_inc@yahoo.com

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: 06-03-24
- Fill in the permit number issued by the city/county: FY 24-25-09
- Fill in the name of the city or county issuing the permit: City of Storm Lake
- New ☐ Renewal ☒

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

IOWA
Department of Revenue

Iowa Retail Permit Applicati 26
for Cigarette/Tobacco/Nicotine/Vapor

tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 07 / 01 / 2024 through 06/30/ 2025

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): May Flower Asian Grocery

Iowa sales and use tax account number: 1-11-008772

Retail address: 200 W Railroad Street City: Storm Lake State: IA ZIP: 50588

Mailing address: 1016 Evergreen Ave City: Storm Lake State: IA ZIP: 50588

Phone: _____

Legal Ownership Information:

Type of ownership: Sole Proprietor ☑ Partnership ☐ Corporation ☐ LLC ☐ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP: Htee Soe

Primary office address: 1016 Evergreen Ave City: Storm Lake State: IA ZIP: 50588

Phone: 712-267-3069 Fax: N/A Email: Mayflowerasianmarket@gmail.com

Retail Information:

Types of Sales: Over-the-counter ☑ Vending machine ☐ Vending machine that assembles cigarettes ☐ Delivery sales of alternative nicotine/vapor products (see instructions) ☐
Mobile sales (see instructions) ☐ VIN: _____ License plate number: _____

Types of Products Sold: (Check all that apply)
Cigarettes ☑ Tobacco ☑ Alternative nicotine products ☐ Vapor products ☐

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☐ Bar ☐ Convenience store/gas station ☐ Drug store ☐
Grocery store ☑ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐
Other (provide description) ☐ _____

Do you have other permits issued under Iowa Code chapter 453A at this retail location? If yes, provide permit number(s):

_____

Do you intend to make retail sales to ultimate consumers? Yes ☐ No ☑

Include with this application a list of your suppliers of cigarettes, tobacco, alternative nicotine and vapor products on a separate sheet.

Identify partners or corporate officers (up to three) if the business is not a sole proprietorship.

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products.

Signature of Authorized Party

I, the undersigned, declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete. I declare that I am authorized to act on behalf of the taxpayer, and will only act within my authority.

Printed Name/Title: Hae Soo / Owner

Authorized Signature: _____

Date: 1/1/24 Email: mayflowerasianmarket@gmail.com

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: 06-03-2024
- Fill in the permit number issued by the city/county: FY 24-25-08
- Fill in the name of the city or county issuing the permit: City of Storm Lake
- New ☐ Renewal ☒

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

SL

IOWA
Department of Revenue

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor

tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 7 / 1 / 24 through 06/30/ 25

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): From Earth Wellness

Iowa sales and use tax account number: 36-4779171

Retail address: 1721 lake AVE. City: Storm Lake State: IA ZIP: 50588

Mailing address: 1126 N. 20th AVE cir. City: Blair State: NE ZIP: 68008

Phone: 402-650-3253

Legal Ownership Information:

Type of ownership: Sole Proprietor ☐ Partnership ☐ Corporation ☐ LLC ☑ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP:

Primary office address: 1126 N. 20th AVE cir. City: Blair State: NE ZIP: 68008

Phone: 402-650-3253 Fax: Email: fromearthwellness@gmail.com

Retail Information:

Types of Sales: Over-the-counter ☑ Vending machine ☐ Vending machine that assembles cigarettes ☐ Delivery sales of alternative nicotine/vapor products (see instructions) ☐
Mobile sales (see instructions) ☐ VIN: License plate number:

Types of Products Sold: (Check all that apply)
Cigarettes ☑ Tobacco ☑ Alternative nicotine products ☑ Vapor products ☑

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☑ Bar ☐ Convenience store/gas station ☐ Drug store ☐
Grocery store ☐ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐
Other (provide description) ☐

Do you have other permits issued under Iowa Code chapter 453A at this retail location? If yes, provide permit number(s):

Do you intend to make retail sales to ultimate consumers? Yes ☑ No ☐

Include with this application a list of your suppliers of cigarettes, tobacco, alternative nicotine and vapor products on a separate sheet.

Identify partners or corporate officers (up to three) if the business is not a sole proprietorship.

Name: CANDY Mefford Title: President

Address: 1126 N. 20th AVE cir.

City: Blair State: NE ZIP: 68008

Name: Title:

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products.

Signature of Authorized Party

I, the undersigned, declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete. I declare that I am authorized to act on behalf of the taxpayer, and will only act within my authority.

Printed Name/Title: PAT McFarland V.P.

Authorized Signature: _____

Date: 5-17-24 Email: fromearthwellness@gmail.com

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: 06-03-2024
- Fill in the permit number issued by the city/county: FY 24-25-10
- Fill in the name of the city or county issuing the permit: City of Storm Lake
- New ☐ Renewal ☒ X

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

IOWA
Department of Revenue

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor

tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 12 / 26 / 23 through 06/30/ 2024

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): Micronesian Spot

Iowa sales and use tax account number: 1-11-009851 1-11-009051

Retail address: 630 Michigan St City: Storm lake State: IA ZIP: 50588

Mailing address: 630 Michigan St City: Storm lake State: IA ZIP: 50588

Phone: 712-299-5848

Legal Ownership Information:

Type of ownership: Sole Proprietor ☒ Partnership ☐ Corporation ☐ LLC ☐ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP: Paula Obispo

Primary office address: 630 Michigan St City: Storm- lake State: IA ZIP: 50588

Phone: 712-299-5848 Fax: _____ Email: bispopaula028at Gmail.com

Retail Information:

Types of Sales: Over-the-counter ☐ Vending machine ☐ Vending machine that assembles cigarettes ☑ Delivery sales of alternative nicotine/vapor products (see instructions) ☐

Mobile sales (see instructions) ☐ VIN: _____ License plate number: _____

Types of Products Sold: (Check all that apply)

Cigarettes ☒ Tobacco ☑ Alternative nicotine products ☐ Vapor products ☐

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☐ Bar ☐ Convenience store/gas station ☐ Drug store ☐

Grocery store ☒ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐

Other (provide description) ☐ _____

Do you have other permits issued under Iowa Code chapter 453A at this retail location? If yes, provide permit number(s):

199824- Grocery Store License.

Do you intend to make retail sales to ultimate consumers? Yes ☐ No ☑

Include with this application a list of your suppliers of cigarettes, tobacco, alternative nicotine and vapor products on a separate sheet.

Identify partners or corporate officers (up to three) if the business is not a sole proprietorship.

Name: Murphys Gas Station Title: _____

Address: Storm lake

City: _____ State: _____ ZIP: _____

Name: Bear thirty Title: _____

Address: Storm- lake

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products.

Signature of Authorized Party

I, the undersigned, declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete. I declare that I am authorized to act on behalf of the taxpayer, and will only act within my authority.

Printed Name/Title: Pakida OBispo Owner

Authorized Signature: [signature]

Date: 6/14/24 Email: bispopakida028at@gmail.com

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: _____
- Fill in the permit number issued by the city/county: _____
- Fill in the name of the city or county issuing the permit: City of Storm Lake
- New ☐ Renewal ☒

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

Iowa Department of REVENUE

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor

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tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 07 / 01 / 2024 through 06/30/2025

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): CASEY'S # 3679

Iowa sales and use tax account number: 0-00-007787

Retail address: 207 E MILWAUKEE AVE City: STORM LAKE State: IA ZIP: 50588

Mailing address: ONE SE CONVENIENCE BLVD. City: ANKENY State: IA ZIP: 50021

Phone: 7127320041

Legal Ownership Information:

Type of ownership: Sole Proprietor ☐ Partnership ☐ Corporation ■ LLC ☐ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP: CASEY'S MARKETING COMPANY

Primary office address: ONE SE CONVENIENCE BLVD. City: ANKENY State: IA ZIP: 50021

Phone: 515-446-6404 Fax: 515-446-6303 Email: LICENSINGTEAM@CASEYS.COM

Retail Information:

Types of Sales: Over-the-counter ■ Vending machine ☐ Vending machine that assembles cigarettes ☐ Delivery sales of alternative nicotine/vapor products (see instructions) ☐
Mobile sales (see instructions) ☐ VIN: _____ License plate number: _____

Types of Products Sold: (Check all that apply)
Cigarettes ■ Tobacco ■ Alternative nicotine products ■ Vapor products ■

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☐ Bar ☐ Convenience store/gas station ■ Drug store ☐
Grocery store ☐ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐
Other (provide description) ☐ _____

Do you have other permits issued under Iowa Code chapter 453A? If yes, provide permit number(s):
YES, CASEY'S HAS 557 LOCATIONS IN IOWA HOLDING A TOBACCO LICENSE.

Include with this application a list of your suppliers and customers on a separate sheet.

Identify partners or corporate officers if the business is not a sole proprietorship.

Name: SEE ATTACHED Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products. I declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete.

Signature of Owner(s), Partner(s), or Corporate Official(s)

Printed name: DOUGLAS BEECH, ASSISTANT SECRETARY

Signature: Douglas M. Beech

Date: 04/01/2024

Printed name: _____

Signature: _____

Date: _____

Printed name: _____

Signature: _____

Date: _____

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: _____
- Fill in the permit number issued by the city/county: _____
- Fill in the name of the city or county issuing the permit: City of Storm Lake
- New ☐ Renewal ☒

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

IOWA
Department of Revenue

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor

tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 07 / 01 / 2024 through 06/30/ 2025

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): Walgreens #11330

Iowa sales and use tax account number: 0-00-000031

Retail address: 800 Lake Ave. City: Storm Lake State: IA ZIP: 50588

Mailing address: P.O. Box 901 City: Deerfield State: IL ZIP: 60015

Phone: _____

Legal Ownership Information:

Type of ownership: Sole Proprietor ☐ Partnership ☐ Corporation ☒ LLC ☐ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP: Walgreen Co.

Primary office address: 106 Wilmot Rd. City: Deerfield State: IL ZIP: 60015

Phone: 847-527-4612 Fax: 847-368-6525 Email: taxlicenserenewals@walgreens.com

Retail Information:

Types of Sales: Over-the-counter ☒ Vending machine ☐ Vending machine that assembles cigarettes ☐ Delivery sales of alternative nicotine/vapor products (see instructions) ☐
Mobile sales (see instructions) ☐ VIN: _____ License plate number: _____

Types of Products Sold: (Check all that apply)
Cigarettes ☒ Tobacco ☒ Alternative nicotine products ☒ Vapor products ☐

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☐ Bar ☐ Convenience store/gas station ☐ Drug store ☒
Grocery store ☐ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐
Other (provide description) ☐ _____

Do you have other permits issued under Iowa Code chapter 453A at this retail location? If yes, provide permit number(s):
NO

Do you intend to make retail sales to ultimate consumers? Yes ☒ No ☐

Include with this application a list of your suppliers of cigarettes, tobacco, alternative nicotine and vapor products on a separate sheet.

Identify partners or corporate officers (up to three) if the business is not a sole proprietorship.

Name: See attached rider Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products.

Signature of Authorized Party

I, the undersigned, declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete. I declare that I am authorized to act on behalf of the taxpayer, and will only act within my authority.

Printed Name/Title: Brian Brown, Vice President and Treasurer

Authorized Signature: B.R.O

Date: 5/17/2024 Email: taxlicenserenewals@walgreens.com

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: _____
- Fill in the permit number issued by the city/county: _____
- Fill in the name of the city or county issuing the permit: City of Storm Lake
- New ☐ Renewal ☒

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

IOWA
Department of Revenue

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor

tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 07 / 01 / 24 through 06/30/ 25

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): Central Mart / Al's Liquor

Iowa sales and use tax account number: 1-11-008834

Retail address: 215 W Milwaukee Ave City: Storm Lake State: IA ZIP: 50588

Mailing address: 216 E Milwaukee St City: Spencer State: IA ZIP: 51301

Phone: 712-732-6223

Legal Ownership Information:

Type of ownership: Sole Proprietor ☐ Partnership ☐ Corporation ☐ LLC ☒ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP: Central Mart

Primary office address: 216 E Milwaukee St City: Spencer State: IA ZIP: 51301

Phone: 712-262-2921 Fax: 712-262-6235 Email: accounting@brewoil.co

Retail Information:

Types of Sales: Over-the-counter ☒ Vending machine ☐ Vending machine that assembles cigarettes ☐ Delivery sales of alternative nicotine/vapor products (see instructions) ☐
Mobile sales (see instructions) ☐ VIN: _____ License plate number: _____

Types of Products Sold: (Check all that apply)
Cigarettes ☒ Tobacco ☒ Alternative nicotine products ☒ Vapor products ☒

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☐ Bar ☐ Convenience store/gas station ☒ Drug store ☐
Grocery store ☐ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐
Other (provide description) ☐ _____

Do you have other permits issued under Iowa Code chapter 453A at this retail location? If yes, provide permit number(s):
No

Do you intend to make retail sales to ultimate consumers? Yes ☒ No ☐

Include with this application a list of your suppliers of cigarettes, tobacco, alternative nicotine and vapor products on a separate sheet.

Identify partners or corporate officers (up to three) if the business is not a sole proprietorship.

Name: Inder Singh Title: CEO/Owner

Address: 216 E Milwaukee St.

City: Spencer State: IA ZIP: 51301

Name: _____ Title: _____

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor, page 2

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products.

Signature of Authorized Party

I, the undersigned, declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete. I declare that I am authorized to act on behalf of the taxpayer, and will only act within my authority.

Printed Name/Title: Inder Singh/ Owner

Authorized Signature: _____

Date: 5/21/2024 Email: inder@brewoil.co

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: _____
- Fill in the permit number issued by the city/county: _____
- Fill in the name of the city or county issuing the permit: _____
- New ☐ Renewal ☒

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

IOWA
Department of Revenue

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor

tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 07 / 01 / 24 through 06/30/ 25

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): Royal Investments / Brew #8

Iowa sales and use tax account number: 1-11-008678

Retail address: 1100 E. 5th Ave City: Storm Lake State: IA ZIP: 50588

Mailing address: 216 E Milwaukee St City: Spencer State: IA ZIP: 51301

Phone: 712-732-1000

Legal Ownership Information:

Type of ownership: Sole Proprietor ☐ Partnership ☐ Corporation ☐ LLC ☒ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP: Royal Investments

Primary office address: 216 E Milwaukee St City: Spencer State: IA ZIP: 51301

Phone: 712-262-2921 Fax: 712-262-6235 Email: accounting@brewoil.co

Retail Information:

Types of Sales: Over-the-counter ☒ Vending machine ☐ Vending machine that assembles cigarettes ☐ Delivery sales of alternative nicotine/vapor products (see instructions) ☐
Mobile sales (see instructions) ☐ VIN: _____ License plate number: _____

Types of Products Sold: (Check all that apply)
Cigarettes ☒ Tobacco ☒ Alternative nicotine products ☒ Vapor products ☒

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☐ Bar ☐ Convenience store/gas station ☒ Drug store ☐
Grocery store ☐ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐
Other (provide description) ☐ _____

Do you have other permits issued under Iowa Code chapter 453A at this retail location? If yes, provide permit number(s):
No

Do you intend to make retail sales to ultimate consumers? Yes ☒ No ☐

Include with this application a list of your suppliers of cigarettes, tobacco, alternative nicotine and vapor products on a separate sheet.

Identify partners or corporate officers (up to three) if the business is not a sole proprietorship.

Name: Inder Singh Title: CEO/Owner

Address: 216 E Milwaukee St.

City: Spencer State: IA ZIP: 51301

Name: _____ Title: _____

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor, page 2

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products.

Signature of Authorized Party

I, the undersigned, declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete. I declare that I am authorized to act on behalf of the taxpayer, and will only act within my authority.

Printed Name/Title: Inder Singh/ Owner

Authorized Signature: _____

Date: 5/21/2024 Email: inder@brewoil.co

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: _____
- Fill in the permit number issued by the city/county: _____
- Fill in the name of the city or county issuing the permit: _____
- New ☐ Renewal ☒

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

IOWA
Department of Revenue

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor

tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 07 / 01 / 24 through 06/30/ 25

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): Brew Oil, LLC / Brew #33

Iowa sales and use tax account number: 0-00-000790

Retail address: 1201 Lakeshore Dr City: Storm Lake State: IA ZIP: 50588

Mailing address: 216 E Milwaukee St City: Spencer State: IA ZIP: 51301

Phone: 712-732-4646

Legal Ownership Information:

Type of ownership: Sole Proprietor ☐ Partnership ☐ Corporation ☐ LLC ☒ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP: Brew Oil, LLC

Primary office address: 216 E Milwaukee St City: Spencer State: IA ZIP: 51301

Phone: 712-262-2921 Fax: 712-262-6235 Email: accounting@brewoil.co

Retail Information:

Types of Sales: Over-the-counter ☒ Vending machine ☐ Vending machine that assembles cigarettes ☐ Delivery sales of alternative nicotine/vapor products (see instructions) ☐

Mobile sales (see instructions) ☐ VIN: _____ License plate number: _____

Types of Products Sold: (Check all that apply)

Cigarettes ☒ Tobacco ☒ Alternative nicotine products ☒ Vapor products ☒

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☐ Bar ☐ Convenience store/gas station ☒ Drug store ☐

Grocery store ☐ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐

Other (provide description) ☐ _____

Do you have other permits issued under Iowa Code chapter 453A at this retail location? If yes, provide permit number(s):

No

Do you intend to make retail sales to ultimate consumers? Yes ☒ No ☐

Include with this application a list of your suppliers of cigarettes, tobacco, alternative nicotine and vapor products on a separate sheet.

Identify partners or corporate officers (up to three) if the business is not a sole proprietorship.

Name: Inder Singh Title: CEO/Owner

Address: 216 E Milwaukee St.

City: Spencer State: IA ZIP: 51301

Name: _____ Title: _____

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor, page 2

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products.

Signature of Authorized Party

I, the undersigned, declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete. I declare that I am authorized to act on behalf of the taxpayer, and will only act within my authority.

Printed Name/Title: Inder Singh/ Owner

Authorized Signature: _____

Date: 5/21/2024 Email: inder@brewoil.co

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: _____
- Fill in the permit number issued by the city/county: _____
- Fill in the name of the city or county issuing the permit: _____
- New ☐ Renewal ☒

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

Iowa Department of REVENUE

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor

tax.iowa.gov

Additional instructions are on the final page.

For period (MM/DD/YYYY) 06 / 30 / 2024 through 06/30/2025

Use this form to apply for a retail permit to sell cigarettes, tobacco, alternative nicotine, or vapor products at retail. If you need a different, non-retail cigarette or tobacco permit, use form 70-015. If approved, the permit is only valid for the location listed on the permit. You must obtain a separate retail permit for each location you own or operate.

Business Information:

Legal name/Doing business as (DBA): Walmart Inc. dba Walmart #1526

Iowa sales and use tax account number: 1-11-006719

Retail address: 1831 Lake Ave. City: Storm Lake State: IA ZIP: 50588

Mailing address: 702 SW 8th St. City: Bentonville State: AR ZIP: 72716

Phone: 479-371-8920

Legal Ownership Information:

Type of ownership: Sole Proprietor ☐ Partnership ☐ Corporation ☒ LLC ☐ LLP ☐

Name of sole proprietor, partnership, corporation, LLC, or LLP: Walmart Inc.

Primary office address: 702 SW 8th St. City: Bentonville State: AR ZIP: 72716

Phone: 479-371-8920 Fax: _____ Email: complic@wal-mart.com

Retail Information:

Types of Sales: Over-the-counter ☒ Vending machine ☐ Vending machine that assembles cigarettes ☐ Delivery sales of alternative nicotine/vapor products (see instructions) ☐
Mobile sales (see instructions) ☐ VIN: _____ License plate number: _____

Types of Products Sold: (Check all that apply)
Cigarettes ☒ Tobacco ☒ Alternative nicotine products ☒ Vapor products ☐

Type of Establishment: (Select the options that best describe the establishment)

Alternative nicotine/vapor store ☐ Bar ☐ Convenience store/gas station ☐ Drug store ☐
Grocery store ☐ Hotel/motel ☐ Liquor store ☐ Restaurant ☐ Tobacco store ☐
Other (provide description) ☒ Retail

Do you have other permits issued under Iowa Code chapter 453A? If yes, provide permit number(s):

_____

Include with this application a list of your suppliers and customers on a separate sheet.

Identify partners or corporate officers if the business is not a sole proprietorship.

Name: Please see attached Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

Iowa Retail Permit Application for Cigarette/Tobacco/Nicotine/Vapor, page 2

Name: _____ Title: _____

Address: _____

City: _____ State: _____ ZIP: _____

If this application is approved and a permit is granted, I/we do hereby bind ourselves to a faithful observance of the laws governing the sale of cigarettes, tobacco, alternative nicotine, and vapor products. I declare under penalties of perjury or false certificate, that I have examined this application, and to the best of my knowledge and belief, it is true, correct, and complete.

Signature of Owner(s), Partner(s), or Corporate Official(s)

Printed name: Sarah Little

Signature: Sarah Little

Date: 04/09/2024

Printed name: _____

Signature: _____

Date: _____

Printed name: _____

Signature: _____

Date: _____

Send this completed application and the applicable fee to your local jurisdiction. If your local jurisdiction permits electronic transmission of this application, your email or fax signature will constitute a valid signature. It is up to your local jurisdiction to approve this application and issue the permit. You must have an approved permit issued to you by the local jurisdiction before acting as a retailer in that jurisdiction. You must separately apply in each local jurisdiction in which you plan to act as a retailer. If you have any questions about the status of your application, contact your city clerk (within city limits) or your county auditor (outside city limits). NOTE: A completed application is NOT a valid permit even if submitted to your local jurisdiction with the applicable fee.

FOR CITY CLERK/COUNTY AUDITOR ONLY – MUST BE COMPLETE

- Fill in the amount paid for the permit: $75.00
- Fill in the date the permit was approved by the council or board: _____
- Fill in the permit number issued by the city/county: _____
- Fill in the name of the city or county issuing the permit: City of Storm Lake
- New ☐ Renewal ☒

Send completed/approved application to the Iowa Department of Revenue within 30 days of issuance. Make sure the information on the application is complete and accurate. A copy of the permit does not need to be sent; only the application is required. If a permit is being exchanged due to change of location within the same jurisdiction, permittee should complete an application with new location information and application should be sent to the Department as described above. Permittees who exchange a valid permit are not required to pay an additional fee when an exchange application is submitted. It is preferred that applications are sent via email, as this allows for a receipt confirmation to be sent to the local authority.

- Email: iapledge@iowaabd.com
- Fax: 515-281-7375

Staff Summary

06/17/2024
Agenda Item # D.2.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Chris Cole Police Chief

SUBJECT: **Motion to Approve Storm Lake High School Homecoming Parade Request**

BACKGROUND: Attached is a request for the 2024 Storm Lake High School Homecoming Parade. The Parade is scheduled for Friday September 27th at 2:30 PM and will begin on East 7th Street near Seneca traveling west to Lake Ave, south on Lake, east on Railroad, north on Cayuga and east on 7th. This is the same route as in past years.

FISCAL IMPACT: There will be costs associated with police officers working overtime to conduct traffic control for the parade. This cost will be absorbed by the normal operating budget.

RECOMMENDATION: Vote on request

ATTACHMENTS:
20240605111732497.pdf

6/5/2024

To: Chief Chris Cole, S.L.P.D.

From: Mike Cameron, AP, SLHS

Re: Homecoming Parade Fall 2024

Dear Chief Cole,

The purpose of this letter is to request a Homecoming Parade Permit and assistance for the 2024 Storm Lake High School Homecoming Parade. The date and time of this parade is Friday, September 27th, 2023 at **2:30 p.m**. The parade route will be East 7th to Lake Avenue to Railroad St. to Cayuga St. to East 7th. We will be assembling in the High School Parking lot and request assistance in getting to and from the parade route. Please see the attached map.

Please issue the permit to:

Mike Cameron

Storm Lake High School

621 Tornado Drive

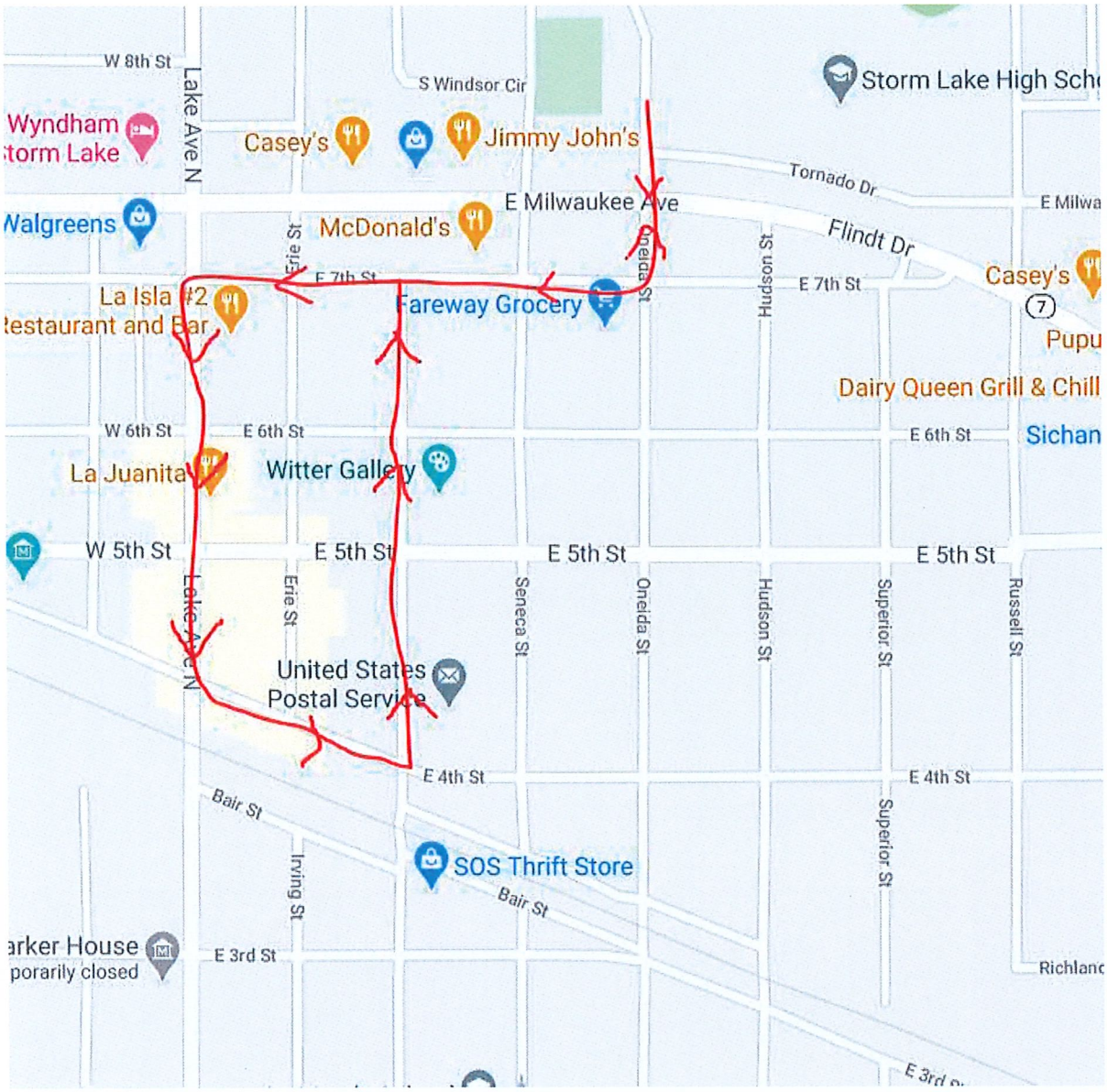
Storm Lake, IA. 50588

Thank you,

Mike Cameron

CC: Matt Doebel

Jeff Tollefson, COO


W 8th St
Lake Ave N
S Windsor Cir
Storm Lake High Sch
Wyndham
Storm Lake
Casey's
Jimmy John's
Tornado Dr
E Milwaukee Ave
Walgreens
McDonald's
Erie St
Oneida St
Hudson St
Flindt Dr
E Milwa
E 7th St
Casey's
La Isla #2
Restaurant and Bar
Fareway Grocery
Pupu
Dairy Queen Grill & Chill
W 6th St
E 6th St
E 6th St
Sichan
La Juanita
Witter Gallery
W 5th St
E 5th St
E 5th St
E 5th St
Seneca St
Superior St
Russell St
United States
Postal Service
E 4th St
E 4th St
Bair St
Irving St
SOS Thrift Store
Bair St
Parker House
porarily closed
E 3rd St
Richland

Staff Summary

06/17/2024
Agenda Item # D.3.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Tyler Gibbins Staff Accountant

SUBJECT: **Motion to Approve the FY2025 PFLAG Grant Agreement**

BACKGROUND: During the budget workshop process for FY2024-2025, the City Council Awarded funds to non-profit agencies through outside agency funding application requests. As agreed during the application process, the City of Storm Lake and the awardees need to enter into a grant agreement in accordance with the Iowa Attorney General and Office of Auditor of State requirements.

The attached grant agreement for PFLAG outlines the public purpose for the expense of tax dollars and the terms and conditions which accompany these funds. PFLAG's application was a request for funds to be used for resources in education, support, and health care information .

Following the execution of the grant agreement, funds for PFLAG will be made available following July 1st, 2024.

FISCAL IMPACT: During the FY2024-2025 budget process, the City Council awarded PFLAG $500.

RECOMMENDATION: Approve the FY2025 Grant Agreement with PFLAG and authorize the Mayor and City Clerk to execute the agreement.

ATTACHMENTS:
PFLAG Grant Agreement

GRANT AGREEMENT
IN SUPPORT OF
PFLAG STORM LAKE

THIS GRANT AGREEMENT ("Agreement") is made on or as of June 11, , 2024, by and between the CITY OF STORM LAKE, IOWA, a municipality ("City"), established pursuant to the Code of Iowa and acting under the authorization of Chapter 15A of the Code of Iowa, and PFLAG STORM LAKE, an Iowa nonprofit corporation (the "Recipient").

WHEREAS, the Recipient is an Iowa nonprofit corporation that operates within City and the Recipient's operations provide important services (the "Community Services") that improve quality of life and foster community within the City, which, in turn, helps the City to attract and retain residents and businesses within the City and thereby promotes economic development within the City; and

WHEREAS, the Recipient has requested grant funding from the City in support of the Recipient's operations that support economic development within the City and the City is willing to provide such funding pursuant to the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the promises and the mutual obligations of the parties hereto, each of them does hereby covenant and agree with the other as follows:

1. The grant application submitted by the Receipient is attached hereto and is incoporated by this reference. The City agrees to provide the Recipient with the requested grant in the amount of $500.00 (the "Grant"), for and in consideration of the Community Services provided by Reciepient, as more particularly described on Recipient's application, subject to the terms and conditions herein.

    a. The City intends to provide the Grant payment to Recipient within 90 days of execution of this Agreement.
    b. The Recipient shall provide a written report to the City describing its use of the Grant funds at least once every 12 months, which reports shall detail the Community Services that Recipient was enabled to provide due to receipt of the Grant. The written report shall include invoices, receipts, or other documentation evidencing the expenditure of the Grant funds in furtherance of the Community Services.

2. The Recipient shall make every effort to purchase locally in carrying out the Community Services. If a purchase is not made locally, the Recipient shall give written notification to the City Manager detailing the purchase so made and the reason the purchase was not made locally.

3. For at least the duration of this Agreement, the Recipient shall remain a Code 504 Revised Domestic Non-Profit corporation in good standing with the State of Iowa, with a stated purpose of collaboration rather than competition and trying to serve the community by building community.

4. If the City determines that (i) the Grant funds have been used by the Recipient contrary to the terms of this Agreement or applicable laws and ordinances, or (ii) that the Recipient has lost its tax-exempt status or has ceased to operate within the City, then the City Council of the City may, in its sole discretion, take any of the following actions:

    a. Demand repayment of the Grant funds. Such demand for repayment shall be delivered to the Recipient in writing and the repayment shall be due within thirty (30) days after the City makes such demand.
    b. Terminate this Agreement immediately and direct the City Manager to so notify the Recipient in writing. The notice containing the notification of termination shall be sent by certified United States Postal Service mail, return receipt requested, and by ordinary United States Postal Service mail, by depositing the notice in an envelope properly addressed to the address shown below for the Recipient, with proper postage affixed, in a United States Postal Service mail depository. Termination will be deemed effective thirty days after the City mails notice.

5. This City reserves the right to terminate this Agreement for any reason at no cost or penalty to the City. The Agreement will terminate on the first anniversary of the date of this Agreement, if not terminated sooner pursuant to its terms .

6. If this Agreement is terminated for any reason, then, within sixty (60) days of such termination, the Recipient shall return to the City any unused Grant funds. No Grant funds shall be used by the Recipient after it receives notice of the termination of this Agreement or has actual notice of the termination of this Agreement, whichever is sooner.

7. The Recipient will make commercially reasonable efforts to ensure that no officer or employee of the City, or their designees or agents, nor any consultant or member of the governing body of the City, and no other public official of the City who exercises or has exercised any functions or responsibilities with respect to this Agreement during his or her tenure, or who is in a position to participate in a decision-making process or gain insider information with regard to any potential Community Services undertaken in connection with this Agreement, has had or shall have any interest, direct or indirect, in any contract or subcontract, or the proceeds thereof, for work or services to be performed in connection with any project that receives Grant funds.

8. Miscellaneous.

    a. Governing Law. This Agreement shall be governed and construed in accordance with the laws of the State of Iowa.
    b. Entire Agreement. This Agreement and the exhibits hereto reflect the entire agreement between the parties regarding the subject matter hereof, and supersedes and replaces all prior agreements, negotiations or discussions, whether oral or written. This Agreement may not be amended except by a subsequent writing signed by all parties hereto.
    c. Successors. The Recipient's successors in interest are not third-party beneficiaries to the Grant under this Agreement and the parties do not intend that any rights in

connection with the Grant be conferred upon any third party as a result of this Agreement.

d. No Third-Party Beneficiaries. No rights or privileges of either party hereto shall inure to the benefit of any landowner, contractor, subcontractor, material supplier, or any other person or entity, and no such contractor, landowner, subcontractor, material supplier, or any other person or entity shall be deemed to be a third-party beneficiary of any of the provisions contained in this Agreement.

e. Severability. If any provision of this Agreement is for any reason held to be illegal or invalid, such illegality or invalidity shall not affect any other provision entered into, each of which shall be construed and enforced as if such illegal or invalid portion were not contained herein. Nor shall such illegality or invalidity of any application thereof affect any legal and valid application thereof, and each such provision shall be deemed to be effective in the manner and to the full extent permitted by law.

f. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be regarded as an original and all of which shall constitute but one in the same instrument. The signature pages of each counterpart may be combined to form one final recordable version of this Agreement.

IN WITNESS WHEREOF, the City has caused this Agreement to be duly executed in its name and behalf by its Mayor and attested by its City Clerk, the Recipient has caused this Agreement to be duly executed in its name and behalf all on or as of the day first above written.

CITY OF STORM LAKE, IOWA

By: _____ Date: _____
Michael Porsch, Mayor

ATTEST:

_____
Mayra A. Martinez, City Clerk

Address:
City of Storm Lake, Iowa
Att: City Clerk
City Hall
620 Erie Street PO Box 1086
Storm Lake, IA 50588

PFLAG STORM LAKE,
an Iowa nonprofit coporation

By: Susan Lyngaas Date: 6/11/2024
Sue Lyngaas

Title: Chair, Planning Comm.

Address:
PFLAG Storm Lake
201 Sunrise Park Road, 303
Storm Lake, IA 50588

Staff Summary

06/17/2024
Agenda Item # D.4.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Tyler Gibbins Staff Accountant

SUBJECT: **Motion to Approve the FY2025 SALUD Grant Agreement**

BACKGROUND: During the budget workshop process for FY2024-2025, the City Council Awarded funds to non-profit agencies through outside agency funding application requests. As agreed during the application process, the City of Storm Lake and the awardees need to enter into a grant agreement in accordance with the Iowa Attorney General and Office of Auditor of State requirements.

The attached grant agreement for SALUD outlines the public purpose for the expense of tax dollars and the terms and conditions which accompany these funds. SALUD's application was a request for funds to be used for their International Women's Day event.

Following the execution of the grant agreement, funds for SALUD will be made available following July 1st, 2024.

FISCAL IMPACT: During the FY2024-2025 budget process, the City Council awarded SALUD $600.

RECOMMENDATION: Approve the FY2025 Grant Agreement with SALUD and authorize the Mayor and City Clerk to execute the agreement.

ATTACHMENTS:
SALUD Grant Agreement

GRANT AGREEMENT
IN SUPPORT OF
SALUD-MULTICULTURAL HEALTH COALITION OF STORM LAKE

THIS GRANT AGREEMENT ("Agreement") is made on or as of _____, 2024, by and between the CITY OF STORM LAKE, IOWA, a municipality ("City"), established pursuant to the Code of Iowa and acting under the authorization of Chapter 15A of the Code of Iowa, and SALUD-MULTICULTURAL HEALTH COALITION OF STORM LAKE, an Iowa nonprofit corporation (the "Recipient").

WHEREAS, the Recipient is an Iowa nonprofit corporation that operates within City and the Recipient's operations provide important services (the "Community Services") that improve quality of life and foster community within the City, which, in turn, helps the City to attract and retain residents and businesses within the City and thereby promotes economic development within the City; and

WHEREAS, the Recipient has requested grant funding from the City in support of the Recipient's operations that support economic development within the City and the City is willing to provide such funding pursuant to the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the promises and the mutual obligations of the parties hereto, each of them does hereby covenant and agree with the other as follows:

1. The grant application submitted by the Receipient is attached hereto and is incoporated by this reference. The City agrees to provide the Recipient with the requested grant in the amount of $600.00 (the "Grant"), for and in consideration of the Community Services provided by Reciepient, as more particularly described on Recipient's application, subject to the terms and conditions herein.

    a. The City intends to provide the Grant payment to Recipient within 90 days of execution of this Agreement.
    b. The Recipient shall provide a written report to the City describing its use of the Grant funds at least once every 12 months, which reports shall detail the Community Services that Recipient was enabled to provide due to receipt of the Grant. The written report shall include invoices, receipts, or other documentation evidencing the expenditure of the Grant funds in furtherance of the Community Services.

2. The Recipient shall make every effort to purchase locally in carrying out the Community Services. If a purchase is not made locally, the Recipient shall give written notification to the City Manager detailing the purchase so made and the reason the purchase was not made locally.

3. For at least the duration of this Agreement, the Recipient shall remain a Code 504 Revised Domestic Non-Profit corporation in good standing with the State of Iowa, with a stated purpose of collaboration rather than competition and trying to serve the community by

building community.

4. If the City determines that (i) the Grant funds have been used by the Recipient contrary to the terms of this Agreement or applicable laws and ordinances, or (ii) that the Recipient has lost its tax-exempt status or has ceased to operate within the City, then the City Council of the City may, in its sole discretion, take any of the following actions:

    a. Demand repayment of the Grant funds. Such demand for repayment shall be delivered to the Recipient in writing and the repayment shall be due within thirty (30) days after the City makes such demand.
    b. Terminate this Agreement immediately and direct the City Manager to so notify the Recipient in writing. The notice containing the notification of termination shall be sent by certified United States Postal Service mail, return receipt requested, and by ordinary United States Postal Service mail, by depositing the notice in an envelope properly addressed to the address shown below for the Recipient, with proper postage affixed, in a United States Postal Service mail depository. Termination will be deemed effective thirty days after the City mails notice.

5. This City reserves the right to terminate this Agreement for any reason at no cost or penalty to the City. The Agreement will terminate on the first anniversary of the date of this Agreement, if not terminated sooner pursuant to its terms .

6. If this Agreement is terminated for any reason, then, within sixty (60) days of such termination, the Recipient shall return to the City any unused Grant funds. No Grant funds shall be used by the Recipient after it receives notice of the termination of this Agreement or has actual notice of the termination of this Agreement, whichever is sooner.

7. The Recipient will make commercially reasonable efforts to ensure that no officer or employee of the City, or their designees or agents, nor any consultant or member of the governing body of the City, and no other public official of the City who exercises or has exercised any functions or responsibilities with respect to this Agreement during his or her tenure, or who is in a position to participate in a decision-making process or gain insider information with regard to any potential Community Services undertaken in connection with this Agreement, has had or shall have any interest, direct or indirect, in any contract or subcontract, or the proceeds thereof, for work or services to be performed in connection with any project that receives Grant funds.

8. Miscellaneous.

    a. Governing Law. This Agreement shall be governed and construed in accordance with the laws of the State of Iowa.
    b. Entire Agreement. This Agreement and the exhibits hereto reflect the entire agreement between the parties regarding the subject matter hereof, and supersedes and replaces all prior agreements, negotiations or discussions, whether oral or written. This Agreement may not be amended except by a subsequent writing signed by all parties hereto.

c. Successors. The Recipient's successors in interest are not third-party beneficiaries to the Grant under this Agreement and the parties do not intend that any rights in connection with the Grant be conferred upon any third party as a result of this Agreement.
d. No Third-Party Beneficiaries. No rights or privileges of either party hereto shall inure to the benefit of any landowner, contractor, subcontractor, material supplier, or any other person or entity, and no such contractor, landowner, subcontractor, material supplier, or any other person or entity shall be deemed to be a third-party beneficiary of any of the provisions contained in this Agreement.
e. Severability. If any provision of this Agreement is for any reason held to be illegal or invalid, such illegality or invalidity shall not affect any other provision entered into, each of which shall be construed and enforced as if such illegal or invalid portion were not contained herein. Nor shall such illegality or invalidity of any application thereof affect any legal and valid application thereof, and each such provision shall be deemed to be effective in the manner and to the full extent permitted by law.
f. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be regarded as an original and all of which shall constitute but one in the same instrument. The signature pages of each counterpart may be combined to form one final recordable version of this Agreement.

IN WITNESS WHEREOF, the City has caused this Agreement to be duly executed in its name and behalf by its Mayor and attested by its City Clerk, the Recipient has caused this Agreement to be duly executed in its name and behalf all on or as of the day first above written.

CITY OF STORM LAKE, IOWA

By: _____ Date: _____
Michael Porsch, Mayor

ATTEST:

_____
Mayra A. Martinez, City Clerk

Address:
City of Storm Lake, Iowa
Att: City Clerk
City Hall
620 Erie Street PO Box 1086
Storm Lake, IA 50588

SALUD-MULTICULTURAL HEALTH COALITION OF STORM LAKE,
an Iowa nonprofit coporation

By: Di Daniels Date: June 8, 2024
Di Daniels

Title: Co-Director, SALUD Mullticultural Health Coalition of Storm Lake

Address:
SALUD-MULTICULTURAL HEALTH COALITION OF STORM LAKE
1624 W. 6th Street
Storm Lake, IA 50588

Staff Summary

06/17/2024
Agenda Item # D.5.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Tyler Gibbins Staff Accountant

SUBJECT: **Resolution No. 61-R-2023-2024 Authorizing Inter-fund Transfers and Adjustments**

BACKGROUND:

Each fiscal year a number of inter-fund transfers must be completed in order to properly account for expenditures and accurately state Fund balances. This Resolution would authorize these transfers along with Audit adjustments and flow of funds through our Debt Service accounts.

These transfers are necessary to comply with Iowa Code 384.18 as the expenditures must be reflected within their originally budgeted Program.

FISCAL IMPACT: There is no actual fiscal impact as these simply reflect movement and accurate statement of Funds as opposed to additional expenditures.

RECOMMENDATION: Approve Resolution No. 61-R-2023-2024 and authorize the attached Transfers and Adjustments.

ATTACHMENTS:

Resolution No. 61-R-2023-2024 Authorizing Interfund Transfers and Adjustments.xlsx

RESOLUTION NO. 61-R-2023-2024
A RESOLUTION AUTHORIZING INTERFUND TRANSFERS AND ADJUESTMENTS

Be it Resolved by the Council of the City of Storm Lake:

Section 1. Whereas, there is a need to transfer resources between funds provided as follows:

Fund Key:

001	General Fund	172	Library Misc Memorial Trust	603	Water Plant Debt Service
003	Outdoor Water Park Fund	177	Asset Forfeiture/Law Enforcement Fund	604	Utility Deposits
004	Cottages	178	Police Dept. Evidence Fund	610	Sewer Fund
005	Tort Insurance Fund	200	Debt Service Fund	611	Sewer Capital Improvements
006	Marina	201	Storm Water Debt Service Fund	612	Sewer Debt Reserve
010	Franchise Fees	220	Outdoor Pool/Storm Water GO	613	FEMA HMGP - Sanitary Sewer
030	Outdoor WP Replacement Res	222	Hotel Motel Tax Debt Reserve	620	Storm Water Fund
040	Cottage Reserve Fund	223	$2.5 Bond Sinking Fund	621	Storm Water Capital
110	Road Use Tax Fund	224	TIF Debt Reserve Fund	622	Storm Water Sinking Fund
112	Special Levy Fund	225	Awaysis Local Option Sinking	670	Landfill Fund
119	Emergency Levy	227	5.6M Series Sinking Fund	750	Lodge Operations Fund
121	Local Option Sales Tax Fund	228	2.94M Series Sinking Fund	753	Lodge Reserve Fund
123	Hotel Motel Tax	230	Hotel/Motel Tax Bonds Fund	754	Lodge Taxes & Insurance
124	Mitigation Fund	231	McKenna Water Sinking Fund	755	Hotel Revenue Bonds Fund
125	TIF Fund	232	McKenna Sewer Sinking Fund	756	Hotel Property Tax Fund
126	Bargloff TIF	233	Bargloff Reserve Fund	757	Lodge Replacement Reserve Fund
127	The Reserves - TIF	234	Bargloff Sinking Fund	822	Health Benefit Trust Fund
128	#4 LMI Housing URA	235	TIF Bonds Fund	824	125 Flexible Benefits Fund
129	Storm Lake Sub-Division #5	299	Bond Refinancing	825	Wellness Fund
130	South School Urban Renewal	301	Capital Improvement Projects	835	Employee Internal Fund
131	LMI #5 Housing URA	500	Erma Myers Trust Fund	910	Chapter 411 Pension Fund
132	LMI Revolving Fund	600	Water Fund	960	Lake Improvement Commission
167	Restricted Gifts	601	Water Capital Improvements	970	Drainage Districts
168	Senior Center Trust Fund	602	Water Bond Reserve		

Section 2. Whereas, there is a need to transfer resources between funds to provide for operations, fund balancing, and debt service in amounts not to exceed according to the certified budget for fiscal year 2023-2024 as follows:

Fund From:	**Fund To:**	**Description (What):**		**Amount:**
Fund 125	Fund 754	Repayment of Internal Debt	$	106,768.02
Fund 125	Fund 757	Repayment of Internal Debt	$	152,179.69
Fund 126	Fund 620	Repayment of Internal Debt	$	50,000.00
Fund 610	Fund 611	HMA Grant Admin Capital Project	$	80,023.50
			$	**388,971.21**

NOW THEREFORE be it resolved by the City Council of the City of Storm Lake, Iowa, to approve the above said transfers of funds for the 2022-2023

PASSED AND APPROVED this _____ day of _____, _____

Michael Porsch, Mayor

ATTEST:

Mayra Martinez, City Clerk

Staff Summary

06/17/2024
Agenda Item # D.6.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Mayra Martinez City Clerk

SUBJECT: **Buy Local Information**

BACKGROUND: In 2011 during a Study Session discussion Council asked staff to look at putting together some analysis information regarding the amount of purchases made locally. We have pulled that information together and a provided a summary of purchases identified in the current list of bills to be approved that are purchased locally (within the City of Storm Lake), within Buena Vista County, and outside of Buena Vista County are presented here for Council's review. This information is presented for both the City & King's Pointe's bills. As the reader reviews the information they should note the following key notes: Costs associated with any major capital project (those bid under the State of Iowa Bid Law) are excluded from the calculation Costs associated with travel is excluded from the calculation and % Costs associated with payroll is excluded from the calculation and % In some cases there is only one vendor or an item is only available from vendors outside of the City limits and/or Buena Vista County – we have not identified these some departments have fairly minor budgets and a major purchase can skew the % and or amount for a given review period (For Example: the Airport may have normally $4,000 - $6,000 in expenses until they purchase Jet Fuel or Av Gas which can be $10,000 + and as a vendor who is not local this can skew the information for that review period) Local has been determined to be has an office front in the area and based on where the office front is located for local vs. BV County (For Example: Wal-Mart is considered local since they have a store in Storm Lake even though their headquarters is not located here) As with all analytical data it is possible to interpret the numbers in a variety of ways and as we move forward we would be happy to provide further detail and or revise the way in which we show the data. Likewise if you have any questions or concerns please don't hesitate to contact city staff.

FISCAL IMPACT:

Breakout	**Calculated Expenses**
Buena Vista County	$ 5,244.49

Contract/Agreement	396,277.77
Local	100,729.47
Non-Local	355,369.92
Payroll/UB Refunds/Pyrl Tax & Ins	338,101.65
TOTAL EXPENSES:	**$1,195,723.30**

RECOMMENDATION: Approve Buy Local Information

ATTACHMENTS:

6/17/2024 Project Report.pdf

Summary

Project Summary

Project Number	Project Name	Total Budget	Date Range Budget	Beginning Balance	Total Activity	Ending Balance	Budget Remaining
0P1.122814	Richland Street, Phase 2 Improvemen...	174,107.75	0.00	174,095.25	0.00	174,095.25	12.50
0P1.125106	BRIC	212,709.99	212,709.99	212,709.99	0.00	212,709.99	0.00
0P1.126252	Comprehansive Plan & Zoning Code U...	125,880.00	0.00	125,824.50	0.00	125,824.50	55.50
0P1.131538	Memorial Road Street & Utility Impro...	3,894,220.00	3,894,220.00	641,871.22	71,484.57	713,355.79	3,180,864.21
0T5.128791	Runway 17/35 Lighting Replacement	410,741.68	410,741.68	96,802.87	0.00	96,802.87	313,938.81
19-22797	Memorial Lift Station Improvements	2,533,320.00	0.00	2,554,600.96	0.00	2,554,600.96	-21,280.96
20-HSG-022	2021 Housing Sustainability Project	224,994.00	224,994.00	181,283.12	0.00	181,283.12	43,710.88
21-26215	Downtown Master Plan	113,000.00	0.00	103,650.00	0.00	103,650.00	9,350.00
22-26698	Storm Lake WTP- Well No. 21	1,795,006.50	1,795,006.50	761,817.43	0.00	761,817.43	1,033,189.07
22-26815	W 6th Street Utilities Extension	314,241.49	314,241.49	318,517.58	0.00	318,517.58	-4,276.09
22-27926	Storm Lake WTP- Well #22	162,200.00	162,200.00	63,402.50	0.00	63,402.50	98,797.50
23-092	King's Pointe Remodel/Refresh	446,537.52	446,537.52	389,760.57	0.00	389,760.57	56,776.95
23-29446	WWTP UV Disinfection Building	275,772.00	275,772.00	27,880.00	63,887.50	91,767.50	184,004.50
23-29447	College & 3rd St Lift Station Replacem...	185,000.00	185,000.00	109,640.00	0.00	109,640.00	75,360.00
FEMA HMGP (HMA) 4483	FEMA HMGP (HMA) 4483	373,560.00	373,560.00	22,170.50	60,853.00	83,023.50	290,536.50
HTG322020	T-Mobile Hometown Grant Q-3-22	0.00	0.00	45,619.48	0.00	45,619.48	-45,619.48
IA0091	SL Elevated Water Storage- Tower #5	7,384,100.15	7,384,100.15	513,412.87	0.00	513,412.87	6,870,687.28
New	Lead Service Line Replacement Prelim...	15,500.00	0.00	0.00	0.00	0.00	15,500.00
New1	WWTP Blower Project (EECBG)	18,000.00	18,000.00	0.00	0.00	0.00	18,000.00
OP1.125220	4th Street Watermain Improvement P...	553,406.16	0.00	581,342.16	0.00	581,342.16	-27,936.00
P11.118940	Oneida Street Reconstruction from RR...	2,526,433.98	0.00	2,513,334.28	0.00	2,513,334.28	13,099.70
P11.120411	Highway 7/110 Traffic Lane/Signalizat...	4,711,913.90	1,210.58	4,950,011.05	4,738.00	4,954,749.05	-242,835.15
SP21122	SL Library CDBG- COVID (CV) Grant	634,285.27	634,285.27	634,285.27	0.00	634,285.27	0.00
	Report Total:	**27,084,930.39**	**16,332,579.18**	**15,022,031.60**	**200,963.07**	**15,222,994.67**	**11,861,935.72**

Group Summary

Group	Total Budget	Date Range Budget	Beginning Balance	Total Activity	Ending Balance	Budget Remaining
Airport Projects	410,741.68	410,741.68	96,802.87	0.00	96,802.87	313,938.81
ARPA Project	1,795,006.50	1,795,006.50	761,817.43	0.00	761,817.43	1,033,189.07
Building Resilient Infrastructure and C...	212,709.99	212,709.99	212,709.99	0.00	212,709.99	0.00
Economic Development	778,115.49	539,235.49	774,894.68	0.00	774,894.68	3,220.81
King's Pointe Resort Projects	446,537.52	446,537.52	389,760.57	0.00	389,760.57	56,776.95
Library Project	634,285.27	634,285.27	634,285.27	0.00	634,285.27	0.00
Sanitary Sewer Projects	3,385,652.00	852,332.00	2,714,291.46	124,740.50	2,839,031.96	546,620.04
Street Construction	11,306,675.63	3,895,430.58	8,279,311.80	76,222.57	8,355,534.37	2,951,141.26
Water Project	8,115,206.31	7,546,300.15	1,158,157.53	0.00	1,158,157.53	6,957,048.78
Report Total:	**27,084,930.39**	**16,332,579.18**	**15,022,031.60**	**200,963.07**	**15,222,994.67**	**11,861,935.72**

Staff Summary

06/17/2024
Agenda Item # D.7.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Chris Cole Police Chief

SUBJECT: **SLPD City Code Enforcement Summary**

BACKGROUND:

05-29-2024 to 06-11-2024

Tall Grass and Weeds - 34

Junk Vehicle - 3

Accumulate Junk - 19

Accumulate Trash - 2

Total:58

Citation: 1

White Summons - 7

FISCAL IMPACT: None

RECOMMENDATION: None

ATTACHMENTS:

Staff Summary

06/17/2024
Agenda Item # F.1.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Lee Dutfield Development Services Sepcialist

SUBJECT: **Motion To Adopt The Iowa Economic Development Authority Downtown Resource Center's 2024 Downtown Assessment Report for The City Of Storm Lake**

BACKGROUND:

The Storm Lake Downtown Assessment report summarizes the observations and recommendations resulting from an Iowa Downtown Resource Center Assessment conducted in Storm Lake, Iowa by the IEDA's Downtown Resource Center team. In preparation of this report, the Assessment Team learned about Storm Lake's downtown history, recent planning efforts, economic development and quality of life initiatives.

The Team's familiarization process began with a review of materials supplied prior to the visit, a pre-visit survey, a driving tour of the city and a walking tour of the Downtown commercial district. The intensive three-day visit (April 23-25) also included interviews with approximately 90 community leaders, individuals and groups representing the public and private sectors. Based upon these activities and the Assessment Team's extensive working knowledge in downtown economic development, this report summarizes their findings and recommendations for Storm Lake.

This assessment and recommendations should serve as a call to action and provide the community with current information to formulate strategies necessary to address improving the downtown for future generations.

This report cannot and does not provide all the answers. Ultimately, Storm Lake citizens must explore their options, decide what is relevant and realistic and acquire additional information and resources as they

address Downtown's future. The plan was initiated by the City, but the Iowa Downtown Resource Center team can't stress enough that the plan is for everyone. The City can't be the only implementer of projects. There is opportunity for the Chamber of Commerce, community clubs, churches, etc. to buy into the plan and work together on implementation.

The 2024 Storm Lake Downtown Assessment Report can be viewed at: https://www.stormlake.org/DocumentCenter/View/5110/2024-Downtown-Assessment-Report-Storm-Lake?bidId=

FISCAL IMPACT: N/A

RECOMMENDATION: Adopt the 2024 Storm Lake Downtown Assessment Report

ATTACHMENTS:

Storm Lake Assessment Report_2024.pdf

STORM LAKE, IOWA

April 23-25, 2024

Conducted By:

Iowa Downtown Resource Center

IOWA ECONOMIC DEVELOPMENT AUTHORITY

1963 Bell Avenue, Suite 200 | Des Moines, Iowa 50315

PH: 515.348.6180 | James.Engle@IowaEDA.com

Iowa Economic Development Authority (iowaeda.com)

Downtown Resource Center | Iowa Economic Development Authority (iowaeda.com)

The following report summarizes the observations and recommendations resulting from an Iowa Downtown Resource Center Assessment conducted in Storm Lake, Iowa. In preparation of this report, the Assessment Team learned about Storm Lake's downtown history, recent planning efforts, economic development and quality of life initiatives.

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PURPOSE

The City of Storm Lake worked with the Iowa Downtown Resource Center, Iowa Economic Development Authority (IEDA), to conduct a Downtown Assessment to raise awareness, educate, make recommendations, and encourage the local community.

This assessment and recommendations should serve as a call to action and provide the community with current information to formulate strategies necessary to address the very serious issue of saving or improving the downtown for future generations.

This report cannot and does not provide all the answers. Ultimately, Storm Lake citizens must explore their options, decide what is relevant and realistic and acquire additional information and resources as they address Downtown's future.

"Never doubt that a small group of committed dependable citizens can change the world. Indeed, it is the only thing that ever has."
-Margaret Mead

OVERVIEW

This Downtown Assessment report and recommendations for Storm Lake are based on the Team's downtown development experience. Their beliefs are grounded by the philosophy that for Downtown to re-establish itself as the social and commercial center of the community—the physical heart and soul of the city—Downtown must become more valuable physically, economically, socially and politically.

The health of Downtown has a direct impact upon the entire community's economic well-being. They are inter-related. Downtown revitalization IS economic development. Downtown is a prime location for incubating small business, it is an affordable location for independent businesses and is historically one of the community's major employers. The commercial center provides a compact environment with multiple stories for commerce, government and living spaces, thus reducing sprawl and the cost associated with extending city services and infrastructure. The pedestrian friendly environment is convenient and accessible, serving as the center (community space) for not only commercial trade but also cultural, social, and civic engagement. Historic downtown districts can serve as heritage tourism attractions. A building's condition, the business' viability, and maximization of the building's square footage for income generation affect not only the property's value, but also the value of the neighboring properties and real estate in the entire community. Investments in Downtown allow it to "pay its fair share" in taxes resulting in lessening the tax burdens of its citizens and city government.

Most of our memories are directly associated with a place. We "go back" to places we feel good about. We "go back" to places where we have had positive shopping experiences. We "go back" to places where we have had fun. We "go back" to places we think are important. We are also attracted to places where we think we will have a positive experience. We must strive to make Downtown a "go to" kind of destination, not an avoidable area we pass through on our way to somewhere else.

The Iowa Economic Development Authority's Assessment Team included five downtown development professionals:

JIM ENGLE, Director, Iowa Downtown Resource Center, Iowa Economic Development Authority, Des Moines, Iowa. Jim has been with IEDA since January 2014. As director of the Iowa Downtown Resource Center, he oversees all downtown development programs of the authority. His current responsibilities include managing a million-dollar annual budget, overseeing the planning and delivery of technical assistance services, and developing training opportunities for all Iowa communities. Jim's areas of expertise are in organizational development, promotion, business development and working with smaller communities with populations ranging from 400 to 80,000. Prior to joining the IEDA, Jim served as Coordinator of the Wisconsin Main Street Program for 23 years. He also served as the Main Street Executive Director in Oskaloosa, Iowa. He holds a degree in Business Management from Central College in Pella, Iowa. Over the years, Jim has consulted for Main Street programs in Iowa, Wisconsin, Illinois, Indiana, Minnesota, Washington, Tennessee, and Michigan. He has also presented at many national downtown conferences.

JEFF GEERTS, EcoDistricts AP, NCI CS & CM, Special Projects Manager, Iowa Economic Development Authority, Des Moines, Iowa. Working for the Iowa Department of Natural Resources for 15 years and the Iowa Economic Development Authority for the last 13+ years, Jeff has more than 25 years of grant writing, grant management, and program development experience with an emphasis on environmentally sustainable development. Jeff is actively involved with several nonprofit organizations and currently is a board member of Des Moines Heritage Trust. For 20+ years Jeff has programmed an award-winning international comparative policy course in best practices for community leaders and graduate public administration students in the Drake University College of Business and Public Administration. Along with being an EcoDistricts Accredited Professional and certified in the National Charrette Institute's Charrette System and Charrette Management, Jeff has a Bachelor of Science degree in management science and statistics from St. Ambrose University and master's degree in public administration from Drake University.

TIM REINDERS is a downtown revitalization consultant with over 30 years' experience. He has been

a local director in Clinton, Iowa as well as working as a Design Specialist at Main Street Iowa. In his role at Main Street Iowa, he provided design services and training to communities across the state. He has also worked in a number of states across the country and has conducted training and presentations at numerous conferences and seminars. He has been involved in local, state and national community development organizations. Tim studied architecture and community and regional planning at Iowa State University.

DENNIS REYNOLDS delivers award winning master planning, urban design, site design and public art

with his unique combination of innovative design; presentation and listening skills; quick hand drawings; and pro-active facilitation of the design process. Prior to creating his own consulting practice, Reynolds Urban Design, he provided senior level design services and leadership at HOK (Kansas City), Sasaki (Boston) and NBBJ (Columbus). He founded and led the innovative HOK S+V+E "Design Studio," facilitating cutting edge multi-disciplined design concepts. His major projects include Ho Chi Minh City's Thu Thiem Peninsula Master Plan, Nanjing Olympic Sports Park (that hosted the 2005 China Games and the 2008 Summer Olympics), The Great American Ballpark for the Cincinnati Reds and the Dubai Autodrome Formula One Racing Community. As Director of Design for a major Midwest real estate development company from 2005 to 2011, Dennis was responsible for groundbreaking projects including the "New Urbanist" Village of Ponderosa and "Shimmer" lakeside terrace. Recent projects include urban design, site design and public art for the emerging downtown Des Moines Bridge District, the North Kansas City Vision Plan, East Village's City Square, Bondurant's Swings and Fireflies, Overland Park Medical Center's "Heritage" public art trail and Edina Grandview Urban Design Concepts. Dennis has a Bachelor of Arts from Wheaton College with concentrations in Fine Arts, Economics and Group Dynamics and a Master of Landscape Architecture from Kansas State University.

DEB SPRECKER has been the Executive Director for Woodbine Main Street since 2009. She guides

downtown revitalization and economic development, working with community leaders downtown, in city government, education, and industry. Woodbine Main Street has been recognized for superior efforts in downtown and community revitalization through awards such as a Great American Main Street Award by Main Street America, National Trust for Historic Preservation, a Keep Iowa Beautiful Governor's Award for Community Leadership, and other Main Street Iowa and Preservation Iowa awards. Deb's background includes grant writing for community development, education, and business, and media writing and editing. Sprecker also directs

a private foundation serving children in poverty and is on the Governor's STEM Council for Southwest Iowa. A small-town enthusiast, Sprecker has lived in rural communities in Kansas, Missouri, and Iowa.

INTRODUCTION

Storm Lake, Iowa, the county seat of Buena Vista County has a population of just over 11,000. Storm Lake's statewide image is influenced by the beautiful lake and park system. The community is served by Buena Vista University, an Iowa Central Community College campus and a wonderful school system. Storm Lake's diverse population also sets it apart from other communities in the area. Beautiful Lake Avenue with its historic homes is the perfect connector of the lake and downtown Storm Lake.

Downtown supports a traditional business mix but the diverse population of the local residents also flavors its business district. The community has an interesting dynamic. Where traditionally downtowns are the hub and meeting place for residents and visitors, the lake itself provides a setting to get together that is unmatched. This is a strength but also must be taken into consideration when selecting/executing the right type of events to bring people downtown.

Downtown Storm Lake has an interesting stock of historic buildings. Some are strikingly beautiful while others could stand a much needed facelift. In doing this Downtown Assessment, the team had the opportunity to raise the bar a bit. Storm Lake isn't starting from scratch. A recent Downtown Master Plan provides a good roadmap for the community to make improvements. The plan that was initiated by the City, but this team can't stress enough that the plan is for everyone. The City can't be the only implementer of projects. There is opportunity for the Chamber of Commerce, community clubs, churches, etc. to buy into the plan and work together on implementation. Good things are ahead for Storm Lake.

ASSETS/STRENGTHS

COMMUNITY

- Lake/parks
- City owned resort: King's Pointe
- Entrance to downtown/Lake Avenue: beautiful homes
- Major employers
- Events such as 4th of July and Wood, Wine & Blues
- Buena Vista/ICCC/schools
- Diversity
- Strong neighborhood connections
- Lighthouse Art

DOWNTOWN

- Business mix/combination of long-time businesses and new ones/diversity
- Wood carvings/murals/mosaics
- Government Hub
- Compact
- Historic buildings
- Night-time businesses
- Masterplan (with some early implementation wins)
- Interactive Features at Library / flower pots

THE SURVEY SAYS….

The City administered an on-line survey to residents of Storm Lake to get their ideas and opinions about the downtown area. A total of 155 people participated in the survey. A complete summary of survey responses is available for download later in the report. (see resources section)

PUBLIC INPUT SURVEY TRENDS SHOW…. (answers in order of popularity)

WHAT ARE DOWNTOWN'S GREATEST STRENGTHS?

- Business mix/variety/locally owned businesses (48)
- Specific businesses (La Juanita's, Bakery) (17)
- Good proximity/location/walkability/well placed sidewalks (15)
- Historic buildings/history/nostalgic look (13)
- Storefronts mostly full (10)
- Easy to park (9)
- Restaurants (8)
- Diversity (7)

WHAT ARE DOWNTOWN'S GREATEST WEAKNESSES?

- More businesses/diverse businesses/retail/eliminate vacancies (27)
- Building facelifts/maintenance/uniformity/code of colors (14)
- More parking/and around city hall and courthouse for disabled (12)
- Need for specific business types: clothing, bookstore, brew pub, wine shop, etc. (10)
- More restaurants needed (9)
- More greenspace/gathering place/benches (8)
- Maintain flower planters/more flowers in front of each business (8)
- More activities/entertainment (6)
- Appropriate/better signage/awnings/take down obsolete signs (6)

HOW DOES DOWNTOWN STORM LAKE MAKE YOU FEEL?

- Meh/so so/blah/nothing fancy/neutral/uninspired/bored (22)
- Home/cozy/comfortable (19)
- Empty/depressed/nothing to do/sad/desolate (15)
- Happy/Great/Love it (11)
- Fine/OK (10)

HOW DO YOU WANT DOWNTOWN STORM LAKE TO MAKE YOU FEEL?

- Excited/energized/vibrant/fun/wow/amazing/in awe (27)
- Welcoming/friendly/inviting/warm (26)
- Enjoyable atmosphere/experience/happy (17)
- Home/comfortable/relaxing/peaceful (16)
- Safe (10)
- Proud (10)

WHAT WOULD IMPROVE THE BUSINESS CLIMATE OF DOWNTOWN THE MOST?

- More businesses/stores/retail/higher occupancy (36)
- Better curb appeal/building rehabilitation grants/more inviting storefronts (14)
- Better selection of restaurants (11)
- Need more gathering places/greenspace/benches (10)
- Better business hours/evening and weekend hours (7)
- Better parking/dedicated staff parking to open up spots near stores (7)
- More events/festivals to bring people downtown (6)
- More trees/flowers/watering system (6)

WHAT TYPE OF NEW BUSINESS WOULD BE MOST SUCCESSFUL DOWNTOWN?

- Restaurant (see more specific answers in attachments) (57)
- Clothing (31)
- Entertainment (i.e., arcade) (25)
- Bookstore (20)
- Brewery (16)
- Bar (14)
- YMCA/community center/fitness center/wellness (7)

WHAT PUBLIC AMENITIES ARE MOST NEEDED DOWNTOWN?

- Street seating (80)
- Places for kids (74)
- Greenspace (64)
- Public art (57)

*Public restrooms mentioned frequently in the “other” section.

RECOMMENDATIONS

The Assessment team’s recommendations have been grouped into five themes with suggested time frames for specific projects.

1. Connectivity and Wayfinding
2. Public Realm
3. Curb Appeal
4. Building Rehabilitation and Housing
5. Action and Implementation

It is important to take one step at a time and understand that the longer-term recommendations are not of much consequence until the shorter-term recommendations are addressed.

The Assessment Team hopes Storm Lake will assess each recommendation and develop a plan to implement what is right for Storm Lake. As the process gains momentum, community leadership will need to determine additional strategies and develop approaches that are more sophisticated.

Our hope was/is to work with leaders to identify the strengths, challenges, and opportunities in a constructive way to help the community improve the vitality of the downtown over time. We appreciate the openness and honesty of residents, and we appreciate that community leaders allowed the Assessment Team to be honest in its findings.

THEME 1: CONNECTIVITY AND WAYFINDING

Downtown Storm Lake is wonderfully walkable, centrally located and easily accessible in the community. Opportunities exist to further enhance the downtown's connection to the community.

Most visitors to Storm Lake from the east are likely to travel along Highway 7 following the highway as it becomes Flindt Drive and eventually Milwaukee Avenue bringing visitors to the north end of downtown at the corner of Lake and Milwaukee Avenues.

Over the long term, look at ways to extend streetscape improvements north on Lake Avenue towards the commercial strip north of downtown and Highway 7. The area includes most of the larger commercial "big box" stores in Storm Lake and could use additional streetscape amenities.

ACTION STEPS

- The "100% corner" (Main intersection) for downtown Storm Lake is the corner of Lake Avenue and Milwaukee Avenue. Currently, this corner is not really considered to be "downtown," but this corner should be considered to be the gateway to downtown Storm Lake. Over time, this entire block should be considered for redevelopment to create a strong visual anchor at this prime corner. Ideally, this entire block, particularly on the east side of Lake Avenue from 7th Street to Milwaukee Avenue, would be purchased by a locally controlled development organization to help control and guide the redevelopment of this area. Downtown streetscape improvements should continue up Lake to the corner of Lake and Milwaukee as well. The ISG prepared Downtown Master Plan shows these elements one block to the south where planning documents identify the north edge of downtown as 7th Street. Using Lake and Milwaukee as a gateway location will help communicate the importance of this intersection to traffic.

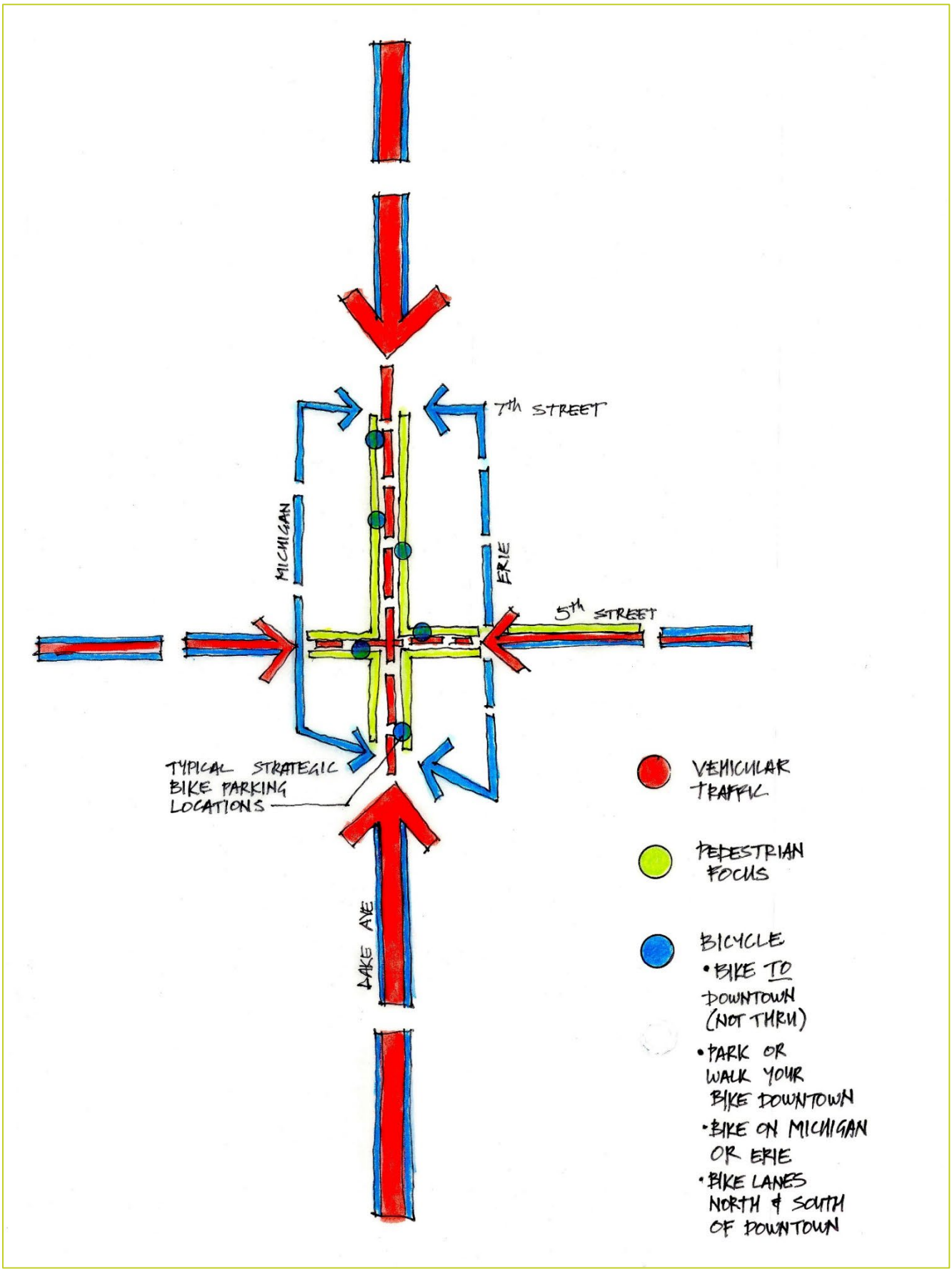
- Currently at the Y intersection of Highway 7, West Lakeshore Drive and Flindt Drive there isn't any signage directing visitors to downtown Storm Lake. The Downtown Assessment team suggests that downtown visitors approaching Storm Lake from the east on Highway 7 should be encouraged at the intersection of Flindt Drive and West Lakeshore Drive to continue west on Lakeshore Drive to Lake Avenue and approach the downtown from the south. This same approach could be used to encourage visitors to Buena Vista University to access the university via Lakeshore Drive. The drive

along West Lakeshore Drive is beautiful, featuring the lake and many of Storm Lake's fantastic parks and homes. Downtown visitors coming from the south on Lake Avenue would then be greeted by the gateway improvements suggested for the intersection of Lake Avenue and Railroad Street in the 2023 Downtown Master Plan.

- The Downtown Master Plan proposes protected bike lanes on both sides of Lake Avenue. As an alternative to encourage bikers to bike to downtown and not thru downtown, encourage bicyclists to park and explore downtown on foot. Consider adding high quality bike parking amenities at Lake and Railroad and Lake and 7th and direct bicyclists to utilize Erie Street and Michigan Street when traveling around downtown.

BIG BOXES
VEHICULAR FOCUSED RETAIL
PRIMARY GATEWAY
KEEP SIDEWALKS CONNECTING THE HIGH SCHOOL WITH DOWNTOWN
7TH
COFFEE
VISTA THEATER
• COMMUNITY EVENT SPACE OVER SUGAR BOWL AND BROWNS
BAKERY
• MINI-PARK BY TROPICAL SNOW WITHOUT LOSING PARKING SPACES
ICE CREAM/CANDY
DINING
1000 FT.
MICHIGAN ST.
MAIN ST.
ERIE ST.
6TH
5TH
MEATS
APPAREL
ASIAN FOOD
"CHRISMAS IN JULY?"
R.R. ST.
LAKE AVE.
• CLOSE 7TH BETWEEN ERIE & MICHIGAN ? PARTIAL ?
• SUPPORT CONVERSION OF BANK TO MULTI-FAMILY HOUSING
• COMPACT DOWNTOWN (WITHIN 1000 FT.)
• EFFICIENT CITY BLOCK DIMENSIONS (225' X 250') CREATE MORE STREET PARKING, STORE FRONTAGE, PEDESTRIAN FRIENDLY...
• GOOD COLLECTION OF HISTORIC BRICK, TWO-THREE STORY BUILDINGS IN GENERAL GOOD CONDITION AND LOW VACANCY
• GOOD CONNECTIONS BETWEEN RESIDENTIAL NEIGHBORHOODS AND DOWNTOWN?
• SUPPORT IMPORTANT DOWNTOWN ANCHORS INCLUDING:
- VISTA THEATER
- SUGAR BOWL
- JUANITA'S
- STORM LAKE BAKERY
- STORM LAKE CANDY CO. (ICE CREAM)
- AND OTHERS THAT ATTRACT AND RETAIN/EXTEND DOWNTOWN VISITORS
• LINK AND LEVERAGE CONNECTIONS BETWEEN DOWNTOWN AND:
- HIGH SCHOOL
- BV
- LAKE
- NORTH "HIGHWAY" RETAIL
½ MILE BETWEEN LAKE AND DOWNTOWN
• MAINTAIN EFFICIENT "BACK-OF-HOUSE" SURFACE PARKING LOTS WHILE IDENTIFYING REAR BUILDING ENTRIES
• STAY FOCUSED ON INCREMENTAL IMPROVEMENTS THAT ENHANCE THE LAKE AVENUE EXPERIENCE WITHIN THE 1,000 FT. WALKING DISTANCE, 7TH TO 4TH
• DOWNTOWN SHOULD REFLECT THE COMMUNITY'S DIVERSE CULTURES BOTH WITH EVENTS AND PHYSICALLY WITH BANNERS, PUBLIC ART, SIGNAGE...
• CONNECT & LEVERAGE LAKE QUALITY OF LIFE WITH DOWNTOWN WITH SIGNAGE, VISUAL CUES, PROGRAMMING...
• DOWNTOWN GREENSPACE MUST BE UNIQUE & DISTINCT FROM LAKEFRONT
PARKING LOT
IMPORTANT "ANCHORS" UNIQUE TO DOWNTOWN
AT RISK/OPPORTUNITY
CIVIC BUILDINGS
"COMMUNITY" INTERSECTIONS "DOWNTOWN"
PUBLIC GREENSPACE
1/2 MILE

STORM LAKE


7TH STREET
MICHIGAN
ERIE
5TH STREET
TYPICAL STRATEGIC BIKE PARKING LOCATIONS
LAKE AVE
VEHICULAR TRAFFIC
PEDESTRIAN FOCUS
BICYCLE
• BIKE TO DOWNTOWN (NOT THRU)
• PARK OR WALK YOUR BIKE DOWNTOWN
• BIKE ON MICHIGAN OR ERIE
• BIKE LANES NORTH & SOUTH OF DOWNTOWN

THEME 2: PUBLIC REALM

The city of Storm Lake is blessed with many wonderful public assets from the lake itself to the beautiful lakeside parks to the King's Pointe resort. Downtown Storm Lake is also blessed with many assets from a good diverse business mix to wide sidewalks and intact historic architecture.

Unfortunately, many community respondents to the Downtown Assessment survey indicate that downtown Storm Lake currently makes them feel blah, sad, uninspired and bored. Survey respondents indicate they want downtown Storm Lake to make them feel invited, energized, excited and happy. The Downtown Assessment team identified several actions that the community, together, can take to create the energizing and exciting downtown that the residents of Storm Lake are seeking.

In many communities, the streets and sidewalks portion of the public realm can equal 30 to 35 percent of the entire land area in a community. Communities have a finite amount of land available to support the local quality of life while providing the revenue necessary to maintain city operations and services. It is the responsibility of all, and to the benefit of all, that the community maximizes its return on investment in the public realm, including streets and sidewalks. Study after study has shown that downtown properties typically provide the greatest return on a property tax per acre basis. Below are some action steps that the Downtown Assessment team believes will enhance and leverage the public realm downtown to support the greatest return for the community while at the same time supporting the inviting, energizing and exciting downtown that residents of Storm Lake are seeking.

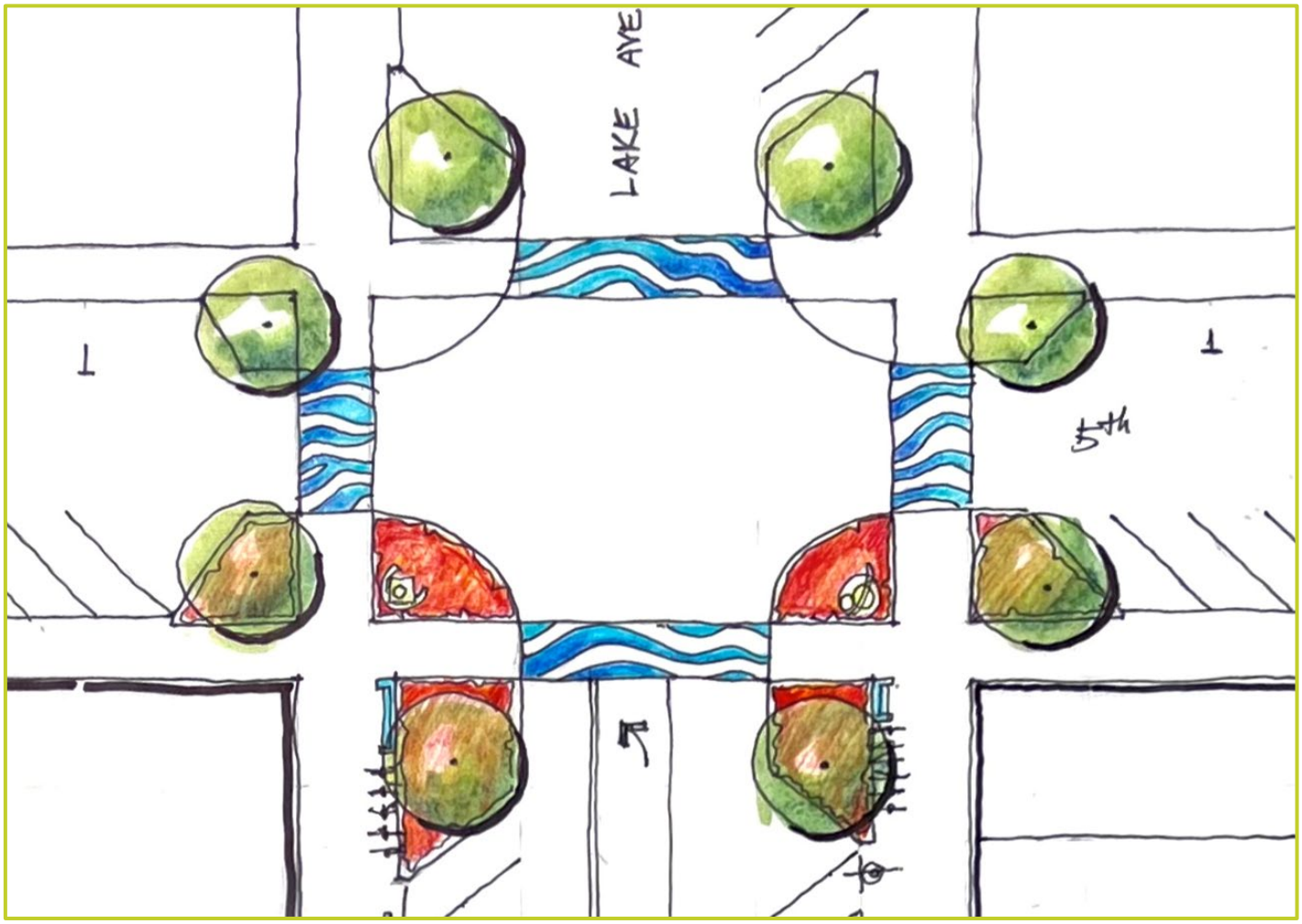
Storm Lake's Downtown Master Plan was well done and insightful and is a solid roadmap for future investment in downtown. Opportunities identified in the Downtown Master Plan should be implemented in a coordinated and integrated fashion as quickly as possible. The below action steps are listed from quickest and least expensive actions to more lengthy and more expensive actions. Many of these actions were also selected to serve as "quick win" actions to inspire and build momentum for future actions. These actions were also chosen as either complimentary to or chosen as foundational actions in support of the larger Downtown Master Plan the community adopted in 2022.

As these action steps are designed and implemented, keep in mind that these steps should build upon each other to serve the basic needs of downtown visitors while creating a welcoming, comfortable and convenient atmosphere. You also want to create a downtown of experiences that will create memories

and encourage visitors to explore, linger and return. Consider how the improvements to the public realm can be a treat for the senses such as art and window displays as a treat to the sense of sight; live and recorded music downtown play as a treat to the sense of hearing; and delectable smells from local bakeries and restaurants and street plantings to treat the sense of smell.

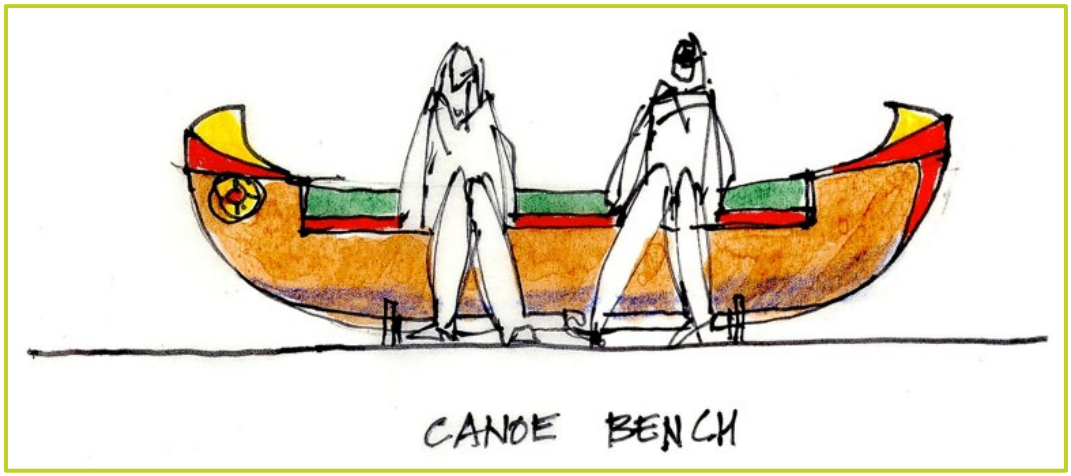
ACTION STEPS

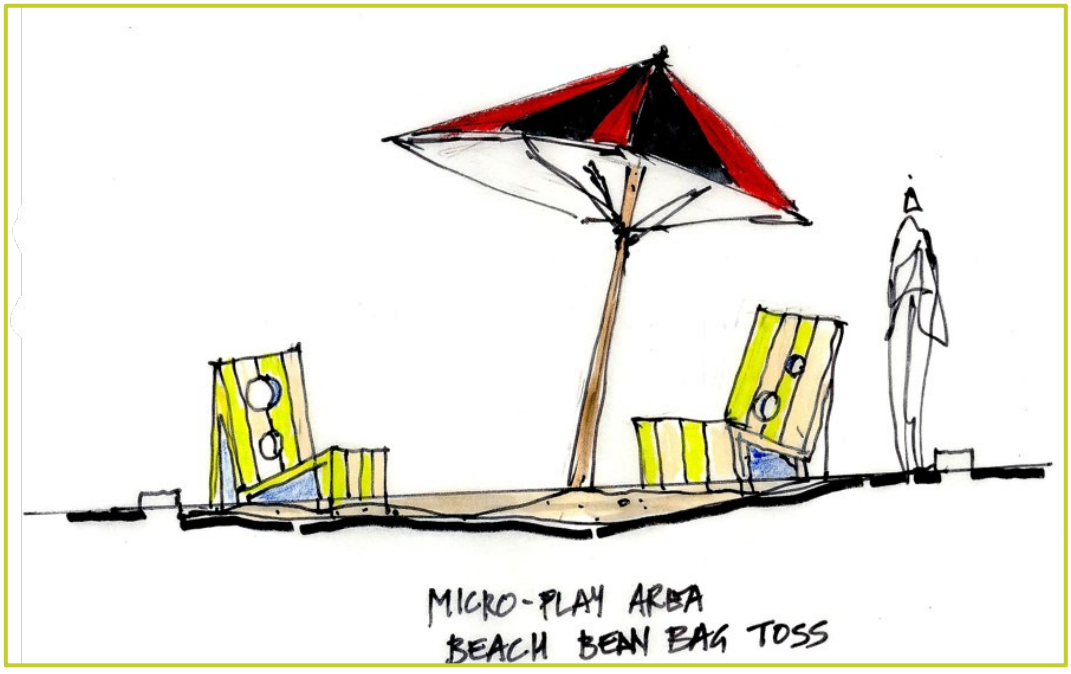
- **Maintenance –** Restripe the crosswalks and parking lines, pull the weeds, and repair curbs and access ramps. The repainting of the crosswalks creates an opportunity to add color, vibrancy and public art in downtown while improving pedestrian safety. Consider opportunities to create crosswalks that reflect a nautical theme by playing off the stripes seen in the community lighthouses or the sail theme in the public building wayfinding signs. Another option is to integrate the four local school mascots—beavers, tritons, panthers and tornadoes— into the crosswalk paintings.



Seating – Install seating frequently throughout downtown and in places where people are likely to gather. Do not place seating against storefront windows as that limits the ability of passersby to view inside the windows. The seating needs to be of high quality but does not need to be uniform. Consider artistic ways that seating might reflect a brand or identity unique to Storm Lake. Below is an idea for seating shaped like a canoe and the concept of creating a beach-like area for seating with chairs that double as a bag toss game. This beach-like seating concept may work well at a corner bump-out or in a downtown greenspace such as the space next to the Tropical Sno. Downtown seating was the most sought after downtown amenity in the pre-assessment survey with 80 (~52%) survey respondents selecting seating as the public amenity most needed downtown.

See page 44 of the Downtown Master Plan for more information on integrating seating and other amenities into downtown Storm Lake.





Greenery – Gather the community together for a "potluck" planting party, potluck meal representing the diverse foods of Storm Lake and celebrating the placement and planting of the new downtown planters. The planters should be planted with colorful vegetation, consistently maintained, and updated seasonally. Planters should not be limited to Lake Avenue. Include planters on other commercial streets in the historic downtown district. Until the existing raised concrete planters are phased out, improve and update the appearance of the planters by incorporating vining plants that will warm and enhance the look and feel of the concrete planters.

Consider utilizing vining plants such as sweet potatoes to create a colorful and edible landscape that might also benefit local food security efforts. Ames Main Street utilized edible plantings in their planters and produced more than 300 pounds of produce (picture below).

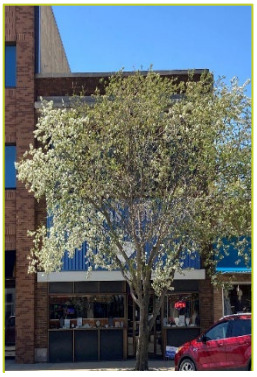
Adding an upright sculptural wrought iron piece inside the perimeter of the raised concrete planters might also provide a more updated or enhanced look. A plan to maintain the planters must be in place. Maintenance options may include city staff, city contracting with local youth or a service provider, garden clubs, 4-H or FFA club, or resident and business adoption of planters.

Public Restrooms – Establish designated public restrooms serving downtown. City hall and the courthouse may be good options for designated public restrooms. Install wayfinding signs downtown directing visitors to public restrooms.

Music – Add music downtown. Adding downtown music can help create a fun, festive atmosphere. Music can be added by installation of a simple speaker/public address system attached to downtown streetlight poles and purchasing a license with a music provider. Iowa communities with downtown music systems include Woodbine, De Witt, and Ida Grove (seasonally).

Outdoor Dining – Perhaps one of the "biggest bang for the buck" approaches to add vibrancy and excitement to a downtown is outdoor dining. Work with downtown food and beverage establishments to add outdoor dining. Adding outdoor dining can be as simple as a couple of small tables and a few chairs. Add some colorful plantings to define the outdoor space and add umbrellas for shade and you've quickly added outdoor rooms and excitement to a downtown.

Trees – Studies show that trees provide many benefits including, shade, habitat, stormwater management, and increased sales. There are two components to this recommended action step.



(avoid planting trees in center of storefront)

First, maintain and prune the existing street trees, especially the trees that are located in the center of existing businesses and blocking visibility to business storefronts and signs. Second, replace and add street trees throughout downtown. Key considerations are the right species in the right location with supportive planting infrastructure (access to air and water) and a long-term maintenance plan. Trees should be planted at intersections, community gathering locations and when as part of a streetscape should be planted at the outer edges of business buildings and not in the center of business storefronts. The city of Des Moines and Iowa State University Extension provide lists of recommended street trees.

(plant trees at building/storefront edges)

Public Art – Public art adds vibrancy, color, interest and memories to the downtown experience. The recent mosaic mural installations are fantastic. Identify opportunities to install public art downtown that is unique to Storm Lake such as the miniature lighthouses, wood carving sculptures, and mosaic murals. As the Downtown Master Plan concepts are detailed for implementation, integrate public art elements into the streetscape infrastructure and amenities. Street and business signs, seating, receptacles, banners, planters, bike racks, crosswalks, etc. are all opportunities for integration of public art. **See page 43 of the Downtown Master Plan for more information on integrating public art into downtown.**

Lake Avenue Median – 80 percent of residents participating in development of the Downtown Master Plan favored converting Lake Avenue downtown from four lanes to three lanes. The Downtown Assessment team recommends considering converting Lake Avenue downtown from four lanes to two lanes with a center median and a turning lane at intersections. See conceptual images on the following two pages.

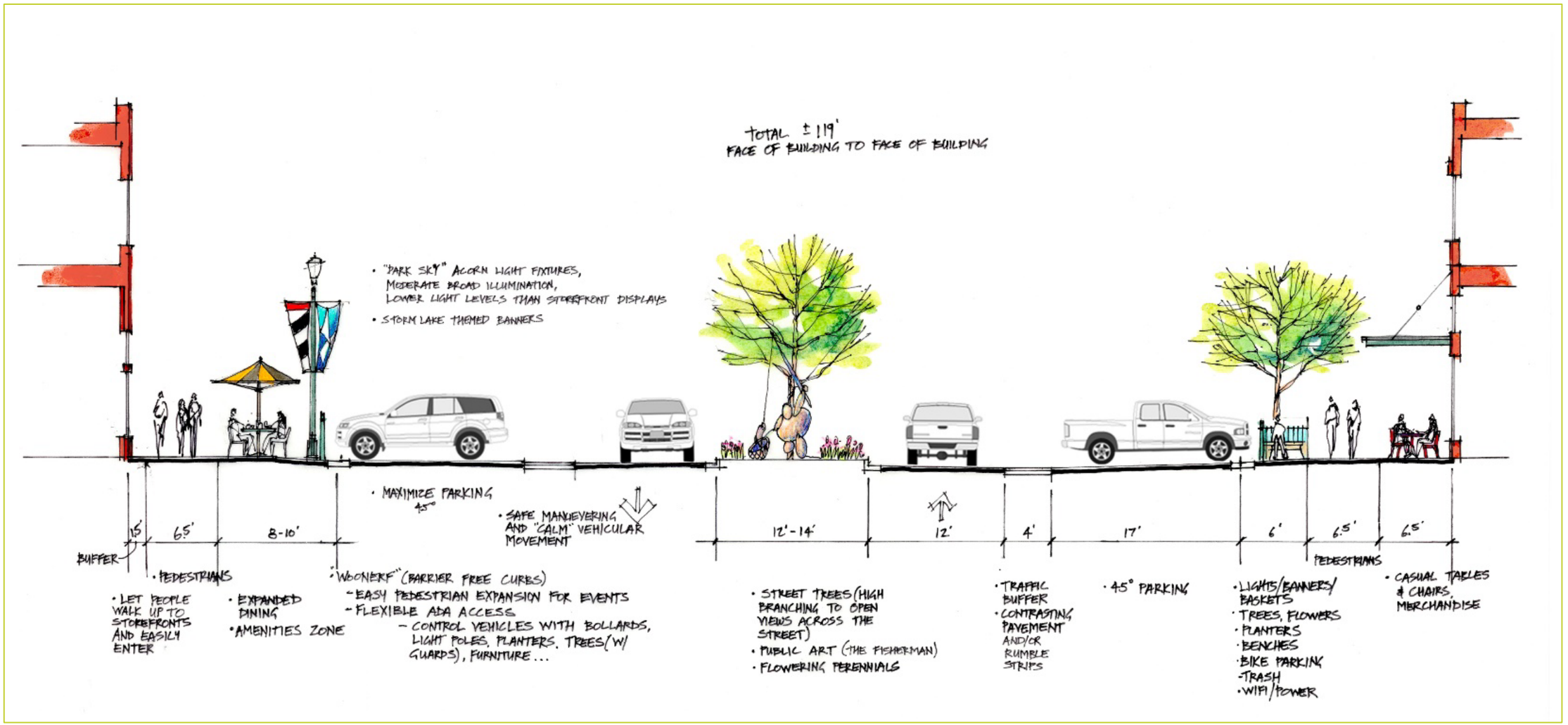
A center median would slow traffic, make backing out onto Lake Avenue easier and safer, make pedestrian crossings safer, reduce long-term street maintenance costs, and provide green space for trees, plantings, and public art. The use of a recessed median instead of a raised median would also provide an opportunity to demonstrate stormwater best management practices to mitigate local flooding and improve the quality of stormwater runoff from downtown before it reaches the lake. If all of downtown Lake Avenue is replaced, consider removing sidewalk curbs to increase accessibility and flexibility. This type of curb-less design is sometimes referred to as a woonerf and is becoming a popular design approach to creating flexible, festive streets. Woonerfs are currently being installed in the Czech Village area of Cedar Rapids and the East Village Market District of Des Moines (photo below).

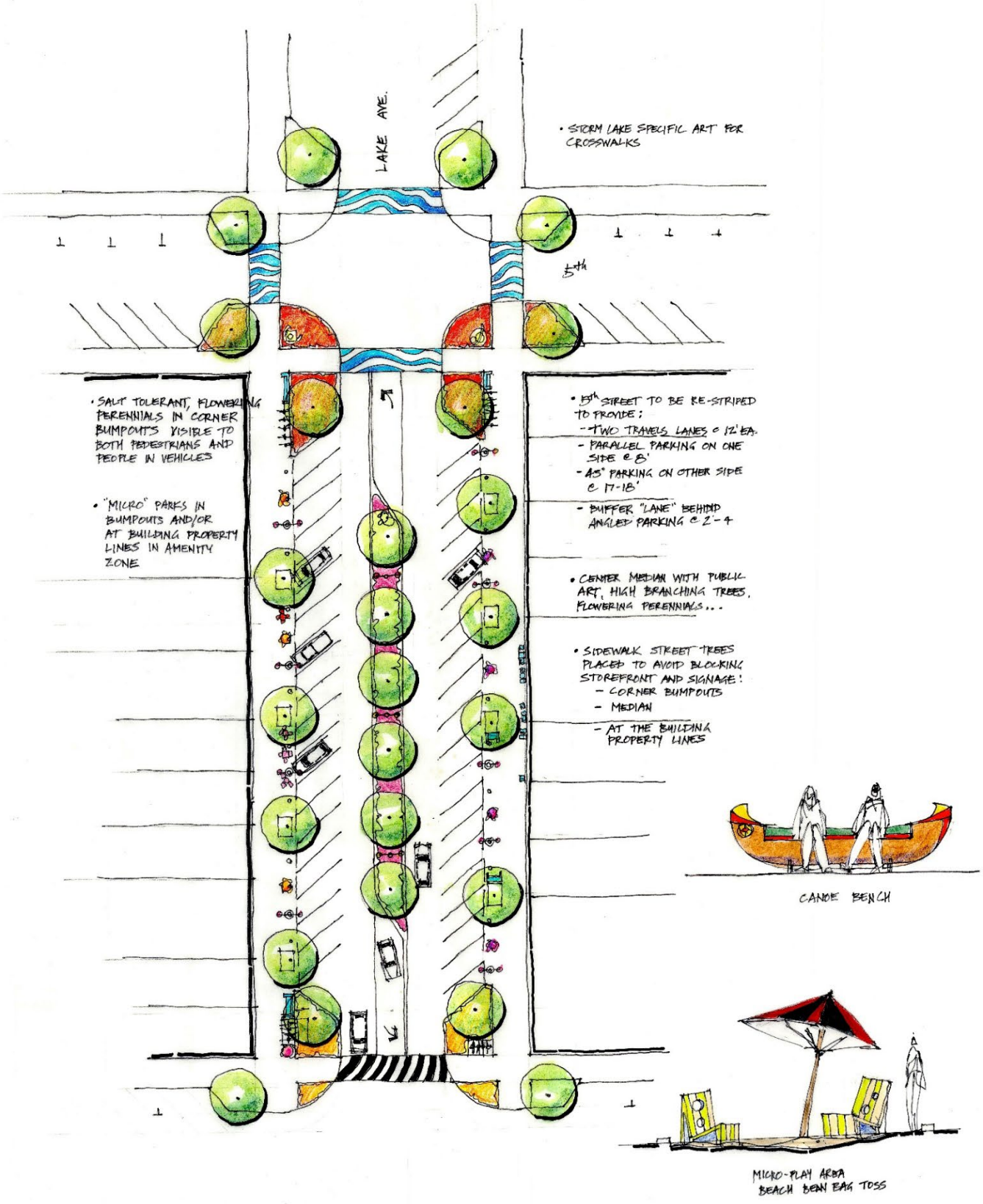
Examples of Woonerfs
(curb-less "festival street")

Des Moines, IA

Indianapolis, IN

If there is hesitation to adding the center median, take a page out of the Better Block playbook and simply restripe the street to try out (temporarily) a center median. Perhaps paint the center median section a different color, temporarily place some public art at the start of the median such as some of the local wood sculpture carvings or scale lighthouses and temporarily bring in some large plants, pots or some trees from a local nursery to provide a sense of the impact a planted center median can have.


TOTAL ± 119'
FACE OF BUILDING TO FACE OF BUILDING
• "DARK SKY" ACORN LIGHT FIXTURES, MODERATE BROAD ILLUMINATION, LOWER LIGHT LEVELS THAN STOREFRONT DISPLAYS
• STORM LAKE THEMED BANNERS
• MAXIMIZE PARKING
45°
• SAFE MANUEVERING AND "CALM" VEHICULAR MOVEMENT
1'
6.5'
8-10'
12'-14'
12'
4'
17'
6'
6.5'
6.5'
BUFFER
• PEDESTRIANS
• LET PEOPLE WALK UP TO STOREFRONTS AND EASILY ENTER
• EXPANDED DINING
• AMENITIES ZONE
• "WOONERF" (BARRIER FREE CURBS)
- EASY PEDESTRIAN EXPANSION FOR EVENTS
- FLEXIBLE ADA ACCESS
- CONTROL VEHICLES WITH BOLLARDS, LIGHT POLES, PLANTERS, TREES (W/ GUARDS), FURNITURE...
• STREET TREES (HIGH BRANCHING TO OPEN VIEWS ACROSS THE STREET)
• PUBLIC ART (THE FISHERMAN)
• FLOWERING PERENNIALS
• TRAFFIC BUFFER
• CONTRASTING PAVEMENT AND/OR RUMBLE STRIPS
• 45° PARKING
• LIGHTS/BANNERS/ BASKETS
• TREES, FLOWERS
• PLANTERS
• BENCHES
• BIKE PARKING
-TRASH
• WIFI/POWER
PEDESTRIANS
• CASUAL TABLES & CHAIRS, MERCHANDISE


LAKE AVE.
5th
• STORM LAKE SPECIFIC ART FOR CROSSWALKS
• SALT TOLERANT, FLOWERING PERENNIALS IN CORNER BUMPOUTS VISIBLE TO BOTH PEDESTRIANS AND PEOPLE IN VEHICLES
• "MICRO" PARKS IN BUMPOUTS AND/OR AT BUILDING PROPERTY LINES IN AMENITY ZONE
• 5th STREET TO BE RE-STRIPED TO PROVIDE:
- TWO TRAVEL LANES @ 12' EA.
- PARALLEL PARKING ON ONE SIDE @ 8'
- 45° PARKING ON OTHER SIDE @ 17-18'
- BUFFER "LANE" BEHIND ANGLED PARKING @ 2'-4'
• CENTER MEDIAN WITH PUBLIC ART, HIGH BRANCHING TREES, FLOWERING PERENNIALS...
• SIDEWALK STREET TREES PLACED TO AVOID BLOCKING STOREFRONT AND SIGNAGE:
- CORNER BUMPOUTS
- MEDIAN
- AT THE BUILDING PROPERTY LINES
CANOE BENCH
MICRO-PLAY AREA
BEACH BEAN BAG TOSS

THEME 3: CURB APPEAL

See Pages 49-51 of Downtown Master Plan for more information on facades and signage.

The general appearance of downtown is important to the overall vitality of the entire community. Downtown is a reflection of local community pride and is a major factor in the image of the entire community. The combination of restored building facades, unique signs, public art, appropriate landscaping and quality street furniture creates an inviting and aesthetically pleasing downtown environment. This inviting environment also encourages people to “linger longer” in the district providing businesses with more opportunities for sales.

Generally, Storm Lake’s downtown has very good character and quality. There are no large vacant lots, especially along Lake, that negatively impact walkability. Downtown storefronts are largely fully occupied. This gives downtown Storm Lake a good place to start. Therefore, visual improvements are generally more focused on enhancing the existing building character and creating amenities for shoppers, visitors and residents.

This rendering illustrates the culmination of various recommended approaches and how it enhances downtown curb appeal. Using public art to enhance the altered storefront, relocating the marquee panels and additional entrance enhancements create a visually appealing and interesting façade that respects the traditional character and design of the building.

Architecture – Traditional downtown buildings have similar characteristics. These characteristics help create a friendly walkable environment. Most are constructed from brick or stone, often locally sourced and are one to three stories in height. The upper floors have a series of regularly spaced windows. Buildings typically have a regular rhythm of approximately 25' which creates a series of bays, or storefronts along the street. Many buildings are one bay in width. Often, multiple bays are combined into a single building. These characteristics create a regular rhythm and friendly scale along the street.

The "ribbon effect" can be seen on these buildings on the east side of Lake. The visual impact of *alterations to upper floor windows can be seen too. Even so, the buildings have good architectural characteristics that could be easily enhanced with appropriate treatment.*

Historic commercial buildings also included relatively tall storefront openings that included transom windows. These windows provided abundant natural light for the interiors. Over time, these transom window areas have been altered. Many have been covered or removed and replaced with oversized signs and mismatched siding. The interiors were changed with suspended ceilings to disguise new building systems including HVAC, plumbing and contemporary lighting. This often results in a "layer cake" look that visually separates the upper and lower facades of downtown buildings.

On the west side of Lake, most of the upper windows fill their original openings. Alterations to the transom windows are visible but pic also includes examples of transom window restoration.

ACTION STEPS

- The ISG downtown masterplan plan should continue to be used as a guide. These documents should be widely available and shared with all businesses and property owners. As buildings change hands and new businesses open, the new owners should be briefed on these resources to help guide their investment.

- The Iowa Downtown Resource Center can also provide direction and assistance. Obtain copies of the Downtown Design Guide and use it as a reference tool to evaluate façade proposals. Any grants offered for façade improvements should be reviewed and evaluated according to these guidelines by a local review committee. This committee should be comprised of local staff and business representatives. Each member should be familiar with the desired principles and strategies.

- Create local grant programs specifically for downtown building improvements. Conduct an informal survey of building/business owners to determine what type of assistance is most needed and create specific parameters for eligible activities (façade improvements, signs/awnings, roofs, tuckpointing…). The program should emphasize good design and have guidelines attached. A scaled drawing or rendered photograph of the proposed changes and a written description of proposed work and materials should accompany any application. Require owner investment with a

1:1 match. Consider component incentives for example grants for specific types of improvements in certain grant cycles, for example, signs, paint, uncovering windows, etc.

- Perhaps, the most evident priority is to focus visual façade improvement programs on the transom window ribbon. Ideally the transom windows themselves would be restored. Alternatively, appropriately scaled awnings that fit within the traditional openings could be allowed. In cases where removing materials that cover a transom window/opening is challenging due to such things as dropped ceilings, a compatible sign panel may be an acceptable alternative but certainly should be contained to the width of the opening. Typically, materials should be removed and stripped down to the original façade wherever possible. Minimal alterations to the materials, color and scale of the façade should be used. Inappropriate alterations can sometimes be minimized by using a compatible color to the original façade.

The three-bay building (upper right) shows how restoring the transom and using appropriate awning treatments enhance the original character of the entire façade. Alternatively, the Berg Jewelry building shows a sign that fills the transom ribbon with a sign and awning that are the right scale.

- A mix of local and state incentives is typically effective to execute a successful building improvement program. Find the right building and apply for the Iowa Economic Development Authority's Community Catalyst Building Remediation Grant. This program offers $100,000 grants for rehabilitation of underutilized buildings. Downtown Storm Lake has many candidates.

The following programs are administered by the Iowa Economic Development Authority for the redevelopment of existing downtown buildings.

- Community Development Block Grant Downtown Revitalization
- Workforce Housing Tax Credit Program
- Community Development Block Grant Upper-Story Housing
- Nuisance Property and Abandoned Building Remediation
- State Historic Tax Credits
- Redevelopment Tax Credits for Brownfields & Grayfields
- Community Development Block Grant Covid (CDBG-CV)
- Community Catalyst Building Remediation

Storefronts – Storefronts are an integral part of a pedestrian friendly downtown. The storefront serves as an invitation for customers to come into a store by showing off merchandise in the windows and directing flow to the entrance. Generally transparent, a storefront helps break down the barrier between the inside of the store and the sidewalk. The top of the storefront has a beam or header to support the upper façade. Visual treatments to the header should also be considered when planning storefront improvements.

Examples of traditional storefronts in Storm Lake. Both are largely transparent and include traditional transom windows. They also incorporate traditional awning treatments – on the left side with an operable awning and the right with a fixed awning. Either awning treatment is appropriate.

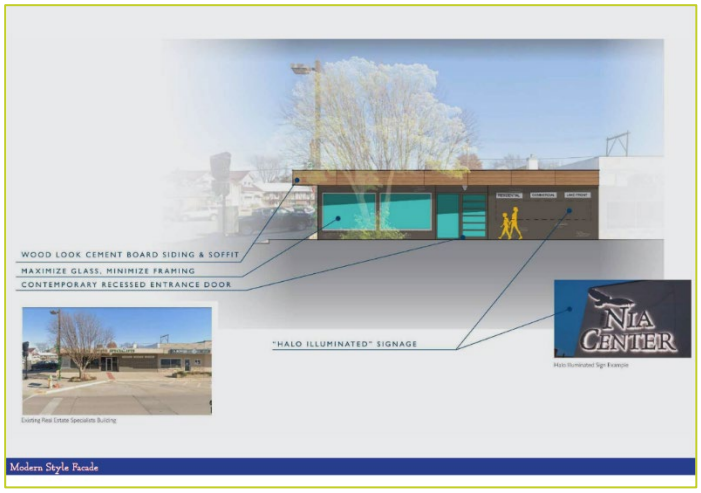
A typical storefront is also around 24’ in width. When placed side by side in a continuous block face, this transparency and regular rhythm and scale helps create a more walkable, inviting district. It is important to maintain this rhythm and scale in the downtown area as a way to encourage strolling and window shopping. Currently Lake Street has a very nice storefront rhythm without any large blank walls or gaps between stores. Maintain the traditional rhythm and transparency of all storefronts along Lake Street regardless of use. Maintaining the traditional rhythm and character of the facades should be a primary goal for the district. Require transparent storefronts for any incentive programs.

ACTION STEPS

- Adopt the Iowa Economic Development Authority’s Downtown Design Guidelines for allowable storefront treatments in Storm Lake, especially regarding transom window areas. Guidelines should include acceptable treatment choices for individual storefront elements, especially the transom window ribbon. Adherence to the guidelines should be mandatory for any incentives used in the district. Some items to incorporate include:
  - Maintain storefront windows including recessed entrances.
  - Remove materials from original masonry piers to reinforce the streetscape rhythm. The piers are important to help reinforce the scale and rhythm of the storefronts.
  - Restore transom windows where possible with glass. New transoms can be clear glass, tinted glass or even leaded/stained glass. Signs can be integrated into traditional transoms as well.
  - Any siding or solid materials used in the transom area should be limited to the original defined opening. The panels themselves can incorporate well scaled signs, traditional awnings, decorative lights or a combination.
  - Treatment of structural beams/headers should be included as well. Exposed cast iron beams are common. Decorative trim is also common especially for Victorian era buildings to coordinate with a decorative cornice. Gooseneck lights can be mounted here. A flush mounted sign panel could also be used to disguise structural components. Traditional awnings are also commonly mounted to these structural beams as well.

The guidelines also address areas like signs, which are discussed in more detail below, as well as treatment for the upper façade, especially the window openings.

The ISG plan includes two examples of storefront treatments – one for traditional storefronts and one for more contemporary storefronts (below). These also provide good basic principles to start with..



Storefront treatment strategies as outlined in the ISG plan. These graphics are pages 50 and 51 of the [Downtown Master Plan](#).

This

- UPPER FLOORS IN GOOD CONDITION EXCEPT FOR WINDOW INFILLS & THRU-THE-WALL AC
- WINDOW TRIM, CANOPIES, DOORS TO CONTRAST WITH EX. HISTORIC BRICK AND STONE
- 60/30/10 RULE: 60% PRIMARY MASONRY MATERIAL, 30% SECONDARY WINDOWS/CANOPIES..., 10% ACCENTS/SIGNAGE

- FOCUS ON TRANSOMS. REMOVE IN-FILL SIGNAGE AND RESTORE WINDOWS, TRANSOM WINDOWS BRING NATURAL LIGHT DEEP INTO DARK, NARROW SPACES
- IF REMOVING TRANSOM IN-FILL IS NOT FEASIBLE THEN COVER IN-APPROPRIATE MATERIAL WITH CANOPIES OR INTEGRATED SIGNAGE

- INTEGRATE SIGNAGE LOCATION, COLORS, SCALE, FORM ... WITH HISTORIC ARCHITECTURE
- GIVE SOME "LOVE & RESPECT" TO RESIDENTIAL ENTRIES (ADDRESS, ICON, OPEN TRANSOM WINDOW, OPEN VIEW GLASS PERIOD APPROPRIATE DOORS, FLOWER POT...)

rendering shows simple strategies that can be used to enhance facades downtown. The strategies are similar for most traditional commercial buildings. These strategies generally focus on respecting the traditional façade designs including filling all window openings (including the entire storefront) with glass. Color palettes are consistent on each individual façade for the storefront and window trims to create a consistent appearance and eliminate the "layer cake" look that is created with inappropriate treatment to the transom window ribbon.

Signs – Signs are critically important to a successful retail establishment. A good sign not only identifies the business, but it also communicates to potential customers about the nature of the business itself. There are different types of signs that work at different scales - main identifying signs, pedestrian scaled signs and informational signs. They should all work together when communicating to customers to create an interesting image about the business.

Signs are also a form of public art on the streetscape. Unique and interesting signs add to the overall ambience and character of a commercial district.

Examples of projecting signs and sign brackets. Projecting signs can be a primary sign for street visibility or more pedestrian scaled to help locate and identify a particular business along the sidewalk.

Currently, the City has a plan to add smaller projecting pedestrian scaled signs in downtown. The plan is to provide the brackets for individual businesses to install their own individual sign. This is generally a good idea so long as variety and uniqueness is encouraged. The City should approve a variety of sign bracket installations including suspending from canopies/awnings, simple functional brackets and ornamental brackets. The bracket should be considered an integral part of the sign design and reflect the character and image of the business.

ACTION STEPS

- Provide business owners with graphic design services, including logo and sign design as part of any sign grant program. Matching an artist/designer with a fabricator can improve signs in the district. This could be another possible partnership between BVU, the City and the businesses downtown. BVU art students could be a potential source for graphic design services. Encourage unique signs that include three dimensional components to add more character and depth to individual signs.

Examples of dimensional signs, both projecting and flush mounted.

- This year, the Iowa Downtown Resource Center's "Downtown Forums" are focused on signs. The nearest forum will be in Pocahontas on June 26, 2024. Storm Lake should send a number of representatives to this forum. Attendees should be City staff as well as business representatives.

- Stores also incorporate informational and other signs that add to the overall customer experience. These include things like store hours, details of brands, product lines or other features about the business and signs for sales or other daily specials offered including things like menus. These signs include window graphics, posters and sandwich boards. All of these items need to be included and encouraged as part of Storm Lake's downtown sign program.

Examples of window graphics and secondary signs. Temporary sidewalk displays help add to the character and ambience of the district.

Window Displays/Lighting – Merchandise displays help add to the overall ambience of a district. Good window displays encourage strolling and window shopping. Interior merchandise displays can help draw customers into and through the store to linger longer and buy more products. Window displays also act as an inexpensive 24-hour form of advertising for a business by showing customers the image and identity of the individual store.

Window displays should be lit at night, at least in the evening hours. Also lighting the interior of a retail store can also attract attention as well as provide some additional security. Having storefronts illuminated helps encourage evening strolls by making the entire district more inviting. Window displays should be lit every evening until 9:00 or 10:00 PM regardless of store hours. Storefronts with tinted windows should be illuminated at ALL times to help potential customers see the products displayed. Even office or service businesses should have some type of window displays and should illuminate them.

ACTION STEPS

- Hold educational workshops/seminars regarding window displays and visual merchandising. These workshops are generally quite popular with business owners.

- Add window displays to the list of topics/issues the BVU students could select for their annual community service activities. The high schools could also be a good source for some local artistic talent to put their skills to use.
- Recognize businesses that do an exemplary job with their displays and merchandise presentation. This can be as simple as recognition in the newspaper or a traveling trophy. A window display contest coupled with another downtown event is also a simple way to acknowledge good merchandising.

Window display examples.
Notice the importance of nighttime illumination.

Details - Traditional downtown buildings include interesting architectural features and construction details that are no longer incorporated into contemporary buildings. These interesting elements add another layer to the character of historic downtowns. Storm Lake is no exception to this and exhibits a number of interesting construction details.

ACTION STEPS

- Capitalize on this to help build additional excitement and interest in downtown. Architectural scavenger hunts are one simple way to build this excitement. This is as simple as taking a number (12-16 typically) of photos of unique design elements from various buildings in the downtown district and creating a flier illustrating them. Use these fliers during downtown retail events to add another activity – especially for children and spouses – to keep people lingering in the district longer.

Examples of unique architectural details in downtown Storm Lake.

THEME 4: BUILDING REHAB AND HOUSING

Downtown housing is important for a vibrant downtown, especially upper floor housing. Upper floor housing helps provide additional revenue for property owners and increases property values. Downtown residents also add a "24 hour" component to the district that adds additional vibrancy and activity at all hours.

Storm Lake has a number of upper floor units, however no one seemed to have any hard data about the number of units, occupancy levels or the price points for these units. The team heard a number of concerns about residents occupying prime parking spaces keeping them from customers.

ACTION STEPS

- Survey the entire district to establish the number of existing upper floor residential units, their location, and which buildings have underutilized upper floor spaces that could be redeveloped into additional housing. This data can help when developing policies for downtown especially as it relates to parking and parking management.

- Hold downtown open houses/tours of residential spaces. Include various price points and even show spaces that have yet to be redeveloped. These activities help build additional excitement about downtown living opportunities.

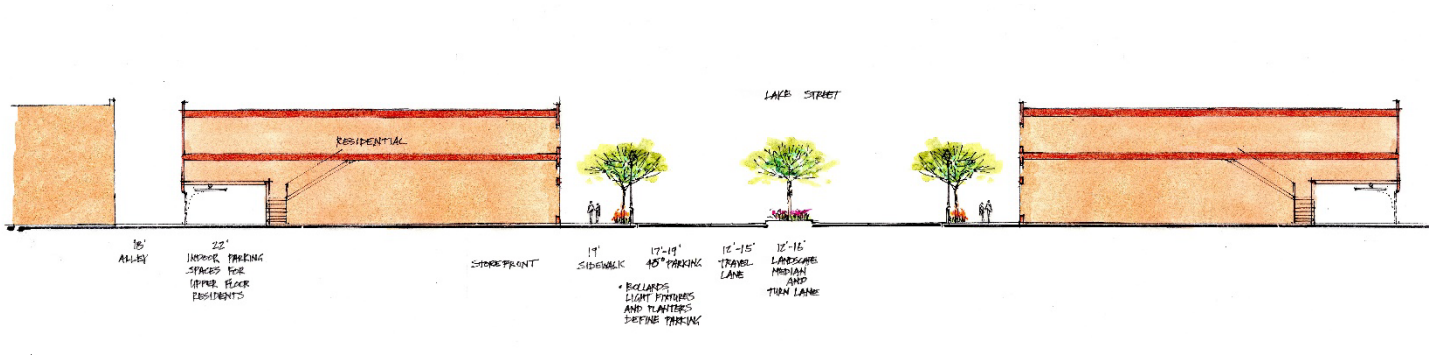
Parking – For every downtown commercial district, there isn't a topic that can be more controversial than parking. Basically, this issue comes down to two major elements – the amount of parking available, and the management of parking rules and regulations. Who should use the available parking spots, how long should limits be, and what kinds of enforcement and penalties should exist for violators?

Storm Lake seems to have an adequate supply of parking downtown and minimal parking regulations, including time limits. On street parking is generally plentiful, with most areas having diagonal parking

and other side streets with parallel spots on each side of the street. There are also spots available in public lots on each side of Lake Street behind the buildings.

The largest issue the team heard regarding parking in downtown Storm Lake was the perception that residents regularly occupy on street spots blocking them for shoppers. Accommodating parking for downtown residents is critical for a strong and diverse downtown residential market.

Often, residential parking is provided on site behind the buildings in the area between the buildings and the alley. However, in Storm Lake most of the downtown buildings extend almost all the way to the alley, limiting opportunities for onsite tenant parking behind the buildings.



The sketch shows this concept of covered garage parking at the rear of buildings.

ACTION STEPS

- Providing immediately accessible covered parking to an apartment/condo unit is a nice amenity that can increase monthly rental rates and improve the desirability of the units. Providing covered parking in downtown is difficult but is completely possible by integrating garages at the rear of some existing buildings. Assess the opportunities to convert the rear areas of buildings off the alley for potential parking garages for tenants. Also assess if there are other opportunities in the district that might be able to provide covered parking for tenants, perhaps a multi-purpose carport type structure in a public lot. This could double as a shelter for farmers market or other vendor spaces during events or simply as shaded seating for attendees of the special event. Perhaps dedicated garage spaces in underused buildings can serve this purpose. These are most likely to be industrial type buildings

along or near the railroad tracks or on the edges of the district. These spots would have limited desirability based on their proximity to any residential unit.

- Another strategy to consider is the use of a hang tag or sticker for downtown residents. The City provided the stickers to the landlords for individual units. The sticker system would allow residents to park in designated stalls, including overnight and snow alerts, in various locations in the district, possibly even on Lake. These stalls should be distributed throughout the downtown to provide parking that is a short distance from individual units. For instance, one row in each public lot could be designated for overnight residents at all times. Keep these stalls clustered close together to help with snow removal. Revenue generated from hang tag fees could subsidize the additional costs of snow removal that may be needed to accommodate this special group of downtown parkers. A simple way to designate these spots could be painting the curbs or marking stalls designated as available for downtown residents.

- The ISG Downtown plan also addressed parking and suggested various strategies regarding downtown parking. A survey was conducted and determined that parking supply was generally adequate, and the focus should be on management. The strategies outlined are valid and should be reviewed and implemented as deemed appropriate.

THEME 5: ACTION AND IMPLEMENTATION

"WHAT IS DOWNTOWN'S GREATEST STRENGTH?" The survey response showed that your diverse business mix is highly valued. Downtown Storm Lake has a strong variety of locally owned buildings and long-time small businesses. During the Interview process, we heard accounts of businesses downtown with a presence since . . .1913, the 1950s, for more than 25 years. Longstanding business brands are a true asset and sustain traffic patterns to downtown. Along with those long-time businesses come experienced business owners, managers, and employees who can be powerful mentors.

Biz to Biz Partnerships – Business-to-business mentoring and partnerships are quietly working, but at this nexus of change and reassessment, connecting and building relationships with new businesses and long-time businesses in a systematic way enhances downtown sustainability (ex: create a private Retailers Facebook account or organize a business card shower for a new business and meet face-to-face for a quick win). Brainstorm other ways to connect with new entrepreneurs.

ACTION STEPS

- Establish an action group that evaluates opportunity for advertising and marketing Downtown Storm Lake. Ask the Chamber to highlight Downtown as a destination during Lake events, work with the City and the Chamber to re-energize the business expansion grants tied to low-interest revolving loan funds. Signage grants with design guidelines are also good ways to create instant relationships with new business owners and assist with overall design integrity in downtown. Deepening Biz to Biz relationships will pay dividends for the overall sustainability of Downtown Storm Lake.

- Connect with BVU - The Foundry - as staffing changes occur this summer, exploring additional ways the incubator might assist with re-energizing the downtown business climate, coordinating with new business owners (especially those from varied cultural backgrounds) to deliver practical information about small business best practices, connecting them with regional and state resources. (The Interview Sessions revealed many who weren't sure what The Foundry did.) The Foundry building front area might be a great venue to host "pop-up" businesses trying out a business plan.

- The business retention issues the Team heard about during the Interview sessions could potentially be remedied with early mentoring. Increased rates of turnover have negative impacts on the overall brand and public confidence in Downtown Storm Lake. The students who took part in the interview sessions (both High School and University) were eager to be part of action groups. Take advantage of this demographic segment brimming with ideas and energy.

- Emphasize the Downtown as a separate and distinct destination from the lake. Create a subsidiary brand & logo for Downtown Storm Lake using the existing City logo as a design guide.

Downtown Events vs Lakeside Events – Many of your important "anchor" traditions and community events take place lakeside…it's the natural (and smart) place to hold them. The beautiful green stretch of parks at the Lake is an enviable setting and sets Storm Lake apart from other Iowa communities.

ACTION STEPS

- The Downtown Storm Lake planning focus should expand retail promotions and "feet in street" events specifically supporting retail and dining. (A majority of those events would be in the main avenue (street and sidewalks in front of businesses – not so much in rear parking lots). Those locations cut off the energy and purpose of business promotion by locating them in out of the way spaces. Your downtown storefronts are the primary "stage" for promotions and events to leverage nearby open businesses.

- There were many comments about favorite events where the streets were closed downtown: Halloween, "Band Day," Christmas. These are banner events and bring out a diverse mix of community members. We heard from several groups hungry for more Storm Lake family and neighbor "coming together" events, especially for families with younger children. In fact, several said they usually go "out of town" for birthday party sites and other family entertainment. What better place to fill that void and create memories than in Downtown?

- Image-building Events for Downtown can be as simple as celebrating the new planters downtown (and continuing the "planting" tradition each May Day) by holding a midwestern tradition with a twist: a multi-cultural POT-luck, recognizing diversity, eating on the sidewalks, planting, cleaning, painting

crosswalks or a small mural, sharing a diverse menu with community. Any improvement or change downtown could be a celebratory event, attracting citizens who support their community and are eager to be part of improvements.

Implementation: Now what? Where do we begin? Use the Downtown Assessment 2024 and the Downtown Master Plan 2023 as Downtown Storm Lake stakeholders prioritize actionable goals. Both documents are a visual and narrative road map, so get them into the hands of diverse groups of interested community members – from downtown business owners to community volunteers, education & industry, city elected officials and staff. The Assessment and the Master Plan are not City documents – they're Community documents.

ACTION STEPS

- Have printed copies available in various places around Downtown – one in each business. Both can be digital downloads on City website for accessibility. Consider holding a live session to reveal the Assessment at an in-person workshop or meeting. This could be an important initial step for an Action Plan and Priority identification to create shared understanding immediately.

- During the Interview sessions, the Assessment Team heard from many parties of a critical need for reorganization of Downtown Storm Lake stakeholders with a goal of re-setting roles and responsibilities. Don't rely on a single organization to carry the load (example: City of Storm Lake or Chamber). Successful downtown revitalization uses a broad group of citizen-leaders to create impacts over a series of years. *Where do you see yourself making the most impact? Do you know someone who might be an asset to action?* It's natural to rely on the *"way we always did it"* but change will be instrumental to progress.

  - Community Leaders & Residents
  - Downtown Business
  - City Staff & Council
  - Nonprofit Development Grp
  - Chamber & Action Committees
  - Education: staff & students
  - Large Employers & Industry

- The assessment report includes much practical information, resources, and guidance for building Steering Committees, a Downtown Association or Retail Group, Chamber Task Forces for identified priorities. We heard from several dedicated and active community groups working on community projects; it will take creative realignments to move forward with downtown improvements. Include those organizations and leaders with an established itinerary of community projects and weave their annual plan into downtown needs. They may be willing to re-locate existing activities or events in the downtown district, creating a mutually beneficial traffic layer and added energy.

- Identifying Priorities and Action Planning is foundational to downtown and community development, but Communication before, during, and at completion is a critical implementation step. Be intentional and include communication in every step to build buy-in and trust. Momentum will lean heavily on dedicated leaders organizing task groups and action groups. Success will advance with frequent & creative communication and progress updates. Social media should not be the only method of broad and focused community news sharing – be creative as celebrations and wins occur.

"Downtown is the crossroads to everywhere else in Storm Lake."

- The statement above was a direct quote in one of the sessions. The Assessment Team thought it was a perfect way to frame downtown opportunities for Storm Lake. The Survey Responses and the Interview Sessions from Storm Lake citizens supported your fierce pride of place, blue-collar can-do character, and optimism in the future.

PRIORITIES

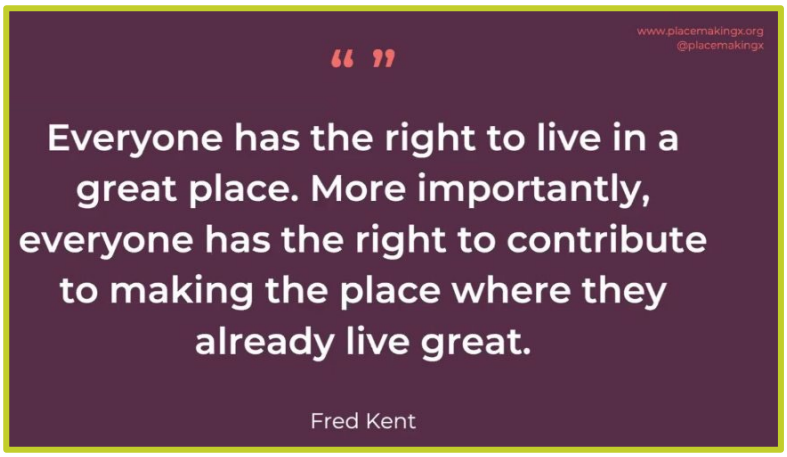
The Assessment team encourages Storm Lake to prioritize projects listed in this report and other opportunities we feel are of importance.

Theme #	Immediate Priorities: (0-6 months)
2	Restripe crosswalks and parking lines; repair curbs and access ramps
2	Pull weeds; develop a plan for continued weed maintenance
2	Develop interesting crosswalks
3	Adopt IEDA's Downtown Design Guidelines and tie to local grant programs
3	Attend Downtown Forums: Power of the Sign
5	Recognize businesses that do outstanding merchandising: via media or traveling trophy
5	Establish action group that evaluates advertising and marketing opportunities
5	Develop series of 4 image building events. Start with a POT-luck celebrating new pots
5	Create ideas to get results of masterplan and this assessment report to the public
Theme #	**One Year Priorities (0-12 months)**
1	Develop downtown entry/directional signage
2	Install downtown seating
2	Develop planting plan: Incremental
2	Public art plan
3	Evaluate/create local building rehab grants/Consider component grants/Sign grant
3	Apply for Community Catalyst Building Remediation Grant (IEDA)
3	Workshops and mentoring programs for merchandising and window displays
3	Develop an architectural scavenger hunt
4	Survey/audit the upper stories in downtown Storm Lake
5	Business to Business mentoring; Retailers Facebook account; Business card shower
5	Meeting for all stakeholder groups; Define roles and ways to plug into masterplan

Theme#	Longer term Projects: (0-24 months)
1	Add bike parking amenities to include bikers to explore downtown on foot
2	Public restrooms and wayfinding to those restrooms
2	Downtown speaker system/music
2	Work with restaurants to add downtown dining
3	Reimagine/plan for downtown street trees with proper placement
3	Graphic design services to improve logo and sign design
4	Covered parking for residents where possible
4	Hang tag systems for upper story residents that allows for parking overnight
5	Incrementally add retail promotions (perhaps seasonally) in the downtown
5	Develop special event for families in the downtown
Theme#	**Down the Road….but plan now: (24 months +)**
1	Use quality design to establish the corner of Lake and Milwaukee as the gateway
2	Plan for conversion of Lake Avenue (downtown) from four to three or two lanes
5	Create subsidiary brand/logo for downtown Storm Lake

CLOSING

It was a pleasure for our team to work in Storm Lake. The community has enthusiastic volunteers and leaders that will make a difference. We hope this visit and report can assist in building a solid plan for downtown projects and improvements. We encourage leaders, organizations and volunteers to work collaboratively. Focus on projects that you get excited about. We are here for continued support. Good luck!



CONTACTS

Iowa Downtown Resource Center, IEDA, ... 515.348.6180
..... https://www.iowaeda.com/downtown-resource-center/
Keep Iowa Beautiful ..... …….515.323.6507
..... https://www.keepiowabeautiful.com
ISU Iowa Community Indicators Program Retail Analysis..... http://www.icip.iastate.edu/retail
Certified Local Governments, State Historic Society of Iowa 515.281.6826
CDBG Downtown Revitalization Program.....515.348.6208
..... https://www.iowaeda.com/cdbg/downtown-revitalization-fund/

National and State Preservation Services and Programs:

National Trust for Historic Preservation ..... www.preservationnation.org
Main Street America (Main Street America Network Membership)..... https://www.mainstreet.org
National Park Service Preservation Briefs ..... https://www.nps.gov/tps/how-to-preserve/briefs.htm
State Historic Preservation Office .....www.iowahistory.org

RESOURCES **Electronic files are available for download here. (for 12 months)**

- Storm Lake Downtown Assessment Survey Results
- Storm Lake Design Renderings
- Trees Mean Business: City Trees and the Retail Streetscape
- Creative Placemaking Manual
- Design Guidelines
- Retail Events
- Preservation Brief: Rehabilitating Historic Storefronts
- Signs & Awnings for Downtowns
- Upper Story Housing Benefits
- Characteristics of a Successful Downtown
- CDBG-Downtown Revitalization Grant Overview
- Community Catalyst Grant Fact Sheet
- Transom Windows

Staff Summary

06/17/2024
Agenda Item # F.2.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Lee Dutfield Development Services Sepcialist

SUBJECT: **Resolution No. 62-R-2023-2024 Establishing A Downtown Signage Ad Hoc Committee**

BACKGROUND: The Storm Lake City Council adopted the Storm Lake Downtown Master Plan on June 5, 2023. The Plan provides recommendations for signage improvements in Downtown.

The City of Storm Lake coordinated with IEDA's Downtown Resource Center Team for a Downtown Assessment April 23-25. The intensive three-day visit included interviews with approximately 90 community leaders, individuals and groups representing the public and private sectors. An on-site study of the downtown business district was completed, including a pre-visit survey and a public presentation on April 25th. A written final report has been submitted which provides recommendations and action steps for improving signage in Downtown.

On June 3, 2024, City Council held a work session to review the sign ordinance. Building Code & Compliance Director, Scott Olesen reported to council that this is an opportune time to review the current Sign Ordinance since we are in the process of moving towards the adoption of a new City Comprehensive Plan, and the Downtown Master Plan and Downtown Assessment have recently been completed. At the conclusion of the work session City Council directed staff to establish a Downtown Signage Ad Hoc Committee.

FISCAL IMPACT: N/A

RECOMMENDATION: Approve Resolution 62-R-2023-2024 Establishing a Downtown Signage Ad Hoc Committee

ATTACHMENTS:

ResolutResolution No. 62-R-2023-2024 Establishing Downtown Signage Ad Hoc Committee.docx

RESOLUTION NO. 62-R-2023-2024

A RESOLUTION ESTABLISHING DOWNTOWN SIGNAGE AD HOC COMMITTEE

WHEREAS, the downtown is a vital community resource for those who live and work in Storm Lake; and

WHEREAS, the City, with significant public input, completed a Downtown Master Plan in 2023; and

WHEREAS, the Iowa Downtown Resource Center recently completed a Downtown Assessment through an extensive, in-depth three-day process; and

WHEREAS, the City Council recognizes that a sign is an integral part of the cityscape and, as such, can detract from or enhance the City's image and character; and

WHEREAS, the City Council promotes aesthetic signing and graphic design that enhances the architectural or historic quality of a building and historic nature of the cityscape ; and

WHEREAS, the Council finds that a new Downtown Signage Ad Hoc Committee should be established that will work to improve design and communication on appropriate signage in the Central Business District.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Storm Lake as follows:

1. The Council hereby creates the nine-member Downtown Signage Ad Hoc Committee with six members from the Central Business District and three members from the public at large.

2. The Downtown Ad Hoc Committee will meet in public periodically on a schedule set by the Committee and will report findings and recommendations directly to the Mayor and City Council.

3. The Council hereby sets the time frame for the Ad Hoc Committee from date of approval of this Resolution to December 31, 2024.

Dated this date: June 17, 2024

_____
Michael Porsch, Mayor

ATTEST:

_____
Mayra A. Martine, City Clerk

Staff Summary

06/17/2024
Agenda Item # F.3.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Matt Beckman Public Works Director

SUBJECT: **Resolution No. 63-R-2023-2024 Setting the Public Hearing for the Scout Park and Ice House Lift Station Project Plans, Specifications, and Form of Contract**

BACKGROUND: The City of Storm Lake has received an award of a Hazard Mitigation Grant from Iowa Homeland Security and Emergency Management (IAHSEM) for the Scout Park and Ice House Lift Station Project.

The Scout Park Lift Station is a critical component of the City's sanitary sewer collection system. The City has had and continues to have a need to make improvements to the Scout Park and Ice House Lift Stations to reduce and minimize the risks and damages to public and private property resulting from flooding in the sewer sheds.

The project consists of the complete replacement of each lift station and associated pump and electrical upgrades which will serve the current and projected service areas. Onsite emergency generators will be included to provide resiliency and operational sustainability. The Scout Park Lift Station electrical components (including the generator) will be installed within an enclosed building to enhance resiliency and sustainability of this particularly critical infrastructure.

In addition to the Public Hearing, a Neighborhood Meeting will be held with interested stakeholders after the construction contract has been awarded – this meeting is anticipated to occur Fall 2024.

The Engineer's Opinion of Probable Cost is $3,552,346.00. The project is receiving grant funding in the amount of $2,948,727.00. The balance of the cost will be local match and provided through Franchise Fee and Local Option Sales Tax Funds.

To move forward with the bidding process, a public hearing is planned for August 5, 2024 at 5:00 p.m. in City Council Chambers.

FISCAL IMPACT: The Engineer's Opinion of Probable Construction Cost is $3,552,346.00.

RECOMMENDATION: Approve Resolution No. 63-R-2023-2024 setting a Public Hearing for 5:00 p.m. on August 5, 2024 in City Council Chambers.

ATTACHMENTS:

Scout Park and Ice House LS Engineers Estimate.pdf

Public Hearing Notice - SL Wastewater Infrastructure Mitigation Project - Scout Park.docx

Resolution No. 63-R-2023-2024 - Resolution Setting The Time And Place For A Public Hearing For Scout Park Ice House Lift Stations.docx

OPINION OF PROBABLE CONSTRUCTION COST

Scout Park Lift Station
Flood Mitigation Infrastructure Improvements
FEMA HMA Application
City of Storm Lake

BOLTON & MENK
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June 2024

Opinion of Probable Cost - Flood Mitigation Project All Project Elements				
Project Element	**Labor**	**Materials**	**Contingency**	**Total**
Scout Park Lift Station	$1,196,237	$1,362,769	$128,000	$2,687,006
Ice House Lift Station	$415,896	$408,244	$41,200	$865,340
Total	**$1,612,133**	**$1,771,013**	**$169,200**	**$3,552,346**

OPINION OF PROBABLE CONSTRUCTION COST

Scout Park Lift Station
Flood Mitigation Infrastructure Improvements
FEMA HMA Application
City of Storm Lake

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June 2024

Opinion of Probable Cost - Scout Park Lift Station
Triplex Submersible Lift Station with 1800 gpm pumps

Item	Unit	Quantity	Labor	Materials	Unit Price	Extended Price	Supporting Information on Unit Price Estimations
Mobilization/Demobilization	LS	1	$ 182,750	$ 32,250	$ 215,000	$ 215,000	8% of construction cost
Construction Staging Area Maintenance	LS	1	$ 1,000	$ 1,500	$ 2,500	$ 2,500	
Ballast Rock	TN	150	$ 2,700	$ 4,050	$ 45	$ 6,750	Recent similar project bid tab
Crushed Stone, Class A	TN	175	$ 4,550	$ 6,825	$ 65	$ 11,375	Recent similar project bid tab
Precast Concrete	LS	1	$ 6,000	$ 9,000	$ 15,000	$ 15,000	Recent similar project bid tab
Cast-in-Place Concrete, including reinforcement	CYD	250	$ 125,000	$ 187,500	$ 1,250	$ 312,500	Recent similar project bid tab
Earthwork	LS	1	$ 51,000	$ 34,000	$ 85,000	$ 85,000	Recent similar project bid tab
Submersible Pumps, Three (3), 1800 gpm, and appurtenances	LS	1	$ 168,000	$ 252,000	$ 420,000	$ 420,000	Contractor quote/Recent similar project bid/tab
Lift Station Check valves, 12"	EA	3	$ 18,000	$ 27,000	$ 15,000	$ 45,000	Contractor quote/Recent similar project bid/tab
Lift Station Plug Valves, 12"	EA	8	$ 38,400	$ 57,600	$ 12,000	$ 96,000	Contractor quote/Recent similar project bid/tab
Lift Station Bypass Plug Valve, 6"	EA	1	$ 1,600	$ 2,400	$ 4,000	$ 4,000	Contractor quote/Recent similar project bid/tab
18" Flow Meter	EA	1	$ 8,100	$ 9,900	$ 18,000	$ 18,000	Contractor quote/Recent similar project bid/tab
Radar Level Transducer	EA	1	$ 3,600	$ 4,400	$ 8,000	$ 8,000	Contractor quote/Recent similar project bid/tab
Building for Electrical, Controls, and Generator	EA	1	$ 160,000	$ 240,000	$ 400,000	$ 400,000	Recent similar project bid tab
Lift Station Piping	LS	1	$ 65,250	$ 79,750	$ 145,000	$ 145,000	Recent similar project bid tab
Generator	LS	1	$ 33,750	$ 41,250	$ 75,000	$ 75,000	Recent similar project bid tab
Electrical and Controls	LS	1	$ 74,000	$ 111,000	$ 185,000	$ 185,000	Recent similar project bid tab
Fencing	LS	1	$ 4,200	$ 6,300	$ 10,500	$ 10,500	Recent similar project bid tab
Demolition of Existing Lift Station	LS	1	$ 49,500	$ 5,500	$ 55,000	$ 55,000	Recent similar project bid tab
Exploratory Excavation	HR	10	$ 4,500	$ 500	$ 500	$ 5,000	Recent similar project bid tab
Trench Foundation	TON	50	$ 1,250	$ 1,250	$ 50	$ 2,500	Recent similar project bid tab
Replacement of Unsuitable Backfill Material	CYD	60	$ 1,050	$ 1,050	$ 35	$ 2,100	Recent similar project bid tab
Remove, Salvage, and Reinstall Sign	EA	3	$ 900	$ 1,350	$ 750	$ 2,250	Recent similar project bid tab
Remove Sanitary Sewer Manhole	EA	2	$ 1,530	$ 170	$ 850	$ 1,700	Recent similar project bid tab
18" Sanitary Sewer Forcemain Abandon	LF	90	$ 360	$ 540	$ 10	$ 900	Recent similar project bid tab
4" Sanitary Sewer Service Removal	LF	25	$ 150	$ 225	$ 15	$ 375	Recent similar project bid tab
Remove Sanitary Sewer Pipe	LF	64	$ 384	$ 576	$ 15	$ 960	Recent similar project bid tab
Abandon Sanitary Sewer Pipe	LF	152	$ 608	$ 912	$ 10	$ 1,520	Recent similar project bid tab
1" Water Service Removal	LF	60	$ 360	$ 540	$ 15	$ 900	Recent similar project bid tab
1" Curb Stop Removal	EA	1	$ 40	$ 60	$ 100	$ 100	Recent similar project bid tab
Curb and Gutter Removal	LF	28	$ 134	$ 202	$ 12	$ 336	Recent similar project bid tab
Sidewalk Removal	SY	45	$ 270	$ 405	$ 15	$ 675	Recent similar project bid tab
Driveway & Parking Lot Pavement, PCC, 7"	SY	493	$ 21,692	$ 32,538	$ 110	$ 54,230	Recent similar project bid tab
Sidewalk, 4" PCC	SY	66	$ 2,640	$ 3,960	$ 100	$ 6,600	Recent similar project bid tab
8" Sanitary Sewer	LF	55	$ 2,200	$ 3,300	$ 100	$ 5,500	Recent similar project bid tab
21" Sanitary Sewer	LF	240	$ 21,600	$ 32,400	$ 225	$ 54,000	Recent similar project bid tab
18" Sanitary Sewer Forcemain	LF	78	$ 15,600	$ 23,400	$ 500	$ 39,000	Recent similar project bid tab
4" Sanitary Sewer Service	LF	58	$ 1,972	$ 2,958	$ 85	$ 4,930	Recent similar project bid tab
4" Cleanout Assembly	EA	1	$ 400	$ 600	$ 1,000	$ 1,000	Recent similar project bid tab
Sanitary Sewer Manhole	LF	39	$ 10,920	$ 16,380	$ 700	$ 27,300	Recent similar project bid tab
Sanitary Chimney Seal	EA	4	$ 560	$ 840	$ 350	$ 1,400	Recent similar project bid tab
Casting Assembly (Sanitary)	EA	4	$ 1,360	$ 2,040	$ 850	$ 3,400	Recent similar project bid tab
Connect to Existing Sanitary Sewer	EA	3	$ 17,550	$ 1,950	$ 6,500	$ 19,500	Recent similar project bid tab
Connect to Existing Sanitary Sewer Forcemain	EA	1	$ 3,150	$ 350	$ 3,500	$ 3,500	Recent similar project bid tab
Connect to Existing Sanitary Sewer Service	EA	1	$ 495	$ 55	$ 550	$ 550	Recent similar project bid tab
Ductile Iron Fittings	LB	478	$ 3,824	$ 5,736	$ 20	$ 9,560	Recent similar project bid tab
1" Water Service	LF	75	$ 3,900	$ 5,850	$ 130	$ 9,750	Recent similar project bid tab
1" Curb Stop	EA	1	$ 300	$ 450	$ 750	$ 750	Recent similar project bid tab
Yard Hydrant	EA	1	$ 800	$ 1,200	$ 2,000	$ 2,000	Recent similar project bid tab
Connect to Existing Water Service	EA	1	$ 1,800	$ 200	$ 2,000	$ 2,000	Recent similar project bid tab
Sod	SY	2087	$ 29,218	$ 43,827	$ 35	$ 73,045	Recent similar project bid tab
Silt Fence or Silt Fence Ditch Check	LF	470	$ 940	$ 1,410	$ 5	$ 2,350	Recent similar project bid tab
Inlet Protection Device	EA	8	$ 1,280	$ 1,920	$ 400	$ 3,200	Recent similar project bid tab
Vibration Monitoring	LS	1	$ 6,000	$ 9,000	$ 15,000	$ 15,000	Recent similar project bid tab
Air Release Valve, 4-inch	EA	4	$ 19,200	$ 28,800	$ 12,000	$ 48,000	Contractor quote/Recent similar project bid/tab
Clearing and Grubbing	UNIT	770	$ 15,400	$ 23,100	$ 50	$ 38,500	Recent similar project bid tab
Traffic Control	LS	1	$ 4,500	$ 500	$ 5,000	$ 5,000	Recent similar project bid tab
		CONSTRUCTION COST	**$ 1,196,237**	**$ 1,362,769**		**$ 2,559,006**	
		CONSTRUCTION CONTINGENCY (5%)	$ 59,800	$ 68,100		$ 128,000	
		TOTAL OPINION OF PROBABLE CONSTRUCTION COST	**$ 1,256,037**	**$ 1,430,869**		**$ 2,687,006**	

OPINION OF PROBABLE CONSTRUCTION COST

Ice House Lift Station
Flood Mitigation Infrastructure Improvements
FEMA HMA Application
City of Storm Lake

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June 2024

Opinion of Probable Cost - Ice House Lift Station
Duplex Submersible Lift Station with 200 gpm pumps

Item	Unit	Quantity	Labor	Materials	Unit Price	Extended Price	Supporting Information on Unit Price Estimations
Mobilization/Demobilization	LS	1	$ 59,500	$ 10,500	$ 70,000	$ 70,000	8% of construction cost
Construction Staging Area Maintenance	LS	1	$ 1,000	$ 1,500	$ 2,500	$ 2,500	
Ballast Rock	TN	60	$ 1,080	$ 1,620	$ 45	$ 2,700	Recent similar project bid tab
Crushed Stone, Class A	TN	75	$ 1,950	$ 2,925	$ 65	$ 4,875	Recent similar project bid tab
Precast Concrete	LS	1	$ 60,000	$ 90,000	$ 150,000	$ 150,000	Recent similar project bid tab
Cast-in-Place Concrete, including reinforcement	CY	8	$ 2,560	$ 3,840	$ 800	$ 6,400	Recent similar project bid tab
Earthwork	LS	1	$ 33,000	$ 22,000	$ 55,000	$ 55,000	Recent similar project bid tab
Submersible Pumps, Two (2), 200 gpm, and appurtenances	LS	1	$ 50,000	$ 75,000	$ 125,000	$ 125,000	Contractor quote/Recent similar project bid/tab
Lift Station Check valves, 4"	EA	2	$ 2,400	$ 3,600	$ 3,000	$ 6,000	Contractor quote/Recent similar project bid/tab
Lift Station Plug Valves, 4"	EA	3	$ 3,600	$ 5,400	$ 3,000	$ 9,000	Contractor quote/Recent similar project bid/tab
4" Flow Meter	EA	1	$ 3,600	$ 4,400	$ 8,000	$ 8,000	Contractor quote/Recent similar project bid/tab
Radar Level Transducer	EA	1	$ 3,600	$ 4,400	$ 8,000	$ 8,000	Contractor quote/Recent similar project bid/tab
Lift Station Piping	LS	1	$ 29,250	$ 35,750	$ 65,000	$ 65,000	Recent similar project bid tab
Generator	LS	1	$ 27,000	$ 33,000	$ 60,000	$ 60,000	Recent similar project bid tab
Electrical and Controls	LS	1	$ 40,000	$ 60,000	$ 100,000	$ 100,000	Recent similar project bid tab
Demolition of Existing Lift Station	LS	1	$ 31,500	$ 3,500	$ 35,000	$ 35,000	Recent similar project bid tab
Site Grading	CY	135	$ 4,860	$ 540	$ 40	$ 5,400	Recent similar project bid tab
Exploratory Excavation	HR	10	$ 4,500	$ 500	$ 500	$ 5,000	Recent similar project bid tab
Trench Foundation	TON	20	$ 500	$ 500	$ 50	$ 1,000	Recent similar project bid tab
Replacement of Unsuitable Backfill Material	CY	30	$ 525	$ 525	$ 35	$ 1,050	Recent similar project bid tab
Remove, Salvage, and Reinstall Sign	EA	1	$ 300	$ 450	$ 750	$ 750	Recent similar project bid tab
Remove Sanitary Sewer Pipe	LF	82	$ 1,107	$ 123	$ 15	$ 1,230	Recent similar project bid tab
Remove Sanitary Forcemain	LF	66	$ 891	$ 99	$ 15	$ 990	Recent similar project bid tab
Remove Sanitary Sewer Manhole	EACH	1	$ 765	$ 85	$ 850	$ 850	Recent similar project bid tab
Full Depth PCC Patch	SY	250	$ 16,000	$ 24,000	$ 160	$ 40,000	Recent similar project bid tab
8" PVC Sanitary Sewer	LF	73	$ 2,920	$ 4,380	$ 100	$ 7,300	Recent similar project bid tab
4" DIP Sanitary Sewer Forcemain	LF	24	$ 960	$ 1,440	$ 100	$ 2,400	Recent similar project bid tab
Sanitary Sewer Manhole	LF	21	$ 5,880	$ 8,820	$ 700	$ 14,700	Recent similar project bid tab
Sanitary Chimney Seal	EA	2	$ 280	$ 420	$ 350	$ 700	Recent similar project bid tab
Casting Assembly (Sanitary)	EA	2	$ 680	$ 1,020	$ 850	$ 1,700	Recent similar project bid tab
Connect to Existing Sanitary Sewer	EA	2	$ 11,700	$ 1,300	$ 6,500	$ 13,000	Recent similar project bid tab
Connect to Existing Sanitary Sewer Forcemain	EA	1	$ 3,150	$ 350	$ 3,500	$ 3,500	Recent similar project bid tab
Ductile Iron Fittings	LB	88	$ 704	$ 1,056	$ 20	$ 1,760	Recent similar project bid tab
Sod	SY	166	$ 2,324	$ 3,486	$ 35	$ 5,810	Recent similar project bid tab
Silt Fence or Silt Fence Ditch Check	LF	85	$ 170	$ 255	$ 5	$ 425	Recent similar project bid tab
Inlet Protection Device	EA	1	$ 160	$ 240	$ 400	$ 400	Recent similar project bid tab
Clearing and Grubbing	UNIT	14	$ 280	$ 420	$ 50	$ 700	Recent similar project bid tab
Traffic Control	LS	1	$ 7,200	$ 800	$ 8,000	$ 8,000	Recent similar project bid tab
CONSTRUCTION COST			**$ 415,896**	**$ 408,244**		**$ 824,140**	
CONSTRUCTION CONTINGENCY (5%)			$ 20,800	$ 20,400		$ 41,200	
TOTAL OPINION OF PROBABLE CONSTRUCTION COST			**$ 436,696**	**$ 428,644**		**$ 865,340**	

NOTICE OF PUBLIC HEARING

Storm Lake-Wastewater Infrastructure Mitigation Project
City of Storm Lake

Public Hearing on Proposed Contract Documents and Estimated Costs for Repair or Improvement. A public hearing will be held by the City Council of City of Storm Lake on the proposed contract documents (plans, specifications and form of contract) and estimated cost for the improvement at its meeting at 5:00 P.M. on August 5, 2024, at 620 Erie Street, in Storm Lake, Iowa.

Project Description: The work includes the construction of a 1,800 gpm submersible triplex lift station at Scout Park, construction of an electrical and controls building, including an emergency generator located in the building for the Scout Park Lift Station, demolition of the existing Scout Park Lift Station, generator, and generator building, construction of a 200 gpm submersible duplex lift station at Vista Drive, named Ice House, installation of an emergency generator and control panel at the Ice House Lift Station, demolition of the existing Ice House Lift Station, replacement of four air release valves on the 18-inch forcemain downstream from the Scout Park Lift Station, installation of manholes, gravity sewer mains, and forcemain to temporary convey existing lift stations flows, and connect new lift stations to existing downstream forcemain, and other related items of work. The project is located south of the Vista Drive and West 5th Street intersection and south of Lighthouse Drive at Scout Park in Storm Lake, Iowa.

This Notice is given by authority of the
City of Storm Lake

_____

Mayra A. Martinez
City Clerk

RESOLUTION NO. 63-R-2023-2024

A RESOLUTION SETTING THE TIME AND PLACE FOR A PUBLIC HEARING TO APPROVE PLANS, SPECIFICATIONS, FORM OF CONTRACT, AND ENGINEERS ESTIMATE OF COST AND SET A DATE FOR BID LETTING FOR THE STORM LAKE-WASTEWATER INFRASTRUCTURE MITIGATION PROJECT

WHEREAS, the City Council of the City of Storm Lake has undertaken a public improvement project for a Storm Lake-Wastewater Infrastructure Mitigation Project; and

WHEREAS, the engineer on the project has developed plans, specifications, and form of contract for the proposed project that are now on file with the City Clerk; and

WHEREAS, the City Council wishes to conduct a public hearing concerning the plans, specifications, form of contract, and engineers estimate of cost and set bid letting date for the project.

NOW THEREFORE, BE IT RESOLVED, BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, IOWA,

SECTION 1. That a public hearing date and time is hereby established to review the plans, specifications, form of contract, and engineers estimate of cost for Monday, August 5, 2024, at 5:00 p.m. in the City Hall Council Chambers at 620 Erie Street, Storm Lake, Iowa for the purposes of reviewing and taking public input on the plans, specifications, and form of contractor for the proposed project.

SECTION 2. Setting the bid letting date for Tuesday, July 23, 2024, due before 2:00 pm, for the Storm Lake-Wastewater Infrastructure Mitigation Project

BE IT FURTHER RESOLVED, that the City Clerk be directed to publish notice of said public hearing in the City's official newspaper no less than four days before and not more than 20 days prior to the hearing date and bid letting no less than 13 days before and no more than 45 days before the bid letting.

PASSED, APPROVED, AND ADOPTED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE THIS 17th DAY OF JUNE 2024.

BY THE CITY COUNCIL OF THE
CITY OF STORM LAKE, IOWA

_____
Michael Porsch, Mayor

ATTEST

_____
Mayra A. Martinez, City Clerk

Staff Summary

06/17/2024
Agenda Item # F.4.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Matt Beckman Public Works Director

SUBJECT: **Resolution No. 64-R-2023-2024 Ordering Construction Of The Storm Lake Production Well No. 22, And Fixing A Date For Hearing Thereon And Taking Of Bids Therefor**

BACKGROUND: This agenda item will set a Public Hearing to approve the plans, specifications, form of contract, and Engineer's estimate of cost for the New Production Well No. 22 Project. This project includes a new 1,200 GPM Dakota aquifer well, well house & electrical controls, emergency generator, and associated piping.

The public hearing will be held during the regularly scheduled Council meeting on Monday, August 5, 2024.

The bid letting will be held on July 30, 2024 at 10:00 am at City Hall.

FISCAL IMPACT: The Fiscal impact to set the public hearing is the cost of publication.

RECOMMENDATION: Approve Resolution No.64-R-2023-2024 to set the Public Hearing for August 5, 2024 at 5:00 pm and approve setting the Bid Letting for July 30, 2024 at 10:00 am in City Council Chambers.

ATTACHMENTS:

- **Bidding Schedule Option 1.pdf**
- **SL Well 22 - Plans & Specs 2024-06-07.pdf**
- **Resolution No. 64-R-2023-2024- Storm Lake Well No. 5 - Resolution Ordering Construction and Setting Public Hearing (02365733x7F7E1).docx**
- **Notice of Public Hearing.doc**
- **Notice to Bidders.docx**

June 17, 2024	Set Date for Public Hearing to Approve Plans, Specifications, Form of Contract, and Engineer's Estimate of Cost Set Date for Bid Letting (Regular Council Meeting)
June 18, 2024	Send Letters to Prospective Bidders Post Notice of Bid Letting (Post Bid Letting Notice once, no less than 13 and not more than 45 days prior to the Bid Letting) (Post to: QuestCDN, Iowa League of Cities, a Plan Room, and the local newspaper)
July 16, 2024	Send Notice of Public Hearing on Engineering Plans & Specifications to Newspaper (Publish Hearing Notice once, not less than 4 and not more than 20 days prior to the hearing)
July 30, 2024	Public Bid Letting @ 10:00 AM
August 5, 2024	Public Hearing to Approve Plans, Specifications, Form of Contract, and Engineer's Estimate of Cost Consideration of Bids for Award and Approving Contracts (Regular Council Meeting)
September 5, 2024	Notice to Proceed (Tentative)
June 1, 2025	Completion of Well with Manual Run Option for Summer
November 1, 2025	Substantial Completion of Entire Project

Notes: Regular Council Meetings are held on the 1st and 3rd Monday of each month at 5:00 PM. The Storm Lake Times Pilot publishes Wednesday & Friday, with submissions due at 4:00 PM on Monday & Wednesday, respectively.

Project Manual
City of Storm Lake Production Well No. 22

Storm Lake, Iowa

Date: September 29, 2023

ISG Project No.: 22-27926

Architecture
Engineering
Environmental
Planning
ISGInc.com

FOR:
City of Storm Lake
620 Erie Street
Storm Lake, Iowa 50588

FROM:
ISG
1725 North Lake Avenue
Storm Lake, Iowa 50588
712.732.7745

Design Addendum No. 02

Date: June 6, 2024

Project Name: Storm Lake Production Well No. 22

Project location: Storm Lake, IA 50588

Project Number: 27926

The following items shall be appended to and become a part of the plans and specification for the above reference project and shall supersede any conflicting provisions of these documents.

CLARIFICATIONS

1. None.

REFER TO PROJECT MANUAL

1. Refer to revised Table of Contents
2. Refer to revised Notice of Public Hearing
    a. Updated dates
3. Refer to revised Notice to Bidders
    a. Updated dates and added CDBG funding reference.
4. Refer to added Funding Requirements
    a. New document spelling out funding sources and related requirements.
5. Refer to added BABA Products Reporting Tool
6. Refer to revised SRF Required Front End Specifications
    a. Updated to reflect newest version from SRF.
7. Refer to added Davis Bacon Wage Rates
8. Refer to revised Bid Form
    a. Updated dates.
    b. Updated contingency allowance.
9. Refer to added Federal Contract Language
10. Refer to added CDBG Project Sign
11. Refer to revised Agreement between Owner & Contractor
    a. Added language for milestones.
    b. Added reference for Federal Contract Language.
    c. Added reference for AIS requirement per SRF funding.
    d. Added reference for BABA requirement per CDBG funding.
12. Refer to added Warranty Bond

13. Refer to revised Divisions 03 through 09.
    a. Removed manufacturers.
14. Refer to revised Section 23 8119 – Self-Contained Air-Conditioner
    a. Part 2 – Removed Manufacturers
15. Refer to revised Section 26 0533.13 Conduit for Electrical Systems
    a. Removed Manufacturers
16. Refer to revised Section 26 0915 Supervisory and Process Control
    a. Removed Manufacturers
17. Refer to revised Section 26 2200 Low-Voltage Transformers
    a. Removed Manufacturers
18. Refer to revised Section 26 2416 Panelboards
    a. Removed Manufacturers
19. Refer to revised Section 26 2726 Wiring Devices
    a. Removed Manufacturers
20. Refer to revised Section 26 2816.13 Enclosed Circuit Breakers
    a. Removed Manufacturers
21. Refer to revised Section 26 2816.16 Enclosed Switches
    a. Removed Manufacturers
22. Refer to revised Section 26 2923 Variable-Frequence Motor Controllers
    a. Removed Manufacturers
23. Refer to revised Section 26 3600 Transfer Switches
    a. Removed Manufacturers
24. Refer to revised Section 26 4300 Surge Protective Devices
    a. Removed Manufacturers
25. Refer to revised Section 26 5100 Interior Lighting
    a. Removed Manufacturers
26. Refer to revised Section 26 5600 Exterior Lighting
    a. Removed Manufacturers
27. Refer to added Section 33 0110.58 – Disinfection of Water Systems
    a. This new section houses all disinfection requirements.
28. Refer to revised Section 33 1113 – Water Supply Wells
    a. Generally updated to reflect engineer's modifications to standard specification since original plan submittal to DNR.
29. Refer to revised Section 40 2324 – Potable Water Process Piping
    a. Reference to disinfection specification updated.

REFER TO PLAN SHEETS

1. Refer to revised Plan Sheet C3-20
    a. Updated check valve callout.

2. Refer to revised Plan Sheet E5-11 Schedules
    a. Added notes for light fixture schedule
3. Refer to revised Plan Sheet M2-11 First Floor HVAC Plan
    a. Removed manufacturer and model from schedule

ATTACHMENTS

1. Revised Table of Contents
2. Revised Notice of Public Hearing
3. Revised Notice to Bidders
4. Added Funding Requirements
5. Added BABA Products Reporting Tool
6. Revised SRF Required Front End Specifications
7. Added Davis Bacon Wage Rates
8. Revised Bid Form
9. Added Federal Contract Language
10. Added CDBG Project Sign
11. Revised Agreement between Owner & Contractor
12. Added Warranty Bond
13. Revised Divisions 03 through 26
14. Added Section 33 0110.58 – Disinfection of Water Systems
15. Revised Section 33 1113 – Water Supply Wells
16. Revised Section 40 2324 – Potable Water Process Piping
17. Revised Plan Sheet C3-20
18. Revised Plan Sheet E5-11
19. Revised Plan Sheet M2-11

End of Design Addendum No. 02

CERTIFICATIONS PAGE

FOR

CITY OF STORM LAKE PRODUCTION WELL NO. 22

CITY OF STORM LAKE

STORM LAKE, IA

SEPTEMBER 29, 2023

PROJECT NO. 22-27926

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Amanda L. Goodenow — 6/7/2024 Date

License Number: 25734

My License Renewal Date is 12/31/2024

Pages or sheets covered by this seal: All portions of Addendum No. 2 Except Divisions 3-32, and 34-40

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Jasaon M. Burns — 6/7/2024 Date

License Number: 26658

My License Renewal Date is 12/31/2024

Pages or sheets covered by this seal: Divisions 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 of Addendum No. 2

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Royal D. Streed — 6/7/2024
Date

License Number: 26593

My License Renewal Date is 12/31/2024

Pages or sheets covered by this seal: Divisions 25, 26, 27, 28, 40 of Addendum No. 2

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Matthew J. Larsen — 6/7/2024
Date

License Number: 24003

My License Renewal Date is 12/31/2024

Pages or sheets covered by this seal: Divisions 21, 22, 23 of Addendum No. 2

ISG
1725 N LAKE AVE
STORM LAKE, IA 50588

END OF CERTIFICATION PAGE

NOTICE OF PUBLIC HEARING

NOTICE OF PUBLIC HEARING ON PROPOSED PLANS AND SPECIFICATIONS, FORM OF CONTRACT AND ESTIMATE OF COST FOR THE CONSTRUCTION OF THE CITY OF STORM LAKE PRODUCTION WELL NO. 22 PROJECT

Notice is hereby given that the City Council of Storm Lake, Iowa, will meet at 620 Erie Street, Storm Lake, Iowa 50588 on the **5th day of August, 2024, at 5:00p.m.**, at which time and place a hearing will be held on the proposed plans and specifications, form of contract and estimate of cost for City of Storm Lake Production Well No. 22, in and for Storm Lake, Iowa. Any interested person may appear at said hearing and file objections to the proposed plans, specifications, form of contract and estimated costs for said improvements.

The project is located at 5923 90th Avenue in Storm Lake, Iowa.

The general description of types of construction and their limits for which bids will be received shall be as follows:

Base Bid
Construction of water well with stainless steel production casing, water main, well house and associated components, minor grading and seeding and all other miscellaneous components necessary to complete the project per plans and specifications.

Plans and specifications governing the construction of the proposed improvements have been prepared by the Engineer. These plans and specifications, and the proceedings of the City referring to and defining said improvements, are hereby made a part of this Notice and the proposed contract by reference, and the proposed contract shall be executed to comply therewith.

Published upon order of the Storm Lake City Council in Storm Lake, Iowa.

City of Storm Lake

BY /s/ Mike Porsch
Mayor

ATTEST:
BY /s/ Keri Navratil
City Manager

NOTICE TO BIDDERS

FOR THE CONSTRUCTION OF CITY OF STORM LAKE PRODUCTION WELL NO. 22 FOR STORM LAKE, IOWA

Sealed bids will be received by the City of Storm Lake, Iowa at 620 Erie Street, Storm Lake, Iowa before **10:00 a.m.** on the **30th day of July, 2024**, for the construction of the City of Storm Lake Production Well No. 22 project in Storm Lake, Iowa. At the above time and place all bids received by the City will be opened and publicly read with the results being reported to the Council at their meeting on **August 5, 2024, at 5:00 p.m.**, at 620 Erie Street, Storm Lake, Iowa, at which time and place the City may take action on the proposals submitted or at such time as may then be fixed.

The general description of types of construction and their limits for which bids will be received shall be as follows:

Base Bid
Construction of water well with stainless steel production casing, water main, well house and associated components, minor grading and seeding and all other miscellaneous components necessary to complete the project per plans and specifications.

A more detailed description of the kinds and approximate quantities of materials and types of construction for which bids will be received are set forth in the Bid Form included in the specifications prepared by I+S Group, Inc. (ISG) of Storm Lake, Iowa, which, together with the proposed form of contract, have heretofore been approved by the City, and are now on file for public examination in the office of the City Clerk and are by this reference made part hereof as though fully set out and incorporated herein.

All proposals shall be made on official proposal forms furnished by the Engineer and must be enclosed in a separate sealed envelope and plainly identified and addressed to the City of Storm Lake.

Each proposal shall be accompanied by a cashier's check or certified check drawn on a state-chartered or federally chartered bank, or a certified share draft drawn on a state-chartered or federally chartered credit union, or a bidder's bond with corporate surety satisfactory to the Board in an amount equal to Ten percent (10%) of the total amount of the proposal. If bid bond is submitted, it must be in the form provided in these specifications. Said check or share draft may be cashed, or the bid bond forfeited as liquidated damages in the event the successful bidder fails or refuses to enter into a contract within ten (10) days of issuance of a Notice of Award and post bond satisfactory to the Board insuring the faithful fulfillment of the contract and maintenance of said improvements as required by law. The bid bond should be executed by a corporation authorized to contract as a surety in the State of Iowa, and must not contain any conditions either in the body or as an endorsement thereon.

The successful bidder will be required to furnish a corporate surety bond in an amount equal to one hundred per cent (100%) of the contract price, said bond to be issued by a responsible surety approved by the City, and shall guarantee the faithful performance of the contract and the terms and conditions therein contained, the payment for materials used in the project and the maintenance of said improvements in good repair for not less than **two (2) years** from the time of acceptance of said improvements by the City.

The City reserves the right to defer acceptance of any proposal for a period not to exceed sixty (60) calendar days from the date of receipt of bids. The City reserves the right to reject any or all bids and to waive informalities.

Payment of the cost of said project will be made from such cash funds of the City as may be legally used for said purpose at the discretion of the City, including but not limited to, net revenues of the water department, the proceeds from the sale of Revenue or General Obligation Bonds, and/or the proceeds from the sale of warrants, as authorized by Section 384.57 of the Code of Iowa, made payable from any or all of the above-mentioned sources. This project is funded through the State Revolving Fund (SRF) Program and IEDA's Community Development Block Grant Program (CDBG).

The Contractor will be paid ninety-five per cent (95%) of the Engineer's estimate of the value of acceptable work completed at the end of the preceding month. Final payment will be made not less than thirty-one (31) days after completion of the work and acceptance by the City, subject to the conditions and in accordance with the provisions of Chapter 573 of the Code of Iowa.

No such final payment will be due until the Contractor certifies to the City that the materials, labor, and services involved in the final estimate have been paid for in accordance with the requirements stated in the specifications.

The City of Storm Lake is exempt from paying Sales and Use Tax and will supply Contractor with an "Iowa Sales Tax Exemption Certificate" and an authorization letter to allow the Contractor to buy equipment and material for the project tax free.

The work on this project shall commence within ten (10) days after receipt by the contractor of a written notice to proceed. Subject to any changes in the contract period as provided for in these specifications, parts of the work must be substantially completed on or before the following milestones:

> Milestone 1: June 1, 2025 – Well completed and site setup to allow owner to run well manually. The contractor shall supply all intermediate connections necessary for running well without the remainder of the site being completed.
>
> Milestone 2: November 1, 2025 – Substantial completion of entire project. If equipment delays (such as generator or VFD) result in the contractor not being able to meet this date, the contractor shall provide all temporary equipment necessary to run well at no cost to the owner.

Liquidated damages in the amount of **$500** per calendar day will be assessed for each day that the work shall remain uncompleted after the **above referenced completion date** with due allowance for extensions of the contract period due to conditions beyond control of the Contractor.

By virtue of statutory authority, a preference will be given to products and provisions grown and coal produced within the State of Iowa.

In accordance with Iowa statutes, a resident bidder shall be allowed a preference as against a nonresident bidder from a state or foreign country if that state or foreign country gives or requires any preference to bidders from that state or foreign country, including but not limited to any preference to bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident. In the instance of a resident labor force preference, a nonresident bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident bidder is a resident.

Failure to submit a fully completed Bidder Status Form with the bid may result in the bid being deemed nonresponsive and rejected.

Plans and specifications governing the construction of the proposed improvements have been prepared by the Engineer. These plans and specifications, and the proceedings of the City referring to and defining said improvements, are hereby made a part of this Notice and the proposed contract by reference, and the proposed contract shall be executed to comply therewith.

Copies of said plans and specifications and form of contract are now on file in the office of City Clerk of Storm Lake, IA, for examination by bidders. Copies may be obtained from ISG, 1725 North Lake Avenue, Storm Lake, IA 50588, (712) 732-7745 upon deposit of one hundred dollars ($100.00) which shall be refunded upon return of the plans and specifications within fourteen days after award of the project. If the plans and specifications are not returned within fourteen days after award of the project and in a reusable condition, the deposit shall be forfeited. Plans and specifications may also be obtained by download from the ISG website at www.isginc.com.

Any bidder or equipment supplier whose firm or affiliate is listed in the GSA publication "List of Parties Excluded from Federal Procurement and Non-procurement Programs" will be prohibited from the bidding process. Anyone submitting a bid who is listed in this publication will be determined to be a non-responsive bidder in accordance with 40 CFR Part 31.

Published upon order of the City of Storm Lake, Iowa.

City of Storm Lake

BY /s/ Mike Porsch
Mayor

ATTEST:
BY /s/ Keri Navratil
City Manager

FUNDING REQUIREMENTS

This project is being funded by the State Revolving Fund (SRF) Program and IEDA's Community Development Block Grant (CDBG) Program.

The SRF Project Number is FS-11-23-DWSRF-070.

The following requirements shall apply to this project:

1. Davis Bacon Wage Rates
    a. Refer to Section "SRF Required Front-End Specifications" of the project manual, attachment 7.
    b. Refer to Section "Federal Contract Language" of the project manual.
    c. Refer to Section "Davis Bacon Wage Rates" of the project manual.
    d. The prime contractor is responsible for complying with all rules and regulations in regards to Federal Labor Standards Provisions and for ensuring that all subcontractors and suppliers are aware of the requirements and comply with said requirements.
    e. The prime contractor shall submit all payrolls to the engineer for review on a bi-weekly basis. These submittals are for the limited purpose of checking for compliance with information given in the Contract Documents.
2. Build America Buy America (BABA)
    a. Refer to Section "Federal Contract Language" of the project manual.
    b. Refer to "BABA Requirements" at the end of this document.
    c. The prime contractor is responsible for complying with all rules and regulations in regards to Build America Buy America and for ensuring that all subcontractors and suppliers are aware of the requirements and comply with said requirements.
    d. Prior to submitting shop drawings to the engineer, the contractor shall ensure that the proposed product meets BABA requirements.
    e. If any materials for the project do not appear to have a BABA compliant option, it is the contractor's responsibility to reach out to the engineer immediately to discuss if a waiver request to EPA is appropriate. The contractor shall evaluate all materials for BABA compliance as early as possible after the owner-contractor agreement is effective. The contractor's lack of planning at the front end of a project will not be an acceptable excuse for delays to the contract completion date at the end of the project.
    f. The prime contractor shall submit all certification letters to the engineer for review immediately upon material delivery. These submittals are for the limited purpose of checking for compliance with information given in the Contract Documents. Payment by Owner for said material shall be withheld until the appropriate certification letter is submitted to the engineer in full compliance with the guidance outlined in the project manual.
    g. BABA includes American Iron & Steel (AIS)
        i. Refer to Section "SRF Required Front-End Specifications" of the project manual, attachment 9.

ii. The prime contractor is responsible for complying with all rules and regulations in regards to American Iron & Steel Requirements and for ensuring that all subcontractors and suppliers are aware of the requirements and comply with said requirements.
iii. Prior to submitting shop drawings to the engineer, the contractor shall ensure that the proposed product meets AIS requirements.
iv. The prime contractor shall submit all certification letters to the engineer for review immediately upon material delivery. These submittals are for the limited purpose of checking for compliance with information given in the Contract Documents. Payment by Owner for said material shall be withheld until the appropriate certification letter is submitted to the engineer in full compliance with the guidance outlined in the project manual.

BABA Requirements

This project must comply with the following requirements:

1. All iron and steel used in the project are produced in the United States. This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
2. All manufactured products used in the project are produced in the United States. This means the manufactured product was manufactured in the United States, and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation.
3. All construction materials are manufactured in the United States. This means that all manufacturing processes for the construction material occurred in the United States.

Initial Implementation Guidance on Application of Buy America Preference in Federal Financial Assistance Programs for Infrastructure can be found here: M-22-11 (whitehouse.gov)

Additional information, including any published waivers, is posted on the EPA website,

https://www.epa.gov/cwsrf/build-america-buy-america-baba.

BABA Covered and Non Covered Items

- Iron and steel + manufactured products + construction materials
- Items should only be classified into ONE of the three categories

- Applies to items consumed in, incorporated into or affixed to an infrastructure project (aka permanently incorporated)
- Does not apply to items brought to and removed from the construction site prior to the completion of the infrastructure project (e.g., temporary scaffolding)
- Does not apply to equipment and furnishings that are used at or within the finished infrastructure project (e.g., movable chairs, desks, portable computer equipment)

Definition of Iron and Steel -

- Items that are predominantly iron or steel, unless another standard applies under law or regulation
- All manufacturing processes, from the initial melting stage through the application of coatings, must occur in the U.S.

Definition of Manufactured Products -

- Manufactured in the U.S.
- Cost of components that are mined, produced, or manufactured in the U.S. is greater than 55 percent of the total cost of all components of the manufactured product
- Unless another standard for determining the minimum amount of domestic content has been established under applicable law or regulation

Construction Materials -

Includes:

- Non-ferrous metals
- Plastic and polymer-based products (including PVC, composite building materials, and polymers used in fiber optic cables)
- Glass (including optic glass)
- Lumber
- Drywall

Excludes:

- Items made primarily of iron or steel
- Manufactured products
- Cement and cementitious materials

- Aggregates such as stone, sand, or gravel
- Aggregate binding agents/additives

The successful bidder will fill out the materials spreadsheet (located in the project manual) and submit it to the engineer to indicate items proposed to be procured for the project.

CLIENT NAME: PROJECT TITLE: IEDA PROJECT NUMBER:				
ITEM NO.	**BABAA COVERED PRODUCT**	**CLASSIFICATION TYPE**		**DEFINITIONS**
1				
2				**Iron or Steel Products** – any article, material, or supply that consists wholly or predominantly of iron or steel or a combination of both.
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7				**Construction Materials** – any article, material, or supply that consists of only one of the following items: Non-ferrous metals Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables Glass (including optic glass) Fiber optic cable (including drop cable) Lumber Engineered wood. Drywall
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19				**Manufactured Products** – any article, material, or supply that have been processed into a specific form and shape or combined with other articles, materials, or supplies to create a product with different properties that the individual article, material, or supply. The cost of components from domestic sources must be greater than 55% of the total cost of all components.
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29				**NOTE** - IEDA has confirmed that appliances are not subject to BABAA, but things that are installed and part of the permanent project such as carpet, flooring, cabinets, countertops, etc. would be required to be BABAA compliant.
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CLIENT NAME: PROJECT TITLE: IEDA PROJECT NUMBER:				
ITEM NO.	BABAA COVERED PRODUCT	CLASSIFICATION TYPE		DEFINITIONS
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CLIENT NAME: PROJECT TITLE: IEDA PROJECT NUMBER:				
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CLIENT NAME: PROJECT TITLE: IEDA PROJECT NUMBER:				
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CLIENT NAME: PROJECT TITLE: IEDA PROJECT NUMBER:				
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CLIENT NAME: PROJECT TITLE: IEDA PROJECT NUMBER:				
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CLIENT NAME: PROJECT TITLE: IEDA PROJECT NUMBER:				
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CLIENT NAME: PROJECT TITLE: IEDA PROJECT NUMBER:				
ITEM NO.	BABAA COVERED PRODUCT	CLASSIFICATION TYPE		DEFINITIONS
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CLIENT NAME: PROJECT TITLE: IEDA PROJECT NUMBER:				
ITEM NO.	BABAA COVERED PRODUCT	CLASSIFICATION TYPE		DEFINITIONS
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BID FORM

CITY OF STORM LAKE PRODUCTION WELL NO. 22

Storm Lake, Iowa

Project No. 22-27926

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

City of Storm Lake
Attn: City Clerk
620 Erie Street
Storm Lake, Iowa 50588

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum, Date

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and

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observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

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4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the e execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following lump sum (stipulated) price:

Base Bid

Lump Sum Bid Price	$
Lump Sum Contingency Allowance	$90,000
Total of Lump Sums	

The contingency allowance is set aside for additional well development and well depth changes due to the geological formation. Any additional well development due to the contractor's construction methods will not be reimbursed.

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that parts of the work must be substantially completed on or before the following milestones:

A. Milestone 1: June 1, 2025, well completed and site setup to allow owner to run well manually. Contractor shall supply all intermediate connections necessary for running well without the remainder of the site completed.

B. Milestone 2: November 1, 2025, substantial completion of entire project. If equipment delays (such as generator or VFD) result in contractor not being able to meet this date, the contractor shall provide all temporary equipment necessary to run well at no cost to owner.

and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **thirty-one (31) calendar days** after the completion of the work and acceptance by the owner.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security;

B. Required Bidder Status Form.

C. DUNS number, tax ID number, and Iowa Contractor's license number.

D. SRF Required Attachments

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

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ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

_____

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

_____

_____

_____

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

_____

Bidder's License No.: _____

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SRF Required Front-End Specifications

Attachment 1: Certification of Non-Segregated Facilities Form *(to be completed and signed by Prime Contractor and submitted with the bid)*

Attachment 2: Statement in Advertisement for Bids on Debarment and Suspension/Certification Regarding Debarment and Suspension Form *(to be completed and signed by Prime Contractor and submitted with the bid)*

Attachment 3: Disadvantaged Business Enterprise Certification Form *(to be completed and signed by Prime Contractor and submitted with the bid)*

Attachment 4: DBE Program Subcontractor Performance Form *(to be completed and signed by Prime and DBE Subcontractor for each subcontract and submitted with the bid)*

*If no DBE was chosen by the Prime Contractor to be utilized for this project, then this form is not required to be submitted.

Attachment 5: DBE Program Subcontractor Utilization Form *(to be completed and signed by Prime and DBE Subcontractor for each subcontract and submitted with the bid)*

* If no DBE was chosen by the Prime Contractor to be utilized for this project, then this form is not required to be submitted.

Attachment 6: DBE Program Subcontractor Participation Form *(for voluntary use of DBEs)*

Attachment 7: Other Federal Requirements Language

A. Standard Equal Employment Opportunity Specifications
B. Federal Labor Standards Provisions *(including Davis-Bacon prevailing wage rates**)*
C. Preservation of Open Competition and Government Neutrality
D. Historical and Archeological Finds
E. Prohibitions on Procurement from Violating Facilities

Attachment 8: Right of Entry and Records Retention

Attachment 9: American Iron and Steel Requirements

Attachment 10: Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment *(to be completed and signed by Prime Contractor and submitted with the bid)*

Attachment 1
SRF Required Front-End Specifications
(This form must be completed and signed by Prime Contractor and submitted with the bid.)

U.S. Environmental Protection Agency
Certification of Non-Segregated Facilities

(Applicable to contracts, subcontracts, and agreements with applicants who are themselves performing federally assisted construction contracts, exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause.)

By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national original, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATIONS OF NON-SEGREGATED FACILITIES

A Certification of Non-segregated Facilities, as required by the May 9, 1967, order (33 F.R. 7808, May 28, 1968) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

Signature	Date
Printed Name	Title

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

EPA-7 5720-4.2

Attachment 2

SRF Required Front-End Specifications

(This form must be completed and signed by the Prime Contractor and submitted with the bid.)

Debarments and Suspensions

Any bidder or equipment supplier whose firm or affiliate is listed in on the U.S. General Services Administration Excluded Parties List will be prohibited from the bidding process. The excluded parties records search engine is located at the System for Award Management (SAM) website: https://sam.gov. Pursuant to 2 CFR Part 180, as supplemented by 2 CFR 1532, any entity submitting a bid while the SAM website lists that entity as having an active exclusion will be determined by the DNR to be a non-responsive bidder and will not be able to receive SRF funding.

United States Environmental Protection Agency Washington, DC 20460

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and the principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction: violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 U SC Sec. 10 01, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

Signature of Authorized Representative	Date
Printed Name	Title

☐ I am unable to certify to the above statements. My explanation is attached.

Attachment 3

SRF Required Front-End Specifications

(This form must be completed and signed by Prime Contractor and submitted with the bid.)

Disadvantaged Business Enterprise (DBE) Solicitation

It is EPA's policy that recipients of EPA financial assistance through the State Revolving Fund programs award a "fair share" of subagreements to small, minority and women-owned businesses, collectively known as Disadvantaged Business Enterprises (DBEs). Iowa's Fair Share goals are:

	Minority-Owned Business Enterprise (MBE) Goal	Women-Owned Business Enterprise (WBE) Goal
Construction	1.7%	2.2%
Supplies	0.6%	5.6%
Services	2.5%	11.3%
Goods/Equipment	2.5%	10.4%
Average	1.8%	7.4%

Only work performed by certified DBEs can be counted toward the goals. In Iowa, DBEs must be certified through the Iowa Department of Transportation (IDOT). Information on certification requirements and a list of certified DBEs is on the IDOT website at https://secure.iowadot.gov/DBE/Home/Index/.

Prime contractors' DBE requirements for SRF projects include:

- Taking affirmative steps for DBE participation
- Documenting the efforts and the proposed utilization of certified DBEs

PROJECT INFORMATION

SRF Applicant: _____ Bidder: _____

Address: _____

City: _____ State: _____ Zip: _____

Contact Person: _____

Phone Number: _____ Email: _____

Check if Prime Contractor is: ☐ Minority-Owned ☐ Women-Owned

1. Do you agree to use the good faith efforts checklist to ensure the DBEs have the opportunity to compete for procurements funded by EPA financial assistance funds?
   ☐ Yes ☐ No

2. At this point in time, has the prime contractor begun to solicit work opportunities to subcontractors for this project?
   ☐ Yes ☐ No ☐ N/A

3. If yes, was a DBE chosen by the prime contractor to be utilized for this project?
   ☐ Yes ☐ No

Signature: _____

GOOD FAITH EFFORTS CHECKLIST

Please complete the checklist to determine if you have complied with the requirement to make good faith efforts to ensure that certified DBEs have the opportunity to compete for procurements funded by EPA financial assistance funds. Bidders/offerers must make good faith efforts prior to submission of bids/proposals.

1. Did you ensure that DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities?

   ☐ Yes ☐ No

2. Did you make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process? This includes, whenever possible, posting solicitation for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.

   ☐ Yes ☐ No

3. Did you consider in the contracting process whether firms competing for large contracts could subcontract with DBEs? This will include dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

   ☐ Yes ☐ No

4. Did you encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually?

   ☐ Yes ☐ No

5. Did you use the services of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce to identify potential subcontractors?

   ☐ Yes ☐ No

6. List the potential DBE subcontractors that were contacted. Only list those that are certified through the Iowa Department of Transportation.

Name	**How Contacted** (e.g. letter, phone call, fax, e-mail)	**Response** (e.g. did not respond, not interested, not competitive)

PROPOSED UTILIZATION OF DBE SUBCONTRACTORS

Please include Attachments 4 and 5 to document the proposed utilization of certified DBE subcontractors.

CONTRACT ADMINISTRATION PROVISIONS

Several contract provisions are required to prevent unfair practices that adversely affect DBEs. These include:

1. Prime Contractor must pay its Subcontractor for satisfactory performance no more than 30 days from the Prime Contractor's receipt of payment from the SRF loan recipient.

2. Prime Contractor must notify the SRF loan recipient in writing prior to termination of a DBE subcontractor for convenience.
3. Prime Contractor must employ the six Good Faith Efforts to solicit a replacement subcontractor if a DBE subcontractor fails to complete work under a subcontract for any reason.

Attachment 4
SRF Required Front-End Specifications

(This form must be completed and signed by Prime and DBE Subcontractor for each subcontract and submitted with the bid.)
* If no DBE was chosen by the Prime Contractor to be utilized for this project, then this form is not required to be submitted.

Disadvantaged Business Enterprise Program
DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name: _____

Project Name: _____

Bid/Proposal No.: _____ Assistance Agreement ID No. (if known): _____

Point of Contact: _____

Address: _____

Telephone No.: _____ Email: _____

Prime Contractor Name: _____

Issuing/Funding Entity: _____

Contract Item Number	Description of Work Submitted to the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor

DBE Certified by ☐ DOT ☐ SBA ☐ Other: _____

Meets/exceeds EPA certification standards? ☐ Yes ☐ No ☐ Unknown

[1]A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certification as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.
[2]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

IA SRF6100-3

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date
Subcontractor Signature	Print Name
Title	Date

IA SRF6100-3

Attachment 5
SRF Required Front-End Specifications

(This form must be completed and signed by Prime Contractor and submitted with the bid if utilizing DBE subcontractors.)
* If no DBE was chosen by the Prime Contractor to be utilized for this project, then this form is not required to be submitted.

Disadvantaged Business Enterprise Program
DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or intended use of identified certified DBE[1] subcontractors[2] and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name: _____

Project Name: _____

Bid/Proposal No.: _____ Assistance Agreement ID No. (if known): _____

Point of Contact: _____

Address: _____

Telephone No.: _____ Email: _____

Issuing/Funding Entity: _____

I have identified potential DBE certified subcontractors ☐ Yes ☐ No

If yes, complete the table below. If no, explain: _____

Subcontractor Name/ Company Name	Company Address/Phone/Email	Estimated Dollar Amount	Currently DBE Certified?
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No

[1]A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certification as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.
[2]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

IA SRF6100-4

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	Date

IA SRF6100-4

Attachment 6
SRF Required Front-End Specifications
(This form is for the voluntary use of DBE Subcontractors.)

Disadvantaged Business Enterprise Program
DBE Subcontractor Participation Form

An EPA Financial Assistance Agreement Recipient must require its prime contractors to provide this form to its DBE subcontractors. **The use of this form by DBE subcontractors is voluntary and is not required for bidding.** This form gives a DBE[1] subcontractor[2] the opportunity to describe work received and/or report any concerns regarding the EPA-funded project (e.g. in areas such as termination by prime contractor, late payments, etc.). The DBE subcontractor can, as an option, complete and submit this form to the EPA DBE Coordinator at any time during the project period of performance.

Subcontractor Name: _____

Project Name: _____

Bid/Proposal No.: _____ Assistance Agreement ID No. (if known): _____

Point of Contact: _____

Address: _____

Telephone No.: _____ Email: _____

Prime Contractor Name: _____

Issuing/Funding Entity: _____

Contract Item Number	Description of Work Submitted to the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor

[1]A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certification as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.
[2]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

IA SRF6100-2

Please use the space below to report any concerns regarding the above EPA-funded project:

Subcontractor Signature	Print Name
Title	Date

Return to: Regional Coordinator, Small Business Utilization, U.S. Environmental Protection Agency, Region 7, 11201 Renner Blvd, Lenexa KS 66219

IA SRF6100-2

Attachment 7
SRF Required Front-End Specifications

Other Federal Requirements Language

A. Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

1. As used in these specifications:
   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
   d. "Minority" includes:
      i. Black (all persons having origin in any of the Black African racial groups not of Hispanic origin);
      ii. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
      iii. Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Sub-continent, or the Pacific Islands); and
      iv. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 6-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employee in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work in being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal emp1oyment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
   a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor employees are assigned to work. The Contractor, where possible will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
   b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available and maintain a record of the organizations' responses.
   c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
   d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's effort, to meet its obligations.
   e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the source complied under 7b above.
   f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
   g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
   h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the

Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and test to be used in the selection process.
j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.
k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
m. Ensure that seniority practices, job classifications work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetable or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps at least as extensive as those standards prescribed in paragraph 7 of these specifications so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

Federal Register, Vol. 43, No. 68 - Friday, April 7, 1978 (Corrected May 5, 1978).
Effective Date: May 8, 1978
Federal Register, Vol. 45, No. 194. Paragraph 4, revised October 3, 1980
Effective Date: September 30, 1980

APPENDICES A and B-80
Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity
(Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

(See Appendix B-80 and Appendix A Below)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and in the regulations in 41 CFR Part 60 - 4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set

forth in 41 CFR 60 - 4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60 - 4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer Identification number of the subcontractor, estimated dollar amount of the subcontract, and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (State of Iowa).

APPENDIX A

The following goals and timetables for female utilization shall be included in all Federal and federally assisted construction contracts and subcontracts in excess of $10,000. The goals are applicable to the contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a Federal or federally assisted construction contract or subcontract.

Area covered: Goals for Women apply nationwide.

Timetable Goals (percent)
From Apr. 1, 1978 until March 31, 1979 .....3.1
From Apr. 1, 1979 until March 31, 1980 .....5.0
From Apr. 1, 1980 until March 31, 1981 .....6.9

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APPENDIX B-80

Until further notice, the following goals for minority utilization in each construction craft and trade shall be included in all Federal or federally assisted construction contracts and subcontracts in excess of $10,000 to be performed in the respective geographical areas. The goals are applicable to each nonexempt contractor's total onsite construction workforce, regardless of whether or not part of that workforce is performing work in a Federal, federally assisted or nonfederally related project, contract or subcontract. Construction contractors which are participating in an approved Hometown Plan (see 41 CFR 60 - 4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply with the applicable SMSA of EA goal contained in this appendix B-80.

Economic Areas

State: Iowa Goal %

096 Dubuque IA:
SMSA Counties:
2200 Dubuque, IA 0.6
IA Dubuque
Non-SMSA Counties 0.5

IA Allamakee, IA Clayton, IA Delaware, IA Jackson IA Winneshiek

099 Davenport Rock Island Moline, IA-IL:
SMSA Counties:
1960 Davenport Rock Island Moline, IA-IL.....4.6
IL Henry, IL Rock Island Moline, IA Scott
Non-SMA Counties.....3.4
IL Carroll, IL Hancock, IL Henderson, IL Mercer, IL Whiteside, IA Clinton, IA Des Moines, IA Henry, IA Lee, IA Louisa, IA Muscatine, MO Clark

100 Cedar Rapids, IA:
SMSA Counties:
1360 Cedar Rapids, IA 1.7
IA Linn
Non-SMSA Counties 1.5
IA Benton, IA Cedar, IA Iowa, IA Johnson, IA Jones, IA Washington

101 Waterloo, IA:
SMSA Counties:
8920 Waterloo-Cedar Falls, IA.....4.7
IA Black Hawk
Non-SMSA Counties 2.0
IA Bremer, IA Buchanan, IA Butler, IA Cerro Gordo, IA Chickasaw, IA Fayette, IA Floyd, IA Franklin, IA Grundy, IA Hancock, IA Hardin, IA Howard, IA Mitchell, IA Winnebago, IA Worth

102 Fort Dodge, IA:
Non-SMSA Counties 0.4
IA Buena Vista, IA Calhoun, IA Carroll, IA Clay, IA Dickinson, IA Emmet, IA Greene, IA Hamilton, IA Humboldt, IA Kossuth, IA Palo Alto, IA Pocahontas, IA Sac, IA Webster, IA Wright

103 Sioux City, IA:
SMSA Counties:
7720 Sioux City, IA-NE 1.9
IA Woodbury, NE Dakota
Non-SMSA Counties 1.2
IA Cherokee, IA Crawford, IA Ida, IA Monona, IA O'Brien, IA Plymouth, IA Sioux, NE Antelope, NE Cedar, NE Cuming, NE Dixon, NE Knox, NE Madison, NE Pierce, NE Stanton, NE Thurston, NE Wayne, SD Bon Homme, SD Clay, SD Union, SD Yankton

104 Des Moines, IA:
SMSA Counties:
2120 Des Moines, IA 4.5
IA Polk, IA Warren

Non SMSA Counties: 2.4
IA Adair, IA Appanoose, IA Boone, IA Clarke, IA Dallas, IA Davis, IA Decatur, IA Guthrie, IA Jasper, IA Jefferson, IA Keokuk, IA Lucas, IA Madison, IA Mahaska, IA Marion, IA Marshall, IA Monroe, IA Poweshiek, IA Ringgold, IA Story, IA Tama, IA Union, IA Van Buren, IA Wapello, IA Wayne

143 Omaha, NE:
SMSA Counties:
5920 Omaha, NE-IA.....7.6
IA Pottawattamie, NE Douglas, NE Sarpy
Non-SMSA Counties.....5.3
IA Adams, IA Audubon, IA Cass, IA Fremont, IA Harrison, IA Mills, IA Montgomery, IA Page, IA Shelby, IA Taylor, NE Burt, NE Cass, NE Colfax, NE Dodge, NE Platte, NE Saunders, NE Washington

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B. Federal Labor Standards Provisions (including Davis-Bacon prevailing wage rates) Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

(1) Minimum wages.
(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in Sec. 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.
(ii) (A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
(2) The classification is utilized in the area by the construction industry; and
(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized

representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The EPA shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the EPA may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii) (A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as

the case may be, for transmission to the (write in name of agency). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/whd/programs/dbra/forms.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under Sec. 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under Sec. 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where

appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rateon the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the (write in the name of the Federal agency) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (and any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(b) Contract Work Hours and Safety Standards Act. The Agency Head shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Sec. 5.5(a) or 4.6 of part 4 of this title. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The loan recipient shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in Sec. 5.1, the Agency Head shall cause

or require the contracting officer to insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Agency Head shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the EPA and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

C. Preservation of Open Competition and Government Neutrality Towards Government Contractors' Labor Relations on Federal and Federally Funded Construction Projects (Executive Order 13202, as amended by Executive Order 13208)

Executive Order 13202, signed February 17, 2001 and amended April 4, 2001, requires all executive agencies that issue grants to ensure Government neutrality toward contractors' labor relations. This applies to recipients of SRF assistance. The Executive Order prohibits discrimination against contractors and their employees in construction contracts based upon labor affiliation or lack thereof.

SRF assistance recipients and any construction managers acting on their behalf must ensure that bidding specifications, project agreements, and other controlling documents do not require, prohibit, or otherwise discriminate, with respect to labor affiliation or lack thereof.

D. Historical and Archeological Finds

If, during the course of construction, evidence of deposits of historical or archeological interest is found, the contractor shall cease operations affecting the find. The owner shall then notify the State Revolving Fund Environmental Review Specialist, who shall in turn notify the State Historic Preservation Office. The SRF shall consult with the SHPO and other interested parties to determine the proper course of action regarding the discovery. No further disturbance of the deposits shall ensue until the SRF Environmental Review Specialist determines that the project activities in that area may proceed. Compensation to the contractor, if any, for lost time or changes in construction to avoid the find, shall be determined in accordance with changed conditions or change order provisions of the specifications.

Authority for this derives from the National Historic Preservation Act (16 U.S.C. §§ 470 *et seq.*) and 36 CFR Part 800. If human remains are discovered then state law also applies IC 263B.

E. Prohibitions on Procurement from Violating Facilities (Section 306, Clean Air Act; Section 508, Clean Water Act; Executive Order 11738)

Both the Clean Water Act and the Clean Air Act prohibit federal agencies from extending assistance by way of loans or contracts to persons who have been convicted of violations of either law. Executive Order 11738 was issued to coordinate enforcement by the U.S. Environmental Protection Agency, which shall designate facilities which have given rise to a conviction for an offense under the criminal provisions of the Clean Air Act and the Clean Water Act.

The Executive Order also prohibits agencies from extending assistance to facilities that are not in compliance with either Act.

SRF assistance recipients may not procure goods, services, or materials from suppliers listed by the EPA as violators.

The Excluded Parties Listing search engine is located at the System for Award Management (SAM) website: https://sam.gov.

Attachment 8
SRF Required Front-End Specifications

Right of Entry and Records Retention

The recipient shall provide access at all times for the Department of Natural Resources, the Iowa Finance Authority, the state auditor, and the U.S. EPA Office of the Inspector General to all project records and documents for inspection and audit purposes for a period of three years after the date of last loan payment. The same access to the project site(s) shall be provided for inspection purposes.

567 Iowa Administrative Code paragraph 92.8 (2).e. State inspections. Personnel of the department shall have the right to examine all construction aspects of the project, including materials and equipment delivered and stored on site for use on the project.

Attachment 9
SRF Required Front-End Specifications

"American Iron and Steel" Requirements

H.R. 3547, the "Consolidated Appropriations Act, 2014," enacted January 17, 2014 by the U.S. Congress, includes "American Iron and Steel" provisions that require Clean Water and Drinking Water State Revolving Fund assistance recipients of these funds to use iron and steel produced in the United States.

H.R. 3547 includes the following language in Division G, Title IV, under the heading, "Use of American Iron and Steel":

> Sec. 436. (a)(1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.
>
> (2) In this section, the term "iron and steel products" means the following products made primarily of iron and steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.
>
> (b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the "Administrator") find that—
>
> 1) Applying subsection (a) would be inconsistent with the public interest;
> 2) Iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quantity; or
> 3) Inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.
>
> (c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

The final guidance and any published waivers are found at: https://www.epa.gov/cwsrf/state-revolving-fund-american-iron-and-steel-ais-requirement. In particular the contractor should pay attention to the guidance for documentation of

compliance. There is also a waiver for incidental items; in order to qualify for this waiver the total materials and costs for the project must be tracked and incidental items identified.

Sample "American Iron and Steel" Contract Language

In order to fulfill the requirements, the assistance recipient must in good faith design the project and solicit bids for construction with U.S.-made iron and steel. The following information will be included in any contracts resulting from this request for bids:

The Contractor acknowledges to and for the benefit of the City of _____ ("Purchaser") and the State of Iowa (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund and such law contains provisions commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contactor pursuant to this Agreement.

The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

Sample Certifications

As indicated in the contract language, it will be the responsibility of the Contractor to obtain certifications that the products and materials used in the project are U.S.-made. EPA recommends the use of a step certification process for documenting compliance with AIS requirements, similar to one used by the Federal Highway Administration. Step certification creates a paper trail which documents the location of the manufacturing process involved with the production of steel and iron materials. Each handler (supplier, fabricator, manufacturer, processor, coater, etc.) of the iron and steel products certifies that their step in the process was domestically performed.

The following information is provided as a sample letter of step certification for AIS compliance. Documentation must be provided on company letterhead. In this example, there may be multiple letters from different manufacturers if one manufacturer did not perform all of the steps.

Date

Company Name
Company Address
City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx

2. Xxxx

3. Xxxx

Such process took place at the following location:

_____

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

Alternatively, the final manufacturer that delivers the iron or steel product to the worksite, vendor, or contractor, may provide a certification asserting that all manufacturing processes occurred in the US and providing detailed information on the steps involved.

The following is a template for this type of final certification.

Template American Iron and Steel Certification Letter

On Manufacturer's Letterhead

IRON & STEEL, INC.
1959 Steel Drive
Ironville, OH 12345

MATERIAL CERTIFICATION

April 30, 2015

RE: Job Name: Waterprojectville, Iowa – 2015 State Revolving Fund Water Infrastructure Project
SRF Project Number: CS1920999 01

References the SRF Project

I certify that the processes for manufacturing or fabricating the following products and/or materials provided for the subject project took place at the following U.S. locations:

Quantity	Description	Manufacturing Processes	Location Where Processes Occurred
3 count	AB123456 4" Gate Valve	Melting, poured, machined	Ironville, OH
60 count	XY654321 Reinforced Concrete Manhole	Melted, rolled, fabricated	Steel City, IA
60 count	XZ123456 Manhole Cover	Melted, cast, finished	Stainless, MS
1200 linear feet	AB654321 4" Ductile Iron Water Pipe	Melted, rolled, finished	Pipetown, CA

I further certify that the products and/or materials are in full compliance with the American Iron and Steel requirements as mandated in the U.S. Environmental Protection Agency's State Revolving Fund programs. If any of the above compliance statements change while providing material to this project we will immediately notify the supplier, prime contractor, consulting engineer, or project owner.

Specifies the Products and Quantities

Specifies the Manufacturing Processes and the U.S. Locations Where They Were Performed

On behalf of IRON & STEEL, INC.,

Jane Smith

Jane Smith
Product Quality Manager

Signature of Manufacturer's Representative

Covered and Non-Covered Items

The EPA issued a waiver for De Minimus incidental components of eligible water and wastewater infrastructure projects. Funds used for such De Minimus incidental components cumulatively may comprise no more than a total of 5% of the total cost of the materials used in and incorporated into a project. The cost of an individual incidental item may not exceed 1% of the total cost of the materials used in and incorporated into a project.

De Minimus incidental items include miscellaneous, generally low-cost components that are essential for, but incidental to, the construction and are incorporated into the physical structure of the project. For many of these incidental components, the country of manufacture and the availability of alternatives are not readily or reasonably identifiable prior to procurement in the normal course of business. For others, the country of manufacture may be known but the miscellaneous character in conjunction with the low cost, individually and (in total) as typically procured in bulk, mark them as properly incidental.

Examples of incidental components could include small washers, screws, fasteners (i.e., nuts and bolts), miscellaneous wire, corner bead, ancillary tube, etc. Examples of items that are clearly not incidental include significant process fittings (i.e., tees, elbows, flanges, and brackets), distribution system fittings and valves, force main valves, pipes, treatment and storage tanks, large structural supports, etc.

In consultation with their contractors, assistance recipients should determine the items to be covered by this waiver, and must retain relevant documentation (i.e. invoices) as to those items. Assistance recipients must summarize in reports to the State of Iowa the types and/or categories of items to which this waiver is applied, the total cost of incidental components for each type or category, and the calculations by which they determined the total cost of materials used in and incorporated into the project.

The successful bidder will fill out the materials spreadsheet (shown below) and submit it to the assistance recipient to indicate iron and steel items proposed to be procured for the project.

American Iron and Steel Materials Spreadsheet – to be Submitted by Successful Bidder
Iowa Department of Natural Resources - January 2021
Based on EPA Memorandum (4/15/2014): De Minimis Waiver of Section 436 of P.L. 113-76, Consolidated Appropriation Acts (CAA), 2014

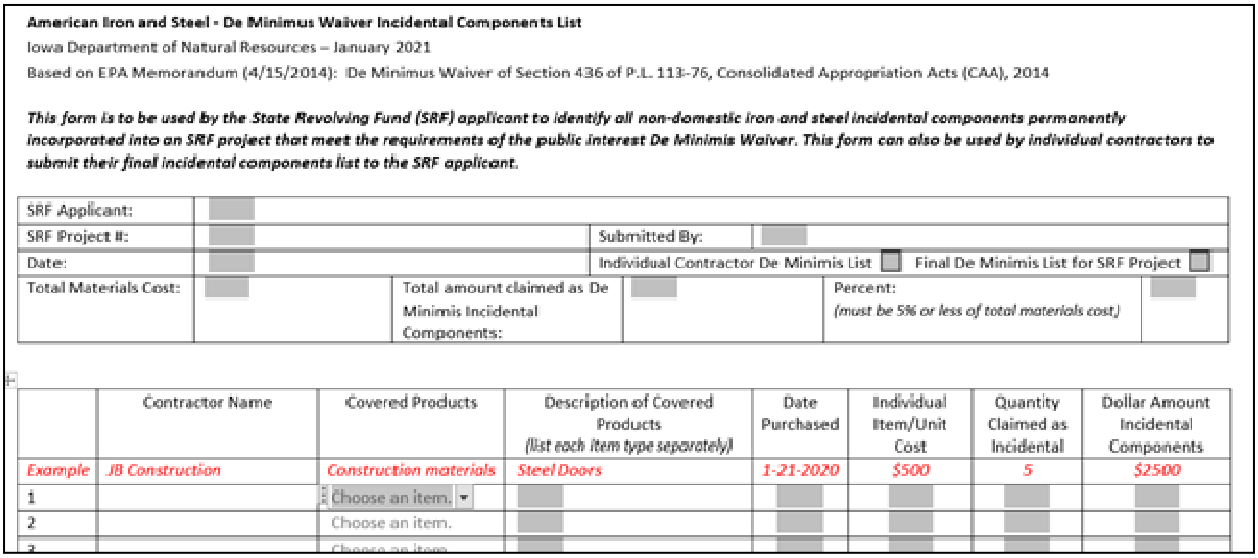
Project:			
Bidder:		Date:	

*Covered Product Categories include: Lined or unlined pipes or fittings; manhole covers; municipal castings; pipe clamps and restraints; valves; structural steel; hydrants, tanks; flanges; reinforced precast concrete; construction materials.

**Incidental items are miscellaneous, generally low-cost items, often procured in bulk, such as washers, screws, fasteners, small amounts of wire, etc.

	Covered Products Category*	Description of Covered Products	Documentation Will be Obtained	Item is Incidental and will be claimed under De Minimis Waiver**	Bid Amount Covered Products	Bid Amount Incidentals
1	Choose an item.					
2	Choose an item.					
3	Choose an item.					
4	Choose an item.					
5	Choose an item.					

At the end of construction, the contractor will submit a final list showing covered items being claimed as incidental components under the De Minimis Waiver. Assistance recipients will complete a De Minimis Waiver Incidental Components List for the entire project to demonstrate compliance with the De Minimis Waiver cost requirements outlined above.



American Iron and Steel - De Minimus Waiver Incidental Components List

Iowa Department of Natural Resources – January 2021

Based on EPA Memorandum (4/15/2014): IDe Minimus Waiver of Section 436 of P.L. 113-76, Consolidated Appropriation Acts (CAA), 2014

This form is to be used by the State Revolving Fund (SRF) applicant to identify all non-domestic iron and steel incidental components permanently incorporated into an SRF project that meet the requirements of the public interest De Minimis Waiver. This form can also be used by individual contractors to submit their final incidental components list to the SRF applicant.

SRF Applicant:			
SRF Project #:		Submitted By:	
Date:		Individual Contractor De Minimis List ☐	Final De Minimis List for SRF Project ☐
Total Materials Cost:		Total amount claimed as De Minimis Incidental Components:	Percent: *(must be 5% or less of total materials cost)*

	Contractor Name	Covered Products	Description of Covered Products *(list each item type separately)*	Date Purchased	Individual Item/Unit Cost	Quantity Claimed as Incidental	Dollar Amount Incidental Components
Example	*JB Construction*	*Construction materials*	*Steel Doors*	*1-21-2020*	*$500*	*5*	*$2500*
1		Choose an item.					
2		Choose an item.					
3		Choose an item.					

These documents are available online at http://www.iowasrf.com/documents-and-guides/

Attachment 10
SRF Required Front-End Specifications
(This form must be completed and signed by Prime Contractor and submitted with the bid.)

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

This term and condition implements 2 CFR 200.216 and is effective for obligations and expenditures of EPA financial assistance funding on or after 8/13/2020. EPA recipients and subrecipients, including borrowers under EPA funded revolving loan fund programs, are prohibited from obligating or expending loan or grant funds to:

(a) Procure or obtain, extend or renew a contract to procure or obtain;
(b) Enter into a contract (or extend or renew a contract) to procure; or
(c) Obtain the equipment, services, or systems that use "covered telecommunications equipment or services"

identified in the regulation as a substantial or essential component of any system, or as critical technology as part of any system.

Certain equipment, systems, or services, including equipment, systems, or services produced or provided by entities subject to the prohibition are recorded in the System for Award Management exclusion list, website: https://sam.gov.

(1) As described in Public Law 115-232, section 889, covered telecommunications equipment or services includes:
    (i) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
    (ii) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
    (iii) Telecommunications or video surveillance services provided by such entities or using such equipment.
    (iv) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

(2) Consistent with 2 CFR 200.471, costs incurred for telecommunications and video surveillance services or equipment such as phones, internet, video surveillance, and cloud servers are allowable except for the following circumstances:
    (i) Obligating or expending EPA funds for covered telecommunications and video surveillance services or equipment or services to procure (enter into, renew or extend contracts) or obtain the equipment, services, or systems as described in 2 CFR 200.216.

I understand the above prohibitions and certify that the project will be in compliance with all the requirements.

Signature	Date
Printed Name	Title

"General Decision Number: IA20240081 01/05/2024

Superseded General Decision Number: IA20230081

State: Iowa

Construction Types: Heavy and Highway

Counties: Adair, Adams, Allamakee, Appanoose, Audubon, Benton, Black Hawk, Boone, Bremer, Buchanan, Buena Vista, Butler, Calhoun, Carroll, Cass, Cedar, Cerro Gordo, Cherokee, Chickasaw, Clarke, Clay, Clayton, Clinton, Crawford, Dallas, Davis, Decatur, Delaware, Des Moines, Dickinson, Dubuque, Emmet, Fayette, Floyd, Franklin, Fremont, Greene, Grundy, Guthrie, Hamilton, Hancock, Hardin, Harrison, Henry, Howard, Humboldt, Ida, Iowa, Jackson, Jasper, Jefferson, Johnson, Jones, Keokuk, Kossuth, Lee, Linn, Louisa, Lucas, Lyon, Madison, Mahaska, Marion, Marshall, Mills, Mitchell, Monona, Monroe, Montgomery, Muscatine, O'Brien, Osceola, Page, Palo Alto, Plymouth, Pocahontas, Polk, Pottawattamie, Poweshiek, Ringgold, Sac, Shelby, Sioux, Story, Tama, Taylor, Union, Van Buren, Wapello, Warren, Washington, Wayne, Webster, Winnebago, Winneshiek, Woodbury, Worth and Wright Counties in Iowa.

HIGHWAY CONSTRUCTION PROJECTS and HEAVY CONSTRUCTION PROJECTS
Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	• Executive Order 14026 generally applies to the contract. • The contractor must pay all covered workers at least $17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	• Executive Order 13658 generally applies to the contract. • The contractor must pay all covered workers at least $12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the

Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2024

SUIA2023-001 02/01/2023

	Rates	Fringes
BRICKLAYER (BRICKLAYER/STONE MASON)		
ZONE 1	$ 34.00	17.62
ZONE 2	$ 34.00	17.62
ZONE 3	$ 34.00	17.62
ZONE 4	$ 32.75	16.09
ZONE 5	$ 29.65	16.09
Carpenter & Piledrivermen		
ZONE 1	$ 31.27	15.83
ZONE 2	$ 29.80	15.98
ZONE 3	$ 29.68	15.98
ZONE 4	$ 29.20	13.30
ZONE 5**	$ 28.15	11.70
CONCRETE FINISHER		
ZONE 1	$ 29.55	13.10
ZONE 2	$ 29.55	13.10
ZONE 3	$ 29.55	13.10
ZONE 4	$ 27.70	9.20
ZONE 5	$ 26.65	9.20
ELECTRICIAN (STREET AND HIGHWAY LIGHTING AND TRAFFIC SIGNALS)		
ZONE 1, 2, AND 3	$ 36.40	14.80
ZONE 4	$ 35.10	13.80
ZONE 5	$ 33.45	13.05
IRONWORKER (SETTING OF STRUCTURAL STEEL)		
ZONE 1	$ 32.25	14.85
ZONE 2	$ 30.16	15.30
ZONE 3	$ 30.16	15.45
ZONE 4	$ 28.00	14.50
ZONE 5**	$ 26.15	13.70
LABORER		
ZONE 1, 2 AND 3		
GROUP A	$ 24.82	12.01
GROUP AA	$ 27.20	12.01
GROUP B	$ 22.97	12.01
GROUP C	$ 19.89	12.01
ZONE 4		
GROUP A	$ 23.12	11.32
GROUP AA	$ 25.12	11.32
GROUP B	$ 21.55	11.32
GROUP C	$ 18.92	11.32

ZONE 5
GROUP A.....$ 23.52 9.87
GROUP AA.....$ 25.52 9.87
GROUP B.....$ 20.78 9.87
GROUP C.....$ 19.93 9.87

POWER EQUIPMENT OPERATOR
ZONE 1
GROUP A.....$ 35.50 16.50
GROUP B.....$ 33.95 16.50
GROUP C.....$ 31.45 16.50
GROUP D.....$ 31.45 16.50
ZONE 2
GROUP A.....$ 35.30 16.50
GROUP B.....$ 33.70 16.50
GROUP C.....$ 31.15 16.50
GROUP D.....$ 31.15 16.50
ZONE 3
GROUP A.....$ 32.50 28.20
GROUP B.....$ 30.70 28.20
GROUP C.....$ 29.70 28.20
GROUP D.....$ 29.70 28.20
ZONE 4
GROUP A.....$ 32.85 16.95
GROUP B.....$ 31.71 16.95
GROUP C.....$ 29.63 16.95
GROUP D.....$ 29.63 16.95
ZONE 5
GROUP A.....$ 30.87 13.25
GROUP B.....$ 29.83 13.25
GROUP C.....$ 28.10 13.25
GROUP D.....$ 27.10 13.25

TRUCK DRIVER (AND PAVEMENT
MARKING DRIVER/SWITCHPERSON)
ZONE 1.....$ 26.26 12.59
ZONE 2
.....$ 26.26 12.59
ZONE 3.....$ 26.26 12.59
ZONE 4.....$ 26.26 9.04
ZONE 5
.....$ 24.50 9.04

ZONE DEFINITIONS
ZONE 1 The Counties of Polk, Warren, and Dallas for all Crafts, and Linn County Carpenters only.
ZONE 2 The Counties of Dubuque for all Crafts and Linn County for all Crafts except Carpenters.
ZONE 3 The Cities of Burlington (including West Burlington), Clinton, Fort Madison, Keokuk, and Middleton (including the Iowa Army Ammunition Plant) and Muscatine (and abutting municipalities of any such cities).
ZONE 4 Story, Black Hawk, Cedar, Jasper, Jones, Jackson, Louisa, Madison, and Marion Counties; Clinton County (except the City of Clinton), Johnson County, Muscatine County (except the City of Muscatine), the City of Council Bluffs, Lee County and Des Moines County.
ZONE 5 All areas of the state not listed above.

LABORER CLASSIFICATIONS - ALL ZONES
GROUP AA - Skilled pipelayer (sewer, water, and conduits) and tunnel laborers; asbestos abatement worker

GROUP A - Carpenter tender on bridges and box culverts; CCTV* sewer inspection operator; curb machine (without a seat);

deck hand; diamond & core drills; drill operator on air tracs, wagon drills, and similar drills; form setter/stringman on paving work; gunnite nozzleman; joint sealer kettleman; laser operator; mason tender (brick/stone), powderman tender; powderman/blaster; sign erector; saw operator; {(Zones 4 and 5) Skilled pipelayer (sewer, water, and conduits); tunnel laborer; asbestos abatement worker}. *new labor classification (CCTV: closed circuit television)

GROUP B - Air, gas, electric tool operator; barco hammer; carpenter tender; caulker; chain sawman; compressor (under 400 cfm); concrete finisher tender; concrete processing materials and monitors; cutting torch on demolition; drill tender; dumpmen; electric drills; fence erectors; form line expansion joint assembler; form tamper; general laborer; grade checker; handling and placing metal mesh, dowel bars, reinforcing bars and chairs; hot asphalt laborer; installing temporary traffic control devices; jackhammerman; mechanical grouter; painter (all except stripers); paving breaker; planting trees, shrubs and flowers; power broom (not self-propelled); power buggyman; rakers; rodman (tying reinforcing steel); sandblaster; seeding and mulching; sewer utility topman/bottom man; spaders; stressor or stretcherman on pre or post tensioned concrete; stringman on re/surfacing/no grade control; swinging stage, tagline, or block and tackle; tampers; timberman; tool room men and checkers; tree climber; tree groundman; underpinning and shoring caissons over twelve feet deep; vibrators; walk behind trencher; walk behind paint stripers; walk behind vibrating compactor; water pumps (under three inch); work from bosun chair.

GROUP C - Scale weigh person; traffic control/flagger, surveillance or monitor; water carrier.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS - ALL ZONES

GROUP A - All terrain (off road) forklift; asphalt breakdown roller (vibratory); asphalt laydown machine; asphalt plant; asphalt screed; bulldozer (finish); central mix plant; concrete pump; crane; crawler tractor pulling scraper; directional drill (60,000 (lbs) pullback and above); dragline and power shovel; dredge engineer; excavator (over cu. yd.); front end loader (4 cy and over); horizontal boring machine; master mechanic; milling machine (over 350 hp); motor grader (finish); push cat; rubber tired backhoe (over cu. yd.); scraper (12 cu. yd. and over or finish); Self-propelled rotary mixer/road reclaimer; sidebroom tractor; slipform portland concrete paver; tow or push boat; trenching machine (Cleveland 80 or similar)

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GROUP B - Articulated off road hauler, asphalt heater/planer; asphalt material transfer vehicle; asphalt roller; belt loader or similar loader; bulldozer (rough); churn or rotary drill; concrete curb machine; crawler tractor pulling ripper, disk or roller; deck hand/oiler; directional drill (less than 60,000 (lbs) pullback); distributor; excavator (1/2 cu. yd. and under); form riding concrete paver; front end loader (2 to less than 4 cu. yd.); group equipment greaser; mechanic; milling machine (350 hp. and less); paving breaker; portland concrete dry batch plant; rubber tired backhoe (1/2 cu. yd. and under); scraper (under 12 cu. yd.); screening, washing and crushing plant (mobile, portable or stationary); shoulder machine; skid loader (l cu. yd. and over); subgrader or trimmer;

trenching machine; water wagon on compaction.

GROUP C - Boom & winch truck; concrete spreader/belt placer; deep wells for dewatering; farm type tractor (over 75 hp.) pulling disc or roller; forklift; front end loader (under 2 cu. yd.); motor grader (rough); pile hammer power unit; pump (greater than three inch diameter); pumps on well points; safety boat; self-propelled roller (other than asphalt); self-propelled sand blaster or shot blaster, water blaster or striping grinder/remover; skid loader (under 1 cu. yd.); truck mounted post driver.

GROUP D - Boiler; compressor; cure and texture machine; dow box; farm type or utility tractor (under 75 hp.) pulling disk, roller or other attachments; group greaser tender; light plants; mechanic tender; mechanical broom; mechanical heaters; oiler; pumps (under three inch diameter); tree chipping machine; truck crane driver/oiler.

** CARPENTERS AND PILEDRIVERMEN, or IRONWORKERS (ZONE 5)
Setting of structural steel; any welding incidental to bridge or culvert construction; setting concrete beams.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate

(weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

APPENDIX A
FEDERAL CONTRACT LANGUAGE

The proposed project is funded in part by federal dollars under a HUD Community Development Block Grant. As such all contractors, subcontractors, and project consultants shall comply with the following federal guidelines and provisions.

ACCESS AND MAINTENANCE OF RECORDS.

The contractor must maintain records, including supporting documentation, for three years from the closeout of the grant to the State of Iowa.

At any time during normal business hours and as frequently as is deemed necessary, the contractor shall make available to the Iowa Economic Development Authority, the State Auditor, the General Accounting Office, and the Department of Housing and Urban Development, for their examination, all of its records pertaining to all matters covered by this contract and permit these agencies to audit, examine, make excerpts or transcripts from such records, contract, invoices, payrolls, personnel records, conditions of employment, and all other matters covered by this contract.

CIVIL RIGHTS

The contractor must comply with the following laws and regulations:

1. Title VI of the Civil Rights Act of 1964 (P.L. 88-352).
   States that no person may be excluded from participation in, denied the benefits of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, or national origin.

2. Title VIII of the Civil Rights Act of 1968 (Fair Housing Act), as amended.

3. Federal Executive Order 11063, as amended by Executive Order 12259 Equal Opportunity Housing.

4. Iowa Civil Rights Act of 1965.
   This Act mirrors the Federal Civil Rights Act.

5. Section 109 of Title 1 of the Housing and Community Development Act of 1974, as amended (42 U.S.C. 5309).
   Provides that no person shall be excluded from participation in, denied the benefits of, or subjected to discrimination on the basis of race, color, national origin, sex, age, or handicap under any program or activity funded in part or in whole under Title 1 of the Act.

6. The Age Discrimination Act of 1975, as amended (42 U.S.C. 1601 et seq.)
   Provides that no person on the basis of age, be excluded from participation in, be denied the benefits of or be subjected to discrimination under any program or activity receiving Federal financial assistance.

7. Section 504 of the Rehabilitation Act of 1973, as amended (P.L. 93-112, 29 U.S.C. 794).
   Provides that no otherwise qualified individual shall solely by reason of his/her handicap be excluded from participation in, be denied the benefits of, or be discriminated against under any program or activity receiving Federal financial assistance.

8. Americans with Disabilities Act (P.L. 101-336, 42 U.S.C. 12101-12213).
Provides comprehensive civil rights to individuals with disabilities in the areas of employment, public accommodations, State and local government services, and telecommunications.

9. Section 3 of the Housing and Urban Development Act of 1968, as amended (12 U.S.C. 1701u).
The purpose of Section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u)(Section 3) is to ensure that employment and other economic opportunities generated by certain HUD financial assistance shall, to the greatest extent feasible, and consistent with existing Federal, State and local laws and regulations, be directed to low- and very low-income persons, particularly those who are recipients of government assistance for housing, and to business concerns which provide economic opportunities to low- and very low-income persons.

TERMINATION CLAUSE.

All contracts utilizing CDBG funds must contain a termination clause that specifies the following:

1. Under what conditions the clause may be imposed.
2. The form the termination notice must take (e.g., certified letter).
3. The time frame required between the notice of termination and its effective date.
4. The method used to compute the final payment(s) to the contractor.

CERTIFICATION REGARDING GOVERNMENT-WIDE RESTRICTION ON LOBBYING.

All contracts utilizing CDBG funds must contain the following certification concerning restriction of lobbying:

"The Recipient certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the Recipient, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the Recipient shall complete and submit Standard Form-LLL, "Disclosure Form to Report Federal Lobbying" in accordance with its instruction.

3. The Recipient shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into

this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000.00 and not more than $100,000.00 for each such failure."

LEAD-SAFE HOUSING REGULATIONS (As Applicable).

24 CFR Part 35 et. al.

Requirements for Notification, Evaluation and Reduction of Lead-Based Paint Hazards in Federally Owned Residential Properties and Housing Receiving Federal Assistance, Final Rule.

RECYCLED MATERIALS.

The contractor agrees to comply with all the requirements of the Code of Iowa Chapter 8A.315-317 and Iowa Administrative Code Chapter 11-117.6(5) – Recycled Product and Content which states:

> When appropriate, specifications shall include requirements for the use of recovered materials and products.
>
> The specifications shall not restrict the use of alternative materials, exclude recovered materials, or require performance standards that exclude products containing recovered materials unless the subrecipient seeking the product can document that the use of recovered materials will impede the intended use of the product.

NOTICE OF AWARDING AGENCY REQUIREMENTS AND REGULATIONS PERTAINING TO REPORTING.

The Contractor must provide information as necessary and as requested by the Iowa Economic Development Authority for the purpose of fulfilling all reporting requirements related to the CDBG program.

SECTION 3 OF THE HOUSING AND URBAN DEVELOPMENT ACT OF 1965 (AS AMENDED).

A. The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

B. The parties to this contract agree to comply with HUD's regulations in 24 CFR part 75, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 75 regulations.

C. The contractor agrees to post copies of a notice advising workers of the Contractor's commitments under Section 3 in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

D. The contractor agrees to provide written notice of employment and contracting opportunities to all known Section 3 Workers and Section 3 Businesses

E. The contractor agrees to employ, to the greatest extent feasible, Section 3 workers or provide written justification to the recipient that is consistent with 24 CFR Part 75, describing why it was unable to meet minimum numerical Section 3 worker hours goals, despite its efforts to comply with the provisions of this clause.

F. The contractor agrees to maintain records documenting Section 3 Workers that were hired to work on previous Section 3 covered projects or activities that were retained by the contractor for subsequent Section 3 covered projects or activities.

G. The contractor agrees to post contract and job opportunities to the Opportunity Portal and will check the Business Registry for businesses located in the project area.

H. The contractor agrees to include compliance with Section 3 requirements in every subcontract for Section 3 projects as defined in 24 CFR part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 75. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 75.

I. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 75 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 75.

J. The contractor will certify that they have followed prioritization of effort in 24 CFR part 75.19 for all employment and training opportunities. The contractor will further certify that it meets or exceeds the applicable Section 3 benchmarks, defined in 24 CFR Part 75.23, and if not, shall describe in detail the qualitative efforts it has taken to pursue low- and very low-income persons for economic opportunities.

K. Noncompliance with HUD's regulations in 24 CFR part 75 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

SECTION 3 BUSINESSES ARE ENCOURAGED TO RESPOND TO THIS PROPOSAL.
A Section 3 business is one that satisfies one of the following requirements:

1. It is at least 51 percent owned and controlled by low- or very low-income persons.

2. Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 Workers,* or

3. It is a business at least 51 percent owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing.

*A Section 3 Worker is defined as any worker who currently fits or when hired within the past five years fit at least one of the following categories, as documented:

1. The worker's income for the previous or annualized calendar year is below the applicable income limit established by HUD.

2. The worker is employed by a Section 3 business concern: or

3. The worker is a Youth Build participant.

Businesses that believe they meet the Section 3 criteria are encouraged to register as a Section 3 Business through HUD's website: https://hudapps.hud.gov/OpportunityPortal/

FEDERAL EXECUTIVE ORDERS 11246 and 11375. (All Contracts in Excess of $10,000.00)

Provides that no one be discriminated in employment.

"During the performance of this contract, the contractor agrees as follows:

1. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

3. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of the Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

4. The contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

5. The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

6. In the event of the contractor's non-compliance with the nondiscrimination clause of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further

Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies involved as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

7. The contractor will include the provisions of Paragraphs 1 through 7 in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

ENERGY EFFICIENCY.

Mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act. Pub. L 94-163, 89 Stat. 871.

FEDERAL LABOR STANDARDS PROVISIONS (INCLUDING DAVIS-BACON PREVAILING WAGE RATES APPLICABILITY).

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

(1) Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3) , the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill except as provided in Sec. 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: provided that, the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under Paragraph (a)(1)(ii) of this section and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site

of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)

(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination, and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate including fringe benefits where appropriate determined pursuant to Paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The EPA shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the EPA may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs

(ii)

(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the

SIMMERING CORY ON BEHALF OF THE CITY AND IEDA. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/whd/programs/dbra/forms.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the SIMMERING CORY ON BEHALF OF THE CITY AND IEDA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under Sec. 5.5(a)(3)(ii) of Regulations, 29 CFR Part 5, the appropriate information is being maintained under Sec. 5.5(a)(3)(i) of Regulations, 29 CFR Part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for

submission of the "Statement of Compliance" required by Paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under Paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship

Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act Requirements. The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract Termination. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes Concerning Labor Standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor and any of its subcontractors and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of Eligibility.

(i) By entering into this contract, the contractor certifies that neither it nor he or she nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3 a of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3 a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(b) Contract Work Hours and Safety Standards Act. The Agency Head shall cause or require the contracting officer to insert the following clauses set forth in Paragraphs (1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Sec. 5.5(1) or 4.6 of Par 4 of this title. As used in this paragraph, the terms laborer and mechanics include watchmen and guards.

(1) Overtime Requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation, Liability for Unpaid Wages, Liquidated Damages. In the event of any violation of the clause set forth in Paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory, for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in Paragraph (b)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in Paragraph (b)(1) of this section

(3) Withholding for Unpaid Wages and Liquidated Damages. The loan recipient shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work

performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set for the in Paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in Paragraphs (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in Paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in Paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in Sec. 5.1, the Agency Head shall cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Agency Head shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the EPA and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

ALL CONTRACTS IN EXCESS OF $100,000.

In addition to the preceding provisions, contracts in excess of $100,000 shall require compliance with the following laws and regulations:

1. Section 306 of the Clean Air Acts [42 U.S.C. 1857 (h)].

2. Section 508 of the Clean Water Act [33 U.S.C. 1368].

3. Executive Order 11738.

4. EPA Regulations – 40 CFR, Part 15.

In accordance with the Clean Air and Water Act, the contractor agrees as follows:

1. The Contractor will certify that any facility to be utilized in the performance of any nonexempt contract or subcontract is not listed on the List of Violating Facilities issued by the Environmental Protection Agency pursuant to 40 CFR 15.20.

2. The Contractor agrees to comply with all the requirements of Section 114 of the Clean Air Act, as amended, (42 U.S.C. 1857c-8) and Section 308 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1318) relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in said Section 114 and Section 308, and all regulations and guidelines issued thereunder.

3. The Contractor agrees that as a condition for the award of a Contract, prompt notice will be given of any notification received from the Director, Office of Federal Activities, Environmental Protection Agency, indicating that a facility utilized or to be utilized for the Contract is under consideration to be listed on the Environmental Protection Agency List of Violating Facilities.

4. The Contractor agrees that it will include or cause to be included the criteria and requirements in Paragraphs (1) through (4) of this section in every nonexempt subcontract and require every subcontractor to take such action as the Government may direct as a means of enforcing such provisions.

ALL CONTRACTS IN EXCESS OF $2,000.

In addition to the preceding provisions, all construction contracts in excess of $2,000 must include the Federal Labor Standards Provisions:

1. Davis-Bacon and Related Acts.

2. Contract Work Hours and Safety Standard Act.

3. Copeland Anti-Kickback Act.

BUILD AMERICA, BUY AMERICA

The Grantee must comply with the requirements of the Build America, Buy America (BABA) Act, 41 USC 8301 note, and all applicable rules and notices, as may be amended, if applicable to the Grantee's infrastructure project. Pursuant to HUD's Notice, "Public Interest Phased Implementation Waiver for FY 2022 and 2023 of Build America, Buy America Provisions as Applied to Recipients of HUD Federal Financial Assistance" (88 FR 17001), any funds obligated by HUD on or after the applicable listed effective dates, are subject to BABA requirements, unless excepted by a waiver.

Project Construction Sign

White Background

Project Title

Sponsor/Developer

Official(s) or Sponsor Address

Architect or Engineer

(second line)

Contractor

(second line)

CDBG

Community Development Block Grant

Project Financed by:

Community Development Block Grant
Iowa Economic Development Authority

Kim Reynolds, Governor

IOWA™

Economic Development

Sign Dimensions: 1200mm x 2400mm (approx. 4’x8’x3/4”)
Plywood Panel (APA Rated A-B Grade-Exterior)

AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

THIS AGREEMENT is by and between _____ ("Owner") and _____ ("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – **WORK**

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

ARTICLE 2 – **THE PROJECT**

2.01 *The Project, of which the Work under the Contract Documents is a part, is generally described as follows:* _____

ARTICLE 3 – **ENGINEER**

3.01 The Project has been designed by I+S Group, Inc.

3.02 The Owner has retained I+S Group, Inc. to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – **CONTRACT TIMES**

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Dates*

A. The Work will be substantially completed on or before _____, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **thirty-one (31) calendar days** after the completion of the work acceptance by the owner.

4.03 *Milestones*

A. Parts of the work must be substantially completed on or before the following milestones:

1. Milestone 1: June 1, 2025 – Well completed and site setup to allow owner to run well manually. Contractor shall supply all intermediate connections necessary for running well without the remainder of the site being completed.

EJCDC® C-520, Agreement Between Owner and Contractor for Construction Contract (Stipulated Price).
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2. Milestone 2: November 1, 2025 – Substantial completion of entire project. If equipment delays (such as generator or VFD) result in contractor not being able to meet this date, the contractor shall provide all temporary equipment necessary to run well at no cost to owner

4.04 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner $500 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.

2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $500 for each day that expires after such time until the Work is completed and ready for final payment.

3. Milestones: Contractor shall pay Owner $500 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved, or until the time specified for Substantial Completion is reached, at which time the rate indicated in Paragraph 4.04.A.1 will apply, rather than the Milestone Rate.

4. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive and will not be imposed concurrently.

4.05 *Special Damages*

A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.

B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

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ARTICLE 5 – **CONTRACT PRICE**

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

A. For all Work other than Unit Price Work, a lump sum of: $50,000.

All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.

ARTICLE 6 – **PAYMENT PROCEDURES**

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 20th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract

a. Ninety-five percent (95%) of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and

b. Ninety-five percent (95%) of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to Ninety-five percent (95%) percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less two hundred percent (200%) of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

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ARTICLE 7 – **INTEREST**

7.01 All amounts not paid when due shall bear interest at the rate of *10%* percent per annum.

ARTICLE 8 – **CONTRACTOR'S REPRESENTATIONS**

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.

B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

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ARTICLE 9 – **CONTRACT DOCUMENTS**

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to 8, inclusive).
2. Performance bond (pages 1 to 3, inclusive).
3. Payment bond (pages 1 to 3, inclusive).
4. Federal Contract Language (pages 1 to 14, inclusive: not attached but incorporated by reference and provided in the Project Manual).
5. General Conditions (pages 1 to 65, inclusive; not attached but incorporated by reference and provided in the Project Manual).
6. Supplementary Conditions (pages 1 to 10, inclusive; not attached but incorporated by reference and provided in the Project Manual).
7. Specifications as listed in the table of contents of the Project Manual (not attached but incorporated by reference).
8. Drawings (not attached but incorporated by reference) consisting of __ sheets with each sheet bearing the following general title:_____.
9. Addendums: Addendum No. 1 ( ) (not attached but incorporated by reference)
10. Exhibits to this Agreement (enumerated as follows):
    a. Contractor's Bid (pages 1 to _ inclusive; not attached but incorporated by reference).
11. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
    a. Notice to Proceed.
    b. Work Change Directives.
    c. Change Orders.

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – **MISCELLANEOUS**

10.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto

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without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *American Iron & Steel Requirement for SRF Program*

A. The Contractor acknowledges to and for the benefit of the City of Storm Lake ("Purchaser") and the State of Iowa (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund and such law contains provisions commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contactor pursuant to this Agreement.

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B. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State.

C. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

10.07 *Build America Buy America Requirement for CDBG Program*

A. The Contractor acknowledges to and for the benefit of the City of Storm Lake ("Owner") and the Iowa Economic Development Authority (IEDA) ("Funding Authority") that it understands the goods and services under this Agreement are being funded with federal monies and have statutory requirements commonly known as "Build America, Buy America;" that requires all of the iron and steel, manufactured products, and construction materials used in the project to be produced in the United States ("Build America, Buy America Requirements") including iron and steel, manufactured products, and construction materials provided by the Contactor pursuant to this Agreement.

B. The Contractor hereby represents and warrants to and for the benefit of the Owner and Funding Authority (a) the Contractor has reviewed and understands the Build America, Buy America Requirements, (b) all of the iron and steel, manufactured products, and construction materials used in the project will be and/or have been produced in the United States in a manner that complies with the Build America, Buy America Requirements, unless a waiver of the requirements is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the Build America, Buy America Requirements, as may be requested by the Owner or the Funding Authority.

C. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Owner or Funding Authority to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Owner or Funding Authority resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the Funding Authority or any damages owed to the Funding Authority by the Owner). If the Contractor has no direct contractual privity with the Funding Authority, as a lender or awardee to the Owner for the funding of its project, the Owner and the Contractor agree that the Funding Authority is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph

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force or effect) shall be amended or waived without the prior written consent of the Funding Authority.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:	CONTRACTOR:
_____	_____
By: _____	By: _____
Title: _____	Title: _____
	(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest: _____	Attest: _____
Title: _____	Title: _____
Address for giving notices:	Address for giving notices:
_____	_____
_____	_____
_____	_____
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WARRANTY BOND

Prepared By

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ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

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GUIDELINES FOR USE OF EJCDC® C-612
WARRANTY BOND

1.0 PURPOSE AND INTENDED USE OF THE DOCUMENT

A warranty bond (sometimes referred to as a maintenance bond) provides assurance that Contractor (or if necessary the surety) will meet the contractual correction period obligations during a specified period of time after construction has been completed.

C-612 is intended to be used to provide bonding for a period of time greater than one year after Substantial Completion. A warranty bond is typically not used if the correction period remains the standard one year after Substantial Completion, and the Contractor has furnished a performance bond.

Note that on the first page of C-612, the user or issuer of the bond must specify the duration of the Bond Period by inserting a number where indicated by the bracketed prompt. EJCDC recommends an endpoint for the warranty bond of either two years after Substantial Completion (essentially extending the bonded coverage by one additional year) or three years after Substantial Completion (extending the bonded coverage by two additional years).

For additional information regarding C-612, see the Guidance Notes preceding Paragraph SC-6.01.B in EJCDC® C-800, Supplementary Conditions of the Construction Contract (2018); and EJCDC® C-001, Commentary on the 2018 EJCDC Construction Documents (2018). The user should also refer to the terms of EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), Paragraph 15.08, concerning Contractor's correction period obligations.

2.0 ORGANIZATION OF INFORMATION

All parties involved in a construction project benefit significantly from a standardized approach in the location of subject matter throughout the documents. Experience confirms the danger of addressing the same subject matter in more than one location; doing so frequently leads to confusion and unanticipated legal consequences. Careful attention should be given to the guidance provided in EJCDC® N-122/AIA® A521, Uniform Location of Subject Matter (2012 Edition) when preparing documents. EJCDC® N-122/AIA® A521 is available at no charge from the EJCDC website, www.ejcdc.org, and from the websites of EJCDC's sponsoring organizations.

If CSI MasterFormat™ is used for organizing the Project Manual, consult CSI MasterFormat™ for the appropriate document number (e.g., under 00 11 00, Advertisements and Invitations), and accordingly number the document and its pages.

3.0 EDITING THIS DOCUMENT

3.1 It is intended that this document be edited before being furnished as a form to prospective Bidders or Contractors, and for each actual issuance of a Payment Bond. Guidelines for editing include:

A. Remove the cover pages which consist of the title pages, and these Guidelines for Use.

B. Type in required information as indicated by brackets (**[ ]**). Bracketed text will usually provide instructions for what is to be inserted in place of the brackets. Delete brackets and change formatting to match existing text after project specific text has been added, e.g. change

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"**[Project Name]**" to "Peach Street Renovation" (without brackets or bold, or quotation marks).

C. Fill in blanks, if any. It will be more common for information to be inserted by user to be indicated by a prompt in brackets, as described in Paragraph B above, rather than by an underline-style blank.

D. Modify check-boxes as required by clicking in the box.

4.0 LICENSE AGREEMENT

This document is subject to the terms and conditions of the **License Agreement, 2018 EJCDC® Construction Series Documents**. A copy of the License Agreement was furnished at the time of purchase of this document, and is available for review at www.ejcdc.org and the websites of EJCDC's sponsoring organizations.

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WARRANTY BOND

Contractor	**Surety**
Name: **[Full formal name of Contractor]** Address *(principal place of business)*: **[Address of Contractor's principal place of business]**	Name: **[Full formal name of Surety]** Address *(principal place of business)*: **[Insert address of Surety's principal place of business]**
Owner	**Construction Contract**
Name: **[Full formal name of Owner]** Address *(principal place of business)*: **[Address of Owner's principal place of business]**	Description *(name and location)*: **[Owner's project/contract name, and location of the project]** Contract Price: **[Amount from Contract]** Effective Date of Contract: **[Date from Contract]** Contract's Date of Substantial Completion: **[Date from Contract]**

Bond

Bond Amount: **[Amount]**

Date of Bond: **[Date]**

Modifications to this Bond form:
☐ None ☐ See Paragraph 9

Bond Period: Commencing 364 days after Substantial Completion of the Work under the Construction Contract, and continuing until **[insert number of years, typically either two or three]** years after such Substantial Completion.

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth herein, do each cause this Warranty Bond to be duly executed by an authorized officer, agent, or representative.

Contractor as Principal	Surety
(Full formal name of Contractor)	*(Full formal name of Surety) (corporate seal)*
By: _____ *(Signature)*	By: _____ *(Signature) (Attach Power of Attorney)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title: _____	Title: _____
Attest: _____ *(Signature)*	Attest: _____ *(Signature)*
Name: _____ *(Printed or typed)*	Name: _____ *(Printed or typed)*
Title:	Title:

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.

EJCDC® C-612, Warranty Bond.
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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract's Correction Period Obligations. The Construction Contract is incorporated herein by reference.
2. If the Contractor performs the Correction Period Obligations, the Surety and the Contractor shall have no obligation under this Warranty Bond.
3. If Owner gives written notice to Contractor and Surety during the Bond Period of Contractor's obligation under the Correction Period Obligations, and Contractor does not fulfill such obligation, then Surety shall be responsible for fulfillment of such Correction Period Obligations. Surety shall either fulfill the Correction Period Obligations itself, through its agents or contractors, or, in the alternative, Surety may waive the right to fulfill the Correction Period Obligations itself, and reimburse the Owner for all resulting costs incurred by Owner in performing Contractor's Correction Period Obligations, including but not limited to correction, removal, replacement, and repair costs.
4. The Surety's liability is limited to the amount of this Warranty Bond. Renewal or continuation of the Warranty Bond will not modify such amount, unless expressly agreed to by Surety in writing.
5. The Surety shall have no liability under this Warranty Bond for obligations of the Contractor that are unrelated to the Construction Contract. No right of action will accrue on this Warranty Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
6. Any proceeding, legal or equitable, under this Warranty Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and must be instituted within two years after the Surety refuses or fails to perform its obligations under this Warranty Bond.
7. Written notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown in this Warranty Bond.
8. Definitions

    8.1. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page of this Warranty Bond, including all Contract Documents and changes made to the agreement and the Contract Documents.

    8.2. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

    8.3. *Correction Period Obligations*—The duties, responsibilities, commitments, and obligations of the Contractor with respect to correction or replacement of defective Work, as set forth in the Construction Contract's Correction Period clause, EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), Paragraph 15.08, as duly modified.

    8.4. *Substantial Completion*—As defined in the Construction Contract.

    8.5. *Work*—As defined in the Construction Contract.
9. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**

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SECTION 03 3000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.

B. Floors and slabs on grade.

C. Concrete foundation walls.

D. Concrete reinforcement.

E. Joint devices associated with concrete work.

F. Concrete curing.

G. Concrete finishing.
   1. Floor surfaces to be left exposed.

1.02 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

B. Section Division 22 - Plumbing Piping Specialties: Mechanical items for casting into concrete.

C. Section Division 26 - Grounding and Bonding for Electrical Systems: Electrical items for casting into concrete. Coordinate location with electrical contractor.

D. Section Division 32 - Exterior Concrete Flatwork. Refer to concrete flatwork for all aspects of exterior concrete flatwork except stoops, aprons, and any other concrete element bearing on the building's foundation walls.

1.03 REFERENCE STANDARDS

A. ACI 207.1R - Guide to Mass Concrete (Re-approved 2012).

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

C. ACI 301 - Specifications for Concrete Construction; 2020.

D. ACI 302.1R - Guide to Concrete Floor and Slab Construction; 2015.

E. ACI 302.2R - Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials

F. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).

G. ACI 305R - Guide to Hot Weather Concreting; 2020.

H. ACI 306R - Guide to Cold Weather Concreting; 2016.

I. ACI 308R - Guide to External Curing of Concrete; 2016.

J. ACI 318 - Building Code Requirements for Structural Concrete; 2019, with Errata (2021).

K. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2020.

L. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2012.

M. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.

N. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2021.

O. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2021b.

P. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens); 2021.

Q. ASTM C150/C150M - Standard Specification for Portland Cement; 2021.

R. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2020.

S. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2016.

T. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).

U. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2019.

V. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2017.

W. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2021.

X. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures; 2020.

Y. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2012.

Z. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers; 2020.

AA. ASTM E1643 - Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2018a.

BB. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

D. Mix designs: Submit mix design for each mix showing compliance with specified requirements.

E. Samples: Submit samples of underslab vapor retarder to be used.

F. Test Reports: Submit report for each test or series of tests specified.

G. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.

H. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

A. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
   1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
   2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
   3. Form Ties: Contractor's choice of standard product type that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
   1. Type: Deformed billet-steel bars.

2. Finish: Unfinished, unless otherwise indicated.

B. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
   3. Do not use clay bricks or similar blocks/chunks of material as rebar chairs. Concrete dobies as rebar chairs are acceptable.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
   1. Acquire cement for entire project from same source.

B. Cement: ASTM C150/C150M, Type I - Normal, Type II - Moderate, Portland type; or ASTM C595 Type IL - Portland-Limestone Cement Type.
   1. Acquire cement for entire project from same source.

C. Fine and Coarse Aggregates: ASTM C33/C33M.
   1. Acquire aggregates for entire project from same source.
   2. Provide aggregate free of shale at all slab locations exposed to freeze/thaw action.

D. Fly Ash: ASTM C618, Class C or F.

E. Calcined Pozzolan: ASTM C618, Class N.

F. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.

G. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

A. Chemical Admixture:
   1. Manufacturers by concrete supplier:
      a. Master Builders Solutions: www.master-builders-solutions.com.
      b. Grace Construction Products: www.gcpat.com.
      c. Fritz-Pak: www.fritzpak.com.
      d. Mapei GRT: www.mapei.com.
      e. Sika Corporation U.S.: www.usa.sika.com
      f. Euclid Chemical: www.euclidchemical.com.
      g. Substitutions: See Section 01 6000 - Product Requirements.

B. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

C. Admixtures shall comply with ASTM C494.

D. Air Entrainment Admixture: ASTM C260/C260M.

2.05 ACCESSORY MATERIALS

A. Underslab Vapor Retarder: Multi-layer polyethylene or equivalent, complying with ASTM E 1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. 10 mil minimum. The use of single ply polyethylene is prohibited.
   1. Acceptable Products:
      a. Intertape Polymer Group, Inc; VaporMaster 10: www.intertapepolymer.com.
      b. W.R. Meadows, Inc.; PERMINATOR 10 mils: www.wrmeadows.com.
      c. Vapor Block 10 mil, Class A by Raven Industries: www.vaporblock.com.
      d. Stego Wrap 10 mil, Class A by Stego Industries, LLC: www.stegoindustries.com.
      e. Moistop Ultra 10 mil, Class A by Henry Company: www.henry.com.
      f. Griffolyn 10 mil, Class A by Reef Industries, Inc.: www.reefindustries.com.
      g. Perminator 10 mil, Class A by W.R. Meadows, Inc.: www.wrmeadows.com.
      h. Viper II 10 mil, Class A by Insulation Solutions, Inc.: www.insulationsolutions.com.
      i. Yellow Guard 10 mil, Class A by Poly America: www.yellowguard.com.
      j. Barrier-Bac IntePlus VB-250 (11 mil): www.barrierbac.com.
      k. Substitutions: See Section 01 6000 - Product Requirements.
   2. Vapor Retarder Accessories: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.

3. Location: Use at all locations indicated to have a vapor retarder; at areas with Moisture-Sensitive Flooring Materials provide an approved vapor barrier in lieu of a vapor retarder. Verify requirement of vapor barrier with final flooring and adhesive manufacturer.

B. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch.
   2. Minimum Compressive Strength at 28 Days: 7,000 pounds per square inch.

C. Epoxy Grout Systems: Where indicated provide Hilti Hit-Hy 200 Epoxy System; other indicated systems; or approved equivalent system.
   1. Hilti: www.hilti.com.
   2. Substitutions: See Section 01 6000 - Product Requirements.

2.06 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
   1. Products:
      a. SpecChem, LLC; Strong Bond Acrylic Bonder: www.specchemllc.com/#sle.
      b. W. R. Meadows, Inc; ACRY-LOK-: www.wrmeadows.com/#sle.
      c. Substitutions: See Section 01 6000 - Product Requirements.

B. Expansion-Joint Filler: Polyethylene/polypropylene semi-rigid closed-cell backing complying with ASTM D 3575/ASTM D 8139/ASTM D 1751, 1/2 inch thick and full depth of slab less 1/2 inch with peel-off feature. Provide product by Master Builders Solutions, W.R. Meadows, Namaco, or equivalent.
   1. Place peel-off feature at top of slab when sealants are specified. Remove peel-off portion of expansion-joint filler prior to application of sealants.
   2. Place peel off feature at bottom of slab when no sealants are specified.

2.07 CURING MATERIALS

A. Liquid Membrane Curing Compound: ASTM C 309, Type 2, Class B, White Pigmented.
   1. Product: L&M CURE R2 by Laticrete or approved equivalent.
      a. Other Approved Products:
         1) SpecRez White by SpecChem.
   2. Application Locations: Exterior Concrete surfaces unless indicated otherwise. Finish surfaces to a light broom finish prior to applying curing compound.

B. Moisture-Retaining Sheet: ASTM C171.
   1. White-burlap-polyethylene sheet, weighing not less than 3.8 ounces per square yard.

2.08 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
   1. For trial mixtures method, employ independent testing agency acceptable to Engineer for preparing and reporting proposed mix designs.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.

D. Materials In General: Do not use materials or combinations thereof that will result in a reaction that is detrimental to the structural integrity or visual appearance of concrete.

E. Normal Weight Concrete: Refer to structural notes on the drawings.

2.09 MIXING

A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685/C685M. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.

B. Transit Mixers: Comply with ASTM C94/C94M.

C. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. Verify that forms are clean and free of rust before applying release agent.

C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
   1. Use latex bonding agent only for non-load-bearing applications.

E. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

F. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade according to ASTM E 1643 and manufacturer's written instructions; place sheets in position with longest dimension parallel with direction of pour.
   1. Vapor Retarder Over Granular Fill: Install compactable granular fill before placing vapor retarder as shown on the drawings. Do not use sand unless indicated otherwise.
   2. Install vapor barrier in lieu of retarder at indicated locations. Refer to accessory materials of this section.
   3. Level and compact base material.
   4. Extend vapor barrier to the perimeter of the slab. If practicable, terminate it at the top of the slab, otherwise (a) at a point acceptable to the Engineer or (b) where obstructed by impediments (such as dowels, waterstops, or any other site condition requiring early termination of the vapor barrier). At the point of termination, seal vapor barrier to the foundation wall, grade beam or slab itself.
   5. Lap joints minimum 6 inches and seal with manufacturer's recommended tape.
   6. Apply seam tape to a clean and dry vapor barrier.
   7. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions.
   8. Avoid the use of non-permanent stakes driven through vapor retarder.
   9. If non-permanent stakes are driven through vapor retarder, repair as recommended by vapor retarder manufacturer.
   10. Repair damaged vapor retarder before covering with vapor barrier material of similar (or better) permeance, puncture and tensile.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

A. Locate joints as indicated on drawings.
   1. If no pattern is shown, contractor shall provide for 15 by 15 feet saw cut areas and shall contact Engineer for exact locations of joints.

B. Anchor joint fillers and devices to prevent movement during concrete placement.

C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

1. Install wherever necessary to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.

D. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 24 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.
   1. Do not exceed 2 inches deep when/if slab thicknesses are greater than 8 inches.

E. Construction Joints: Where not otherwise indicated, use materials compatible with plate dowel system steel plate dowel and plastic dowel sleeves with integral fasteners for attachment to formwork.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. Refer to structural notes on the drawings.

3.07 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.
   1. Where indicated install mechanical plugs for tie holes in accordance with manufacturers instructions.

B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.

C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide other finishes as follows:
   1. Grout-Cleaned Finish (Class A per ACI 347): Wet concrete surfaces and apply grout of a consistency of thick paint to coat surface and fill small holes. Mix one part portland cement to one and one-half parts fine sand with 1:1 moisture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
      a. Locations: Provide this finish only where indicated on the drawings.

D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
   2. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.
      a. Installation of sealant is recommended prior to installation of floor sealers to prevent the need for cleaning of saw cut joints for proper sealant adhesion.
      b. Chemical Curer/Sealer/Dustproofer/Hardener(When Applicable): Apply product per manufacturer's instructions after curing and protection procedures are complete.
         1) Acceptable Product:
            (a) Laticrete: www.laticrete.com.
            (b) Product: L&M Dress & Seal; Acrylic Cure, Sealer, and Dustproofer.
               (1) Location: Storage/mechanical/exposed areas not to receive other finishes.
            (c) Product: L&M Seal Hard; Concrete Sealer, Densifier, Chemical Hardener.
               (1) Location: Garage/shop/warehouse type areas.
         2) Other Acceptable Manufacturers:
            (a) Dayton Superior Corporation: www.daytonsuperior.com.
            (b) Master Builders Solutions: www.master-builders-solutions.com.
            (c) Ashford Formula by Curecrete Distribution, Inc: www.ashfordformula.com.
            (d) L.M. Scofield Company: www.scofield.com.
            (e) The Euclid Chemical Company: www.euclidchemical.com.
         3) Substitutions: See Section 01 6000 - Product Requirements.

E. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains as indicated on drawings.

F. At exterior slabs, aprons, and other horizontal locations provide a light broom finish and liquid membrane curing compound finish unless indicated otherwise.

G. At interior slabs do not over trowel where concrete is to be left exposed to avoid slippery surfaces when wet. Review finishing with Architect's representative prior to completing the work.

3.08 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than 7 days by saturated burlap unless noted otherwise.
      a. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.
   2. Final Curing: Begin after initial curing but before surface is dry.
   3. Where damp curing is not feasible due to location, and with written permission of SER, spray with an approved curing compound. In general, curing compound is not an acceptable substitute for damp curing.

3.09 MASS CONCRETE

A. Unless otherwise noted, any concrete member with least dimension greater than 29 inches is defined as Mass Concrete. Smaller elements utilizing high strength concrete may be identified as Mass Concrete in the drawings or specification.

B. Mass Concrete is subject to the following temperature limitations:
   1. Maximum internal temperature is 150 degrees Fahrenheit.
   2. Maximum differential (gradient) between internal (core) and nearby surface temperatures is 35 degrees Fahrenheit. Maximum differential between core and surface temperatures more than 20 feet apart is 40 degrees Fahrenheit.

C. Contractor shall submit a Thermal Control and Placement Plan containing:
   1. Calculations of maximum internal temperature and maximum gradient, based on the approved mix design or designs.
   2. Required concrete temperature at time of placement (Maximum Placement Temperature).
   3. Estimated set time and finishing plan.
   4. Number and approximate location of temperature sensors, and measurement interval.
   5. Intended blanketing, with assumed likely range of external temperatures during and after placement. Note that blankets may be required in warm weather to control temperature gradient.
   6. Likely length of time that blankets are required to minimize gradient.
   7. If necessary, Plan shall also include cooling through internal piping.
   8. Through-thickness construction joints.
   9. Placement methodology (bucketing, pumps, conveyors, etc.) and intended placement rate.
   10. Placement intent for slabs (full thickness, or layers).

D. On slabs, recheck surface elevations for changes due to subsidence or sloughing after initial screeding.

E. Typical wet curing requirements apply to Mass Concrete, but blanket requirements in other sections are superseded by requirement C.5 above. Blankets are required in warm weather to reduce thermal gradient. Maintain blankets until core and surface temperatures are and are expected to remain within 40 degrees of one another; but blankets need not be maintained for more than two weeks.

F. Typical cold weather temperature requirements apply to Mass Concrete unless superseded by the approved Thermal Control and Placement Plan.

3.10 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Submit proposed mix design of each class of concrete to Engineer for review prior to commencement of concrete operations.

D. For testing requirements refer to structural notes on the drawings and, where applicable, as indicated below.

E. Refer to Section 01 3510 - Structural Testing and Special Inspection Requirements for testing requirements.

3.11 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Engineer and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
   1. Concrete damaged by the construction activities required to complete the Work of this section shall also be considered defective concrete.

C. Repair or replacement of defective concrete will be determined by the Engineer. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

3.12 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

SECTION 06 1613
NON-INSULATING SHEATHING (ZIP SYSTEM SHEATHING)

PART 1 GENERAL

1.01 SUMMARY

A. Section includes non-insulated wall sheathing with integral water-resistive barrier and air barrier.

1.02 REFERENCES

A. American Society of Mechanical Engineers (ASME): www.asme.org.
   1. ASME B18.6.1 - Wood Screws (Inch Series)

B. ASTM International (ASTM): www.astm.org.
   1. ASTM A153/A153M - Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
   2. ASTM D779 - Test Method for Water Resistance of Paper, Paperboard, and Other Sheet Materials by the Dry Indicator Method
   3. ASTM D1621 - Test Method for Compressive Properties Of Rigid Cellular Plastics
   4. ASTM D2247 - Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
   5. ASTM E96/E 96M - Test Methods for Water Vapor Transmission of Materials
   6. ASTM E331 - Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
   7. ASTM E2357 - Test Method for Determining Air Leakage of Air Barrier Assemblies
   8. ASTM F1667 - Specification for Driven Fasteners: Nails, Spikes, and Staples
   9. ASTM G154 - Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials

C. US Department of Commerce (DOC): http://gsi.nist.gov/global/index.cfm/L1-5/l2-44/A-355.
   1. DOC PS 2 - Performance Standard for Wood-Based Structural Panels

D. International Code Council (ICC): www.iccsafe.org.
   1. ICC IBC - International Building Code
   2. ICC IRC - International Residential Code for One and Two-Family Dwellings

E. ICC Evaluation Service, Inc. (ICC-ES): www.icc-es.org.
   1. ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers
   2. ICC-ES AC116 - Acceptance Criteria for Nails and Spikes
   3. ICC-ES AC148 - Acceptance Criteria For Flexible Flashing Materials
   4. ICC-ES AC201 - Acceptance Criteria for Staples
   5. ICC-ES AC269 - Acceptance Criteria for Racking Shear Evaluation of Proprietary Sheathing Materials attached to Light-Frame Wall Construction or Code-Complying Sheathing Attached to Light-Framed Walls with Proprietary Fasteners
   6. ICC-ES AC310 - Acceptance Criteria for Water-Resistive Membranes Factory-bonded to Wood-based Structural Sheathing, Used as Water-Resistive Barriers
   7. ICC-ES ESR-1539 - Power Driven Staples and Nails for Use in Engineered and Non-Engineered Connections
   8. ICC-ES NER-272 - Power Driven Staples and Nails for Use in All Types of Building Construction

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: For each type of sheathing product specified.

D. Samples: Submit one sample of each accessory related toSheathing.

1.04 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: From ICC-ES, for wood sheathing and seam tape.

B. Product Certifications: From manufacturer, indicating that sheathing products comply with ICC-ES AC269 and ICC-ES AC310.

1.05 CLOSEOUT SUBMITTALS

A. Warranty: Executed copy of manufacturer special warranties.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide wood products from manufacturer certified by SFI, FSC, or comparable sustainable forestry program acceptable to Architect.

B. Provide wall sheathing products meeting requirements for water-resistive barrier in accordance with ICC-ES AC310.

C. Provide wall sheathing products meeting requirements of ICC-ES AC269.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's written instructions for protection of sheathing products from weather prior to installation.

1.08 WARRANTY

A. Special Manufacturer's Warranty: Manufacturer's standard form in which sheathing manufacturer agrees to repair or replace sheathing products that demonstrate deterioration or failure under normal use due to manufacturing defects within warranty period specified, when installed according to manufacturer's instructions.
   1. Warranty Period for Sheathing Products: 30 years following date of Substantial Completion.
   2. Warranty Conditions: Special warranties exclude deterioration or failure due to structural movement resulting in stresses on sheathing products exceeding manufacturer's written specifications, or due to air or moisture infiltration resulting from cladding failure or mechanical damage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design Product: Provide sheathing products manufactured by Huber Engineered Woods LLC, Charlotte NC; Phone: (800) 933-9220; Website: www.zipsystem.com.

2.02 PERFORMANCE REQUIREMENTS

A. Air-Barrier Assembly Air Leakage: Less than 0.04 cfm/sq. ft. at 1.57 lbf/sq. ft. (0.2 L/s x sq. m at 75 Pa), per ASTM E2375.

B. Water-Vapor Permeance, Facer: Minimum 12 perms (689 ng/Pa x s x sq. m), ASTM E96/E96M.

C. Weather Exposure: Manufacturer warranty applies for maximum allowable exposure period of 180 days.

2.03 MATERIALS

A. Oriented Strand Board: DOC PS 2, made with binder containing no added urea formaldehyde.

2.04 COMPOSITE NON-INSULATING WALL SHEATHING

A. Composite Non-Insulating Wall Sheathing: Oriented-strand-board Exposure 1 sheathing 7/16 inch (11.1 mm) thick, with factory-laminated water-resistive barrier exterior facer.
   1. Basis-of-Design Product: Provide Huber Engineered Woods LLC; ZIP System R Sheathing.
   2. Span Rating and Performance Category of Sheathing Layer: Not less than 24/16; 7/16 Performance Category.
   3. Edge Profile: Square edge.
   4. Exterior Facer: Medium-density, phenolic-impregnated polymer-modified sheet material meeting requirements for ASTM D779 Grade D weather-resistive barrier in accordance with ICC AC38 and AC310, with fastener spacing symbols on exterior facer for 16-inch (406 mm) on center spacing, with the following characteristics
      a. Water Resistance of Coatings, ASTM D2247: Pass 14 day exposure test.
      b. Moisture Vapor Transmission, ASTM E96: Not less than 12 perms.
      c. Water Penetration, ASTM E331: Pass at 2.86 lbf/sq. ft. (137 Pa).

d. Wind Driven Rain, TAS-100: Pass.
e. Accelerated Weathering, ASTM G154: Pass.

2.05 FASTENERS

A. Fasteners, General: Size and type complying with manufacturer's written instructions for Project conditions and requirements of authorities having jurisdiction.
   1. Corrosion Resistance: Hot-dip zinc coating, ASTM A153/A 153M or Type 304 stainless steel.

B. Nails, Brads, and Staples: ICC AC116 and ICC AC201.

C. Power-Driven Fasteners: ICC-ES-1539 or NER-272.

D. Wood Screws: ASME B18.6.1.

2.06 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIAL

A. Self-Adhering Seam and Flashing Tape: Pressure-sensitive, self-adhering, cold-applied, seam tape consisting of polyolefin film with acrylic adhesive, meeting ICC AC148.
   1. Basis-of-Design Product: Provide Huber Engineered Woods; ZIP System Tape.
   2. Thickness: 0.012 inch (0.3 mm).

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine framing spacing and alignment to determine if work is ready to receive sheathing. Proceed with sheathing work once conditions meet requirements.

3.02 SHEATHING INSTALLATION

A. Install sheathing panels in accordance with manufacturer's written instructions, requirements of applicable Evaluation Reports, and requirements of authorities having jurisdiction.

B. Air and Moisture Barrier: Coordinate sheathing installation with flashing and joint sealant installation and with adjacent building air and moisture barrier components to provide complete, continuous air- and moisture- barrier.

C. Do not bridge expansion joints; allow joint spacing equal to spacing of structural supports.

D. Install panels with laminated facer to exterior. Stagger end joints of adjacent panel runs.

E. Attach sheathing panels securely to substrate with manufacturer-approved fasteners in compliance with the following:
   1. ICC-ES ESR-1539 or ICC-NES NER-272 for power-driven fasteners.
   2. IBC: Table 2304.9.1 Fastening Schedule.

F. Apply seam tape at all panel seams, penetrations, and facer defects or cracks to form continuous weathertight surface. Apply tape according to manufacturer's written instructions and requirements of ICC-ES applicable to tape application.

END OF SECTION

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SECTION 06 1753
SHOP-FABRICATED WOOD TRUSSES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated wood trusses for roof framing.

B. Bridging, bracing, and anchorage.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Installation requirements for miscellaneous framing.

B. Section 06 1000 - Rough Carpentry: Material requirements for blocking, bridging, plates, and miscellaneous framing.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.

B. TPI BCSI 1 - Building Component Safety Information Booklet: The Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses; 2018.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Manufacturer's data sheets on plate connectors, bearing plates, and metal bracing components.

D. Shop Drawings: Show truss configurations, sizes, spacing, size and type of plate connectors, cambers, framed openings, bearing and anchor details, and bridging and bracing.
   1. Include identification of engineering software used for design.
   2. Provide shop drawings stamped or sealed by design engineer.

1.05 QUALITY ASSURANCE

A. Designer Qualifications: Perform design by or under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State in which the Project is located.

B. Fabricator Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Handle and erect trusses in accordance with TPI BCSI 1.

B. Store trusses in vertical position resting on bearing ends.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Truss Plate Connectors:
   1. Alpine, an ITW Company: www.alpineitw.com.
   2. MiTek Industries, Inc: www.mii.com.
   3. Substitutions: See Section 01 6000 - Product Requirements.

2.02 TRUSSES

A. Wood Trusses: Designed and fabricated in accordance with TPI 1 and TPI DSB-89 to achieve structural requirements indicated.
   1. Design Roof Live and Dead Load: Deflection limited to 1/240. See drawings for loading.

2.03 MATERIALS

A. Lumber:
   1. Species: SPF or better.
   2. Grade: RIS (GR), Grade Min. No. 2.

3. Moisture Content: Between 7 and 9 percent.
4. Lumber fabricated from old growth timber is not permitted.

B. Steel Connectors: Hot-dipped galvanized steel sheet, ASTM A653/A653M Structural Steel (SS) Grade 33/230, with G90/Z275 coating; die stamped with integral teeth; thickness as indicated.

C. Truss Bridging: Type, size and spacing recommended by truss manufacturer.

2.04 ACCESSORIES

A. Wood Blocking, Bridging, Plates, and Miscellaneous Framing: Softwood lumber, Spruce/Pine/Fir, construction grade, 19 percent maximum and 7 percent minimum moisture content.

B. Fasteners: Hot-dip galvanized steel, type to suit application.

C. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions. Simpson, USP, or approved equivalent.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that supports and openings are ready to receive trusses.

3.02 PREPARATION

A. Coordinate placement of bearing items.

3.03 ERECTION

A. Install trusses in accordance with manufacturer's instructions and TPI DSB-89 and TPI BCSI 1; maintain a copy of each TPI document on site until installation is complete.

B. Set members level and plumb, in correct position.

C. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure plumb, and in true alignment until completion of erection and installation of permanent bracing.

D. Do not field cut or alter structural members without approval of Engineer.

E. Install permanent bridging and bracing.

F. Install headers and supports to frame openings required.

G. Frame openings between trusses with lumber in accordance with Section 06 1000.

H. Coordinate placement of decking with work of this section.

I. After erection, touch-up galvanized surfaces with zinc primer.

3.04 TOLERANCES

A. Framing Members: 1/4 inch maximum, from true position.

END OF SECTION

SECTION 07 2100
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Board insulation at perimeter foundation wall and below grade.

B. Batt insulation and vapor retarder in exterior wall construction.

1.02 REFERENCE STANDARDS

A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2022.

B. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2017.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.

D. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 °C; 2022.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

1.04 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 FOAM BOARD INSULATION MATERIALS

A. Extruded Polystyrene (XPS) Board Insulation: Comply with ASTM C578 with either natural skin or cut cell surfaces.
   1. Type and Compressive Resistance: Type IV, 25 psi (173 kPa), minimum.
   2. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
   3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
   4. Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88), minimum, per 1 inch thickness at 75 degrees F mean temperature.
   5. Board Size: 48 x 96 inch.
   6. Board Thickness: As indicated on the drawings.
   7. Board Edges: Square.
   8. Thermal Conductivity (k factor) at 75 degrees F: 0.18.
   9. Compressive Resistance: 25 psi.
   10. Installation Locations:
      a. Natural Skin Surfaces: All locations unless indicated otherwise.
      b. Cut Cell Surfaces: Locations at grade where parging is indicated.
   11. Manufacturers:
      a. DuPont de Nemours, Inc: building.dupont.com/#sle.
      b. Owens Corning Corporation: www.ocbuildingspec.com/#sle.
      c. Kingspan Insulation LLC: www.trustgreenguard.com.
      d. Diversifoam Products: www.diversifoam.com.
   12. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MINERAL FIBER BLANKET INSULATION MATERIALS

A. Flexible Glass Fiber Blanket Thermal Insulation: Preformed insulation, complying with ASTM C665; friction fit.
   1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.

2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
4. Formaldehyde Content: Zero.
5. Facing: Unfaced.
6. Products:
    a. CertainTeed Corporation: www.certainteed.com.
    b. Johns Manville: www.jm.com.
    c. Owens Corning Corporation: www.ocbuildingspec.com/#sle.

B. Mineral Wool Blanket Thermal Insulation: Flexible or semi-rigid preformed insulation, complying with ASTM C665.
1. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
2. Products:
    a. Johns Manville: www.jm.com/#sle.
    b. Knauf Insulation: www.knaufinsulation.com/#sle.
    c. ROCKWOOL (ROXUL, Inc): www.rockwool.com/#sle.
    d. Thermafiber, Inc: www.thermafiber.com/#sle.
    e. Substitutions: See Section 01 6000 - Product Requirements.

2.03 ACCESSORIES

A. Sheet Vapor Retarder: Clear polyethylene film for above grade application, 6 mil thick.

B. Tape: Polyethylene self-adhering type, 2 inch wide.

C. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER

A. Apply adhesive to back of boards:
1. By methods approved by board and adhesive manufacturers.

B. Install boards horizontally on foundation perimeter.

C. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.03 BATT INSTALLATION

A. Install insulation and vapor retarder in accordance with manufacturer's instructions.

B. Install in exterior wall spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. At wood framing, place vapor retarder on warm side of insulation by stapling at 6 inches on center. Lap and seal sheet retarder joints over face of member.

F. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over face of member

G. Tape seal tears or cuts in vapor retarder.

H. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane; tape seal in place.

3.04 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 2126
BLOWN INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Ceiling and Attic: Blown insulation pneumatically placed into joist spaces through access holes.

1.02 REFERENCE STANDARDS

A. ASTM C1015 - Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation; 2017.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Provide data on product characteristics, performance criteria, and limitations.

D. Manufacturer's Installation Instructions: Indicate procedure for preparation and installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Blown Insulation:
   1. GreenFiber: www.greenfiber.com/#sle.
   2. Thermafiber, Inc: www.thermafiber.com/#sle.
   3. Fiberlite Technologies, Inc: www.fiberlitetech.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

A. Applications: Provide blown insulation in attic and ceiling as indicated on drawings.

B. Loose Fill Insulation: ASTM C739, cellulose fiber type, bulk for pneumatic placement.

2.03 ACCESSORIES

A. Roof Ventilation Baffles: Prefabricated ventilation channels for placement under roof sheathing with baffles to prevent wind-washing.
   1. Material: Polyvinyl chloride (PVC), polystyrene, or similar material.
   2. Roof Joist/Truss Spacing: 24 inch on center, nominal.
   3. Manufacturers:
      a. Brentwood Industries, Inc; AccuVent Original: www.brentwoodindustries.com/#sle.
      b. Durovent or ProVent by ADO Product or equivalent.
      c. Substitutions: Or equivalent.
   4. Sheet Vapor Retarder: Clear polyethylene film for above grade application, 6 mil thick.
   5. Tape: Polyethylene self-adhering type, 2 inch wide.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify spaces are unobstructed to allow for proper placement of insulation.

3.02 INSTALLATION

A. Install insulation and ventilation baffle in accordance with ASTM C1015 and manufacturer's instructions.

B. At wood framing, place vapor retarder on warm side of insulation by stapling at 6 inches on center. Lap and seal sheet retarder joints over member face.

C. Place insulation pneumatically to completely fill joist and rafter spaces.

D. Place insulation against baffles, and do not impede natural attic ventilation to soffit.

E. Completely fill intended spaces leaving no gaps or voids.

3.03 CLEANING

A. Remove loose insulation residue.

END OF SECTION

SECTION 07 2500
WEATHER BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Air Barriers: Materials that form a system to stop passage of air through exterior walls.

1.02 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Sealing building expansion joints.

1.03 REFERENCE STANDARDS

A. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2021.

B. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2021.

C. ASTM E2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials; 2021a.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Provide data on material characteristics, system components, and system components.

D. Manufacturer's Installation Instructions: Indicate preparation and installation methods.

1.05 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

A. Air Barrier:
   1. On outside surface of sheathing of exterior walls use air barrier sheet, mechanically fastened type sheet, mechanically fastened type.

2.02 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

A. Air Barrier Sheet, Mechanically Fastened:
   1. Air Permeance: 0.004 cfm/sq ft, maximum, when tested in accordance with ASTM E2178.
   2. Ultraviolet and Weathering Resistance: Approved in writing by manufacturer for minimum of 4 month weather exposure.
   3. Surface Burning Characteristics: Flame spread index of 25 or less, and smoke developed index of 50 or less, when tested in accordance with ASTM E84.
   4. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches wide, compatible with sheet material; unless otherwise specified.
   5. Manufacturers:
      a. DuPont Company; Tyvek HomeWrap: www.dupont.com.
      b. Fiberweb, Inc; Typar MetroWrap: www.typar.com/#sle.
      c. Fortifiber Building Systems Group; WeatherSmart: www.fortifiber.com/#sle.
      d. VaproShield, LLC; WrapShield: www.vaproshield.com.
      e. DOW; Weathermate Plus Housewrap: www.dow.com.
      f. Barricade Building Products; Barricade Plus: www.barricadebp.com.
      g. Benjamin Obdyke; HydroGap Drainable Housewrap: www.benjaminobdyke.com.
      h. Grip Rite; Commercial Grade Weather Barrier: www.grip-rite.com.
      i. TamlynWrap; Drainable Housewrap: www.tamlynwrap.com.
      j. Substitutions: See Section 01 6000 - Product Requirements.

2.03 ACCESSORIES

A. Flexible Flashing: Self-adhesive sheet flashing complying with ASTM D1970/D1970M, except slip resistance requirement is waived if not installed on a roof.

B. Seam Tape: As recommended by the weather barrier manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions are ready to accept the work of this section.

B. Verify that all openings and penetrations are in place and ready for the work of this section. It is the responsibility of the contractor of this section to repair new penetrations at the cost of the contractor who created new penetrations after the work of this section was completed.

3.02 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

C. Mechanically Fastened Sheets - On Exterior:
   1. Install sheets shingle-fashion to shed water, with seams generally horizontal.
   2. Overlap seams as recommended by manufacturer but at least 6 inches.
   3. Overlap at outside and inside corners as recommended by manufacturer but at least 12 inches.
   4. For applications specified to be air tight, seal seams, laps, penetrations, tears, and cuts with self-adhesive tape; use only large-headed, gasketed fasteners recommended by the manufacturer.
   5. Install air barrier and vapor retarder underneath the jamb flashings.
   6. Install head flashings under weather barrier.
   7. At openings to be filled with frames having nailing flanges, wrap excess sheet into opening; at head, seal sheet over flange and flashing.

D. Openings and Penetrations in Exterior Weather Barriers:
   1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
   2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches wide; do not seal sill flange.
   3. At openings to be filled with non-flanged frames, seal weather barrier to each side of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.
   4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
   5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
   6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.03 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

SECTION 07 4113
METAL ROOF PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal roof panel system of preformed steel panels.

B. Attachment system.

C. Finishes.

D. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Roof sheathings and coverboards.

1.03 REFERENCE STANDARDS

A. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2022.

B. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; 2005 (Reapproved 2017).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
   1. Show work to be field-fabricated or field-assembled.

D. Verification Samples: For each roofing system specified, submit samples of minimum size 12 inches square, representing actual roofing metal, thickness, profile, color, and texture.

E. Test Reports: Indicate compliance of metal roofing system to specified requirements.

F. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

1.05 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Finish Warranty: Provide manufacturer’s special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of twenty year period from date of Substantial Completion.

C. Special Warranty: Provide 2-year warranty for weathertightness of roofing system, including agreement to repair or replace metal roof panels that fail to keep out water commencing on the Date of Substantial Completion. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metal Roof Panel Manufacturers:
   1. MBCI; PBR Panel: www.mbci.com/#sle.
   2. Substitutions: See Section 01 6000 - Product Requirements.

B. Other Acceptable Manufacturers; Metal Roof Panels:
   1. ATAS International, Inc: www.atas.com/#sle.
   2. Holcim Elevate; Product UNA-CLAD UC-4: www.holcimelevate.com.
   3. Petersen Aluminum Corporation: www.pac-clad.com/#sle.
   4. Varco Pruden Buildings: www.vp.com .
   5. Berridge: www.berridge.com .
   6. Metal Sales Manufacturing Corporation: www.metalsales.us.com .
   7. Kingspan: www.kingspanpanles.us .

8. McElroy Metal, Inc.: www.mcelroymetal.com .
9. IMETCO Innovative Metals Company, Inc.: www.imetco.com .
10. Metl-Span LLC: wwww.metlspan.com.
11. MBCI: www.mbci.com.
12. Mac Metals Architectural: www.macmetalarchitectural.com.

2.02 PERFORMANCE REQUIREMENTS

A. Metal Roof Panels: Provide complete roofing assemblies, including roof panels, clips, fasteners, connectors, and miscellaneous accessories, tested for compliance with the following minimum standards:
   1. Structural Design Criteria: Provide panel assemblies designed to safely support design loads at support spacing indicated, with deflection not to exceed L/180 of span length(L) when tested in accordance with ASTM E1592.
   2. Overall: Complete weathertight system tested and approved in accordance with ASTM E1592.
   3. Thermal Movement: Design system to accommodate without deformation anticipated thermal movement over ambient temperature range of 100 degrees F.

2.03 METAL ROOF PANELS

A. Metal Roof Panels: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.

B. Metal Panels: Factory-formed panels with factory-applied finish.
   1. Steel Panels:
      a. Aluminum-zinc alloy-coated steel complying with ASTM A792/A792M; minimum AZ50 coating.
      b. Steel Thickness: Minimum 24 gauge, 0.024 inch.
   2. Texture: Smooth.
   3. Length: Full length of roof slope, without lapped horizontal joints.
   4. Width: Maximum panel coverage of 18 inches.

2.04 ATTACHMENT SYSTEM

A. Exposed System: Provide manufacturers recommended stainless steel fasteners engineered to meet performance requirements and equipped with appropriate sealant separators to provide weathertight connections that will accommodate anticipated thermal movement.

2.05 FABRICATION

A. Panels: Provide factory fabricated panels with applied finish and accessory items, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

2.06 FINISHES

A. Fluoropolymer Coating System: Manufacturer’s standard multi-coat thermocured coating system, including minimum 70 percent fluoropolymer color topcoat with minimum total dry film thickness of 0.9 mil; color and gloss as selected from manufacturers full range of colors by the Architect.

2.07 ACCESSORIES

A. Miscellaneous Sheet Metal Items: Provide flashings, trim, moldings, closure strips, caps, and equipment curbs of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.

B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.

C. Sealants:
   1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
   2. Concealed Sealant: Non-curing butyl sealant or tape sealant.

D. Self-adhering/adhesive membrane roofing underlayment 2 Layers: Underlayment shall be manufactured by same manufacturer as metal panels when available; Grace Construction Products Ice and water shield HT; Tamko Building Products, Inc. TW Underlayment; Elevate

Clad-Gard SA; or approved equivalent with a minimum of 25 years experience in the production and sales of self-adhered membrane roofing underlayments. Underlayment products shall meet the requirements of ASTM D 1970 for self-adhering roofing underlayments.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

3.02 INSTALLATION

A. Overall: Install roofing system in accordance with approved shop drawings and metal roof panel manufacturer's instructions and recommendations, as applicable to specific project conditions; securely anchor components of roofing system in place allowing for thermal and structural movement.
   1. Install roofing system with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances.
   2. Install roofing system with exposed fasteners prefinished to match panels.
   3. Minimize field cutting of panels. Where field cutting is required, use methods that will not distort panel profiles. Use of torches for field cutting is prohibited.
      a. Field cutting shall be done in accordance with panel manufacturer's recommendations and shall not void panel warranty.

B. Accessories: Install necessary components that are required for complete roofing assembly, including flashings, trim, moldings, closure strips, caps, equipment curbs, rib closures, ridge closures, and similar roof accessory items.

C. Underlayment 2 Layers: Install roofing underlayment per manufacturers instructions before installing preformed metal roof panels. Secure by methods acceptable to metal roof panel manufacturer. Apply from eaves to ridge in shingle fashion, overlapping joints according to manufactures recommendations to meet the requirements of the metal roof panel system.

3.03 CLEANING

A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.04 PROTECTION

A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.

B. Touch-up, repair, or replace damaged roof panels or accessories before Date of Substantial Completion.

END OF SECTION

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SECTION 07 4213
METAL WALL PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured metal panels for exterior wall panels, with related flashings and accessory components.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wall panel substrate.

B. Section 07 2500 - Weather Barriers: Weather barrier under wall panels.

1.03 REFERENCE STANDARDS

A. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2022.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Verification Samples: For each wall panel system specified, submit samples of minimum size 12 inches square, representing actual roofing metal, thickness, profile, color, and texture.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

B. Store prefinished material off the ground and protected from weather; prevent twisting, bending, or abrasion; provide ventilation; slope metal sheets to ensure proper drainage.

C. Prevent contact with materials that may cause discoloration or staining of products.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Finish Warranty: Provide 5-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Design is based on PBR manufactured by MBCI.

B. Other Acceptable Manufacturers:
   1. Varco Pruden Buildings: www.vp.com .
   2. Holcim Elevate: www.holcimelevate.com.
   3. Berridge: www.berridge.com .
   4. Metal Sales Manufacturing Corporation: www.metalsales.us.com .
   5. McElroy Metal, Inc.: www.mcelroymetal.com .
   6. Kingspan: www.kingspanpanles.us .
   7. MBCI Panel: www.mbci.com.
   8. Metl-Span LLC: wwww.metlspan.com.
   9. Mac Metals Architectural: www.macmetalarchitectural.com.
   10. Waard Metals: www.waardmetals.com.
   11. Substitutions: See Section 01 6000 - Product Requirements.

2.02 METAL WALL PANEL SYSTEM

A. Wall Panel System: Factory fabricated prefinished metal panel system, site assembled.
   1. Provide exterior wall panels.
   2. Design and size components to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of wall.
   3. Maximum Allowable Deflection of Panel: L/180 for length(L) of span.

4. Movement: Accommodate movement within system without damage to components or deterioration of seals, movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; and deflection of structural support framing.
5. Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
6. Fabrication: Formed true to shape, accurate in size, square, and free from distortion or defects; pieces of longest practical lengths.

B. Exterior Wall Panels:
1. Profile: Vertical; style as indicated.
2. Side Seams: Double-interlocked, tight-fitting, unsealed without sealant.
3. Steel Thickness: Minimum 24 gauge.
4. Panel Width: 36 inches.

C. Internal and External Corners: Same material, thickness, and finish as exterior sheets; smoothprofile to suit system; shop cut and factory mitered to required angles.

D. Trim: Same material, thickness and finish as exterior sheets; brake formed to required profiles.

E. Anchors: Galvanized steel.

2.03 MATERIALS

A. Precoated Steel Sheet: Aluminum-zinc alloy-coated steel sheet, ASTM A792/A792M, Commercial Steel (CS)) or Forming Steel (FS), with AZ50/AZM150 coating; continuous-coil-coated on exposed surfaces with specified finish coating and on panel back with specified panel back coating.

2.04 FINISHES

A. Exposed Surface Finish: Panel manufacturer's standard polyvinylidene fluoride (PVDF) coating, top coat over epoxy primer.

2.05 ACCESSORIES

A. Concealed Sealants: Non-curing butyl sealant or tape sealant, see Section 07 9200

B. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.

C. Sealants: Manufacturer's standard type suitable for use with installation of system; non-staining, non-skinning, non-shrinking, non-sagging, and ultra-violet resistant and ozone resistant.

D. Fasteners: Manufacturer's standard type to suit application; steel, hot dip galvanized.

E. Field Touch-up Paint: As recommended by panel manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that building framing members are ready to receive panels.

3.02 INSTALLATION

A. Install panels on walls and soffits in accordance with manufacturer's instructions.

B. Fasten panels to structural supports; aligned, level, and plumb.

C. Locate joints over supports.

D. Lap panel ends 2 inches, minimum.

E. Seal and place gaskets to prevent weather penetration. Maintain neat appearance.

3.03 TOLERANCES

A. Offset From True Alignment Between Adjacent Members Abutting or In Line: 1/16 inch, maximum.

B. Variation from Plane or Location As Indicated on Drawings: 1/4 inch, maximum.

3.04 CLEANING

A. Remove site cuttings from finish surfaces.

B. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

END OF SECTION

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SECTION 07 6200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, and other items indicated on the drawings.

B. Manufactured metal soffit panel.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wood nailers for sheet metal work.

B. Section 07 9200 - Joint Sealants: Sealing non-lap joints between sheet metal fabrications and adjacent construction.

1.03 REFERENCE STANDARDS

A. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2018).

B. CDA A4050 - Copper in Architecture - Handbook; current edition.

C. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

D. NRCA's ANSI/SPRI ES-1 - American National Standard for Edge Systems Used with Low Slope Roof Systems - Certification Listing for Shop-fabricated Edge Metal Flashings; Current Edition.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

D. Samples: Submit two samples 8 by 8 inch in size illustrating metal finish color.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 5 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239 inch) thick base metal.
   1. Do not use unfinished galvanized steel flashings in finished locations, interior or exterior, unless specifically indicated.

B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239) inch thick base metal, shop pre-coated with PVDF coating.
   1. Color: As selected by Engineer from manufacturer's full colors.
   2. Face Heights: Flashings 8 inch or less shall be a minimum of 24 gauge, over 8 inches shall be 22 gauge, or as indicated on the drawings. Continuously supported flashing over 8 inches may be 24 gauge unless noted otherwise.

2.02 MANUFACTURED PRODUCTS

A. Metal Soffit Panel.
   1. Product: Rollex System 3 16in. Aluminum Soffit Panels: www.rollex.com.
      a. Other acceptable Manufacturers:
         1) EDCO: www.edcoproducts.com.
         2) ATAS International, Inc: www.atas.com.
         3) ABC Seamless: www.abcseamless.com.
         4) Substitutions: See Section 01 6000 - Product Requirements.
   2. Venting: Solid (No venting).
   3. Accessories: Fasteners, trim, drip edge, fascia and other related flashings.
   4. Color: As indicated on the drawings.

2.03 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

2.04 ACCESSORIES

A. Fasteners: Galvanized steel, with soft neoprene washers.

B. Primer: Zinc chromate type.

C. Sealant: Type specified in Section 07 9200.

D. Plastic Cement: ASTM D4586/D4586M, Type I.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 INSTALLATION

A. Install manufactured products according to manufacturers instructions including all accessory components to create a complete system.

B. Secure flashings in place using concealed fasteners.

C. Apply sealant between metal flashings and felt flashings.

D. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

E. Seal metal joints watertight.

END OF SECTION

SECTION 07 9200
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Self-leveling pourable joint sealants.

C. Joint backings and accessories.

1.02 REFERENCE STANDARDS

A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

B. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.

C. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2018.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
   1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
   2. List of backing materials approved for use with the specific product.
   3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
   4. Substrates the product should not be used on.

D. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

E. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

F. Samples for Verification: Where custom sealant color is specified, obtain directions from Engineer and submit at least two physical samples for verification of color of each required sealant.

G. Executed warranty.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.

1.05 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide 5-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.

C. Extended Correction Period: Correct defective work within 5-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Base Manufacturer: Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com.

B. Other Acceptable Manufacturers:

1. Master Builders Solutions: www.master-builders-solutions.com/en-us.
2. Bostik Inc: www.bostik-us.com.
3. Dow Chemical Company: www.dow.com.
4. Manus Products, Inc.: www.manus.net.
5. Pecora Corporation: www.pecora.com.
6. Red Devil: www.reddevil.com.
7. Sherwin-Williams Company: www.sherwin-williams.com.
8. Sika Corporation: www.usa.sika.com.
9. W.R.Meadows, Inc: www.wrmeadows.com.
10. Hilti: www.hilti.com.
11. Substitutions: See Section 01 6000 - Product Requirements.

2.02 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to:
      a. Wall expansion and control joints.
      b. Joints between door, window, and other frames and adjacent construction.
      c. Joints between different exposed materials.
      d. Other joints indicated below.
   2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
      a. Joints between door, window, and other frames and adjacent construction.
      b. Other joints indicated below.
      c. Other joints where indicated on the drawings.
   3. Do not seal the following types of joints:
      a. Joints indicated to be treated with manufactured expansion joint cover, or some other type of sealing device.
      b. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
      c. Joints where installation of sealant is specified in another section.
      d. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use nonsag polyurethane sealant, unless otherwise indicated.
   1. Control and Expansion Joints in Concrete Paving: Self-leveling polyurethane traffic-grade sealant.

C. Interior Joints: Use nonsag polyurethane sealant, unless otherwise indicated.

2.03 JOINT SEALANTS - GENERAL

A. Colors: Color shall be selected by the Engineer from manufacturer's full range unless specifically indicated to be a specific color.

2.04 NONSAG JOINT SEALANTS

A. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 25 percent, minimum.
   2. Color: To be selected by Engineer from manufacturer's standard range.
   3. Products:
      a. Master Builders Solutions; MasterSeal NP1 or NP2: www.master-builders-solutions.com/en-us/#sle.
      b. Tremco Commercial Sealants & Waterproofing; Dymeric 240 FC or Dymonic FC: www.tremcosealants.com/#sle.
      c. Substitutions: See Section 01 6000 - Product Requirements.

2.05 SELF-LEVELING JOINT SEALANTS

A. Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multicomponent; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion.
   1. Movement Capability: Plus and minus 25 percent, minimum.

2. Color: To be selected by Engineer from manufacturer's full range.
3. Products:
    a. THC-901, Vulkem 445SSL (also Dymonic FC, or Dymeric 240 FC) manufactured by Tremco Commercial Sealants & Waterproofing.
    b. MasterSeal SL 1, SL 2 (also NP 1, or NP 2 manufactured by Master Builders Solutions.
    c. Substitutions: See Section 01 6000 - Product Requirements.

2.06 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
    1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
    2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type C - Closed Cell Polyethylene.
    3. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.

E. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Provide joint sealant installations complying with ASTM C1193.

C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

D. Install bond breaker backing tape where backer rod cannot be used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

H. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION

A. Protect sealants until cured.

END OF SECTION

SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Thermally insulated hollow metal doors with frames.

B. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 08 7100 - Door Hardware.

B. Section 09 9113 - Exterior Painting: Field painting.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2022.

C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2017.

D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2020.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.

F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2021a.

G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2018a.

H. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.

I. BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames; 2016.

J. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

K. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.

L. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.

M. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2017.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

D. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
   1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com/#sle.
   2. Curries, an Assa Abloy Group company: www.assaabloydss.com/#sle.
   3. Fleming Door Products, an Assa Abloy Group company: www.assaabloydss.com/#sle.
   4. Mesker, dormakaba Group: www.meskeropeningsgroup.com/#sle.
   5. Republic Doors, an Allegion brand: www.republicdoor.com/#sle.
   6. Steelcraft, an Allegion brand: www.allegion.com/#sle.
   7. Technical Glass Products: www.tgpamerica.com/#sle.
   8. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Requirements for Hollow Metal Doors and Frames:
   1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
   2. Accessibility: Comply with ICC A117.1 and ADA Standards.
   3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
   4. Door Edge Profile: Manufacturers standard for application indicated.
   5. Typical Door Face Sheets: Flush.
   6. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
   7. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
      a. Based on NAAMM HMMA Custom Guidelines: Provide at least A25/ZF75 (galvannealed) for interior applications, and at least A60/ZF180 (galvannealed) or G60/Z180 (galvanized) for corrosive locations.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

A. Exterior Doors: Thermally insulated.
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 3 - Extra Heavy-duty.
      b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
      c. Model 2 - Seamless.
      d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
      e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
   2. Door Core Material: Polystyrene, 1 lbs/cu ft minimum density.
      a. Foam Plastic Insulation: Manufacturer's standard board insulation with maximum flame spread index (FSI) of 75, and maximum smoke developed index (SDI) of 450 in accordance with ASTM E84, and completely enclosed within interior of door.
   3. Door Thickness: 1-3/4 inches, nominal.
   4. Door Finish: Factory primed and field finished.

2.04 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Exterior Door Frames: Full profile/continuously welded type.
   1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A60/ZF180 coating.
   2. Frame Metal Thickness: 14 gauge, 0.067 inch, minimum.
   3. Frame Finish: Factory primed and field finished.
   4. Weatherstripping: Separate, see Section 08 7100.

C. Frames Depth: Size frame depth to accommodate wall assembly thickness and to allow proper attachment to assembly components.

2.05 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Finish: Paint in field. Color as selected by the Architect.

2.06 ACCESSORIES

A. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

A. Fill frames at exterior doors and doors between heated and unconditioned space with foam-in-place insulation. Product: Great Stuff Pro window and door by Dupont or approved equivalent.

3.03 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Coordinate frame anchor placement with wall construction.

C. Install door hardware as specified in Section 08 7100.

3.04 TOLERANCES

A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.05 ADJUSTING

A. Adjust for smooth and balanced door movement.

3.06 SCHEDULE

A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION

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SECTION 08 3100
ACCESS DOORS AND PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall mounted access units.

1.02 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

D. Manufacturer's Installation Instructions: Indicate installation requirements and rough-in dimensions.

PART 2 PRODUCTS

2.01 WALL AND CEILING MOUNTED ACCESS UNITS

A. Basis of Design:
   1. Type AP-1: WB EXT 1300 Series; Steel Trim, Steel Flush Face.

B. Manufacturers:
   1. Activar Construction Products Group, Inc. - JL Industries: www.activarcpg.com/#sle.
   2. ACUDOR Products Inc: www.acudor.com/#sle.
   3. Babcock-Davis: www.babcockdavis.com/#sle.
   4. Bilco Co: www.bilco.com.
   5. Cendrex, Inc: www.cendrex.com/#sle.
   6. Elmdor Stonemen: www.elmdorstoneman.com/#sle.
   7. Dur-Red Products: www.dur-red.com.
   8. JL Industries, Inc: www.jlindustries.com.
   9. Karp Associates, Inc: www.karpinc.com.
   10. Milcor, Inc: www.milcorinc.com.
   11. Nystrom, Inc: www.nystrom.com/#sle.
   12. Williams Brothers Corporation of America: www.wbdoors.com.
   13. Substitutions: See Section 01 6000 - Product Requirements.

C. Wall Mounted Units: Factory fabricated door and frame, fully assembled units with corner joints welded, filled and ground flush; square and without rack or warp; coordinate requirements with type of installation assembly being used for each unit.
   1. Style: As indicated by Basis of Design.
   2. Door/Panel Size: As indicated on the drawings.
      a. Latch/Lock: Locking T-Handle.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings are correctly sized and located.

3.02 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Install frames plumb and level in openings, and secure units rigidly in place.

C. Position units to provide convenient access to concealed equipment when necessary.

END OF SECTION

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SECTION 08 5313
VINYL WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Vinyl-framed, factory-glazed windows.

B. Operating hardware.

C. Insect screens.

D. Perimeter sealant.

1.02 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Sealing joints between frames and adjacent construction.

1.03 REFERENCE STANDARDS

A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights; 2022.

B. AAMA 701/702 - Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals; 2011.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Provide component dimensions, anchors, fasteners, glass, and internal drainage.

D. Submit two samples of operating hardware.

E. Grade Substantiation: Prior to submitting shop drawings or starting fabrication, submit one of the following showing compliance with specified grade:
   1. Evidence of AAMA Certification.
   2. Evidence of WDMA Certification.
   3. Evidence of CSA Certification.
   4. Test report(s) by independent testing agency itemizing compliance and acceptable to authorities having jurisdiction.

F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect finished surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.

B. Jig, brace, and box the window frame assemblies for transport to minimize flexing of members or joints.

1.06 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F.

B. Maintain this minimum temperature during and after installation of sealants.

1.07 WARRANTY

A. Correct defective Work within a five year period after Date of Substantial Completion.

B. Provide five year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same. Include coverage for degradation of color finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Vinyl Windows:
   1. Lindsay Windows & Door, LLC: www.lindsaywindows.com.
   2. Thermo-Tech Window: www.ttwindows.com.

a. Window: ClassicSeries, **High-Performance LoE²™ 272 Double insulated glass with LoE²™ 272/Argon on one glass surface, Single-Hung Windows.**
b. Patio Door: PatioDoor Series, **High-Performance LoE²™ 272 Double insulated glass with LoE²™ 272/Argon on one glass surface, Classic French Patio Doors.**

2.02 DESCRIPTION

A. Vinyl Windows: Factory fabricated frame and sash members of extruded, hollow, ultra-violet-resistant, polyvinyl chloride (PVC) with integral color; with factory-installed glazing, hardware, related flashings, anchorage and attachment devices.
1. Configuration: As indicated on drawings.
a. Product Type: H - Hung window, vertically sliding in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.
2. Color: Color as selected.
3. Size to fit openings with minimum clearance around perimeter of assembly providing necessary space for perimeter seals.
4. Framing Members: Fusion welded corners and joints, with internal reinforcement where required for structural rigidity; concealed fasteners.
5. System Internal Drainage: Drain to exterior side by means of weep drainage network any water entering joints, condensation within glazing channel, or other migrating moisture within system.
6. Glazing Stops, Trim, Flashings, and Accessory Pieces: Formed of rigid PVC, fitting tightly into frame assembly.

B. Performance Requirements: Provide products that comply with the following:
1. Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:
a. Performance Class (PC): R.

2.03 COMPONENTS

A. Glazing: Insulated double pane, annealed glass, frosted, low-E coated, argon filled, with glass thicknesses as recommended by manufacturer for specified wind conditions.

B. Operable Sash Weatherstripping: Nylon pile; permanently resilient, profiled to maintain weather seal in accordance with AAMA 701/702.

C. Fasteners: Stainless steel.

D. **Material: High-Performance LoĒ²™ 272 Double insulated glass with LoĒ²™ 272/Argon on one glass surface.**

2.04 SEALANT MATERIALS AND ACCESSORIES

A. Perimeter Sealant and Backing Materials: Single or multi-component polyurethane type as specified in Section 07 9200.

B. Sill Pans Flashing: Jamsill Guard, Dow Weathermate Sill Pan or equivalent.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify wall openings and adjoining air and vapor seal materials are ready to receive this work.

3.02 INSTALLATION

A. Install window unit assemblies in accordance with manufacturers instructions and applicable building codes.

B. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities as necessary.

C. Align window plumb and level, free of warp or twist, and maintain dimensional tolerances and alignment with adjacent work.

D. Coordinate attachment and seal of perimeter air and vapor barrier materials.

E. Install perimeter sealant and backing materials in accordance with Section 07 9200.

3.03 TOLERANCES

A. Maximum Variation from Level or Plumb: 0.06 inches every 3 ft non-cumulative or 0.5 inches per 100 ft, whichever is less.

3.04 ADJUSTING

A. Adjust hardware for smooth operation and secure weathertight closure.

3.05 CLEANING

A. Remove protective material from pre-finished surfaces.

B. Wash surfaces by method recommended and acceptable to window manufacturer; rinse and wipe surfaces clean.

C. Remove excess glazing sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer and appropriate for application indicated.

END OF SECTION

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SECTION 08 7100
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hardware for hollow metal doors.

B. Thresholds.

C. Weatherstripping and gasketing.

1.02 RELATED REQUIREMENTS

A. Section 08 1113 - Hollow Metal Doors and Frames.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. BHMA A156.5 - Cylinders and Input Devices for Locks; 2020.

C. BHMA A156.13 - Mortise Locks & Latches Series 1000; 2017.

D. BHMA A156.18 - Materials and Finishes; 2020.

E. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; 2004.

F. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

G. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives; 2022.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.

B. Keying Requirements Meeting:
   1. Schedule meeting at project site prior to Contractor occupancy.
   2. Attendance Required:
      a. Contractor.
      b. Owner.
      c. Engineer.
      d. Installer's Architectural Hardware Consultant (AHC).
   3. Agenda:
      a. Establish keying requirements.
   4. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:
   5. Record minutes and distribute copies within two days after meeting to participants, with two copies to Engineer, Owner, participants, and those affected by decisions made.
   6. Deliver established keying requirements to manufacturers.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.

D. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
   1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
   2. Provide complete description for each door listed.

E. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

F. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

G. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Tools: One set of each special wrench or tool applicable for each different or special hardware component, whether supplied by hardware component manufacturer or not.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.

C. Supplier Qualifications: Company with certified Architectural Hardware Consultant (AHC) to assist in work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

1.08 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion.
   1. Closers: Five years, minimum.
   2. Exit Devices: Three years, minimum.
   3. Locksets and Cylinders: Three years, minimum.
   4. Other Hardware: Two years, minimum.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

B. Provide individual items of single type, of same model, and by same manufacturer.

C. Provide door hardware products that comply with the following requirements:
   1. Applicable provisions of federal, state, and local codes.
   2. Accessibility: ADA Standards and ICC A117.1.
   3. Applicable provisions of NFPA 101.

D. Fasteners:
   1. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
      a. Aluminum fasteners are not permitted.
      b. Provide phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.

2.02 HINGES

A. Manufacturers:
   1. McKinney; an Assa Abloy Group company: www.assaabloydss.com.
   2. Bommer Industries, Inc: www.bommer.com.
   3. Hager Companies: www.hagerco.com/#sle.
   4. Stanley, dormakaba Group: www.stanleyhardwarefordoors.com/#sle.
   5. Ives, an Allegion brand: www.allegion.com/us.
   6. Substitutions: See Section 01 6000 - Product Requirements.

B. Hinges: Complying with BHMA A156.1, Grade 1.

1. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
2. Provide ball-bearing hinges at each door.
3. Provide non-removable pins on exterior outswinging doors.
4. Provide non-removable pins on interior outswinging doors at locations where hinge knuckle is to non-secured side.
5. Provide stainless steel hinges on exterior doors and interior doors in wet locations.
    a. Doors From 60 inches High up to 90 inches High: Three hinges.
    b. Doors 90 inches High up to 120 inches High: Four hinges.
    c. Doors over 36 inches Wide: One additional hinge per each additional 12 inches in width.

2.03 LOCK CYLINDERS

A. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
1. Provide standard type cylinders, Grade 1, with six-pin core in compliance with BHMA A156.5 at locations indicated.
2. Provide cylinders from same manufacturer as locking device.
3. Provide cams and/or tailpieces as required for locking devices.
    a. Finish: To match lock or latch.

2.04 MORTISE LOCKS

A. Manufacturers:
1. Basis of Design: Grade 1 - Lever Handle as Selected..
2. Corbin Russwin, Sargent, or Yale; an Assa Abloy Group company: www.assaabloydss.com.
3. Best, dormakaba Group: www.bestaccess.com/#sle.
4. Hager Companies: www.hagerco.com/#sle.
5. Schlage, an Allegion brand: www.allegion.com/us.
6. Substitutions: See Section 01 6000 - Product Requirements.

B. Mortise Locks: Comply with BHMA A156.13, Grade 1, Security, 1000 Series.
1. Latchbolt Throw: 3/4 inch, minimum.
2. Deadbolt Throw: 1 inch, minimum.
3. Backset: 2-3/4 inch unless otherwise indicated.
4. Strikes: Provide manufacturer's standard strike for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
    a. Finish: To match lock or latch.
    b. Edges: Beveled, unless otherwise indicated.

2.05 CLOSERS

A. Manufacturers; Surface Mounted:
1. Basis of Design: Grade 1 - Parallel Arm Push Side Mount - Metal Cover Plate - Sprayed to match.
2. Corbin Russwin, Norton, Rixson, Sargent, or Yale; an Assa Abloy Group company: www.assaabloydss.com.
3. Hager Companies: www.hagerco.com/#sle.
4. LCN, an Allegion brand: www.allegion.com/us.
5. Substitutions: See Section 01 6000 - Product Requirements.

B. Closers: Complying with BHMA A156.4, Grade 1.

2.06 KICK PLATES

A. Manufacturers:
1. Basis of Design: 10 inch high x .05 inch thick, stainless steel.
2. Hiawatha, Inc, an Activar Construction Products Group company: www.activarcpg.com/hiawatha/#sle.
3. Ives, an Allegion brand: www.allegion.com/us/#sle.
4. Trimco: www.trimcohardware.com/#sle.
5. Substitutions: See Section 01 6000 - Product Requirements.

B. Kick Plates: Provide along bottom edge of push side of every door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.

1. Size: 8 inch high by 2 inch less door width (LDW) on push side of door.

2.07 THRESHOLDS

A. Manufacturers:
   1. Basis of Design: Reese S205A.
   2. Pemko; an Assa Abloy Group company: www.assaabloydss.com.
   3. Hager Companies: www.hagerco.com/#sle.
   4. National Guard Products, Inc: www.ngpinc.com.
   5. Zero International, Inc: www.zerointernational.com.
   6. Substitutions: See Section 01 6000 - Product Requirements.

B. Thresholds: Complying with BHMA A156.21.

2.08 WEATHERSTRIPPING AND GASKETING

A. Manufacturers:
   1. Pemko; an Assa Abloy Group company: www.assaabloydss.com.
   2. Hager Companies: www.hagerco.com/#sle.
   3. National Guard Products, Inc: www.ngpinc.com.
   4. Zero International, Inc: www.zerointernational.com.
   5. Substitutions: See Section 01 6000 - Product Requirements.

B. Weatherstripping and Gasketing: Complying with BHMA A156.22.
   1. Provide gasketing for smoke and draft control doors that complies with local codes, requirements of assemblies tested in accordance with UL 1784.
   2. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated; .
   3. Provide door bottom sweep on each exterior door, unless otherwise indicated.
   4. Provide sound-rated gasketing and automatic door bottom on doors indicated as "Sound-Rated", "Acoustical", or with "Sound Transmission Class (STC) rating"; fabricate as continuous gasketing, do not cut or notch gasketing material.

2.09 LATCH PROTECTOR

A. Latch Protector: Provide on door to protect latch from being tampered with while in locked position.
   1. Type: Standard latch protector.
   2. Material: Stainless steel.

2.10 KEY CONTROL SYSTEMS

A. Key Control Systems: Complying with guidelines of BHMA A156.28.

2.11 FINISHES

A. Finishes: Provide door hardware of same finish, unless otherwise indicated.
   1. Primary Finish: 626; satin chromium plated over nickel, with brass or bronze base material (former US equivalent US26D); BHMA A156.18.
   2. Secondary Finish: 626; satin chromium plated over nickel, with brass or bronze base material (former US equivalent US26D); BHMA A156.18.
      a. Use secondary finish in kitchens, bathrooms, and other spaces containing chrome or stainless steel finished appliances, fittings, and equipment; provide primary finish on one side of door and secondary finish on other side if necessary.
   3. Exceptions:
      a. Where base material metal is specified to be different, provide finish that is an equivalent appearance in accordance with BHMA A156.18.
      b. Aluminum Surface Trim and Gasket Housings: Anodized to match door panel finish, not other hardware, unless otherwise indicated.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Install hardware for smoke and draft control doors in accordance with NFPA 105.

C. Use templates provided by hardware item manufacturer.

D. Do not install surface mounted items until application of finishes to substrate are fully completed.

E. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.
   1. For Steel Doors and Frames: Install in compliance with DHI (LOCS) recommendations.

F. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

3.02 ADJUSTING

A. Adjust work under provisions of Section 01 7000 - Execution and Closeout Requirements.

B. Adjust hardware for smooth operation.

C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.03 CLEANING

A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.

B. Clean adjacent surfaces soiled by hardware installation.

C. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.04 PROTECTION

A. Protect finished Work under provisions of Section 01 7000 - Execution and Closeout Requirements.

B. Do not permit adjacent work to damage hardware or finish.

PART 4 SCHEDULE

4.01 BASIC DOOR HARDWARE AND DOOR OPERATION INTENT HAS BEEN LISTED BELOW. PROVIDE ANY ADDITIONAL HARDWARE TO MEET APPLICABLE CODES AND TO ACHIEVE OPERATION, FUNCTION, AND INTENT. IF INTENT IS UNCLEAR TO BIDDER, CONTACT THE ARCHITECT REPRESENTATIVE FOR CLARIFICATION. PLEASE NOTE THAT SOME REQUIRED DOOR HARDWARE ITEMS ARE ONLY LISTED ABOVE AND NOT WITHIN THE HARDWARE GROUP.

5.01 HARDWARE GROUP 1

A. Hinges

B. Mortise Lockset - Entrance Function - With Deadbolt

C. Cylinder

D. Closer

E. Latch Guard/Protection Plate

F. Gasketing

G. Drip

H. Threshold

I. Sweep

END OF SECTION

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SECTION 09 9113
EXTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
   1. Exposed surfaces of primed and unprimed metal items unless specifically indicated to not be painted.
   2. Mechanical and Electrical:
      a. Shop-primed items.
      b. Paint metals that are not resistant to corrosion.

D. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Floors, unless specifically indicated.
   6. Glass.
   7. Concealed pipes, ducts, and conduits.

1.02 DEFINITIONS

A. Conform to ASTM D16 for interpretation of terms used in this section.

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, www.paintinfo.com.

C. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

D. SSPC-SP 2 - Hand Tool Cleaning; 2018.

E. SSPC-SP 3 - Power Tool Cleaning; 1982 (Ed. 2004).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
   2. MPI product number (e.g. MPI #47).
   3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
   4. Manufacturer's installation instructions.
   5. If proposal of substitutions is allowed under submittal procedures, explanation of substitutions proposed.

D. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
   1. Where sheen is specified, submit samples in only that sheen.

2. Where sheen is not specified, discuss sheen options with Engineer before preparing samples, to eliminate sheens definitely not required.
3. Allow 15 days for approval process, after receipt of complete samples by Engineer.
4. Paint color submittals will not be considered until color submittals for major materials not to be painted, such as factory finished items, have been approved.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
1. See Section 01 6000 - Product Requirements, for additional provisions.
2. Do not provide or leave extra paint materials for the Owner.
3. Do provide product info, color names, and installation locations for all products and colors. Information shall be included in the Operation and Maintenance Manual.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
1. In the event that a single manufacturer cannot provide specified products, minor exceptions will be permitted provided approval by Engineer is obtained using the specified procedures for substitutions.

B. Paints:
1. Base Manufacturer: Sherwin Williams: www.sherwin-williams.com.
2. Other Manufacturers: Approved products shall meet performance and physical characteristics of base manufacturer (basis of design) product including published ratio of solids by volume, plus or minus two percent.

C. Other Acceptable Manufacturers: Submit product information for each line of paint for Architect's approval. Substitutions of Base Manufacturer's products may not be accepted during the shop drawing process.
1. Behr Process Corporation: www.behr.com/#sle.
2. Benjamin Moore & Co: www.benjaminmoore.com.
3. Carboline: www.carboline.com.
4. Diamond Vogel Paints: www.diamondvogel.com/#sle.
5. Hallman Lindsay Paint of Wisconsin: www.hallmanlindsay.com.
6. PPG Paints: www.ppgpaints.com/#sle.
7. Pratt & Lambert Paints: www.prattandlambert.com/#sle.
8. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
9. Tnemec: www.tnemec.com.
10. Valspar Corporation: www.valsparpaint.com/#sle.

D. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready mixed, unless required to be a field-catalyzed paint.
   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
      a. Spayed finish; is preferred on all metal surfaces; is required on the following surfaces:
         1) Metal doors and frames; prior to hardware installation.
   2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   3. Provide commercial grade paint systems by approved paint manufacturer for substrates not specifically covered under paint systems.
      a. Consult with Architect/Engineer/Designer for approval of additional products and systems. Provide quantifiable product information.
   4. Supply each paint material in quantity required to complete entire project's work from a single production run.
   5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

C. Volatile Organic Compound (VOC) Content:
   1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

D. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Engineer from the manufacturer's full line.

E. Colors: As indicated on drawings.
   1. Where indicated or scheduled colors do not match the paint product lines indicated below it is anticipated that colors will be color matched; product lines below are intended to set a level of standard for the product lines used for each application.
   2. Locations Not Indicated: Selection to be made by Engineer after award of contract.
   3. Extend colors to surface edges; colors may change at any edge as directed by Engineer.

F. Coats: The number of coats specified, are based on manufacturer’s recommendations. Provide for additional coats, as necessary, for complete coverage and true color. Additional coats due to a lack of coverage shall be provided at no additional cost to the Owner. No exceptions.

G. Coverage: Do not stretch products beyond their recommended coverage rate nor install fewer coats than specified regardless of appearance after previous coats are applied. Thin product application may show surface imperfections or inconsistencies that would otherwise not be visible. Additional coats due to a lack of proper coverage shall be provided at no additional cost to the Owner. No exceptions.

2.03 PAINT SYSTEMS - EXTERIOR

A. Paint Product: **Pro Industrial Acrylic**
   1. Primer: Prime and/or touch up as per Manufacturers recommended Specifications in accordance with specified Product.
   2. Number of Paint Coats Over Primer: Two.
   3. Types of Substrates:
      a. Steel.
   4. Sheen: semi-glos
   5. Location Types:
      a. Hollow metal doors and frames.
      b. Other metals unless noted otherwise.

2.04 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of paints and finishes until substrates have been properly prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

E. Test shop-applied primer for compatibility with subsequent cover materials.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask and/or protect all surfaces, appurtenances not affiliated with coating process, including but not limited to electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Ferrous Metal:
   1. Solvent clean according to SSPC-SP 1.
   2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
   3. Painted Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

E. Painting shall be free from paint runs; no exceptions.

F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

G. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

A. Protect finishes until completion of project.
B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

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SECTION 09 9600
COATING SYSTEMS FOR WASTE PROCESSING FACILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. **UPDATE THE SECTION NAME AS NEEDED FOR THE FOLLOWING TWO SECTIONS AND THEN TURN OFF THIS PARAGRAPH.**

B. Coating systems for **water** processing facilities.

1.02 RELATED SECTIONS

A. Section 01 3000 - Administrative Requirements.

1.03 REFERENCES

A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2019.

B. ASTM D4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method; 1983 (Reapproved 2018).

C. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2022.

D. AWWA D102 - Coating Steel Water-Storage Tanks; 2021.

E. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair; 2013.

F. NACE No. 2 - Joint Surface Preparation Standard Near-White Metal Blast Cleaning; 1994 (Reaffirmed 2006).

G. NACE No. 3 - Joint Surface Preparation Standard Commercial Blast Cleaning; 1994 (Reaffirmed 2006).

H. NACE SP0188 - Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates; 2006.

I. NAPF 500-03 - Surface Preparation Standard For Ductile Iron Pipe and Fittings in Exposed Locations Receiving Special External Coatings and/or Special Internal Linings; 2017.

J. SSPC TU 11 - Inspection of Fluorescent Coating Systems; 2010.

K. SSPC-PA 2 - Procedure for Determining Conformance to Dry Coating Thickness Requirements; 2022.

L. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

M. SSPC-SP 10 - Near-White Metal Wet Abrasive Blast Cleaning; 2015.

N. SSPC-SP 13 - Surface Preparation of Concrete; (Reaffirmed 2015).; 2003.

O. SSPC-SP 16 - Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals; 2020.

P. SSPC-TU 11 - Inspection of Fluorescent Coating Systems; 2010.

Q. ASTM D 4263 - Indicating Moisture in Concrete by the Plastic Sheet Method.

R. ASTM F 1869 - Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

S. AWWA D 102- Painting Steel Water Storage Tanks

T. International Concrete Repair Institute (ICRI) Guideline No. 310.2-1997 (formerly 03732) - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.

U. NACE SP0188 - Standard Recommended Practice, Discontinuity (Holiday) Testing of Protective Coatings.

V. NAPF 500-03-04 Abrasive Blast Cleaning.

W. SSPC-SP 1 - Solvent Cleaning.

X. SPPC-SP 5/NACE 1 - White Metal Blast Cleaning.

Y. SSPC-SP 16 Brush-Off Blast Cleaning of Non-Ferrous Metals

Z. SSPC-SP 13/NACE 6 - Surface Preparation of Concrete.

AA. SSPC-TU 11 - Inspection of Fluorescent Coating Systems

1.04 DEFINITIONS

A. Definitions of Painting Terms: ASTM D16, unless otherwise specified.

B. Dry Film Thickness (DFT): Thickness of a coat of cured paint measured in mils (1/1000 inch).

1.05 SUBMITTALS

A. Comply with Section 01 3000 - Administrative Requirements.

B. Build America, Buy America Act Compliance: Provide BABAA Compliance Certification. Products listed herein are listed to set a level of standard, however all products provided shall meet this requirement where applicable.

C. Product Data: Submit manufacturer's product data for each coating, including generic description, complete technical data, surface preparation, and application instructions.

D. Color Samples: Submit manufacturer’s color samples showing full range of standard colors.

E. Manufacturer’s Quality Assurance: Submit manufacturer’s certification that coatings comply with specified requirements and are suitable for intended application.

F. Applicator’s Quality Assurance: Submit list of a minimum of 5 completed projects of similar size and complexity to this Work. Include for each project:
   1. Project name and location.
   2. Name of owner.
   3. Name of contractor.
   4. Name of engineer.
   5. Name of coating manufacturer.
   6. Approximate area of coatings applied.
   7. Date of completion.

G. Warranty: Submit manufacturer’s standard warranty.

1.06 QUALITY ASSURANCE

A. Manufacturer’s Qualifications:
   1. Specialize in manufacture of coatings with a proven successful experience.
   2. Able to demonstrate successful performance on comparable projects.
   3. Single Source Responsibility: Coatings and coating application reducers and additives shall be products of a single manufacturer.

B. Applicator’s Qualifications:
   1. Experienced in application of specified coatings on projects of similar size and complexity to this Work.
   2. Applicator's Personnel: Employ persons trained for application of specified coatings.

C. Preapplication Meeting: Convene a preapplication meeting two 2 weeks before start of application of coating systems. Require attendance of parties directly affecting work of this section, including Contractor, Engineer, applicator, and manufacturer’s representative. Review the following:
   1. Environmental requirements.
   2. Protection of surfaces not scheduled to be coated.
   3. Surface preparation.
   4. Application.
   5. Repair.
   6. Field quality control.
   7. Cleaning.
   8. Protection of coating systems.
   9. One-year inspection.
   10. Coordination with other work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:
   1. Coating or material name.
   2. Manufacturer.
   3. Color name and number.
   4. Batch or lot number.
   5. Date of manufacture.
   6. Mixing and thinning instructions.

B. Storage:
   1. Store materials in a clean dry area and within temperature range in accordance with manufacturer's instructions.
   2. Keep containers sealed until ready for use.
   3. Do not use materials beyond manufacturer’s shelf life limits.

C. Handling: Protect materials during handling and application to prevent damage or contamination.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Weather:
   1. Air and Surface Temperatures: Prepare surfaces and apply and cure coatings within air and surface temperature range in accordance with manufacturer’s instructions.
   2. Surface Temperature: Minimum of 5 degrees F (3 degrees C) above dew point.
   3. Relative Humidity: Prepare surfaces and apply and cure coatings within relative humidity range in accordance with manufacturer’s instructions.
   4. Precipitation: Do not prepare surfaces or apply coatings in rain, snow, fog, or mist.
   5. Wind: Do not spray coatings if wind velocity is above manufacturer’s limit.

B. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with AWWA D102.

C. Dust and Contaminants:
   1. Schedule coating work to avoid excessive dust and airborne contaminants.
   2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.

PART 2PRODUCTS

2.01 MANUFACTURER

A. The Sherwin-Williams Company (www.sherwin.com/protective).

B. For immersion surfaces, Opt-Check optically activated pigment (OAP) technology is strongly recommended for rapid holiday detection in accordance with SSPC TU 11.

C. Other Acceptable Manufacturers: Submit product information for each line of paint for Architect's approval. Substitutions of Base Manufacturer's products may not be accepted during the shop drawing process.
   1. Carboline: www.carboline.com.
   2. Diamond Vogel Paints: www.diamondvogel.com.
   3. PPG Paints: www.ppgpaints.com.
   4. Sherwin-Williams Company: www.sherwin-williams.com.
   5. Tnemec: www.tnemec.com.

D. Substitutions: See Section 01 6000 - Product Requirements.

E. Note: Not all systems are used. Refer to drawings for finished items. Provide systems specified herein where not specifically indicated.

2.02 COATING SYSTEMS FOR STEEL - STRUCTURAL, TANKS, PIPE, EQUIPMENT, AND MISCELLANEOUS

A. Type CS- 01 - Exterior Exposed:
   1. System Type: Epoxy/epoxy/urethane.
   2. Surface Preparation: SSPC-SP 6 with a surface profile of 2.0 to 3.0 mils.
   3. Primer: Macropoxy 646. DFT 3.0 to 5.0 mils.
   4. Intermediate Coat: Macropoxy 646. DFT 3.0 to 5.0 mils.

5. Finish Coat: Acrolon Ultra or Hi-Solids Polyurethane. DFT 2.0 to 4.0 mils.
6. Total DFT: 8.0 to 14.0 mils.
7. Finish Color: As indicated on the drawings or Color Schedule.

B. Type CS- 02 - Interior Exposed:
1. System Type: Epoxy/epoxy.
2. Surface Preparation: SSPC-SP 6 with a surface profile of 2.0 to 3.0 mils.
3. Primer: Dura-plate 235 MPE. DFT 7.0 to 9.0 mils.
4. Finish: Dura-plate 235 MPE. DFT 7.0 to 9.0 mils.
5. Total DFT: 14.0 to 18.0 mils. Finish Color: As indicated on the drawings or Color Schedule.

2.03 COATING SYSTEMS FOR GALVANIZED STEEL AND NONFERROUS METAL - PIPE AND MISCELLANEOUS FABRICATIONS

A. Type CS- 03 - Exterior Exposed:
1. System Type: Epoxy/urethane.
2. Surface Preparation: SSPC-SP 16.
3. Primer: Macropoxy 646. DFT 3.0 to 5.0 mils.
4. Finish Coat: Acrolon Ultra or Hi-Solids Polyurethane. DFT 2.0 to 4.0 mils.
5. Total DFT: 5.0 to 9.0 mils.
6. Finish Color: As indicated on the drawings, or color schedule.

B. Type CS- 04 - Interior Exposed:
1. System Type: Epoxy.
2. Surface Preparation: SSPC-SP 16.
3. Primer: Macropoxy 646. DFT 3.0 to 5.0 mils.
4. Finish Coat: Macropoxy 646. DFT 3.0 to 5.0 mils.
5. Total DFT: 6.0 to 10.0 mils.
6. Finish Color: As indicated on the drawings, or color schedule.

C. Type CS- 05 - Immersion (Wastewater)*:
1. System Type: Epoxy/epoxy.
2. Surface Preparation: SSPC-SP 16.
3. Primer Coat: Sher-Glass FF: DFT 8.0 to 12.0 mils
4. Finish Coat: Sher-Glass FF: DFT 8.0 to 12.0 mils
5. Total DFT: 16.0 to 24.0 mils.
6. *Zinc-rich coatings including galvanizing are ready consumed in acidic conditions, so complete coverage is essential. Spray apply Dura-Plate UHS for one or two coat application. OAP technology strongly recommended.

2.04 COATING SYSTEMS FOR DUCTILE OR CAST IRON - PIPE, PUMPS, AND VALVES

A. Type CS- 06 - Exterior Exposed:
1. System Type: Epoxy/epoxy/urethane.
2. Surface Preparation: NAPF 500-03 with the exception that ALL rust and mold coating be removed. Only tightly adherent annealing oxide may remain.
3. Primer: Macropoxy 646. DFT 3.0 to 5.0 mils.
4. Intermediate Coat: Macropoxy 646. DFT 3.0 to 5.0 mils.
5. Finish Coat: Ultra or Hi-Solids Polyurethane. DFT 2.0 to 4.0 mils.
6. Total DFT: 8.0 to 14.0 mils.
7. Finish Color: As indicated on the drawings, or color schedule.
8. Copoxy Shop Primer and Corothane I Galvapac Zinc Primer are also acceptable.

B. Type CS- 07 - Below Ground (Buried):
1. System Type: Coal tar epoxy.
2. Surface Preparation: NAPF 500-03 with the exception that ALL rust and mold coating be removed. Only tightly adherent annealing oxide may remain.
3. Primer: None.
4. Finish Coat: Hi-Mil Sher-Tar Epoxy. DFT 14.0 to 20.0 mils.
5. Total DFT: 14.0 to 20.0 mils.
6. Finish Color: Black.

C. Type CS- 08 - Interior Exposed:

1. System Type: Epoxy/epoxy.
2. Surface Preparation: SSPC-SP 6 with a surface profile of 2.0 to 3.0 mils.
3. Primer: Dura-plate 235 MPE. DTF 7.0 to 9.0 mils.
4. Finish Coat: Dura-plate 235 MPE. DTF 7.0 to 9.0 mils.
5. Total DFT: 9.0 to 15.0 mils.
6. Finish Color: As indicated on the drawings, or color schedule.
7. Total DFT: 14.0 to 18.0 mils. Finish Color: As indicated on the drawings or Color Schedule.

D. Type CS- 09 - Immersion (Wastewater):
1. System Type: Epoxy/epoxy/epoxy.
2. Surface Preparation: NAPF 500-03 with the exception that ALL rust and mold coating be removed. Only tightly adherent annealing oxide may remain.
3. Primer: Dura-plate UHS DFT 8.0 to 10 mils.
4. Finish Coat: Dura-plate UHS DFT 10.0 to 14 mils.
5. Total DFT: 18.0 to 24.0 mils. Finish Color: As indicated on the drawings, or color schedule.
6. Spray apply Dura-Plate UHS for one or two coat application. OAP technology strongly recommended.
7. Finish Color: As indicated on the drawings, or color schedule.

2.05 COATING SYSTEMS FOR PVC

A. Type CS- 10 - Interior or Exterior Exposed:
1. System Type: Acrylic.
2. Surface Preparation: Scarify.
3. Primer: Pro Industrial Pro-Cryl Universal Primer. DFT 2.0 to 4.0 mils.
4. Finish Coat: Pro-Industrial Acrylic. DFT 2.5 to 4.0 mils.
5. Total DFT: 4.5 to 8.0 mils.
6. Finish Color: As indicated on the drawings, or color schedule.

2.06 COATING SYSTEMS FOR INSULATED PIPE

A. Type CS- 11 - Interior or Exterior Exposed:
1. System Type: Acrylic.
2. Surface Preparation: Clean and dry.
3. Primer: Pro Industrial Pro-Cryl Universal Primer. DFT 2.0 to 4.0 mils.
4. Finish Coat: Pro-Industrial Acrylic. DFT 2.5 to 4.0 mils.
5. Total DFT: 4.5 to 8.0 mils.
6. Finish Color: As indicated on the drawings, or color schedule.

2.07 COATING SYSTEMS FOR PRECAST CONCRETE, CAST-IN-PLACE CONCRETE, AND DENSE CONCRETE MASONRY UNITS

A. Type CS- 12 - Immersion (Wastewater):
1. Scope: Coat entire wet well with immersion recommendation.
2. System Type: Epoxy/epoxy.
3. Surface Preparation: SSPC-SP 13/NACE 6 with a surface profile of ICRI CSP 2 or 3.
4. Filler: Fill bug holes, air pockets and other voids with Steel-Seam FT910.
5. Primer: Dura-Plate 235 UHS. DFT 8.0 to 12.0 mils.
6. Finish: Dura-Plate 235 UHS. DFT 22.0 to 28.0 mils.
7. Total DFT: 30.0 to 40.0 mils.
8. Finish Color: White.
9. Where flexibility is required, use SherFlex Elastomeric Polyurethane at 60.0 to 100.0 mils total DFT over an epoxy primer.

B. Type CS- 13 - Interior Exposed:
1. System Type: Epoxy.
2. Surface Preparation: SSPC-SP 13/NACE 6 to achieve a surface profile of ICRI CSP 2 or 3.
3. Primer: Pro-Industrial Waterborne Catalyzed Epoxy. DFT 2.0 to 4.0 mils. Roll or backroll.
4. Finish Coat: Pro-Industrial Waterborne Catalyzed Epoxy. DFT 3.0 to 4.0 mils.
5. Total DFT: 5.0 to 8.0 mils.

6. Finish Color: White.

2.08 COATING SYSTEMS FOR SECONDARY CONTAINMENT

A. Type CS- 14 - Chemical Storage Containment Area:*
   1. System Type: High-solids epoxy.
   2. Surface Preparation: SSPC-SP 13/NACE 6 with a surface profile of ICRI CSP 4 or 5.
   3. Primer: Corobond 100. DFT 4.0 to 6.0 mils.
   4. Intermediate Coat: Cor-Cote HCR FF. DFT 15.0 to 20.0 mils.
   5. Finish Coat: Cor-Cote HCR FF. DFT 15.0 to 20.0 mils.
   6. Total DFT: 34.0 to 46 mils.
   7. Finish Color: As indicated on the drawings. *Limited Color Selection*
   8. Verify resistance to stored commodities and anticipated traffic load PRIOR to installation.

B. Type CS- 15 - Floors, Severe Chemical, Abrasion, and Traffic Exposure:*
   1. System Type: Aggregate-filled epoxy novalac.
   2. Surface Preparation: SSPC-SP 13/NACE 6 with a surface profile of ICRI CSP 5 or 6.
   3. Primer: Corobond 100. DFT 4.0 to 6.0 mils.
   4. First Coats: Cor-Cote HCR Mortar, double broadcast. DFT 1/8 inch.
   5. Finish Coat: Cor-Cote HCR FF. DFT 15.0 to 20.0 mils.
   6. Total DFT: Greater than 1/8 inch (125 mils).
   7. Finish Color: As indicated on the drawings. *Limited Color Selection*
   8. Verify resistance to stored commodities and anticipated traffic load PRIOR to installation.

2.09 COATING SYSTEMS FOR POROUS CONCRETE MASONRY UNITS

A. Type CS- 16 - Interior Exposed:
   1. System Type: Cementitious Acrylic/epoxy
   2. Surface Preparation: SSPC-SP 13/NACE 6. Clean and dry.
   3. Primer: Cement Plex 875. Spreading rate 80 to 100 sq. ft/gal.
   4. Intermediate Coat: Pro-Industrial Waterborne Catalyzed Epoxy. DFT 2.0 to 4.0 mils.
   5. Finish Coat: Pro-Industrial Waterborne Catalyzed Epoxy. DFT 3.0 to 4.0 mils.
   6. Total DFT: 5.0 to 8.0 mils plus filler.
   7. Finish Color: As selected by Architect from manufacturer's standard colors.

2.10 ACCESSORIES

A. Coating Application Accessories:
   1. Accessories required for application of specified coatings in accordance with manufacturer's instructions, including thinners.
   2. Products of coating manufacturer.

PART 3EXECUTION

3.01 EXAMINATION

A. Examine areas and conditions under which coating systems are to be applied. Notify Engineer of areas or conditions not acceptable. Do not begin surface preparation or application until unacceptable areas or conditions have been corrected.

3.02 PROTECTION OF SURFACES NOT SCHEDULED TO BE COATED

A. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.

B. Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.

3.03 SURFACE PREPARATION OF STEEL

A. Prepare steel surfaces in accordance with manufacturer's instructions.

B. Fabrication Defects:
   1. Correct steel and fabrication defects revealed by surface preparation.
   2. Remove weld spatter and slag.
   3. Round sharp edges and corners of welds to a smooth contour.
   4. Smooth weld undercuts and recesses.
   5. Grind down porous welds to pinhole-free metal.

6. Remove weld flux from surface.

C. Ensure surfaces are dry.

D. Immersion or Below Grade Surfaces: Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter in accordance with SSPC-SP 10/NACE No. 2. Create a surface profile as specified in Part 2 or as required by the coating manufacturer.

E. Exterior Exposed or Interior Exposed Surfaces: Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter in accordance with SSPC-SP 6/NACE No. 3. Create a surface profile as specified in Part 2 or as required by the coating manufacturer.

F. Abrasive Blast-Cleaned Surfaces: Coat abrasive blast-cleaned surfaces with primer before visible rust forms on surface. Do not leave blast-cleaned surfaces uncoated for more than 8 hours.

G. Shop Primer: Shop primed steel shall receive a field sweep blast prior to the application of subsequent coats. Prepare shop primer to receive field coat in accordance with manufacturer's instructions. Removal all unknown shop primers and re-prime in accordance with this specification.

3.04 SURFACE PREPARATION OF GALVANIZED STEEL AND NONFERROUS METAL

A. Prepare galvanized steel and nonferrous metal surfaces in accordance with SSPC-SP 16 and the coating manufacturer's instructions.

B. Test galvanized surfaces for chromate treatments and remove as required by SSPC-SP 16, or other Engineer approved method.

C. Ensure surfaces are dry.

3.05 SURFACE PREPARATION OF DUCTILE OR CAST IRON

A. Prepare ductile or cast iron surfaces in accordance with NAPF 500-03 Abrasive Blast Cleaning with the exception that ALL rust and mold coating be removed. Only tightly adherent annealing oxide may remain. Bituminous coated pipe shall NOT be allow if field painting is required.

B. Bituminous coated pipe shall NOT be allow if field painting is required.

C. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.

3.06 SURFACE PREPARATION OF PVC

A. Prepare PVC surfaces in accordance with manufacturer's instructions.

B. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.

C. Scarify PVC surfaces.

3.07 SURFACE PREPARATION OF INSULATED PIPE

A. Prepare insulated pipe surfaces in accordance with manufacturer's instructions.

B. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.

3.08 SURFACE PREPARATION OF CONCRETE

A. Interior, Wet Substrate:
   1. Prepare concrete surfaces in accordance with manufacturer's instructions, SSPC-SP 13/NACE 6, and ICRI 310.2R.2.
   2. Allow concrete to cure for a minimum of 28 days.
   3. Test concrete for moisture in accordance with ASTM D4263 and, if necessary, ASTM F1869.
   4. Abrasive blast surface to remove laitance and solid contaminants and to provide clean, sound substrate with uniform anchor profile.
   5. Verify that the pH of the cleaned concrete surfaces to be coated is within the range of to 8 to 11. Application of coating materials outside this range will not be permitted without written approval from the Engineer.
   6. Fill holes, pits, voids, and cracks with manufacturer approved surfacer.
   7. Ensure surfaces are clean, dry, and free of oil, grease, chalk, form release agents, and other contaminants.

B. Exterior and Interior Dry:
   1. Prepare concrete surfaces in accordance with manufacturer's instructions, SSPC-SP 13/NACE 6, and ICRI 310.2R.
   2. Allow concrete to cure for a minimum of 28 days.
   3. Test concrete for moisture in accordance with ASTM D4263 and, if necessary, ASTM F1869.
   4. Level concrete protrusions and mortar spatter.
   5. Verify that the pH of the cleaned concrete surfaces to be coated is within the range of to 8 to 11. Application of coating materials outside this range will not be permitted without written approval from the Engineer.
   6. Fill hairline cracks less than 1/64 inch (0.4 mm) in accordance with manufacturer's instructions.
   7. Prepare cracks wider than 1/64 inch (0.4 mm), moving cracks, gaps, and expansion joints in accordance with manufacturer's instructions.
   8. Ensure surfaces are clean, dry, and free of oil, grease, chalk, form release agents, and other contaminants.

3.09 SURFACE PREPARATION OF CONCRETE FLOORS

A. Prepare concrete surfaces in accordance with manufacturer's instructions, SSPC-SP 13/NACE 6, and ICRI 310.2R.

B. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.

C. Allow concrete to cure for a minimum of 28 days before coating.

D. Test concrete for moisture in accordance with ASTM D4263 and, if necessary, ASTM F1869.

E. Verify that the pH of the cleaned concrete surfaces to be coated is within the range of to 8 to 11. Application of coating materials outside this range will not be permitted without written approval from the Engineer.

3.10 SURFACE PREPARATION OF POROUS CONCRETE MASONRY UNITS

A. Prepare porous concrete masonry unit surfaces in accordance with manufacturer's instructions and SSPC-SP 13/NACE 6.

B. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.

C. Allow mortar to cure for a minimum of 28 days before coating.

D. Level protrusions and mortar spatter.

3.11 APPLICATION

A. Apply coatings in accordance with manufacturer's instructions.

B. Mix and thin coatings, including multi-component materials, in accordance with manufacturer's instructions.

C. Keep containers closed when not in use to avoid contamination.

D. Do not use mixed coatings beyond pot life limits.

E. Use application equipment, tools, pressure settings, and techniques in accordance with manufacturer's instructions.

F. Uniformly apply coatings at spreading rate required to achieve specified DFT.

G. Apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems.

H. Stripe paint with brush critical locations on steel such as welds, corners, and edges using specified primer. Apply and additional strip coat of the intermediate coating material in immersion areas.

I. Roll or backroll the first coat of epoxy or block filler applied to concrete or interior block substrates to work the material into the substrate.

3.12 REPAIR

A. Materials and Surfaces Not Scheduled To Be Coated: Repair or replace damaged materials and surfaces not scheduled to be coated.

B. Damaged Coatings: Touch-up or repair damaged coatings. Touch-up of minor damage shall be acceptable where result is not visibly different from adjacent surfaces. Recoat entire surface where touch-up result is visibly different, either in sheen, texture, or color.

C. Coating Defects: Repair in accordance with manufacturer's instructions coatings that exhibit film characteristics or defects that would adversely affect performance or appearance of coating systems.

3.13 FIELD QUALITY CONTROL

A. Required Inspections and Documentation:
   1. Verify coatings and other materials are as specified.
   2. Verify environmental conditions are as specified.
   3. Verify surface preparation and application are as specified.
   4. Verify DFT of each coat and total DFT of each coating system are as specified using wet film and dry film gauges. DFT's shall be measured in accordance with SSPC-PA 2.
   5. Coating Defects: Check coatings for film characteristics or defects that would adversely affect performance or appearance of coating systems.
      a. Check for holidays on interior steel immersion surfaces using holiday detector in accordance with NACE SP0188 or SSPC-TU 11 using a safe blue light inspection lamps if OAP technology is used.
   6. Report:
      a. Prepare inspection reports daily.
      b. Submit written reports describing inspections made and actions taken to correct nonconforming work.
      c. Report nonconforming work not corrected.
      d. Submit copies of report to Engineer and Contractor.

B. Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for surface preparation and application of coating systems.

3.14 CLEANING

A. Remove temporary coverings and protection of surrounding areas and surfaces.

3.15 PROTECTION OF COATING SYSTEMS

A. Protect surfaces of coating systems from damage during construction.

3.16 ONE-YEAR INSPECTION

A. Owner will set date for one-year inspection of coating systems.

B. Inspection shall be attended by Owner, Contractor, Engineer, and manufacturer's representative.

C. Repair deficiencies in coating systems as determined by Engineer in accordance with manufacturer's instructions.

3.17 COLOR SCHEDULE:

A. To facilitate identification of piping in plants and pumping stations follow the TenStates Identification with Sherwin-Williams Colors system (See attachment to this Section):

END OF SECTION

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SECTION 23 8119
SELF-CONTAINED AIR-CONDITIONERS

<<<< UPDATE NOTES

PART 1 GENERAL

2.01 SECTION INCLUDES

A. Packaged terminal air conditioning units.

2.02 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide drawings indicating dimensions, rough-in connections, and electrical characteristics and connection requirements.

2.03 DELIVERY, STORAGE, AND HANDLING

A. Protect finished cabinets from physical damage by leaving factory packing cases in place before installation and providing temporary covers after installation.

PART 2 PRODUCTS

3.01 PERFORMANCE REQUIREMENTS

A. See Schedule on plan drawings.

3.02 AIR CONDITIONING UNITS

A. Description: Packaged, self-contained, through-the-wall air cooled terminal air conditioning units, with wall sleeve, room cabinet, electric refrigeration system, electric heating, outside air louvers, built-in temperature controls; fully charged with refrigerant and filled with oil.

3.03 CABINET

A. Each exterior casing panel to be bonderized and finished with baked-on exterior polyester enamel paint prior to assembly. The baked-on cured paint finish shall pass the industry rub test with a minimum of 72 rubs MEK (Methyl Ethyl Ketone) or standard rub test of a minimum of 100 rubs using Toluene.

B. Cooling section shall be fully insulated with a non –fiberglass material with heavy duty foil facing for durability and ease of cleaning. Fiberglass insulation is not acceptable.

C. Openings shall be provided for power connections. Access openings appropriate for outside structure to all fan motors and compressor for making repairs and for removing internal components without removing unit from its permanent installation. Fresh air intake and outdoor coil shall be protected from intrusions by a sturdy metal grating with less than 1/4 inch openings.

3.04 DRAIN PAN

A. Drain pan shall be constructed of 20-gauge galvanized steel, bonderized and finished with baked-on exterior polyester enamel paint.

3.05 REFRIGERATION SYSTEM

A. All models shall use a high efficiency hermetic scroll compressor. The refrigeration circuit shall be equipped with factory installed high and low pressure controls, suction and liquid access valves, compressor control module and liquid line filter dryer. A refrigerate metering device is included. Compressor shall be mounted on rubber grommets. Unit shall be provided with R-410A (HFC) non-ozone depleting refrigerant.

B. The condenser coil shall be constructed of aluminum plate fins mechanically bonded to seamless copper tubes. The condenser fan, motor and shroud shall be of slide out configuration for easy access. Condenser fan motor shall be enclosed casing with ball bearings. Open winding motors are not accepted.

C. The evaporator coil shall constructed of aluminum fins mechanically bonded to seamless copper tubes. Aluminum fins shall have a hydrophilic coatings, to aid in condensate drainage, inhibit mold growth and protect aluminum fins from oxidation. 5 speed indoor blower motor shall be twin wheels with forward curve blades. Motor shall be high efficiency ECM with overload protection.

3.06 ELECTRICAL COMPONENTS

A. Electrical components are easily accessible for routine inspection and maintenance through front service panels. Circuit breaker is standard on all 208/230-volt models equipped with electric heat. Circuit breaker disconnect access is through lockable access panel.

B. The internal control circuit shall consist of a current limiting 24VAC type transformer with resettable circuit. Auto reset high pressure switch and auto reset low pressure switch shall standard, compressor control module with adjustable voltage protection and adjustable delay on make and break shall be standard. To prevent rapid compressor short cycling, a five minute time delay circuit shall be factory installed. A low-pressure bypass shall be factory installed to prevent nuisance tripping during low temperature start-up.

3.07 ELECTRIC HEAT

A. The air conditioner shall have a factory electric resistance heater available, designed specifically for the unit. Heater shall include automatic limit safety controls.

3.08 ECONOMIZER

A. The Economizer is internally mounted and allows outside air to be used for free-cooling when temperature and humidity conditions are favorable. The amount of exhaust air varies in response to the system controls and settings defined by the user. It includes a built in exhaust air damper.

3.09 CONTROLS

A. Unit to be provided with low ambient controls.

B. Unit to be provided with programmable thermostat.

PART 3 EXECUTION

4.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Coordinate installation of units with architectural, mechanical, and electrical work.

END OF SECTION

SECTION 26 0533.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Galvanized steel rigid metal conduit (RMC).

B. Aluminum rigid metal conduit (RMC).

C. Galvanized steel intermediate metal conduit (IMC).

D. Flexible metal conduit (FMC).

E. Liquidtight flexible metal conduit (LFMC).

F. Galvanized steel electrical metallic tubing (EMT).

G. Aluminum electrical metallic tubing (EMT).

H. Rigid polyvinyl chloride (PVC) conduit.

I. High-density polyethylene (HDPE) conduit.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete encasement of conduits.

B. Section 07 8400 - Firestopping.

C. Section 26 0526 - Grounding and Bonding for Electrical Systems.
   1. Includes additional requirements for fittings for grounding and bonding.

D. Section 26 0529 - Hangers and Supports for Electrical Systems.

E. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); 2020.

B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S); 2020.

C. ANSI C80.5 - American National Standard for Electrical Rigid Metal Conduit -- Aluminum (ERMC-A); 2020.

D. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit; 2018.

E. ASTM F2160 - Standard Specification for Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD); 2016.

F. ASTM F2176 - Standard Specification for Mechanical Couplings Used on Polyethylene Conduit, Duct and Innerduct; 2017.

G. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

H. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2020.

I. NECA 102 - Standard for Installing Aluminum Rigid Metal Conduit; 2004.

J. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC); 2017.

K. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.

L. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Metal Conduit and Intermediate Metal Conduit; 2018.

M. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit; 2020.

N. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; 2021.

O. NEMA TC 7 - Solid-Wall Coilable and Straight Electrical Polyethylene Conduit; 2021.

P. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

Q. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.

R. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.

S. UL 6A - Electrical Rigid Metal Conduit-Aluminum, Red Brass, and Stainless Steel; Current Edition, Including All Revisions.

T. UL 360 - Liquid-Tight Flexible Metal Conduit; Current Edition, Including All Revisions.

U. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.

V. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings; Current Edition, Including All Revisions.

W. UL 651A - Schedule 40 and 80 High Density Polyethylene (HDPE) Conduit; Current Edition, Including All Revisions.

X. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.

Y. UL 797A - Electrical Metallic Tubing - Aluminum and Stainless Steel; Current Edition, Including All Revisions.

Z. UL 1242 - Electrical Intermediate Metal Conduit-Steel; Current Edition, Including All Revisions.

AA. UL 2419 - Outline of Investigation for Electrically Conductive Corrosion Resistant Compounds; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate minimum sizes of conduits with actual type and quantity of conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
   2. Coordinate arrangement of conduits with structural members, ductwork, piping, equipment, and other potential conflicts.
   3. Verify exact conduit termination locations required for boxes, enclosures, and equipment.
   4. Coordinate work to provide roof penetrations that preserve integrity of roofing system and do not void roof warranty.
   5. Notify Engineer of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not begin installation of conductors and cables until installation of conduit between termination points is complete.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittals procedures.

B. Project Record Documents: Record actual routing for conduits installed underground, conduits embedded within concrete slabs, and conduits 2-inch (53 mm) trade size and larger.

1.06 QUALITY ASSURANCE

A. Product Listing Organization Qualifications: Organization recognized by OSHA as Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70, manufacturer's instructions, and product listing.

B. Unless otherwise indicated and where not otherwise restricted, use conduit types indicated for specified applications. Where more than one listed application applies, comply with most restrictive requirements. Where conduit type for particular application is not specified, use galvanized steel rigid metal conduit.

C. Underground:
   1. Under Slab on Grade: Use galvanized steel rigid metal conduit or rigid PVC conduit.
   2. Exterior, Direct-Buried: Use galvanized steel rigid metal conduit, rigid PVC conduit, or HDPE conduit.

3. Where rigid polyvinyl chloride (PVC) conduit or high-density polyethylene (HDPE) conduit is provided, transition to galvanized steel rigid metal conduit (RMC) or galvanized steel intermediate metal conduit (IMC) where emerging from underground.
4. Where rigid polyvinyl (PVC) conduit larger than 2-inch (53 mm) trade size is provided, use galvanized steel rigid metal conduit (RMC) elbows, galvanized steel intermediate metal conduit (IMC) elbows, or concrete-encased PVC elbows for bends.

D. Embedded Within Concrete:
1. Within Slab on Grade: Not permitted.
2. Within Slab Above Ground: Not permitted.
3. Where rigid polyvinyl (PVC) conduit is provided, transition to galvanized steel rigid metal conduit (RMC) or galvanized steel intermediate metal conduit (IMC) where emerging from concrete.

E. Concealed Within Hollow Stud Walls: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).

F. Concealed Above Accessible Ceilings: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).

G. Interior, Damp Locations: Use aluminum rigid metal conduit or galvanized or aluminum electrical metallic tubing (EMT).

H. Exposed, Interior, Not Subject to Physical Damage: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).

I. Exposed, Exterior, Not Subject to Severe Physical Damage: Use galvanized steel rigid metal conduit (RMC), aluminum rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).

J. Flexible Connections to Vibrating Equipment:
1. Dry Locations: Use flexible metal conduit (FMC).
2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit (LFMC).
3. Maximum Length: 6 feet unless otherwise indicated.
4. Vibrating equipment includes, but is not limited to:
a. Motors.
b. Generator.

2.02 CONDUIT - GENERAL REQUIREMENTS

A. Comply with NFPA 70.

B. Provide conduit, fittings, supports, and accessories required for complete raceway system.

C. Provide products listed, classified, and labeled as suitable for purpose intended.

D. Minimum Conduit Size, Unless Otherwise Indicated:
1. Branch Circuits: 3/4 inch (21 mm) trade size.
2. Branch Circuit Homeruns: 3/4 inch (21 mm) trade size.
3. Control Circuits: 3/4 inch (21 mm) trade size.
4. Flexible Connections to Luminaires: 1/2 inch (16 mm) trade size.
5. Underground, Interior: 1 inch (27 mm) trade size.
6. Underground, Exterior: 1 inch (27 mm) trade size.

E. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.

B. Fittings:
1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6.
2. Material: Use steel or malleable iron.

3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.04 ALUMINUM RIGID METAL CONDUIT (RMC)

A. Description: NFPA 70, Type RMC aluminum rigid metal conduit complying with ANSI C80.5 and listed and labeled as complying with UL 6A.

B. Fittings:
1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6A.
2. Material: Use aluminum.
3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.05 GALVANIZED STEEL INTERMEDIATE METAL CONDUIT (IMC)

A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.

B. Fittings:
1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 1242.
2. Material: Use steel or malleable iron.
3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.06 FLEXIBLE METAL CONDUIT (FMC)

A. Description: NFPA 70, Type FMC standard-wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems.

B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
2. Material: Use steel or malleable iron.

2.07 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.

B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
2. Material: Use steel or malleable iron.

2.08 GALVANIZED STEEL ELECTRICAL METALLIC TUBING (EMT)

A. Description: NFPA 70, Type EMT galvanized steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.

B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
2. Material: Use steel or malleable iron.
3. Connectors and Couplings: Use compression/gland or set-screw type.
a. Do not use indenter type connectors and couplings.

2.09 ALUMINUM ELECTRICAL METALLIC TUBING (EMT)

A. Description: NFPA 70, Type EMT aluminum electrical metallic tubing listed and labeled as complying with UL 797A.

B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B; listed for use with aluminum EMT.
2. Material: Use aluminum.
3. Connectors and Couplings: Use compression/gland or set-screw type.
a. Do not use indenter type connectors and couplings.

2.10 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.

B. Fittings:
   1. Manufacturer: Same as manufacturer of conduit to be connected.
   2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

2.11 HIGH-DENSITY POLYETHYLENE (HDPE) CONDUIT

A. Description: NFPA 70, Type HDPE high-density polyethylene solid-wall conduit complying with ASTM F2160 and NEMA TC 7; list and label as complying with UL 651A; Schedule 40 unless otherwise indicated.

B. Joining Methods: Approved by HDPE conduit manufacturer.

C. Mechanical Fittings: Comply with ASTM F2176; list and label as complying with UL 651A.

2.12 ACCESSORIES

A. Conduit Joint Compound: Corrosion-resistant, electrically conductive compound listed as complying with UL 2419; suitable for use with conduit to be installed.

B. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.

C. Sealing Compound for Hazardous/Classified Location Sealing Fittings: Listed for use with particular fittings to be installed.

D. Sealing Systems for Concrete Penetrations:
   1. Sleeves: Provide water stop ring or cement coating that bonds to concrete to prevent water infiltration.
   2. Rate for minimum of 40 psig; suitable for sealing around conduits to be installed.

E. Sealing Systems for Roof Penetrations: Premanufactured components and accessories as required to preserve integrity of roofing system and maintain roof warranty; suitable for conduits and roofing system to be installed; designed to accommodate existing penetrations where applicable.

F. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive conduits.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install conduit in accordance with NECA 1.

C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.

D. Install aluminum rigid metal conduit (RMC) in accordance with NECA 102.

E. Install intermediate metal conduit (IMC) in accordance with NECA 101.

F. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.

G. Conduit Routing:
   1. Unless dimensioned, conduit routing indicated is diagrammatic.
   2. When conduit destination is indicated without specific routing, determine exact routing required.
   3. Conceal conduits unless specifically indicated to be exposed.
   4. Conduits in the following areas may be exposed, unless otherwise indicated:

a. Electrical rooms.
b. Mechanical equipment rooms.
c. Within joists in areas with no ceiling.

5. Conduits installed underground or embedded in concrete may be routed in shortest possible manner unless otherwise indicated. Route other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.
6. Arrange conduit to maintain adequate headroom, clearances, and access.
7. Arrange conduit to provide no more than equivalent of four 90-degree bends between pull points.
8. Route conduits above water and drain piping where possible.
9. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
10. Maintain minimum clearance of 6 inches between conduits and piping for other systems.
11. Maintain minimum clearance of 12 inches between conduits and hot surfaces. This includes, but is not limited to:
    a. Heaters.
    b. Hot water piping.
    c. Flues.
12. Group parallel conduits in same area on common rack.

H. Conduit Support:
1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by authorities having jurisdiction; see Section 26 0529.
2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
4. Use conduit strap to support single surface-mounted conduit.
    a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.
5. Use metal channel/strut with accessory conduit clamps to support multiple parallel surface-mounted conduits.
6. Use conduit clamp to support single conduit from beam clamp or threaded rod.
7. Use trapeze hangers assembled from threaded rods and metal channel/strut with accessory conduit clamps to support multiple parallel suspended conduits.
8. Use of wire for support of conduits is not permitted.

I. Connections and Terminations:
1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
3. Use suitable adapters where required to transition from one type of conduit to another.
4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
6. Provide insulating bushings, insulated throats, or listed metal fittings with smooth, rounded edges at conduit terminations to protect conductors.
7. Secure joints and connections to provide mechanical strength and electrical continuity.

J. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
2. Make penetrations perpendicular to surfaces unless otherwise indicated.
3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
4. Conceal bends for conduit risers emerging above ground.

5. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
6. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty.
7. Install firestopping to preserve fire resistance rating of partitions and other elements; see Section 07 8400.

K. Underground Installation:
1. Minimum Cover, Unless Otherwise Indicated or Required:
   a. Underground, Exterior: 24 inches.
   b. Under Slab on Grade: 12 inches to bottom of slab.
2. Provide underground warning tape along entire conduit length for service entrance where not concrete-encased; see Section 26 0553.

L. Telecommunications Conduit:
1. Provide 3/4" empty conduit with proper mud ring or box stubbed up into corridor ceiling space for all voice, data, and television locations.

M. Concrete Encasement: Where conduits not otherwise embedded within concrete are indicated to be concrete-encased, provide minimum concrete cover of 3 inches on all sides unless otherwise indicated; see Section 03 3000.

N. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
2. Where calculated in accordance with NFPA 70 for rigid polyvinyl chloride (PVC) conduit installed above ground to compensate for thermal expansion and contraction.
3. Where conduits are subject to earth movement by settlement or frost.

O. Conduit Sealing:
1. Use foam conduit sealant to prevent entry of moisture and gases. This includes, but is not limited to:
   a. Where conduits enter building from outside.
   b. Where service conduits enter building from underground distribution system.
   c. Where conduits enter building from underground.
   d. Where conduits may transport moisture to contact live parts.
2. Where conduits cross barriers between areas of potential substantial temperature differential, use foam conduit sealant at accessible point near penetration to prevent condensation. This includes, but is not limited to:
   a. Where conduits pass from outdoors into conditioned interior spaces.
   b. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
3. Where conduits cross boundaries of hazardous/classified locations, provide identified/listed sealing fittings or conduit mechanical seals as approved by authorities having jurisdiction; locate as indicated or in accordance with NFPA 70.

P. Provide grounding and bonding; see Section 26 0526.

3.03 CLEANING

A. Clean interior of conduits to remove moisture and foreign matter.

END OF SECTION

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SECTION 26 0915
SUPERVISORY AND PROCESS CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General Requirement.

B. Control Panel Enclosures.

C. Programmable Logic Controller (PLC).

D. Operator Interface.

1.02 RELATED REQUIREMENTS

A. The requirements within this section apply to all components of the controls system unless indicated otherwise.

1.03 REFERENCE STANDARDS

A. NEMA ICS 1 - Industrial Control and Systems General Requirements; 2000 (Reaffirmed 2015).

B. NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts; 2000 (R2005), with errata, 2008.

C. NEMA ICS 6 - Industrial Control and Systems: Enclosures; 1993 (Reaffirmed 2016).

D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. Underwriters Laboratories (UL). UL 508 Industrial Control Panel Equipment.

F. IEC 61131-3 - Programmable Controllers - Part 3: Programming Languages.

G. IEEE C37.90 - Standard for Relays and Relay Systems Associated With Electric Power Apparatus.

H. IEEE C62.41.1 - Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits.

I. IEEE C62.41.2 - Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits.

1.04 ADMINISTRATION REQUIREMENTS

A. Coordination:
   1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
   2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:
   1. Catalog cut sheets for all components and devices.
   2. Dimension drawings, wiring and/or hydraulic drawings for field and pipeline mounted equipment.
   3. System schematic drawings illustrating all components being supplied including elevations, legend, bill of material, construction details, and layout with complete pneumatic and electrical connections. Actual system schematic drawings shall be provided. Manufacturers catalog cuts or standard drawings merely showing "typical" circuitry are not acceptable.
   4. As-built drawings shall be provided upon project completion in CAD and PDF format.
   5. Communications and network diagrams.
   6. Fabrication and nameplate legend drawings.

C. Operation and Maintenance Manuals.
   1. Manufacturers O&M manuals for all equipment supplied.
   2. Recommended maintenance intervals and procedures.

3. Operational manual for operator interface displays, including but not limited to; screen shots, explanation of graphics, navigation, step by step procedures, security, passwords, and alarms.
4. As-built drawings of entire system in CAD and PDF format.
5. Recommended spare parts list.
6. Project Records: Provide Parameter Schedule containing all setpoints and specific parameters for all equipment including but not limited to:
    a. Variable frequency drives (VFD's).
    b. Operator adjustable setpoints.
    c. PID loop parameters.
    d. Instrument list with make, model, and calibrated range.
7. Final copy of PLC program subroutines with comments in PDF format.
8. USB drive containing final PLC and operator interface programs.
9. PLC I/O point list; identify point tag, description, type, range, location, and point address.
10. All documentation to be provided electronically and two copies in 3-ring binders with labeled tabs separating sections.

1.06 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. The Controls System Integrator (CSI) shall be in full conformance with Specifications:
    1. Thompson Knows.
        a. Sioux City, IA.
        b. Dustin Wenger
        c. Office: 712-224-3800
        d. Mobile: 712-635-1326

C. The control panel shall be built by a registered UL 508 Industrial Control Panel builder. Each control panel shall bear a serialized "Enclosed Industrial Control Panel Label." Panels that utilize intrinsically safe barriers shall be upgraded from standard 508A to standard 698 and bear serialized label to that effect. The control panel submittal shall contain a copy of the front page of the control panel builders UL508A and 698 (if applicable) standard that shows their UL file number. The name on the front page of the UL Standard shall match the name in the title block of the control panel submittal.

D. Products: Furnish products listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and indicated.

E. All equipment shall be furnished by a single supplier. The supplier shall be responsible for the correct operation of the equipment as specified.

F. Contractor shall guarantee system operation and workmanship for a period of one year from date the system was accepted by the owner.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store components in a clean, dry area; maintain temperature to NEMA ICS 1.

1.08 FIELD CONDITIONS

A. Maintain temperature above 32 degrees F and below 104 degrees F during and after installation of products.

B. Maintain area free of dirt and dust during and after installation of products.

1.09 SEQUENCING AND SCHEDULING

A. Prerequisite activities: Do not start key project activities until prerequisite activities have been completed and satisfied.
    1. Shop drawing reviews by engineer.

1.10 GENERAL REQUIREMENTS

A. Contractor shall use a Controls System Integrator (CSI) to furnish, install, calibrate, start-up, test, and adjust all required equipment for a complete process control system. Equipment shall be furnished as required to meet the requirements shown on the Plans and include within the Specifications and also include any incidental items necessary for a complete system even

though it is not detailed.

B. It is the intent of the Construction Documents that all control equipment specified be supplied by a single-source supplier. The supplier shall assume full responsibility along with the Contractor for furnishing, installing, and start-up procedures so as to make the system operate per the intent of the Construction Documents.

C. It is the responsibility of the CSI to examine all new and existing equipment that will be powered from or will receive or send signals from equipment within in the Specifications and Plans. The CSI shall provide all necessary devices to interface with existing and new equipment including but not limited to signal converters, amplifiers, and isolation devices.

D. Process Control System: Provide a system that monitors and automatically controls operation of process equipment and instrumentation using programmable controllers.
   1. Provide a control system in which control sequence logic resides in the local controllers and which is not dependent on any supervisory control software or centralized functionality.
   2. Provide end-to-end process control loop accuracy from sensor to display and final control element.
   3. Use sequences of operation, setpoints, settings and alarm limits as indicated.
   4. Provide for operator interaction, set-points, settings, and alarm limits as indicated.
   5. Include all necessary sensors, field preamplifiers, signal conditioners, offset and span adjustments, amplifiers, transducers, transmitters, control devices, and engineering unit conversions and algorithms for applications.
   6. Provide network and control hardware that can be replaced by similar control equipment from other equipment manufacturers without loss of system functionality.
   7. Provide all software, programming, and configuration required for a complete operating Supervisory Control and Data Acquisition (SCADA) system.

E. Process Control Network
   1. Network Design: Ethernet; as required to connect all process control devices and points.
   2. Provide all network drivers, components, and configuration to make a fully functional control network.
   3. All network devices shall be powered by uninterruptible power supply. This includes any network devices used for motor control (locally or remotely mounted).
   4. Security measures shall be provided to protect control system from Cyber attacks.
   5. Network Access Jacks and Connections:
      a. Provide wall mounted jacks when required outside control panel enclosures.
      b. Provide DIN-rail mounted modules for field termination inside control panel enclosures.
      c. Factory molded patch cables shall be provided for connection between devices within the same enclosure.
      d. Field installed RJ45 connectors are not allowed.

F. Remote access
   1. Utilize existing Owner Control Network connected to Water Plant
   2. System shall be configured for remote support.
      a. Connection to all PLCs, operator interface units, and all other networked devices for remote programming and monitoring.
   3. System shall be configured for remote monitoring/control of operator interface screens.

G. Inputs and Outputs (I/O)
   1. Monitor I/O shown on plans.
   2. Each control panel with an electronic controller or PLC shall monitor presence of incoming control power.
   3. Each uninterruptible power supply alarm state shall be monitored.
   4. Each control panel surge protection device shall be monitored.
   5. Monitor Control Power failure.
   6. Monitor 3 Phase Power monitor.
   7. Provide panel mounted alarm strobe light.

H. Major work items include but are not limited to:
   1. Provide control panel to operate well 22 (SPCP1).

a. PLC Processor and I/O.
b. Operator interface.
c. Primary control signals to come from existing water treatment plant control system via existing Owner network.

2. Connect SPCP1 to city network. Coordinate network requirements with Rebnord Technologies. Include all associated costs.
   a. Tim Rebnord or Jason Knapton.
   b. 210 Sale Barn Road, Storm Lake, IA 50588.
   c. 712-732-6449.
3. OS1 operator station.
   a. Provide station with two position selector switch; Intrustion Alarm Normal-Bypass.
   b. Operate intrusion alarm similar to other existing installations. Verify operation:
      1) After door is open, alarm will sound after "x" period of time unless selector switch is placed in Bypass position.
      2) Re-enable alarm system after "x" period of time after switch is placed in Normal position.
      3) Alarm if bypass position is maintained for extended period of time.
4. PM1 3-phase power monitor.
   a. Provide enclosure with 3-phase power monitor relay.
5. Modify existing water plant SCADA system.
   a. Remove abondoned well.
   b. Encorporate well 22.
   c. Encorporate alarms for well 22 including but not limited to:
      1) Pump failure.
      2) Power failure.
      3) Space temperature low/high.
      4) Generator Alarm.
      5) Generator Running.
      6) ATS position.
   d. Encorporate Well 22 flow rate, flow totals, and building space temperature.
   e. Maintain existing PLC programming standards.
   f. Maintain existing Operator interface standards.
   g. Modify exsiting PLC and HMI/SCADA programs as required to make a complete working system.

PART 2 PRODUCTS

2.01 GENERAL

A. Devices supplied shall be of the latest field proven models, unless otherwise specified to match existing equipment.

B. Instruments and devices performing similar operations shall be of the same type and model, and shall be from a single manufacturer.

C. Analog measurements and control signals shall be 4 to 20 mA DC except as indicated. Signals where required by special devices may be 0 to 5 volts or 0 to 10 volts DC. Standard pneumatic signals shall be 3 to 15 psig.

D. Surge Protection:
   1. Equipment Connected to AC Circuits: Provide equipment that is internally protected against power-line surges or provide separate protection against power-line surges; provide protection meeting requirements of IEEE C62.41.2; do not use fuses.
   2. Equipment Connected to Transmitter and Control Wiring That is Installed Outdoors: Provide equipment that is internally protected against induced waveform surges or provide separate protection against waveform surges as follows:
      a. A waveform with 8-microsecond rise time, 20-microsecond decay time and peak current of 500 amps.
   3. Equipment Connected to Network Media or Communications Cables Installed Outdoors: Provide surge and lightning protection; provide protection meeting requirements of IEC 61643-21.

E. Pump/Equipment Protection:

1. Where seal leakage, motor over temperature, or other protective features are available at new or existing equipment; Provide and install relay(s) to monitor equipment as recommended by the manufacturer.
    a. Provide a minimum of one normally open and one normally closed contact for each condition being monitored.
    b. Status indication by LEDs.

F. Unless otherwise specified, provide products rated for continuous operation under following conditions:
1. Products Installed Indoors: Ambient temperatures in range of 32 to 122 degrees F.
2. Products Installed Outdoors or in Unconditioned Indoor Spaces: Ambient temperatures in range of minus 35 to plus 151 degrees F.
3. Air Pressure: Conditions normally encountered in installed locations.
4. Vibration: Conditions normally encountered in the installed locations.
5. Humidity: 10 to 95 percent relative humidity, non-condensing.

2.02 CONTROL PANEL ENCLOSURES

A. General.
1. Control Station Enclosures: NEMA ICS 6.
2. Relay Enclosures: NEMA ICS 6.
3. Fabrication: Shop fabricate control panels to NEMA ICS 1, using cabinets and terminal blocks furnished in accordance with Section 26 0533.16.
4. All components shall be mounted to the enclosure back panel. Components shall not be mounted to the enclosure sides.
5. 25% free space shall be maintained within enclosure back panels for future components.
6. Shall have engraved label identifying panel name on panel door.
7. Panel mounted components shall have matching style and appearance.
8. Panel mounted components with digital displays installed outdoors shall be protected from direct sunlight.
9. Panel mounted devices shall be a minimum of 4 feet above finished floor elevation.
10. Penetrations through the top of control enclosures is not permissible.
11. Interior Light: Inside panel, provide linear LED light automatically operated when panel door is open, on same circuit as convenience receptacle if available.

B. Terminal blocks
1. Shall be furnished, installed, and wired to each I/O point of a chassis or rack mounted I/O module.
2. Shall be provided and connected to each unused I/O point.
3. Shall be provided for all field connections terminating inside enclosure.
4. Enclosures shall have 25% spare terminal blocks for future connection.
5. Terminal blocks shall not be required for connection of distributed I/O modules. Field wires shall directly terminated to distributed I/O terminal bases.
6. Terminal blocks shall not be installed when factory wired I/O interface modules (IFM's) are used. Field wires shall directly terminate to the IFM.
7. All terminal blocks shall be labeled, and labels shall be by terminal manufacturer with electronic print.

C. Enclosure environment:
1. Panels shall be rated for environment of installed location.
    a. Indoor, dry or damp location: Type 12 painted steel.
    b. Indoor, wet, or corrosive location: Type 4X, 316 stainless steel.
    c. Outdoor location:
        1) Type 4X, 316 stainless steel.
2. All equipment installed in hazardous or classified areas shall be suitable for use in the area.
3. Indoor and outdoor control panel and instrument enclosures shall be suitable for operation in the ambient conditions at the installed location. Ventilation, heating, cooling, and dehumidifying equipment shall be provided in enclosures to maintain electronic components within manufacturers recommended ambient temperature and humidity operating ranges.

a. Ventilation System: Provide one or more ventilation fans inside panel, each with line voltage thermostat.
    1) Air Flow: 100 cfm, minimum.
    2) Thermostat Setpoints: Adjustable in minimum range of 70 to 140 degrees F.
    3) Fan Power: 120 volt AC, single phase.
    4) Filters: At each supply and exhaust grille provide filter that is easily removed for cleaning or replacement.
b. Heating System: Provide thermostatically controlled electric heater inside panel, capable of maintaining enclosure inside temperature at minimum 35 degrees F.
c. Air Conditioning System: Provide mechanical refrigeration air conditioning system for panel, capable of maintaining enclosure inside temperature at maximum of 100 degrees F.
    1) Locate compressor and condenser outside panel enclosure.
    2) Make provisions to remove condensate from panel and to protect devices within enclosure from condensate.

D. Control panel wiring
1. Single conductors shall be flexible stranded copper type MTW, and shall be rated for 600 volts.
2. Signal cables shall be #18 AWG shielded twisted pair or triad cables with copper conductors.
3. Wire numbers shall be marked using plastic coated cloth type labels with black text printed on white background.
4. Incoming power source shall accept 120 VAC minimum 20 amp circuit.
5. Circuit breaker shall be provided in control panel for incoming power source overcurrent protection and disconnecting means.
6. Individual fuse protection with disconnecting means shall be provided for each I/O module, and each electrical component that consumes power.
7. Individual fuse protection with disconnecting means shall be provided for each field installed device that consumes power.
8. Primary and secondary fuse protection with disconnecting means shall be provided on all power supplies.
9. Fuse blocks and disconnecting means shall be labeled.

E. Control panel components.
1. Fuse holders.
    a. Shall have blown fuse indicator
2. Push buttons, operators, & signaling devices.
    a. General
        1) Style: Round with lens color as indicated.
        2) Size: To fit 0.875 inch mounting hole.
        3) Identification: Legend plate labeled to reflect function being indicated.
    b. Indicator Lights: Heavy-duty long-life LED type complying with NEMA ICS1, NEMA ICS2, and UL 508; push to test (lamp) type.
        1) Lens color as indicated.
    c. Selector Switches: Heavy-duty, complying with NEMA ICS1, NEMA ICS2, and UL 508, with switch positions as indicated or required by sequence of operation.
        1) Illuminated.
        2) Rating: 600 volts, 10 amperes continuous.
        3) Auxiliary Contacts: Where indicated or required, provide dual auxiliary contacts for the automatic position to provide position sensing by SCADA system; rated for 120 volt AC, 1A minimum.
        4) Key Operation: Where indicated, provide key-operated switches; keyed alike.
    d. Push Buttons: Heavy-duty, complying with NEMA ICS1, NEMA ICS2, and UL 508, with number and type of contacts as indicated or required by sequence of operation.
        1) Rating: 600 volts, 10 amperes continuous.
3. Control relays.
    a. General purpose control relays shall be provided with dust covers and with plug-in configuration. Sockets to be DIN rail mounted.

b. Minimum rating of 10 amps at 150 volts and DPDT. If more poles are required, relays shall be paralleled.
c. Mechanical flag indicator to show status of contacts.

4. Three phase power monitor relay.
   a. Control power to the phase failure relay circuit shall be separate from other control power.
   b. Shall detect phase reversal, phase loss, undervoltage, and overvoltage conditions.
   c. Relay shall be of plug-in type utilizing DIN rail mounted socket.
   d. Shall provide one NO and one NC 3 amp relay contact.
   e. Shall be installed in MCC bucket.

F. Programmable Logic Controller (PLC) Panel Requirements
1. Panels: Factory assembled PLCs and their accessories in enclosed panels, delivered as complete unit with panel fabrication and device mounting as indicated or otherwise required.
   a. Power and Control Connection Points: Bottom Entry.
   b. Power Circuits: Each panel powered by dedicated 120 volts AC circuit, with minimum size 10 amp fuse, and disconnect switch located inside panel.
   c. Terminate wiring inside panel on terminal blocks.
2. Uninterruptible Power Supply (UPS): Self-contained UPS sized to provide a minimum of 10 minutes of PLC operation, with surge suppression, noise filtering (normal and common mode), short circuit protection and voltage regulation (brownout and overvoltage protection), complete with all necessary power supplies, transformers, batteries, and accessories.
   a. Visual indication of normal power operation, UPS operation, abnormal operation and visual and audible indication of low battery power.
   b. Relay contact for indication of alarm condition.
   c. Comply with 47 CFR 15, Part A for radio noise emissions.
   d. Shall provide power to all electronic controllers, and network devices.
3. Convenient Outlet: Inside panel, provide 120 volt AC, 20 amp, ground fault interruption (GFI) type duplex convenience outlet. Energize from dedicated control panel circuit breaker with a minimum rating of 10 amps.

2.03 PROGRAMMABLE LOGIC CONTROLLER (PLC)

A. Manufacturer
1. Rockwell Automation, Allen-Bradley; CompactLogix series.

B. General
1. Minimum Number of PLCs: As indicated on drawings.
2. Power Supply: 120 volts AC, single phase, 60 Hz or 24 volt power source; provide local transformers as needed for signal transmission and subsystem operation.
3. Furnish and install complete PLC system with all necessary components to make a fully functional system as specified within the Plans and Specifications.
4. PLC shall be configured to perform the specified operations.

C. Functionality
1. PLC shall be capable of receiving discrete and analog inputs and, through programming, able to control discrete and analog output functions, perform data handling operations and communicate with external devices; complete with all hardware and software required to perform functions indicated.
   a. Programmability: Support the full complement of process control functions as described in IEC 61131-3; allow for use of any combination of function blocks, ladder logic diagrams, sequential function charts, and text programming within a single controller.
   b. Provide a scheme of priority levels that prevents interference with a command of high priority by a command of lower priority; make override commands entered by operator have higher priority than those of resident programs.
   c. Provide for operation of PLC in stand-alone mode.
2. Communications Interfaces: Provide peer-to-peer communication with other controllers, devices, and operator stations; acceptable communication protocols:
   a. Ethernet architecture and protocol.

3. Basic Operation: Continuously 1) scan inputs and record status, 2) execute resident programs and record outputs, and 3) update outputs; 4) periodically perform self-diagnostics.
    a. Maintain point database in memory containing parameters, constraints, and latest value or status of points connected.
    b. Use data in memory for execution of resident program.
4. Resident Programs: Program each PLC to achieve the sequences of operation, parameters, constraints, and interlocks necessary to provide indicated process control.
    a. Ensure that resident programs do not conflict with each other.
    b. Default Values: To accommodate conditions where specific program inputs are not available, define appropriate "default" values or virtual points that allow the program to operate.
    c. Failure Mode: In the event of PLC failure, make the controlled equipment continue to function in its indicated failure mode.
5. Point Definitions:
    a. AO: Analog output.
    b. AI: Analog input.
    c. DO: Digital output.
    d. DI: Digital input.
    e. PA: pulse accumulator input.
6. Startup: Automatic commencement of operation upon power-up without human intervention, including startup of all connected I/O functions; restart upon detection of power failure at the PLC, with start time delays between successive commands to prevent demand surges or overload trips.
7. Failure Mode: Upon failure for any reason, perform an orderly shutdown and update all PLC outputs to their predetermined failure mode state.
8. Logic (Virtual) Points: Provide for software points that are not directly associated with a physical I/O function to be entered and recorded in point database.
    a. Allow for analog and discrete points created either by calculation from physical points or by entering other data having properties of real points, including alarms, without associated hardware.
    b. Use point identification that is consistent with physical point identification.
9. State Variables: Where an analog point represents more than two (up to 8) specific states, allow for each state to be named with names usable in programs and for display; e.g. "high", "low", alarm states.
10. Constraints: Provide constraints checking function requiring constraints values to "pass" before execution of relevant program.
    a. Allow for unique constraints to be assigned to each point.
    b. For analog inputs, allow for high and low "reasonableness" values or one differential "rate-of-change" value.
    c. Allow constraints checking to be disabled for any individual point from central station.
    d. Equipment constraint types, for example:
        1) Maximum starts (cycles) per hour.
        2) Minimum off time.
        3) Minimum on time.
        4) High limit (value in engineering units).
        5) Low limit (value in engineering units).
11. Analog Totalization: Provide analog totalization function as required in description of operation.
12. Data Storage: Provide data storage function that allows analog or calculated points to be temporarily stored in PLC memory.
    a. Provide data storage as required in description of operation.
    b. Data to be viewed from operator terminal unit.
13. Alarm Processing: Provide alarm processing function for analog input, discrete input, and pulse accumulation input for all real and virtual points connected to that PLC.
    a. Automatically suppress alarm reporting for a particular point when the alarm point is turned off.
    b. Discrete alarms are those abnormal conditions indicated for the discrete input point.

c. Analog alarms are those conditions higher or lower than the defined value for the analog input point.

D. Hardware
1. Programmable Logic Controllers (PLCs): Modular or Fixed type; microprocessor based.
a. Comply with requirements of Class A computing devices, labeled as set forth in 47 CFR 15.
b. Conducted Susceptibility: Able to withstand test as specified in NEMA ICS 1, NEMA ICS 2, and NEMA ICS 3.
c. Surge Withstand Capability: Able to withstand test as specified in IEEE C37.90.1.
d. Central Processing Units: Provide time of day, scanning, application program execution, storage of application programs, storage of numerical values related to application process and logic, I/O bus traffic control, peripheral and external device communications, and self-diagnostics.
e. Service Temperature Range: Function properly at temperatures between 32 and122 degrees F at 5 to 95 percent relative humidity non-condensing.
f. Storage Temperature Range: Tolerate storage temperatures between minus 40 and plus 140 degrees F at 5 to 95 percent relative humidity non-condensing.
g. Analog inputs and outputs shall be 4-20 mA DC, unless otherwise required.
h. Digital outputs shall be relay type, or shall be protected by buffer relays. 120 VAC or 24 VDC as required.
2. Modular PLCs: Modular, field expandable design allowing system to be tailored to process control application.
a. Expandable through use of additional hardware and/or user software.
b. As minimum, include mounting backplane, power supply module, self-contained central processing unit module, communications module, and input/output modules grouped together in a single mounting rack or cabinet for each PLC.
c. Communications between modules accomplished through mounting backplane, with all modules plugging directly into backplane; no wire connectors permitted between modules.
d. Rack size: As needed.
e. Hot Plugging and Hot Swapping: Allow for installation, removal, and replacement of modules under power and without restarting.
f. Power Supply Module: Provide power supply modules as required to power other modules installed in same cabinet and to remote cabinets or modules as indicated.
1) Power Characteristics: 120 volts AC nominal, plus or minus 5 percent.
2) Protection: Monitor incoming line voltage level and provide over current and over voltage protection.
3) Voltage Out Of Range: Continue to provide power for adequate amount of time to allow for safe and orderly shutdown.
4) Uninterruptibility: Capable of withstanding power loss for minimum of 20 milliseconds while still remaining in operation and providing adequate power to all connected modules.
5) On-Off-Switch: Integral to power supply module: If not standard equipment, provide a miniature toggle type switch located near PLC and clearly label as to its function.
6) Indicating Light: Show proper operation of module by lighted indicator.
g. Input/Output Modules: Self-contained microprocessor based units that provide interface to field devices; visual indication of on-off status of individual inputs or outputs.
3. Fixed Type PLCs: Fixed I/O design with possibility of expansion; micro-processor based.
a. Include at minimum, central processing unit, program memory, power supply, input/output capability, network communications capability, display, and keyboard.
b. Control display and keypad:
1) Display I/O status.
2) Change Mode.
3) Configure communications ports.
4) View system information and fault codes.
c. Power Supply to Controller: 120 volts AC, or 24 volts DC as required.

d. Power Consumption: 25 watts, maximum.
e. Noise Isolation: Provide electrical noise isolation between AC power line and process variable inputs, remote setpoint inputs, and output signals not less than 100 dB at 60 Hz common mode rejection ratio and not less than 60 dB at 60 Hz normal-mode rejection ratio.

4. Program Storage/Memory Requirements: Memory capacity based on system control requirements and such that, when system is completely programmed and functional, no more than 50 percent of memory allocated for these purposes is used.
   a. Operating System: Manufacturer's standard nonvolatile memory.
   b. Application Memory: Battery backed random access memory (RAM).
   c. Storage of User Programs: Electronically erasable, programmable, read only memory (EEPROM), loaded operator interface panel, central station, or portable computer plugged into controller.
5. Input/Output Characteristics: Allow for analog input, analog output, discrete input, and discrete output in number and type as indicated.
   a. Accuracy: Plus or minus 0.25 percent of input span.
   b. Spare Capacity: Minimum of 20 percent spare input and output points (no less than two points) for each point type provided in each PLC.
   c. Malfunction Tolerance: During normal operation, prevent malfunction in any input/output channel from affecting operation of CPU and other channels.
   d. Input and Output Circuits: Minimum optical isolation of 1500 VRMS and filtered to guard against high voltage transients from externally connected devices.
   e. Analog Input Circuits: Plus/minus 10V
   f. Discrete Input Circuits: 5 volt TTL.
   g. Analog Output Circuits: Plus/minus 10V.
   h. Discrete Output Circuits: 5 volt TTL.
6. Wiring Connections: Heavy duty, self-lifting, pressure type screw terminals with easy wire insertion and secure connections; capable of accepting two #14 AWG wires; hinged protective cover, with write-on areas for identification of the external circuits.
7. On-Off Switch: Provide integral ON-OFF power switch for each PLC; if not standard equipment, provide miniature toggle type switch located in panel near PLC, clearly labeled as to its function.
8. Self-Diagnostics: Diagnostic routines implemented in firmware that provide information on configuration and status of CPU, memory, communications, and input/output; continuously executed along with normal operations.
   a. At Power Up and Normal Shutdown: Provide more extensive diagnostics.
   b. Fault Logging: Store input/output and system faults in fault tables accessible for display.
   c. Shutdown on Fault: When a fault affects input/output or communications modules, shut down only affected hardware and continue operation using unaffected components.
   d. Fault Annunciation: At PLC operator interface.
   e. Provide access to diagnostic software via all specified operator interfaces.

2.04 OPERATOR INTERFACE

A. General
   1. Furnish and install complete Operator Interface system with all necessary components to make a fully functional system including software, hardware, and programming.
   2. Operator interface shall be configured to perform the specified operations.
   3. Shall use Ethernet as means of communication to PLC.
   4. Shall be panel mounted in door of control panel.
   5. Contractor is responsible for ensuring compatibility between specified operator interface and all functions required. If compatibility is an issue an alternate device must be submitted for approval.

B. Graphic Display Terminal
   1. Manufacturer
      a. Rockwell Automation, Allen-Bradley; PanelView Plus 7 Performance Series.
   2. Color touchpad display.
   3. 10 inch minimum display size.

PART 3 EXECUTION

3.01 FIELD INSTALLATION AND TESTING REPORTS

A. Complete adjustment, test, calibration, and status reports for all work.

B. Test electrical grounding in panels.

3.02 INSTALLATION

A. Install products in accordance with manufacturer’s instructions.

B. Furnish a complete working system by a competent manufacturer's representative and include instruction to the Owner on proper operation and maintenance.

C. Follow manufacturers’ installation instructions for all materials and equipment, unless otherwise indicated or directed by Engineer.

D. Wiring connected to components and assemblies, including power wiring in accordance with requirements of Section 26.

E. Electrical raceways as specified in Section 26.

F. Identification as specified in Section 26.

G. Process Control Network.
   1. Install network wiring without splices between control devices and in accordance with NFPA 70.
   2. Install grounding as recommended by device manufacturers and as necessary to prevent ground loops, noise, and surges from adversely affecting operation of the system; test ground rods as specified in IEEE 142.
   3. Install wiring that is outside of enclosures in raceways.
   4. Tag wiring at both ends with identifier shown on shop drawings.

3.03 FIELD QUALITY CONTROL - PRIOR TO STARTUP

A. Adjust, calibrate, measure, program, configure, and otherwise perform all necessary actions to ensure that process control system will function as required by Contract Documents.

B. Physical Inspection:
   1. Verify that each component of the process control system has been installed and is correctly connected to its power source and to the process control network.
   2. Verify that instruments without built-in transceivers are correctly connected to their transceiver.
   3. Verify that instruments are correctly installed in the manner necessary to sense the variables they are intended for.
   4. Verify that software has been installed and programmed.
   5. Verify that controller configuration settings and/or programs are correct.

C. Shutdown Condition Demonstration: Set all controller Hand-Off-Auto switches to OFF.
   1. Verify that power and air, where required, are available.
   2. Verify that output devices are in their OFF positions.
   3. Verify that all display panels indicate shutdown conditions.

D. Field testing may not be done contiguously, and may require multiple trips to the site. The Contractor shall determine the number of testing periods requiring separate trips to the site in order to complete functional and performance testing requirements.

E. Functional Testing:
   1. Prior to facility startup and performance evaluation period, inspect, test, and document that all equipment is ready for operation.
   2. Test all control related network media, devices, configuration, and operation.

F. Correct deficiencies and replace damaged or defective equipment.

G. Owner reserves the right to reject installed equipment if performance appears to be unachievable with installed equipment.

3.04 FIELD QUALITY CONTROL - AFTER STARTUP

A. Controller Tuning: Tune controllers initially at whatever flow conditions exist; verify adequate tuning and re-tune if necessary until tuning is satisfactory for peak flow, average daily flow, and

minimum flow conditions.

1. Adjust proportional, integral, and derivative settings to provide stable closed-loop control.
    a. Make controlled variables settle out at a new setpoint with no more than two oscillations above and below setpoint with steady output.
    b. With the exception of naturally slow processes, make controllers settle out at new setpoints within five minutes.
2. Set controllers to correct setpoints and record final PID configuration setting on project record Parameter Schedule and submit with O&M data.

B. Performance Evaluation: Demonstrate compliance of process control system with Contract Documents, using approved test plans.

1. Coordinate functional testing with Owner and Engineer. Notify Owner and Engineer two weeks prior to the start of performance testing.
2. Engineer and Owner may actively participate in tests, and reserve the right to test or retest specified functions and hold final decision-making rights as to whether testing is acceptable and complete.
3. Demonstrate all physical and functional requirements of system.
4. Show, step-by-step, the actions and results for each sequence of operation.
5. Demonstrate that all alarms work correctly.

C. If test results are unsatisfactory or equipment cannot be adjusted to perform properly, modify, repair, or replace, and retest.

1. When new units are installed, restart testing from beginning.
2. Owner reserves the right to reject installed equipment if performance appears to be unachievable with installed equipment.
3. Prior to retesting, obtain Owner's approval of retesting schedule.

3.05 CLOSEOUT ACTIVITIES

A. Functional Tests must be completed and approved as described in specification.

B. Provide As-Built drawings of all systems.

C. Provide Operation and Maintenance manuals of all systems.

D. Training: Train Owner’s personnel on operation, adjustment, and maintenance of all systems.

1. Provide an integrated training program for Owner’s personnel to meet the specific needs of the Owner’s personnel.
2. Including training sessions in a classroom setting and in the field. Train managers, engineers, operators, and maintenance personnel.
3. The Owner reserves the right to record and reuse training sessions.
4. Location: At project site.

3.06 WARRANTY PERIOD WORK

A. During the warranty period defined in the Conditions of the Contract, correct all deficiencies in process control system upon notification by Owner.

SECTION 26 2200
LOW-VOLTAGE TRANSFORMERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General purpose transformers.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete equipment pads.

B. Section 26 0526 - Grounding and Bonding for Electrical Systems.

C. Section 26 0529 - Hangers and Supports for Electrical Systems.

D. Section 26 0533.13 - Conduit for Electrical Systems: Flexible conduit connections.

1.03 REFERENCE STANDARDS

A. 10 CFR 431, Subpart K - Energy Efficiency Program for Certain Commercial and Industrial Equipment - Distribution Transformers; Current Edition.

B. IEEE C57.94 - IEEE Recommended Practice for Installation, Application, Operation, and Maintenance of Dry-Type General Purpose Distribution and Power Transformers; 1982 (R2006).

C. IEEE C57.96 - IEEE Standard Guide for Loading Dry-Type Distribution and Power Transformers; 2013.

D. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

E. NECA 409 - Standard for Installing and Maintaining Dry-Type Transformers; 2015.

F. NEMA ST 20 - Dry Type Transformers for General Applications; 2021.

G. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2018.

H. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. UL 506 - Standard for Specialty Transformers; Current Edition, Including All Revisions.

J. UL 1561 - Standard for Dry-Type General Purpose and Power Transformers; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Include voltage, kVA, impedance, tap configurations, insulation system class and rated temperature rise, efficiency, sound level, enclosure ratings, outline and support point dimensions, weight, required clearances, service condition requirements, and installed features.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

B. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to transformer internal components, enclosure, and finish.

1.07 FIELD CONDITIONS

A. Ambient Temperature: Do not exceed the following maximum temperatures during and after installation of transformers.
   1. Greater than 10 kVA: 104 degrees F maximum.
   2. Less than 10 kVA: 77 degrees F maximum.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Furnish transformers produced by a single manufacturer and obtained from a single supplier.

2.02 TRANSFORMERS - GENERAL REQUIREMENTS

A. Description: Factory-assembled, dry type transformers for 60 Hz operation designed and manufactured in accordance with NEMA ST 20 and listed, classified, and labeled as suitable for the purpose intended.

B. Unless noted otherwise, transformer ratings indicated are for continuous loading according to IEEE C57.96 under the following service conditions:
   1. Altitude: Less than 3,300 feet.
   2. Ambient Temperature:
      a. Greater than 10 kVA: Not exceeding 104 degrees F.
      b. Less than 10 kVA: Not exceeding 77 degrees F.

C. Core: High grade, non-aging silicon steel with high magnetic permeability and low hysteresis and eddy current losses. Keep magnetic flux densities substantially below saturation point, even at 10 percent primary overvoltage. Tightly clamp core laminations to prevent plate movement and maintain consistent pressure throughout core length.

D. Impregnate core and coil assembly with non-hydroscopic thermo-setting varnish to effectively seal out moisture and other contaminants.

E. Basic Impulse Level: 10 kV.

F. Ground core and coil assembly to enclosure by means of a visible flexible copper grounding strap.

G. Isolate core and coil from enclosure using vibration-absorbing mounts.

H. Nameplate: Include transformer connection data, ratings, wiring diagrams, and overload capacity based on rated winding temperature rise.

2.03 GENERAL PURPOSE TRANSFORMERS

A. Description: Self-cooled, two winding transformers listed and labeled as complying with UL 506 or UL 1561; ratings as indicated on the drawings.

B. Insulation System and Allowable Average Winding Temperature Rise:
   1. Less than 15 kVA: Class 180 degrees C insulation system with 115 degrees C average winding temperature rise.
   2. 15 kVA and Larger: Class 220 degrees C insulation system with 150 degrees C average winding temperature rise.

C. Coil Conductors: Continuous aluminum windings with terminations brazed or welded.

D. Winding Taps:
   1. Less than 3 kVA: None.
   2. 3 kVA through 15 kVA: Two 5 percent full capacity primary taps below rated voltage.
   3. 15 kVA through 300 kVA: Two 2.5 percent full capacity primary taps above and four 2.5 percent full capacity primary taps below rated voltage.
   4. 500 kVA and Larger: Two 2.5 percent full capacity primary taps above and two 2.5 percent full capacity primary taps below rated voltage.

E. Energy Efficiency: Comply with 10 CFR 431, Subpart K.

F. Sound Levels: Standard sound levels complying with NEMA ST 20

G. Mounting Provisions:
   1. Less than 15 kVA: Suitable for wall mounting.
   2. 15 kVA through 75 kVA: Suitable for wall, floor, or trapeze mounting.
   3. Larger than 75 kVA: Suitable for floor mounting.

H. Transformer Enclosure: Comply with NEMA ST 20.
   1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
      a. Indoor clean, dry locations: Type 2.
      b. Outdoor locations: Type 3R.
   2. Construction: Steel.

a. Less than 15 kVA: Totally enclosed, non-ventilated.
b. 15 kVA and Larger: Ventilated.

3. Finish: Manufacturer's standard grey, suitable for outdoor installations.
4. Provide lifting eyes or brackets.

I. Accessories:
1. Mounting Brackets: Provide manufacturer's standard brackets.
2. Weathershield Kits: Provide for ventilated transformers installed outdoors to provide a listed NEMA 250, type 3R assembly.
3. Lug Kits: Sized as required for termination of conductors as indicated on the drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that suitable support frames and anchors are installed where required and that mounting surfaces are ready to receive transformers.

C. Perform pre-installation tests and inspections on transformers per manufacturer's instructions and as specified in NECA 409. Correct deficiencies prior to installation.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Install transformers in accordance with NECA 409 and IEEE C57.94.

D. Use flexible conduit, under the provisions of Section 26 0533.13, 2 feet minimum length, for connections to transformer case. Make conduit connections to side panel of enclosure.

E. Arrange equipment to provide minimum clearances as specified on transformer nameplate and in accordance with manufacturer's instructions and NFPA 70.

F. Install transformers plumb and level.

G. Transformer Support:
1. Provide required support and attachment in accordance with Section 26 0529, where not furnished by transformer manufacturer.
2. Use integral transformer flanges, accessory brackets furnished by manufacturer, or field-fabricated supports to support wall-mounted transformers.
3. Unless otherwise indicated, mount floor-mounted transformers on properly sized 3 inch high concrete pad constructed in accordance with Section 03 3000.
4. Use trapeze hangers assembled from threaded rods and metal channel (strut) to support suspended transformers. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

H. Provide grounding and bonding in accordance with Section 26 0526.

I. Remove shipping braces and adjust bolts that attach the core and coil mounting bracket to the enclosure according to manufacturer's recommendations in order to reduce audible noise transmission.

J. Where not factory-installed, install lugs sized as required for termination of conductors as indicated.

K. Where furnished as a separate accessory, install transformer weathershield per manufacturer's instructions.

3.03 ADJUSTING

A. Measure primary and secondary voltages and make appropriate tap adjustments.

B. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

3.04 CLEANING

A. Clean dirt and debris from transformer components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

SECTION 26 2416
PANELBOARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Power distribution panelboards.

B. Lighting and appliance panelboards.

C. Overcurrent protective devices for panelboards.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding for Electrical Systems.

B. Section 26 0529 - Hangers and Supports for Electrical Systems.

C. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

D. Section 26 0573 - Power System Studies: Additional criteria for the selection and adjustment of equipment and associated protective devices specified in this section.

1.03 REFERENCE STANDARDS

A. FS W-C-375 - Circuit Breakers, Molded Case; Branch Circuit and Service; 2013e, with Amendments (2022).

B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

C. NECA 407 - Standard for Installing and Maintaining Panelboards; 2015.

D. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2020.

E. NEMA PB 1 - Panelboards; 2011.

F. NEMA PB 1.1 - General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 1000 Volts or Less; 2023.

G. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems; 2017.

H. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.

J. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

K. UL 67 - Panelboards; Current Edition, Including All Revisions.

L. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures; Current Edition, Including All Revisions.

M. UL 869A - Reference Standard for Service Equipment; Current Edition, Including All Revisions.

N. UL 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
3. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted panelboards where indicated.
4. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
5. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for panelboards, enclosures, overcurrent protective devices, and other installed components and accessories.
   1. Include characteristic trip curves for each type and rating of overcurrent protective device upon request.

C. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, overcurrent protective device arrangement and sizes, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.
   1. Include dimensioned plan and elevation views of panelboards and adjacent equipment with all required clearances indicated.
   2. Include wiring diagrams showing all factory and field connections.

D. Project Record Documents: Record actual installed locations of panelboards and actual installed circuiting arrangements.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Panelboard Keys: Two of each different key.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store panelboards in accordance with manufacturer's instructions and NECA 407.

B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle carefully in accordance with manufacturer's written instructions to avoid damage to panelboard internal components, enclosure, and finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Furnish panelboards and associated components produced by a single manufacturer and obtained from a single supplier.

2.02 PANELBOARDS - GENERAL REQUIREMENTS

A. Provide products listed, classified, and labeled as suitable for the purpose intended.

B. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
   1. Altitude: Less than 6,600 feet.
   2. Ambient Temperature:
      a. Panelboards Containing Circuit Breakers: Between 23 degrees F and 104 degrees F.

C. Short Circuit Current Rating:
   1. Provide panelboards with listed short circuit current rating not less than the available fault current at the installed location as indicated on the drawings.
   2. Listed series ratings are not acceptable.

D. Panelboards Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.

E. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.

F. Branch Overcurrent Protective Devices: Replaceable without disturbing adjacent devices.

G. Bussing: Sized in accordance with UL 67 temperature rise requirements.
   1. Provide fully rated neutral bus unless otherwise indicated, with a suitable lug for each feeder or branch circuit requiring a neutral connection.
   2. Provide solidly bonded equipment ground bus in each panelboard, with a suitable lug for each feeder and branch circuit equipment grounding conductor.

H. Conductor Terminations: Suitable for use with the conductors to be installed.

I. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
   1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
      a. Outdoor Locations: Type 3R.
      b. Indoor Damp Locations: Type 12.
   2. Boxes: Galvanized steel unless otherwise indicated.
      a. Provide wiring gutters sized to accommodate the conductors to be installed.
   3. Fronts:
      a. Fronts for Surface-Mounted Enclosures: Same dimensions as boxes.
      b. Fronts for Flush-Mounted Enclosures: Overlap boxes on all sides to conceal rough opening.
   4. Lockable Doors: All locks keyed alike unless otherwise indicated.

J. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.

K. Selectivity: Where the requirement for selectivity is indicated, furnish products as required to achieve selective coordination.

L. Load centers are not acceptable.

2.03 POWER DISTRIBUTION PANELBOARDS

A. Description: Panelboards complying with NEMA PB 1, power and feeder distribution type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.

B. Conductor Terminations:
   1. Main and Neutral Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
   2. Main and Neutral Lug Type: Mechanical.

C. Bussing:
   1. Phase and Neutral Bus Material: Aluminum.
   2. Ground Bus Material: Aluminum.

D. Circuit Breakers:
   1. Provide bolt-on type or plug-in type secured with locking mechanical restraints.

E. Enclosures:
   1. Provide surface-mounted enclosures unless otherwise indicated.

2.04 LIGHTING AND APPLIANCE PANELBOARDS

A. Description: Panelboards complying with NEMA PB 1, lighting and appliance branch circuit type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.

B. Conductor Terminations:
   1. Main and Neutral Lug Material: Copper suitable for terminating copper conductors only.
   2. Main and Neutral Lug Type: Mechanical.

C. Bussing:
   1. Phase Bus Connections: Arranged for sequential phasing of overcurrent protective devices.
   2. Phase and Neutral Bus Material: Copper.

3. Ground Bus Material: Copper.

D. Circuit Breakers: Thermal magnetic bolt-on type unless otherwise indicated.

E. Enclosures:
1. Provide surface-mounted or flush-mounted enclosures as indicated.
2. Fronts: Provide door-in-door trim with hinged cover for access to load terminals and wiring gutters, and separate lockable hinged door with concealed hinges for access to overcurrent protective device handles without exposing live parts.
3. Provide clear plastic circuit directory holder mounted on inside of door.

2.05 OVERCURRENT PROTECTIVE DEVICES

A. Molded Case Circuit Breakers:
1. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489, and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.
2. Interrupting Capacity:
a. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated, but not less than:
1) 10,000 rms symmetrical amperes at 240 VAC or 208 VAC.
2) 14,000 rms symmetrical amperes at 480 VAC.
b. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.
3. Conductor Terminations:
a. Lug Material: Copper suitable for terminating copper conductors only.
4. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
5. Electronic Trip Circuit Breakers: Furnish solid state, microprocessor-based, true rms sensing trip units.
a. Provide the following field-adjustable trip response settings:
1) Long time pickup, adjustable by setting dial.
2) Long time delay.
3) Short time pickup and delay.
4) Instantaneous pickup.
6. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.
7. Provide the following circuit breaker types where indicated:
a. Ground Fault Circuit Interrupter (GFCI) Circuit Breakers: Listed as complying with UL 943, class A for protection of personnel.
8. Do not use tandem circuit breakers.
9. Do not use handle ties in lieu of multi-pole circuit breakers.

2.06 SOURCE QUALITY CONTROL

A. Factory test panelboards according to NEMA PB 1.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the ratings and configurations of the panelboards and associated components are consistent with the indicated requirements.

C. Verify that mounting surfaces are ready to receive panelboards.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Install panelboards in accordance with NECA 407 and NEMA PB 1.1.

D. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

E. Provide required support and attachment in accordance with Section 26 0529.

F. Install panelboards plumb.

G. Install flush-mounted panelboards so that trims fit completely flush to wall with no gaps and rough opening completely covered.

H. Mount panelboards such that the highest position of any operating handle for circuit breakers or switches does not exceed 79 inches above the floor or working platform.

I. Provide minimum of three spare 1 inch trade size conduits out of each flush-mounted panelboard stubbed into accessible space above ceiling and below floor.

J. Provide grounding and bonding in accordance with Section 26 0526.

K. Install all field-installed branch devices, components, and accessories.

L. Set field-adjustable circuit breaker tripping function settings as determined by overcurrent protective device coordination study performed according to Section 26 0573.

M. Provide filler plates to cover unused spaces in panelboards.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Molded Case Circuit Breakers: Perform inspections and tests listed in NETA ATS, Section 7.6.1.1for all main circuit breakers. Tests listed as optional are not required.

D. Test GFCI circuit breakers to verify proper operation.

E. Correct deficiencies and replace damaged or defective panelboards or associated components.

3.04 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

B. Adjust alignment of panelboard fronts.

C. Load Balancing: For each panelboard, rearrange circuits such that the difference between each measured steady state phase load does not exceed 20 percent and adjust circuit directories accordingly. Maintain proper phasing for multi-wire branch circuits.

3.05 CLEANING

A. Clean dirt and debris from panelboard enclosures and components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

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SECTION 26 2726
WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall switches.

B. Receptacles.

C. Wall plates.

1.02 RELATED REQUIREMENTS

A. Section 26 0533.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. FS W-C-596 - Connector, Electrical, Power, General Specification for; 2014h, with Amendments (2017).

B. FS W-S-896 - Switches, Toggle (Toggle and Lock), Flush Mounted (General Specification); 2014g, with Amendment (2017).

C. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

D. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.

E. NEMA WD 1 - General Color Requirements for Wiring Devices; 1999 (Reaffirmed 2020).

F. NEMA WD 6 - Wiring Devices - Dimensional Specifications; 2016.

G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. UL 20 - General-Use Snap Switches; Current Edition, Including All Revisions.

I. UL 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.

J. UL 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.

K. UL 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
   2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
   3. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
   4. Notify Engineer of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

B. Sequencing:
   1. Do not install wiring devices until final surface finishes and painting are complete.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Products: Listed, classified, and labeled as suitable for the purpose intended.

D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.06 DELIVERY, STORAGE, AND PROTECTION

A. Store in a clean, dry space in original manufacturer's packaging until ready for installation.

PART 2 PRODUCTS

2.01 WIRING DEVICE APPLICATIONS

A. Provide wiring devices suitable for intended use and with ratings adequate for load served.

B. For single receptacles installed on an individual branch circuit, provide receptacle with ampere rating not less than that of the branch circuit.

C. Provide weather resistant GFCI receptacles with specified weatherproof covers for receptacles installed outdoors or in damp or wet locations.

D. Unless noted otherwise, do not use combination switch/receptacle devices.

2.02 WIRING DEVICE FINISHES

A. Provide wiring device finishes as described below unless otherwise indicated.

B. Wiring Devices, Unless Otherwise Indicated: Gray with galvanized steel wall plate.

C. Wiring Devices Installed in Wet or Damp Locations: Gray with specified weatherproof cover.

2.03 WALL SWITCHES

A. Wall Switches - General Requirements: AC only, quiet operating, general-use snap switches with silver alloy contacts, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 20and where applicable FS W-S-896; types as indicated on the drawings.
   1. Wiring Provisions: Terminal screws for side wiring and screw actuated binding clamp for back wiring with separate ground terminal screw.

2.04 RECEPTACLES

A. Receptacles - General Requirements: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498and where applicable FS W-C-596; types as indicated on the drawings.
   1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp for back wiring with separate ground terminal screw.
   2. NEMA configurations specified are according to NEMA WD 6.

B. Convenience Receptacles:
   1. Standard Convenience Receptacles: Commercial specification grade, 20A, 125V, NEMA 5-20R; single or duplex as indicated on the drawings.

C. GFCI Receptacles:
   1. GFCI Receptacles - General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with UL 943, class A.
      a. Provide test and reset buttons of same color as device.
   2. Standard GFCI Receptacles: Commercial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style.
   3. Weather Resistant GFCI Receptacles: Commercial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style, listed and labeled as weather resistant type complying with UL 498 Supplement SE suitable for installation in damp or wet locations.

2.05 WALL PLATES

A. Wall Plates: Comply with UL 514D.
   1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
   2. Size: Standard.
   3. Screws: Metal with slotted heads finished to match wall plate finish.

B. Galvanized Steel Wall Plates: Rounded corners and edges, with corrosion resistant screws.

C. Weatherproof Covers for Damp Locations: Gasketed, cast aluminum, with self-closing hinged cover and corrosion-resistant screws; listed as suitable for use in wet locations with cover closed.

D. Weatherproof Covers for Wet Locations: Gasketed, cast aluminum, with hinged lockable cover and corrosion-resistant screws; listed as suitable for use in wet locations while in use with attachment plugs connected and identified as extra-duty type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.

C. Verify that wall openings are neatly cut and will be completely covered by wall plates.

D. Verify that final surface finishes are complete, including painting.

E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

F. Verify that openings in access floor are in proper locations.

G. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.

B. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of wiring devices provided under this section.
   1. Mounting Heights: Unless otherwise indicated, as follows:
      a. Wall Switches: 48 inches above finished floor to top of box.
      b. Receptacles: 20 inches above finished floor to top of box or 6 inches above counter.
   2. Orient outlet boxes for vertical installation of wiring devices unless otherwise indicated.
   3. Where multiple receptacles or wall switches are installed at the same location and at the same mounting height, gang devices together under a common wall plate.
   4. Locate wall switches on strike side of door with edge of wall plate 3 inches from edge of door frame. Where locations are indicated otherwise, notify Engineer to obtain direction prior to proceeding with work.
   5. Locate receptacles for electric drinking fountains concealed behind drinking fountain according to manufacturer's instructions.

C. Install wiring devices in accordance with manufacturer's instructions.

D. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

E. Where required, connect wiring devices using pigtails not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.

F. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.

G. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.

H. Unless otherwise indicated, GFCI receptacles may be connected to provide feed-through protection to downstream devices. Label such devices to indicate they are protected by upstream GFCI protection.

I. Install wiring devices plumb and level with mounting yoke held rigidly in place.

J. Install wall switches with OFF position down.

K. Do not share neutral conductor on branch circuits utilizing wall dimmers.

L. Install vertically mounted receptacles with grounding pole on bottom and horizontally mounted receptacles with grounding pole on left.

M. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.

N. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Inspect each wiring device for damage and defects.

C. Operate each wall switch with circuit energized to verify proper operation.

D. Test each receptacle to verify operation and proper polarity.

E. Test each GFCI receptacle for proper tripping operation according to manufacturer's instructions.

F. Correct wiring deficiencies and replace damaged or defective wiring devices.

3.05 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

3.06 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

END OF SECTION

SECTION 26 2816.13
ENCLOSED CIRCUIT BREAKERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Enclosed circuit breakers.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding for Electrical Systems.

B. Section 26 0529 - Hangers and Supports for Electrical Systems.

C. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

D. Section 26 0573 - Power System Studies: Additional criteria for the selection and adjustment of equipment and associated protective devices specified in this section.

1.03 REFERENCE STANDARDS

A. FS W-C-375 - Circuit Breakers, Molded Case; Branch Circuit and Service; 2013e, with Amendments (2022).

B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2020.

D. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems; 2017.

E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.

G. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

H. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures; Current Edition, Including All Revisions.

I. UL 869A - Reference Standard for Service Equipment; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for circuit breakers, enclosures, and other installed components and accessories.

C. Shop Drawings: Indicate outline and support point dimensions, voltage and current ratings, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Maintain one copy of each document on site.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

B. Handle carefully in accordance with manufacturer's written instructions to avoid damage to enclosed circuit breaker internal components, enclosure, and finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Furnish enclosed circuit breakers and associated components produced by a single manufacturer and obtained from a single supplier.

2.02 ENCLOSED CIRCUIT BREAKERS

A. Description: Units consisting of molded case circuit breakers individually mounted in enclosures.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
   1. Altitude: Less than 6,600 feet.
   2. Ambient Temperature: Between 23 degrees F and 104 degrees F.

D. Short Circuit Current Rating:
   1. Provide enclosed circuit breakers with listed short circuit current rating not less than the available fault current at the installed location indicated on the drawings.

E. Enclosed Circuit Breakers Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.

F. Conductor Terminations: Suitable for use with the conductors to be installed.

G. Provide electronic trip circuit breakers where indicated.

H. Provide insulated, groundable fully rated solid neutral assembly where a neutral connection is required, with a suitable lug for terminating each neutral conductor.

I. Provide solidly bonded equipment ground bus in each enclosed circuit breaker, with a suitable lug for terminating each equipment grounding conductor.

J. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
   1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
      a. Outdoor Locations: Type 3R.
      b. Indoor Damp Locations: Type 12.
   2. Finish for Painted Steel Enclosures: Manufacturer's standard, factory applied grey unless otherwise indicated.
   3. Provide surface-mounted enclosures unless otherwise indicated.

K. Provide externally operable handle with means for locking in the OFF and ONposition.

L. Selectivity: Where the requirement for selectivity is indicated, furnish products as required to achieve selective coordination.

2.03 MOLDED CASE CIRCUIT BREAKERS

A. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.

B. Interrupting Capacity:
   1. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated, but not less than:
      a. 14,000 rms symmetrical amperes at 480 VAC.
   2. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.

C. Conductor Terminations:
   1. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.

D. Electronic Trip Circuit Breakers: Furnish solid state, microprocessor-based, true rms sensing trip units.
   1. Provide the following field-adjustable trip response settings:
      a. Long time pickup, adjustable by setting dial.
      b. Long time delay.
      c. Short time pickup and delay.
      d. Instantaneous pickup.

E. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.

F. Provide the following features and accessories where indicated or where required to complete installation:
   1. Shunt Trip: Provide coil voltage as required for connection to indicated trip actuator.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Provide required support and attachment in accordance with Section 26 0529.

E. Install enclosed circuit breakers plumb.

F. Except where indicated to be mounted adjacent to the equipment they supply, mount enclosed circuit breakers such that the highest position of the operating handle does not exceed 79 inches above the floor or working platform.

G. Provide grounding and bonding in accordance with Section 26 0526.

H. Set field-adjustable circuit breaker tripping function settings as determined by overcurrent protective device coordination study performed according to Section 26 0573.

3.02 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Inspect and test in accordance with manufacturer's instructions and NETA ATS, except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.6.1.1 for circuit breakers used for service entrance. Tests listed as optional are not required.

D. Test shunt trips to verify proper operation.

E. Correct deficiencies and replace damaged or defective enclosed circuit breakers.

END OF SECTION

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SECTION 26 2816.16
ENCLOSED SWITCHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Enclosed safety switches.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding for Electrical Systems.

B. Section 26 0529 - Hangers and Supports for Electrical Systems.

C. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

D. Section 26 2813 - Fuses.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2020.

C. NEMA KS 1 - Heavy Duty Enclosed and Dead-Front Switches (600 Volts Maximum); 2013.

D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.

F. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

G. UL 98 - Enclosed and Dead-Front Switches; Current Edition, Including All Revisions.

H. UL 869A - Reference Standard for Service Equipment; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the work with other trades. Avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and within working clearances for electrical equipment required by NFPA 70.
   2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   3. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
   4. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for enclosed switches and other installed components and accessories.

C. Shop Drawings: Indicate outline and support point dimensions, voltage and current ratings, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.

D. Project Record Documents: Record actual locations of enclosed switches.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

B. Handle carefully in accordance with manufacturer's written instructions to avoid damage to enclosed switch internal components, enclosure, and finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Furnish enclosed switches and associated components produced by a single manufacturer and obtained from a single supplier.

2.02 ENCLOSED SAFETY SWITCHES

A. Description: Quick-make, quick-break enclosed safety switches listed and labeled as complying with UL 98; heavy duty; ratings, configurations, and features as indicated on the drawings.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
   1. Altitude: Less than 6,600 feet.
   2. Ambient Temperature: Between -22 degrees F and 104 degrees F.

D. Horsepower Rating: Suitable for connected load.

E. Voltage Rating: Suitable for circuit voltage.

F. Short Circuit Current Rating:
   1. Provide enclosed safety switches, when protected by the fuses or supply side overcurrent protective devices to be installed, with listed short circuit current rating not less than the available fault current at the installed location as indicated on the drawings.

G. Enclosed Safety Switches Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.

H. Provide with switch blade contact position that is visible when the cover is open.

I. Fuse Clips for Fusible Switches: As required to accept fuses indicated.
   1. Where NEMA Class R fuses are installed, provide rejection feature to prevent installation of fuses other than Class R.

J. Conductor Terminations: Suitable for use with the conductors to be installed.

K. Provide solidly bonded equipment ground bus in each enclosed safety switch, with a suitable lug for terminating each equipment grounding conductor.

L. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
   1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
      a. Outdoor Locations: Type 3R.
      b. Indoor Damp Locations: Type 12.
   2. Finish for Painted Steel Enclosures: Manufacturer's standard, factory applied grey unless otherwise indicated.

M. Provide safety interlock to prevent opening the cover with the switch in the ON position with capability of overriding interlock for testing purposes.

N. Heavy Duty Switches:
   1. Comply with NEMA KS 1.
   2. Conductor Terminations:
      a. Lug Material: Copper suitable for terminating copper conductors only.
   3. Provide externally operable handle with means for locking in the OFF position, capable of accepting three padlocks.

a. Provide means for locking handle in the ON position.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the ratings of the enclosed switches are consistent with the indicated requirements.

C. Verify that mounting surfaces are ready to receive enclosed safety switches.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Provide required support and attachment in accordance with Section 26 0529.

E. Install enclosed switches plumb.

F. Except where indicated to be mounted adjacent to the equipment they supply, mount enclosed switches such that the highest position of the operating handle does not exceed 79 inches above the floor or working platform.

G. Provide grounding and bonding in accordance with Section 26 0526.

H. Provide fuses complying with Section 26 2813 for fusible switches as indicated or as required by equipment manufacturer's recommendations.

3.03 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

3.04 CLEANING

A. Clean dirt and debris from switch enclosures and components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

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SECTION 26 2923
VARIABLE-FREQUENCY MOTOR CONTROLLERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Variable frequency controllers.

B. Overcurrent protective devices for motor controllers, including overload relays.

1.02 RELATED REQUIREMENTS

A. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. IEC 60529 - Degrees of Protection Provided by Enclosures (IP Code); 2013 (Corrigendum 2019).

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2020.

C. NEMA ICS 5 - Industrial Control and Systems: Control Circuit and Pilot Devices; 2017.

D. NEMA ICS 6 - Industrial Control and Systems: Enclosures; 1993 (Reaffirmed 2016).

E. NEMA ICS 7 - Industrial Control and Systems: Adjustable-Speed Drives; 2014.

F. NEMA ICS 7.1 - Safety Standards for Construction and Guide for Selection, Installation, and Operation of Adjustable-Speed Drive Systems; 2014.

G. NEMA ICS 7.2 - Application Guide for AC Adjustable Speed Drive Systems; 2015.

H. NEMA ICS 61800-2 - Adjustable Speed Electrical Power Drive Systems, Part 2: General Requirements-Rating Specifications for Low Voltage Adjustable Frequency AC Power Drive Systems; 2005.

I. NEMA MG 1 - Motors and Generators; 2021.

J. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems; 2017.

K. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

L. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures; Current Edition, Including All Revisions.

M. UL 508A - UL Standard for Safety Industrial Control Panels; 2018.

N. UL 61800-5-1 - Standard for Adjustable Speed Electrical Power Drive Systems - Part 5-1: Safety Requirements – Electrical, Thermal, and Energy; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within dedicated equipment spaces and working clearances required by NFPA 70.
   2. Coordinate work to provide motor controllers suitable for use with actual motors to be installed.
   3. Coordinate work to provide controllers and associated wiring suitable for interface with control devices to be installed.
   4. Coordinate arrangement of electrical equipment with dimensions and clearance requirements of actual equipment to be installed.
   5. Verify with manufacturer that conductor terminations are suitable for use with conductors to be installed.
   6. Notify Engineer of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide catalog sheets showing voltage, controller size, ratings and size of switching and overcurrent protective devices, short circuit ratings, dimensions, and enclosure details.

C. Shop Drawings: Indicate front and side views of enclosures with overall dimensions and weights shown; conduit entrance locations and requirements; and nameplate legends.
   1. Include dimensioned plan and elevation views of controllers and adjacent equipment with required clearances indicated.
   2. Include wiring diagrams showing factory and field connections.
   3. Identify mounting conditions required for equipment seismic qualification.

D. Operation and Maintenance Data: Include detailed information on system operation, equipment programming and setup, replacement parts, and recommended maintenance procedures and intervals.

E. Executed Warranty: Submit documentation of final executed warranty completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
   1. Authorized service facilities located within 200 miles of project site.

C. Products: Listed, classified, and labeled as suitable for the purpose intended.

D. The VFD and all associated optional equipment shall be UL listed or recognized.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store in a clean, dry space, and ambient temperature recommended by the manufacturer. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

B. Handle in accordance with manufacturer's written instructions.

1.08 FIELD CONDITIONS

A. Maintain field conditions within required service conditions during and after installation.

1.09 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Provide minimum 18-month manufacturer warranty covering repair or replacement due to defective materials or workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Furnish variable frequency motor controllers and associated components produced by a single manufacturer and obtained from a single supplier.

2.02 VARIABLE-FREQUENCY MOTOR CONTROLLERS

A. Provide variable-frequency motor control system consisting of required controller assemblies, operator interfaces, control power transformers, instrumentation and control wiring, sensors, accessories, system programming, etc. as necessary for complete operating system.

B. Provide products listed, classified, and labeled as suitable for purpose intended.

C. Variable-Frequency Motor Controller:
   1. Configuration: Packaged controller, nonbypass.
   2. Rectifier/Converter: Diode-based, 6-pulse type.
   3. Control Method: Vector; open-loop, without feedback.

D. Controller Assemblies: Comply with NEMA ICS 7, NEMA ICS 7.1, and NEMA ICS 61800-2; list and label as complying with UL 61800-5-1 or UL 508A as applicable.

E. Provide controllers selected for actual installed motors and coupled mechanical loads in accordance with NEMA ICS 7.2, NEMA MG 1 Part 30, and recommendations of manufacturers of both controller and load, where not in conflict with specified requirements; considerations

include, but are not limited to:

1. Motor type (e.g., induction, reluctance, and permanent magnet); consider NEMA MG 1 design letter or inverter duty rating for induction motors.
2. Motor load type (e.g., constant torque, variable torque, and constant horsepower); consider duty cycle, impact loads, and high inertia loads.
3. Motor nameplate data.
4. Requirements for speed control range, speed regulation, and braking.
5. Motor suitability for bypass starting method, where applicable.
6. Shall have continuous ampacity output rating not less than motor name plate Full Load Amps operating at a minimum 1.15 service factor.

F. Devices on Load Side of Controller: Suitable for application across full controller output frequency range.

G. Operating Requirements:
   1. Input Voltage Tolerance: Plus/minus 10 percent of nominal.
   2. Input Frequency Tolerance: Plus/minus 5 percent of nominal.
   3. Efficiency: Minimum of 96 percent at full speed and load.
   4. Input Displacement Power Factor: Minimum of 0.96 throughout speed and load range.
   5. Overload Rating:
      a. Variable Torque Loads: Minimum of 110 percent of nominal for 60 seconds.
      b. Constant Torque Loads: Minimum of 150 percent of nominal for 60 seconds.

H. Control System:
   1. Provide microprocessor-based control system for automatic control, monitoring, and protection of motors. Include sensors, wiring, and connections necessary for functions and status/alarm indications specified.
   2. Provide integral operator interface for controller programming, display of status/alarm indications, fault reset, and local control functions including motor run/stop, motor forward/reverse selection, motor speed increase/decrease, and local/remote control selection.
   3. Control Functions:
      a. Control Method: Selectable vector and scalar/volts per hertz unless otherwise indicated.
         1) Scalar/Volts per Hertz Control: Provide IR compensation for improved low-speed torque.
         2) Vector Control: Provide selectable autotuning function.
      b. Adjustable acceleration and deceleration time; linear and S-curve ramps; selectable coast to stop.
      c. Adjustable minimum/maximum speed limits.
      d. Adjustable pulse width modulation switching carrier frequency.
      e. Adjustable motor slip compensation.
      f. Selectable autorestart after noncritical fault; programmable number of time delay between restart attempts.
   4. Status Indications:
      a. Motor run/stop status.
      b. Motor forward/reverse status.
      c. Local/remote control status.
      d. Output voltage.
      e. Output current.
      f. Output frequency.
      g. DC bus voltage.
      h. Motor speed.
      i. Speed reference.
      j. Controller temperature.
   5. Protective Functions/Alarm Indications:
      a. Overcurrent.
      b. Motor overload.
      c. Undervoltage.
      d. Overvoltage.

e. Controller overtemperature.
f. Input/output phase loss.
g. Output short circuit protection.
h. Output ground fault protection.

6. Inputs:
   a. Digital Input(s): Three.
   b. Analog Input(s): Two.
7. Outputs:
   a. Analog Output(s): One.
   b. Relay Output(s): Two.
8. Communications: Compatible with connected systems. Provide accessories necessary for proper interface.
   a. Ethernet Communications: Support for Ethernet/IP protocol.
   b. Remote Monitoring Capabilities:
      1) Motor run/stop status.
      2) Hand-off-auto status.
      3) Fault information.
      4) Discrete input/output status.
      5) Analog input/output values.
   c. Remote Control Capabilities:
      1) Motor run/stop command.
      2) Hand-off-auto selection.
      3) Speed adjustment.
      4) Fault reset.
9. Features:
   a. Password-protected security access.
   b. Event log.

I. Power Conditioning/Filtering:
   1. Provide DC link choke or input/line reactor for each controller unless otherwise indicated or required by the manufacturer.
   2. Harmonic Mitigation:
      a. Provide input tuned passive filter.
   3. Long Motor Leads:
      a. Motor Leads 300 Feet to 650 feet: Provide output/load reactor.
      b. Motor Leads 650 Feet to 1000 feet: Provide output dV/dt filter.
   4. Reactor Impedance: 3 percent, unless otherwise indicated or required.

J. Packaged Controllers: Controllers factory-mounted in separate enclosure with externally operable disconnect and specified accessories.
   1. Disconnects: Circuit breaker type.
      a. Provide externally operable handle with means for locking in OFF position. Provide safety interlock to prevent opening cover with disconnect in ON position with capability of overriding interlock for testing purposes.
      b. Provide auxiliary interlock for disconnection of external control power sources where applicable.
   2. Provide door-mounted remote operator interface.
   3. Pilot Devices Required:
      a. Packaged Controllers:
         1) Selector Switches: Hand-Off-Auto.
         2) Indicating Lights: Run and Fault.

K. Service Conditions:
   1. Provide controllers and associated components suitable for operation under following service conditions without derating:
      a. Altitude: Less than 3,300 feet.
      b. Ambient Temperature: Between 32 degrees F and 104 degrees F.
   2. Provide controllers and associated components suitable for operation at indicated ratings under service conditions at installed location.

L. Short Circuit Current Rating:
   1. Provide controllers with listed short circuit current rating not less than available fault current at installed location as indicated on drawings.
   2. Provide line/input reactors where specified by manufacturer for required short circuit current rating.

M. Selectivity: Where requirement for selectivity is indicated, furnish products as required to achieve selective coordination.

N. Conductor Terminations: Suitable for use with conductors to be installed.

O. Enclosures:
   1. Comply with NEMA ICS 6.
   2. NEMA 250 Environment Type or Equivalent IEC 60529 Rating: Unless otherwise indicated, as specified for following installation locations:
      a. Indoor Clean, Dry Locations: Type 1 or Type 12.
      b. Indoor Damp Location: Type 12.
   3. Finish: Manufacturer's standard unless otherwise indicated.
   4. Cooling: Forced air or natural convection as determined by manufacturer.

2.03 OVERCURRENT PROTECTIVE DEVICES

A. Circuit Breakers:
   1. Molded Case Circuit Breakers:
      a. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers; listed and labeled as complying with UL 489; ratings, configurations, and features as indicated or as required.
         1) Provide thermal magnetic circuit breakers for circuit breaker frame sizes less than 400 amperes.
         2) Provide electronic trip circuit breakers for circuit breaker frame sizes 400 amperes and above.
      b. Interrupting Capacity:
         1) Provide circuit breakers with interrupting capacity as required to provide short circuit current rating indicated, but not less than specified minimum requirements.
         2) Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than short circuit current rating indicated.
      c. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
         1) Provide field-adjustable magnetic instantaneous trip setting for circuit breaker frame sizes 225 amperes and larger.
         2) Provide interchangeable trip units.
      d. Electronic Trip Circuit Breakers: Furnish solid state, microprocessor-based, true rms sensing trip units.
         1) Provide field-adjustable trip response settings:
            (a) Long time pickup, adjustable by replacing interchangeable trip unit or by setting dial.
            (b) Long time delay.
            (c) Short time pickup and delay.
            (d) Instantaneous pickup.
            (e) Ground fault pickup and delay where ground fault protection is indicated.
      e. Provide following features and accessories where indicated or where required to complete installation:
         1) Pad-Lock Provision: For locking circuit breaker handle in OFF position.
         2) Auxiliary Switch: SPDT switch suitable for connection to system indicated for indicating when circuit breaker has tripped or been turned off.

2.04 ACCESSORIES

A. Auxiliary Contacts:
   1. Comply with NEMA ICS 5.

2. Provide number and type of contacts indicated or required to perform necessary functions, including holding (seal-in) circuit and interlocking, plus one normally open (NO) and one normally closed (NC) spare contact for each bypass motor starter, minimum.

B. Pilot Devices:
1. Comply with NEMA ICS 5; heavy-duty type.
2. Pushbuttons: Unless otherwise indicated, provide momentary, nonilluminated type with flush button operator; normally open or normally closed as indicated or as required.
3. Selector Switches: Unless otherwise indicated, provide maintained, nonilluminated type with knob operator; number of switch positions as indicated or as required.
4. Indicating Lights: Push-to-test type unless otherwise indicated.
5. Provide LED lamp source for indicating lights and illuminated devices.

C. Control Power Transformers:
1. Size to accommodate burden of contactor coil(s) and connected auxiliary devices, plus 50 VA spare capacity.
2. Include primary and secondary fuses.

D. Control Terminal Blocks: Include 25 percent spare terminals.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that ratings of controllers are consistent with indicated requirements.

C. Verify that surface is suitable for controller installation.

D. Verify that conditions are satisfactory for installation prior to starting work.

E. Do not install controller until building environment can be maintained within the service conditions required by the manufacturer.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install in accordance with NEMA ICS 7.1 and manufacturer's instructions.

C. Install field-installed devices, components, and accessories.

D. Where accessories are not self-powered, provide control power source as indicated or as required to complete installation.

E. Set field-adjustable settings of controllers and associated components according to installed motor requirements, in accordance with recommendations of manufacturers of controller and load.

F. Set field-adjustable circuit breaker tripping function settings as directed.

G. Tighten accessible connections and mechanical fasteners after placing controller.

H. Identify variable frequency controllers in accordance with Section 26 0553.

3.03 FIELD QUALITY CONTROL

A. Inspect and test in accordance with NETA ATS, except Section 4.

B. Perform inspections and tests listed in NETA ATS, Section 7.17. The insulation-resistance test on control wiring listed as optional is not required.

C. Molded Case Circuit Breakers: Perform inspections and tests listed in NETA ATS, Section 7.6.1.1 for circuit breakers larger than _____ amperes. Tests listed as optional are not required.

3.04 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

3.05 CLEANING

A. Clean dirt and debris from controller enclosures and components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

3.06 CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate proper operation of controllers to Owner, and correct deficiencies or make adjustments as directed.

B. Training: Train Owner's personnel on operation, adjustment, and maintenance of controllers and associated devices.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Location: At project site.

3.07 PROTECTION

A. Protect installed controllers from subsequent construction operations.

END OF SECTION

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SECTION 26 3600
TRANSFER SWITCHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Transfer switches for low-voltage (600 V and less) applications and associated accessories:
   1. Automatic transfer switches.

1.02 RELATED REQUIREMENTS

A. Section 26 3213 - Engine Generators: For interface with transfer switches.
   1. Includes related demonstration and training requirements.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2020.

C. NEMA ICS 10 Part 1 - Industrial Control and Systems Part 1: Electromechanical AC Transfer Switch Equipment; 2020.

D. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems; 2017.

E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. UL 1008 - Transfer Switch Equipment; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate compatibility of transfer switches to be installed with work provided under other sections or by others.
   2. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances required by NFPA 70.
   3. Coordinate arrangement of equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   4. Coordinate the work with placement of supports, anchors, etc. required for mounting.
   5. Closed Transition Transfer Switches:
      a. Coordinate source interconnection requirements with Utility Company.
      b. Where applicable, coordinate the work to provide engine generators with isochronous governors suitable for closed transition transfer.
      c. Coordinate the work to provide shunt trip breakers necessary for protection from source interconnection for longer than specified maximum interconnection time.
      d. Arrange for inspections necessary to obtain Utility Company approval of installation.
   6. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product, including ratings, configurations, dimensions, finishes, weights, service condition requirements, and installed features.

C. Shop Drawings: Include dimensioned plan views and sections indicating locations of system components, required clearances, and field connection locations. Include system interconnection schematic diagrams showing all factory and field connections.

1.06 QUALITY ASSURANCE

A. Comply with the following:
   1. NFPA 70 (National Electrical Code).

B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having

jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store transfer switches in accordance with manufacturer's instructions.

B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle carefully in accordance with manufacturer's instructions to avoid damage to transfer switch components, enclosure, and finish.

1.08 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Furnish transfer switches and accessories produced by a single manufacturer and obtained from a single supplier.

2.02 TRANSFER SWITCHES

A. Provide complete power transfer system consisting of all required equipment, conduit, boxes, wiring, supports, accessories, system programming, etc. as necessary for a complete operating system that provides the functional intent indicated.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Construction Type: Only "contactor type" (open contact) transfer switches are acceptable. Do not use "breaker type" (enclosed contact) transfer switches.

D. Automatic Transfer Switch:
   1. Transfer Switch Type: Automatic transfer switch.
   2. Transition Configuration: Closed-transition.
   3. Voltage: As indicated on the drawings.
   4. Ampere Rating: As indicated on the drawings.
   5. Neutral Configuration: Solid neutral (unswitched), except as indicated.

E. Comply with NEMA ICS 10 Part 1, and list and label as complying with UL 1008 for the classification of the intended application (e.g. emergency, optional standby).

F. Do not use double throw safety switches or other equipment not specifically designed for power transfer applications and listed as transfer switch equipment.

G. Load Classification: Classified for total system load (any combination of motor, electric discharge lamp, resistive, and tungsten lamp loads with tungsten lamp loads not exceeding 30 percent of the continuous current rating) unless otherwise indicated or required.

H. Switching Methods:
   1. Closed Transition:
      a. When both sources are available and synchronized, provide make-before-break transfer without interruption of power to the load and with momentary interconnection of both sources for not more than 100 ms, unless otherwise approved by Utility Company.
      b. Provide synchronization/in-phase monitor to initiate transfer when voltage and phase angle difference between sources are within predetermined requirements for synchronization.
      c. Source Synchronization Requirements: Phase angle differential within five degrees; voltage differential within five volts.
      d. When sources fail to synchronize within a predetermined time period, remain connected to current source and initiate an alarm.
      e. When sources remain interconnected for longer than specified maximum interconnection time, provide contact closure signal to shunt trip designated circuit breaker and initiate an alarm.
      f. Provide additional protective relaying where required by Utility Company.

g. When only one source is available, automatically utilizes open transition (break-before-make) transfer.

2. Obtain control power for transfer operation from line side of source to which the load is to be transferred.

I. Service Conditions: Provide transfer switches suitable for continuous operation at indicated ratings under the service conditions at the installed location.

J. Enclosures:
1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
a. Indoor Clean, Dry or Damp Locations: Type 12.
2. Finish: Manufacturer's standard unless otherwise indicated.

K. Short Circuit Current Rating:
1. Withstand and Closing Rating: Provide transfer switches, when protected by the supply side overcurrent protective devices to be installed, with listed withstand and closing rating not less than 35,000 rms symmetrical amperes.
2. Short Time Rating: Where the requirement for selectivity is indicated, provide transfer switches with short time ratings suitable for the maximum short time delay setting of the supply side overcurrent protective device.

L. Automatic Transfer Switches:
1. Description: Transfer switches with automatically initiated transfer between sources; electrically operated and mechanically held.
2. Control Functions:
a. Automatic mode.
b. Test Mode: Simulates failure of primary/normal source.
c. Voltage and Frequency Sensing:
1) Undervoltage sensing for each phase of primary/normal source; adjustable dropout/pickup settings.
2) Undervoltage sensing for alternate/emergency source; adjustable dropout/pickup settings.
3) Underfrequency sensing for alternate/emergency source; adjustable dropout/pickup settings.
d. Outputs:
1) Contacts for engine start/shutdown (except where direct generator communication interface is provided).
2) Auxiliary contacts; two set(s) for each switch position.
e. Adjustable Time Delays:
1) Engine generator start time delay; delays engine start signal to override momentary primary/normal source failures.
2) Transfer to alternate/emergency source time delay.
3) Retransfer to primary/normal source time delay.
4) Engine generator cooldown time delay; delays engine shutdown following retransfer to primary/normal source to permit generator to run unloaded for cooldown period.
f. Synchronization/In-Phase Monitor (Closed Transition Transfer Switches): Monitors voltage and phase angle difference between sources for initiating synchronized transfer.
g. Engine Exerciser: Provides programmable scheduled exercising of engine generator selectable with or without transfer to load; provides memory retention during power outage.
h. Retransfer to Normal Switch: Bypasses time delays for retransfer to primary/normal source.
3. Status Indications:
a. Connected to alternate/emergency source.
b. Connected to primary/normal source.
c. Alternate/emergency source available.
d. Primary/normal source available.
4. Alarm Indications for Closed Transition Transfer Switches:

a. Failure to synchronize.
b. Extended source interconnection/transfer switch locked out.

5. Automatic Sequence of Operations:
   a. Upon failure of primary/normal source for a programmable time period (engine generator start time delay), initiate starting of engine generator where applicable.
   b. When alternate/emergency source is available, transfer load to alternate/emergency source after programmable time delay.
   c. When primary/normal source has been restored, retransfer to primary/normal source after a programmable time delay. Bypass time delay if alternate/emergency source fails and primary/normal source is available.
   d. Where applicable, initiate shutdown of engine generator after programmable engine cooldown time delay.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that the ratings and configurations of transfer switches are consistent with the indicated requirements.

B. Verify that rough-ins for field connections are in the proper locations.

C. Verify that mounting surfaces are ready to receive transfer switches.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Arrange equipment to provide minimum clearances and required maintenance access.

D. Install transfer switches plumb and level.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Prepare and start system in accordance with manufacturer's instructions.

C. Automatic Transfer Switches:
   1. Inspect and test in accordance with NETA ATS, except Section 4.
   2. Perform inspections and tests listed in NETA ATS, Section 7.22.3. The insulation-resistance tests listed as optional are not required.

D. Correct defective work, adjust for proper operation, and retest until entire system complies with Contract Documents.

3.04 CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate proper operation of transfer switches to Owner, and correct deficiencies or make adjustments as directed.

B. Training: Train Owner's personnel on operation, adjustment, and maintenance of transfer switches.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Provide minimum of four hours of training.
   3. Instructor: Manufacturer's authorized representative.
   4. Location: At project site.

C. Coordinate with related generator demonstration and training as specified in Section 26 3213.

END OF SECTION

SECTION 26 4300
SURGE PROTECTIVE DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surge protective devices - general requirements.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding for Electrical Systems.

1.03 ABBREVIATIONS AND ACRONYMS

A. SPD: Surge Protective Device.

1.04 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2018.

C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

D. UL 1449 - Standard for Surge Protective Devices; Current Edition, Including All Revisions.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate size and location of overcurrent device compatible with the actual surge protective device and location to be installed. Notify Engineer of any conflicts or deviations from Contract Documents to obtain direction prior to ordering equipment.

1.06 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Include detailed component information, voltage, surge current ratings, repetitive surge current capacity, voltage protection rating (VPR) for all protection modes, maximum continuous operating voltage (MCOV), nominal discharge current (I-n), short circuit current rating (SCCR), connection means including any required external overcurrent protection, enclosure ratings, outline and support point dimensions, weight, service condition requirements, and installed features.

C. Shop Drawings: Include wiring diagrams showing all factory and field connections with wire and circuit breaker/fuse sizes.

1.07 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.08 DELIVERY, STORAGE, AND PROTECTION

A. Store in a clean, dry space in accordance with manufacturer's written instructions.

1.09 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.10 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Manufacturer's Warranty: Provide minimum five year warranty covering repair or replacement of surge protective devices showing evidence of failure due to defective materials or workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Furnish surge protective devices produced by a single manufacturer and obtained from a single supplier.

2.02 SURGE PROTECTIVE DEVICES - GENERAL REQUIREMENTS

A. Description: Factory-assembled surge protective devices (SPDs) for 60 Hz service; listed, classified, and labeled as suitable for the purpose intended; system voltage as indicated on the drawings.

B. Unless otherwise indicated, provide field-installed, externally-mounted SPDs.

C. List and label as complying with UL 1449, Type 1 when connected on line side of service disconnect overcurrent device and Type 1 or 2 when connected on load side of service disconnect overcurrent device.

D. Protected Modes:
   1. Wye Systems: L-N, L-G, N-G, L-L.

E. UL 1449 Voltage Protection Ratings (VPRs):
   1. 480Y/277V System Voltage: Not more than 1,500 V for L-N, L-G, and N-G modes and 2,000 V for L-L mode.

F. UL 1449 Maximum Continuous Operating Voltage (MCOV): Not less than 115% of nominal system voltage.

G. Enclosure Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
   1. Indoor clean, dry locations: Type 12.
   2. Outdoor locations: Type 3R.

H. Mounting for Field-installed, Externally Mounted SPDs: Unless otherwise indicated, as specified for the following locations:
   1. Provide surface-mounted SPD where mounted in non-public areas or adjacent to surface-mounted equipment.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the service voltage and configuration marked on the SPD are consistent with the service voltage and configuration at the location to be installed.

C. Verify system grounding and bonding is in accordance with Section 26 0526, including bonding of neutral and ground for service entrance and separately derived systems where applicable. Do not energize SPD until deficiencies have been corrected.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

C. Install conductors between SPD and equipment terminations as short and straight as possible, not exceeding manufacturer's recommended maximum conductor length. Breaker locations may be reasonably rearranged in order to provide leads as short and straight as possible. Twist conductors together to reduce inductance.

D. Do not energize SPD until bonding of neutral and ground for service entrance and separately derived systems is complete in accordance with Section 26 0526 where applicable. Replace SPDs damaged by improper or missing neutral-ground bond.

3.03 CLEANING

A. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

SECTION 26 5100
INTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior luminaires.

B. Emergency lighting units.

C. Ballasts and drivers.

D. Lamps.

1.02 RELATED REQUIREMENTS

A. Section 26 0529 - Hangers and Supports for Electrical Systems.

B. Section 26 0533.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. ANSI C82.11 - American National Standard for Lamp Ballasts - High Frequency Fluorescent Lamp Ballasts; 2017.

B. IES LM-63 - IESNA Standard File Format for Electronic Transfer of Photometric Data and Related Information; 2002 (Reaffirmed 2008).

C. IES LM-79 - Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products; 2008.

D. IES LM-80 - Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays, and Modules; 2015, with Errata (2017).

E. NECA/IESNA 500 - Standard for Installing Indoor Lighting Systems; 2006.

F. NECA/IESNA 502 - Standard for Installing Industrial Lighting Systems; 2006.

G. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility; 2012.

H. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

J. UL 924 - Emergency Lighting and Power Equipment; Current Edition, Including All Revisions.

K. UL 1598 - Luminaires; Current Edition, Including All Revisions.

L. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc. required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.
2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
3. Notify Engineer of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate dimensions and components for each fixture that is not a standard product of the manufacturer.

C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and

ceiling compatibility; include model number nomenclature clearly marked with all proposed features.

1. LED Luminaires:
   a. Include estimated useful life, calculated based on IES LM-80 test data.
2. Provide electronic files of photometric data certified by a National Voluntary Laboratory Accreditation Program (NVLAP) lab or independent testing agency in IES LM-63 standard format upon request.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

A. Furnish products as indicated in luminaire schedule included on the drawings. Alternate light fixture data sheet shall be submitted to the Engineer for approval prior to bid. No exceptions.
   1. Contractor responsible for verifying and providing Build American Buy American Act (BABA) compliant fixtures.

2.02 LUMINAIRES

A. Provide products that comply with requirements of NFPA 70.

B. Provide products that are listed and labeled as complying with UL 1598, where applicable.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.

E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.

F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

G. Recessed Luminaires:
   1. Ceiling Compatibility: Comply with NEMA LE 4.
   2. Luminaires Recessed in Insulated Ceilings: Listed and labeled as IC-rated, suitable for direct contact with insulation and combustible materials.
   3. Luminaires Recessed in Sloped Ceilings: Provide suitable sloped ceiling adapters.

H. LED Luminaires:
   1. Components: UL 8750 recognized or listed as applicable.
   2. Tested in accordance with IES LM-79 and IES LM-80.
   3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

2.03 EMERGENCY LIGHTING UNITS

A. Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.

B. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.

C. Battery:
   1. Size battery to supply all connected lamps, including emergency remote heads where indicated.

D. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.

E. Provide low-voltage disconnect to prevent battery damage from deep discharge.

2.04 BALLASTS AND DRIVERS

A. Ballasts/Drivers - General Requirements:
   1. Provide ballasts containing no polychlorinated biphenyls (PCBs).
   2. Minimum Efficiency/Efficacy: Provide ballasts complying with all current applicable federal and state ballast efficiency/efficacy standards.

B. Dimmable LED Drivers:
   1. Dimming Range: Continuous dimming from 100 percent to five percent relative light output unless dimming capability to lower level is indicated, without flicker.
   2. Control Compatibility: Fully compatible with the dimming controls to be installed.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.

C. Verify that suitable support frames are installed where required.

D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of luminaires provided under this section.

B. Install products in accordance with manufacturer's instructions.

C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting) and NECA 502 (industrial lighting).

D. Provide required support and attachment in accordance with Section 26 0529.

E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

F. Suspended Ceiling Mounted Luminaires:
   1. Do not use ceiling tiles to bear weight of luminaires.
   2. Do not use ceiling support system to bear weight of luminaires unless ceiling support system is certified as suitable to do so.
   3. Secure lay-in luminaires to ceiling support channels using listed safety clips at four corners.
   4. See appropriate Division 9 section where suspended grid ceiling is specified for additional requirements.

G. Install accessories furnished with each luminaire.

H. Bond products and metal accessories to branch circuit equipment grounding conductor.

I. Install lamps in each luminaire.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Inspect each product for damage and defects.

C. Operate each luminaire after installation and connection to verify proper operation.

D. Test self-powered exit signs, emergency lighting units, and fluorescent emergency power supply units to verify proper operation upon loss of normal power supply.

E. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Engineer.

3.04 ADJUSTING

A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Engineer. Secure locking fittings in place.

B. Aim and position adjustable emergency lighting unit lamps to achieve optimum illumination of egress path as required or as directed by Engineer or authority having jurisdiction.

3.05 CLEANING

A. Clean surfaces according to NECA 500 (commercial lighting), NECA 502 (industrial lighting), and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.06 CLOSEOUT ACTIVITIES

A. Just prior to Substantial Completion, replace all lamps that have failed.

3.07 SCHEDULE - SEE DRAWINGS

END OF SECTION

SECTION 26 5600
EXTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exterior luminaires.

B. Ballasts.

C. Poles and accessories.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Materials and installation requirements for concrete bases for poles.

B. Section 26 0526 - Grounding and Bonding for Electrical Systems.

C. Section 26 0529 - Hangers and Supports for Electrical Systems.

D. Section 26 0533.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. AASHTO LTS - Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals; 2013, with Editorial Revision (2022).

B. ANSI C78.379 - American National Standard for Electric Lamps -- Reflector Lamps -- Classification of Beam Patterns; 2006.

C. ANSI C82.1 - American National Standard for Lamp Ballast - Line Frequency Fluorescent Lamp Ballast; 2004.

D. ANSI C82.4 - American National Standard for Lamp Ballasts - Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps; 2017.

E. ANSI C82.11 - American National Standard for Lamp Ballasts - High Frequency Fluorescent Lamp Ballasts; 2017.

F. IES LM-79 - Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products; 2008.

G. IES LM-80 - Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays, and Modules; 2015, with Errata (2017).

H. IES RP-8 - Recommended Practice: Lighting Roadway and Parking Facilities; 2021.

I. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

J. NECA/IESNA 501 - Standard for Installing Exterior Lighting Systems; 2000 (Reaffirmed 2006).

K. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

L. UL 1598 - Luminaires; Current Edition, Including All Revisions.

M. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate placement of poles and associated foundations with utilities, curbs, sidewalks, trees, walls, fences, striping, etc. installed under other sections or by others. Coordinate elevation to obtain specified foundation height.
   2. Notify Engineer of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

B. Coordination: Furnish bolt templates and pole mounting accessories to installer of pole foundations.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.

C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, weight, effective projected area (EPA), and installed accessories; include model number nomenclature clearly marked with all proposed features.
   1. LED Luminaires:
      a. Include estimated useful life, calculated based on IES LM-80 test data.

D. Operation and Maintenance Data: Instructions for each product including information on replacement parts.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Electrical Components: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, handle, and store products according to NECA/IESNA 501 and manufacturer's written instructions.

B. Keep products in original manufacturer's packaging and protect from damage until ready for installation.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

A. Furnish products as indicated in luminaire schedule included on the drawings.
   1. Contractor responsible for verifying and providing Build American Buy American Act (BABA) compliant fixtures.

B. Any deviation from what is called out in the Light Fixture Schedule requires prior approval from the Engineer.
   1. Provide Cut Sheets and Photometrics.

C. Substitutions: See Section 01 6000 - Product Requirements.

2.02 LUMINAIRES

A. Provide products that comply with requirements of NFPA 70.

B. Provide products that are listed and labeled as complying with UL 1598, where applicable.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.

E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, poles, foundations, supports, trims, accessories, etc. as necessary for a complete operating system.

F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

G. LED Luminaires:
   1. Components: UL 8750 recognized or listed as applicable.
   2. Tested in accordance with IES LM-79 and IES LM-80.
   3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

2.03 BALLASTS AND DRIVERS

A. Ballasts/Drivers - General Requirements:
   1. Provide ballasts containing no polychlorinated biphenyls (PCBs).
   2. Minimum Efficiency/Efficacy: Provide ballasts complying with all current applicable federal and state ballast efficiency/efficacy standards.

2.04 POLES

A. All Poles:
   1. Provide poles and associated support components suitable for the luminaire(s) and associated supports and accessories to be installed.
   2. Structural Design Criteria:
      a. Wind Load: Include effective projected area (EPA) of luminaire(s) and associated supports and accessories to be installed.
         1) Design Wind Speed: 90 miles per hour, with gust factor of 1.3.
      b. Dead Load: Include weight of proposed luminaire(s) and associated supports and accessories.
   3. Material: Steel, unless otherwise indicated.
   4. Shape: Round straight, unless otherwise indicated.
   5. Finish: Match luminaire finish, unless otherwise indicated.
   6. Mounting: Install on concrete foundation, height as indicated on the drawings, unless otherwise indicated.
   7. Unless otherwise indicated, provide with the following features/accessories:
      a. Top cap.
      b. Handhole.
      c. Anchor bolts with leveling nuts or leveling shims.
      d. Anchor base cover.
      e. Provision for pole-mounted weatherproof GFI receptacle.

B. Metal Poles: Provide ground lug, accessible from handhole.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.

C. Verify that suitable support frames are installed where required.

D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of luminaires provided under this section.

B. Install products in accordance with manufacturer's instructions.

C. Install luminaires in accordance with NECA/IESNA 501.

D. Provide required support and attachment in accordance with Section 26 0529.

E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

F. Wall-Mounted Luminaires: Unless otherwise indicated, specified mounting heights are to center of luminaire.

G. Pole-Mounted Luminaires:
   1. Foundation-Mounted Poles:
      a. Provide cast-in-place concrete foundations for poles as indicated, in accordance with Section 03 3000.
         1) Install anchor bolts plumb per template furnished by pole manufacturer.
         2) Position conduits to enter pole shaft.
      b. Install foundations plumb.
      c. Install poles plumb, using leveling nuts as required to adjust to plumb.
      d. Tighten anchor bolt nuts to manufacturer's recommended torque.
   2. Grounding:

a. Bond luminaires, metal accessories, metal poles, and foundation reinforcement to branch circuit equipment grounding conductor.
b. Provide supplementary ground rod electrode as specified in Section 26 0526 at each pole bonded to grounding system as indicated.

3. Install separate service conductors, 12 AWG copper, from each luminaire down to handhole for connection to branch circuit conductors.

H. Install accessories furnished with each luminaire.

I. Bond products and metal accessories to branch circuit equipment grounding conductor.

J. Install lamps in each luminaire.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Inspect each product for damage and defects.

C. Perform field inspection, testing, and adjusting in accordance with Section 01 4000.

D. Operate each luminaire after installation and connection to verify proper operation.

E. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Engineer.

F. Measure illumination levels to verify conformance with performance requirements. Take measurements during night sky, without moon or with heavy overcast clouds effectively obscuring moon.

3.04 ADJUSTING

A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Engineer. Secure locking fittings in place.

B. Aim and adjust luminaires to provide illumination levels and distribution indicated on Drawings.

3.05 CLEANING

A. Clean surfaces according to NECA/IESNA 501 and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

B. Clean electrical parts to remove conductive and deleterious materials.

C. Remove dirt and debris from enclosure.

D. Clean photometric control surfaces as recommended by manufacturer.

E. Clean finishes and touch up damage.

3.06 CLOSEOUT ACTIVITIES

3.07 PROTECTION

A. Protect installed luminaires from subsequent construction operations.

3.08 SCHEDULE - SEE DRAWINGS

END OF SECTION

SECTION 33 0110.58
DISINFECTION OF WATER SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Disinfection and verification of raw water main and distribution system main.

B. Disinfection and verification of water well.

C. Testing and reporting results.

1.02 RELATED REQUIREMENTS

A. Section 33 1113 Water Supply Wells

B. Section 40 2324 Potable Water Process Piping

1.03 REFERENCE STANDARDS

A. AWWA A100 — Water Wells; 2015.

B. AWWA B300 — Hypochlorites; 2018.

C. AWWA B301 — Liquid Chlorine; 2010.

D. AWWA C651 — Disinfecting Water Main; 2014.

E. AWWA C654 — Disinfection of Wells; 2013.

1.04 SUBMITTALS

A. Test reports: indicate results comparative to specified requirements.
   1. Include certificate that certifies the bacteriological quality of water component meets or exceeds specified requirements.

B. Disinfection report:
   1. Type, form and concentration of disinfectant used.
   2. How the disinfectant was applied or injected including the start and completion time(s) of the application
   3. The hold time.
   4. The free chlorine residual after the hold time including the time collected.
   5. The free chlorine residual after removal of the highly chlorinated water
   6. The discharge location of the highly chlorinated water.
   7. Test locations for chlorine residuals and bacteria samples.
   8. Initial and final free chlorine residuals (quantity in treated water) in mg/l for each sample location tested.
   9. Date and time of flushing start and completion.
   10. Free and total chlorine residual after flushing in mg/L for each sample location tested.
   11. Statement of how highly chlorinated water was properly disposed.

C. Bacteriological Report:
   1. Upon request, engineer can assist with sample naming and facility id protocol to maintain compliance with regulatory agency reporting requirements.
   2. Date issued, project name, and testing laboratory name, address, and telephone number.
   3. Time and date of water sample collection.
   4. Name of person collecting samples.
   5. Test locations. Engineer can assist with location selection upon request.
   6. Free and total chlorine residuals measured at the time of bacteria sample collection
   7. Coliform bacteria test results for each location tested.
   8. Laboratory test report

D. Certification that water complies, or fails to comply, with bacterial standards of AWWA and Iowa Department of Natural Resources (IDNR).

PART 2 PRODUCTS

2.01 DISINFECTION CHEMICALS

A. Chemicals: AWWA B300 Hypochlorite, AWWA B301 Liquid Chlorine.

B. Contractor to provide all necessary equipment and chemicals for proper disinfection.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that all components been cleaned and inspected. Follow details in specific standard.

B. Coordinate disinfection with owner and owner's representative.

3.02 DISINFECTION- GENERAL

A. Use methods prescribed by AWWA as follows:
   1. Raw water mains, water treatment piping, and distribution system mains: AWWA C651 Disinfecting Water Mains.
   2. Well casing, gravel pack, and permanent equipment: AWWA C654 Disinfection of Wells.

B. Provide equipment required to perform the work.

C. Place or inject treatment disinfectant into water system component.

D. Achieve and/or maintain required free chlorine residual concentration in the component as required by the applicable AWWA standard.

E. Follow applicable AWWA standard for completion of the disinfection procedure.

F. Follow applicable AWWA standard for bacteriological sampling.

3.03 DISINFECTION – RAW WATER MAINS AND DISTRIBUTION SYSTEM

A. Contractor to submit method for disinfection and sampling or engineer approval prior to the start of construction.

3.04 DISINFECTION- WELL

A. Contractor to submit method for disinfection and sampling for engineer approval prior to the start of construction.

3.05 BACTERIOLOGICAL TESTING

A. Contractor to submit method for bacteriological testing for engineer approval prior to the start of construction.

END OF SECTION

SECTION 33 1113
WATER SUPPLY WELLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water Supply Well

B. Well Pump

C. Pitless Well Unit

1.02 RELATED REQUIREMENTS

A. Section 33 0110.58 - Disinfection and Bacterial Verification of Water Systems.

1.03 REFERENCE STANDARDS

A. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2020.

B. ASTM A312/A312M - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes; 2021.

C. ASTM C150/C150M - Standard Specification for Portland Cement; 2021.

D. AWWA A100 - Water Wells; 2020.

E. AWWA C200 - Steel Water Pipe, 6 in. (150 mm) and Larger; 2023.

F. AWWA C220 - Stainless-Steel Pipe, 1/2 in. (13 MM) and Larger; 2017.

G. AWWA C231 - Field Welding of Stainless-Steel Water Pipe; 2017.

H. AWWA E102 - Submersible Vertical Turbine Pumps; 2017.

I. NEMA MG 1 - Motors and Generators; 2021.

J. NSF/ANSI 61 - Drinking Water System Components – Health Effects; 2022.

K. Ten State Standards - Recommended Standards for Waterworks: Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers; 2018.

L. Ten State Standards - Recommended Standards for Waterworks: Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers; 2012.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Schedule of Values

1. Submit a schedule of values for Division 33 that includes the following breakdown:

Description	Unit of Measurement	Notes:
Well Water Pollution Prevention Plan (WWPPP)	Per Lump Sum	
Borehole & Casing	Per Vertical Foot	Each size and type shall be listed separately.
Borehole & Screen	Per Vertical Foot	Each size and type shall be listed separately.
Column Pipe	Per Vertical Foot	
Pitless Unit	Per Each	
Well Pump	Per Each	
Well Development	Per Hour	Submit plan to engineer outlining proposed development methods.
Well Inspection & Testing	Per Well	
Additional Chemical Treatment or Development	Per Well	If needed. Submit plan to engineer

		outlining proposed treatment and measurement method.

C. Provide all permits, certificates, and licenses required by law for execution of work.
   1. Upon request, provide proof of state certification.

D. Shop Drawings: Include data indicating well screen, gravel pack, pump, motor, column pipe, casing pipe, grout, check valve, and all special construction items.

E. Well Design
   1. Proposed diameter, length and depths of casing
   2. grouting mixture and placement details

F. Well pump: dimensional data, descriptive data, performance data, pump curve data, electrical schematic diagrams, and manufacturer's installation instructions.
   1. Pump curve data:
      a. Capacity in gallons per minute
      b. Net positive suction head (NPSH)
      c. Total Dynamic Head in feet.
      d. Efficiency.
      e. Pumping horsepower

G. Record and submit well log and sieve analysis of water bearing formation.

H. Submit the following results to the Iowa Department of Natural Resources (Iowa DNR) and Engineer:
   1. Test Pump Data
      a. Test Pump capacity-head characteristics
      b. Depth of test pump setting
      c. Start and end times of each test cycle
      d. Zone of influence for well
   2. A report including recordings and graphic evaluation of the following performed according to the 'Testing' section in Part 3:
      a. Pumping rate
      b. Water levels
      c. Drawndown
      d. Water recovery rate and levels

I. Record all well formation data and samples in accordance with state geological agency requirements and standard procedures.

J. Record production well information during construction:
   1. Record the lengths and depths of all casing and submit to the Engineer record drawings.
   2. Submit daily reports showing the work done during each day, the nature of the material encountered, and such other pertinent data as requested by the Engineer.

K. Chemical Analysis
   1. Submit certified analysis to the Owner and Engineer.
   2. Information to include with the samples:
      a. PWSID #: 1178097
      b. Facility ID #: Request from Engineer at time of submittal
      c. Sample Point: "New"
      d. Sample Type: Request from Engineer at time of submittal
      e. Local Well Name: 22
   3. Obtain one (1) water sample at each well site at conclusion of test pumping and provide complete chemical and radiological analysis in conformance with 567 – Chapter 43 and for Chemicals and Radionuclides listed in 567 – Chapter 41 of the Iowa Administrative Code including:
      a. Inorganic Chemicals 567 - Chapter 41.3
      b. Organic Chemicals (Synthetic and Volatile) 567 - Chapter 41.5
      c. Radionuclides 567 Chapter 41.8
   4. In addition, the chemical analysis shall include the following parameters.
      Ammonia pH[1]

Chloride	Silica as SiO2
Copper	Sodium
Iron	Specific Conductance[1]
Lead	Sulfate
Manganese	Total Hardness
Calcium	Total Alkalinity
Magnesium	Total Organic Carbon (TOC)
Total Kjeldahl Nitrogen (TKN)	Total Dissolved Solids (TDS)
Potassium	Temperature
Phosphate	Zinc
Total suspended solids (TSS)	Temperature[1]

[1]Must be done onsite during collection

L. Submit executed certification of well pump after performance testing.

M. Manufacturer's Installation Instructions: Indicate rigging, assembly, and installation instructions.

N. Operation and Maintenance Data: per Section 01 7800.

1.05 WELL DESIGN

A. Scope of Work
1. Furnish all labor, materials, transportation, tools, supplies, equipment, and appurtenances to construct, develop, disinfect, and test water supply well as indicated in the Drawings.
2. New water wells shall comply with AWWA A100.
3. Perform aquifer pumping test per AWWA A100.
4. Materials coming into contact with potable water supply shall meet the requirements of NSF/ANSI 61.
5. Submersible well pumps shall comply with AWWA E102.
6. New well shall conform to Iowa Administrative Code and Ten State Standards.
7. All materials provided shall be new and unused.

B. Design Parameters
1. Well Capacity: 1200 gpm
2. Specific Capacity: 15 gpm/ft
3. Casing Diameter: Indicated on Drawings
4. Total Depth: Indicated on Drawings
5. Screen Length: Indicated on Drawings
6. Target Aquifer: Dakota Aquifer

1.06 QUALITY ASSURANCE

A. Contractor shall notify the Engineer a minimum of 24 hours in advance of performing the following work.
1. Stringing Casing
2. Grouting
3. Development

B. Work shall not be performed without informing the Engineer.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 CASING PIPE

A. Stainless Steel
1. Stainless steel casing pipe shall conform to ASTM A778/A778M and AWWA C220.
2. Wall thickness and Weights: Per Table 1 of Ten State Standards, or as indicated in the Drawings.
3. Joints: welded per AWWA C231
a. Welded Joints: welds shall be full-depth, full penetration, full circumferential welds

2.02 COLUMN PIPE

A. Pipe
   1. Size: Indicated on Drawings
   2. Material: Stainless steel, ASTM A312/A312M
   3. Joints: coupled

B. Check Valve, Spring-Loaded
   1. Size: matching column pipe size
   2. Material:
      a. Body: 316 Stainless Steel
      b. Poppet: 316 Stainless Steel
      c. Seat Disc: Buna-N
      d. Stem: 316 Stainless Steel
      e. Spring: 304 Stainless Steel
      f. Retaining Ring: 302 Stainless Steel
   3. Joints: threaded and coupled
   4. Rating: 200 psig at 160F
   5. Rated for
   6. Install check valve on column piping within 25 feet of the pump below the draw down level of the water supply.
   7. Check valves shall be installed at a maximum separation of 200 feet of column pipe.
   8. Preapproved Manufacturers:
      a. Flomatic
      b. Engineer approved equal.

2.03 WELL CONSTRUCTION

A. General
   1. Well construction shall consist of a commercial well screen and gravel pack design.
   2. Detailed design shall be completed by the Contractor and approved by the Engineer. Drawings provide general design parameters.
   3. Drilling Method: Dual-rotary, direct "mud" rotary , air rotary, and reverse-circulation rotary
   4. Circulating drilling fluid shall meet the requirements of AWWA A100 and be only clear water or drilling mud as approved by the Engineer.

B. Centralizers/Spacers/Guides
   1. Centralizer material shall match material type to which it is connected.
   2. Centralizers shall be installed at a minimum of every 80' in casing section and every 40' in screen (if applicable).
   3. Centralizers shall be provided to center column pipe and casing in well per Ten State Standards.

C. Well Screen
   1. Design: Size screen length and slot opening size required to permit the entrance of the design flow of water at a velocity of 0.1 foot per second or less through the screen. Screen designed to produce the minimum drawdown between water bearing strata and well.
   2. Type, diameter, and size of screen opening, spacing, location of screens with respect to the water bearing formations shall be designed by the Contractor and submitted to the Engineer prior to well construction.
   3. Combinations of different screen slot sizes may be used as required by the well conditions and Contractor design.
   4. Sections of screen may be separated throughout zones of fine grain material by sections of Casing Pipe.
   5. Weld all sections and connections.
   6. Bottom of well screen shall be sealed with a minimum 0.5 inch stainless steel plate.
   7. Material: Stainless steel
   8. Type: Continuous slot wire wound screen
   9. Manufacturer: Johnson Screens, or Engineer approved equal.

D. Gravel Pack
   1. Gravel pack design shall be submitted to the Engineer prior to installation.

2. Gravel pack shall follow Ten State Standards 3.2.6.2.
3. Gravel pack gradation design shall be based on sieve analysis of the water bearing formation.
4. Size of gravel pack shall be carefully selected with reference to the character and effective size of the water bearing formation to ensure the free flow of water into the well at a non-sand carrying velocity.
5. Material shall be washed, well rounded particle, granitic gravel free of foreign materials.
6. Gravel pack shall be disinfected per AWWA A100.
7. Uniformity coefficient: Less than 1.7.

E. Sealing Mixture
1. Mix design shall be submitted to the Engineer.
2. Design: ASTM C150/C150M, Type 1, Portland Cement and water with maximum water-cement ratio of 0.533.
3. Grout shall meet Ten State Standards Section 3.2.4.9.

F. Level Indicator
1. Pressure Gage
a. Shall be brass construction, containing no lead, and suitable for water and air applications.
b. Rated for commercial wells and outdoor use

2.04 SUBMERSIBLE WELL PUMP

A. General requirements
1. All pumps shall be NSF/ANSI 61 certified
2. Complete pumping systems, including motor and drive, manual operator, automatic actuators (where indicated), piping, valves, conduit and wiring, supporting structures, electrical and process controls, overload protection, and alarms; capable of continuous operation without overheating and without excessive vibration, noise, or power consumption.
3. Pumps shall be provided for the application indicated. Alternative pump selections are allowed. Increases in power requirements shall be coordinated with the Engineer. Contractor responsible for work associated with increasing power requirements including but not limited to VFD sizing, wiring, all appurtenant electrical work and piping.
4. Each pump shall have a nameplate including manufacturer's name, address, catalog or model number, design head, and design flow rate permanently marked and readily visible.
5. Pumps shall include lifting eyebolts or lugs for ease of removal and handling.

B. Pump Design Conditions
1. Pump Type: Vertical multistage, close coupled submersible motor
2. Design Conditions:
a. Design Flow: 1200 gallons per minute
b. Total Dynamic Head: 417 feet
c. Static Head: 373 feet
d. Minimum hydraulic efficiency: 75%
e. BEP: Design point shall be within 25% of best efficiency point
3. Pump Setting
a. Pump Setting Depth: Indicated on Drawings
b. Discharge Size: Indicated on Drawings
c. Column Pipe Size: Indicated on Drawings
d. Electrical cable shall be firmly attached according to Ten State Standard 3.2.7.2b.
4. Impeller Type: one-piece, enclosed type, statically and dynamically balanced.
5. Pump Control: control based on water plant calling for water.

C. Pump Materials: Minimum acceptable requirements. Pump materials shall meet or exceed materials indicated.
1. Bowl Assembly: 316 Stainless Steel.
2. Impeller: 316 Stainless Steel
3. Strainer: 316 Stainless Steel
4. Pump Shaft: Single piece, 316 stainless steel
5. Pump motor coupling: 416 Stainless steel

6. Design water passages with smooth surfaces.

D. Motor
   1. Design: Motor shall be an integral part of the complete pumping unit. Designed to operate continuously without exceeding its horsepower rating, exclusive of its service factor for the entire range of the pump curve.
   2. Motor Type: Totally enclosed submersible .
   3. Electrical Characteristics: 460 volts ac, 3 phase, 60 Hz.
   4. Service Factor: 1.15
   5. NEMA Design B with normal starting torque. per NEMA MG 1
   6. Motor insulation Class F for Class B heat rise.
   7. Inverter duty operation to match anticipated flow ranges.
   8. Premium efficient for use with variable speed drives.
   9. Thrust bearing with ample capacity to carry weight of all rotating parts plus hydraulic thrust.
   10. Capable of continuous operation under water.

E. Acceptable manufacturers:
   1. Goulds
   2. Grundfos
   3. Flowserve
   4. Engineer approved equal

F. Basis of Design:
   1. Manufacturer: _____
   2. Style/Model: _____
   3. Impeller Size: _____
   4. Rated Motor Horsepower: _____

2.05 PITLESS WELL UNIT

A. Unit shall be shop shop fabricated from point of connection to unit cover.

B. Materials shall be compatible with well casing material.

C. Casing vent shall be covered with #24 mesh corrosion resistant screen with a minimum 1-1/2 inch minimum diameter.

D. Casing Vent shall discharge 2 feet above ground level.

E. Unit shall be equipped with a contamination proof cover and electrical entrance connection.

F. Unit shall be equipped with a capped passageway for inserting temporary level measurement or sampling tubes and lines.

G. Minimum pressure rating: 100 psi

H. Discharge connection size: Indicated on Drawings

I. Discharge connection:
   1. according to Ten State Standards 3.2.7.4.
   2. lateral discharge shall be mechanical joint connection.

J. Water level measuring equipment
   1. Polyethylene drawdown line attached securely every 20 feet
   2. Lower end at pump intake
   3. Altitude gage with 3-1/2 inch dial
   4. Calibration range: 0 feet to 380 feet of water
   5. Install with air pump connection

K. Preapproved Manufacturers
   1. Monitor by Baker Manufacturing Company
   2. Engineer approved equal.

2.06 CATHODIC PROTECTION

A. Install as indicated in the Drawings.

B. Cathodic protection system shall be provided to prevent corrosion to the well and appurtenances.

C. Cathodic protection: #17 magnesium anode pack with insulated copper leads

D. Anodes shall be welded to the casing pipe.

PART 3 EXECUTION

3.01 SAMPLING AND RECORD KEEPING

A. A qualitative record of approximate rate of penetration, taking into account wear on the bit, shall be kept by the driller.

B. Provide and maintain a suitable area where samples will be stored in an orderly arrangement.

C. Provide suitable containers for packing and shipping of all samples.

D. Obtain cutting samples continuously at five feet intervals and at pronounced changes in geologic formation of water supply test holes.
   1. The lithologic sampling interval may be changed at the discretion of the Engineer.
   2. Lithologic sampling shall be as follows:
      a. As each five-foot interval of formation and at pronounced changes in geologic formations that are penetrated, collect samples from the pipe discharging to the mud pit and not from the pit itself.
      b. Bit may be stopped and the hole circulated clean of cuttings at the discretion of the Engineer.
      c. Place cuttings in sample containers and label with hole number, depth of sample, job name
      d. One set of samples for each well shall be sent to the Iowa Geological Survey.
      e. Deliver lithologic samples designated by the Engineer to a laboratory for sieve analysis.

3.02 WELL DRILLING AND DEVELOPMENT

A. Installation
   1. Install well per the approved method and final detailed plan by Contractor.
   2. Provide temporary surface or conductor casing as required to maintain the surface of the bore hole. At the completion of well construction fill the annulus between the well casing and conductor casing with grout or concrete.
   3. Below surface casing, drill the well and ream throughout the entire thickness of water bearing material to the depths indicated in the detailed well design.
   4. Install screen concentrically in bottom of drill hole.

B. Grouting and Sealing
   1. Grout placement method: Tremie Method
   2. Fill annular space from bottom of casing and ground surface with neat cement grout.
   3. Install in one continuous operation.
   4. Introduce grout at bottom of space to be grouted.
   5. The circulation of water or any method equivalent to shall be used for the protection from the heat of hydration. Rise in temperature shall be monitored so that no damage to the casing due to the heat of hydration occurs. Contractor is completely responsible for proper placement and grouting of casing, considering temperature effects, grout pressure, grouting rate, and grout temperature.
   6. No work which may damage the grout will be permitted in the well within 72 hours after grouting the casing.
   7. Before the grout sets, check the casing for plumbness and correct if necessary.
   8. Grout shall meet Ten State Standards Section 3.2.4.9.

C. Well Development
   1. Develop using approved methods necessary to give the maximum yield of water per foot of drawdown and extract from the water-bearing formation the maximum practical quantity of such sands as may, during the life of the well, be drawn when the well is pumped under maximum conditions of drawdown.
   2. Submit proposed methods of development to the Engineer for approval before they are used in the development of the well.
   3. Furnish all chemical additives, such as polyphosphates, required at no additional cost to Owner.

4. Final stages of the development of the well shall consist of pumping from a level determined by the Engineer. The development of the well will not be accepted if the water discharged contains more than 1 ppm of sand by volume.
5. Base Bid 48 assumes hours of development. Contractor shall notify engineer immediately if additional development is needed and prior to performing additional work.

3.03 WELL PUMP INSTALLATION

A. Install pump in well per manufacturer's instructions.

B. Dust control with calcium hypochlorite is required.

C. Attach to designated drop pipe.

D. Provide services of a competent manufacturer's representative to check equipment, place it into operation, and instruct Owner in operation and maintenance.

E. Run equipment, check for and correct any shaft misalignment and excessive vibrations.

F. Test and adjust control system and auxiliary equipment under actual operating conditions.

3.04 DISINFECTION AND PROTECTION

A. Disinfection
1. Disinfect well per AWWA A100, AWWA C654, and Specification Section 33 0110.58 - Disinfection and Bacterial Verification of Water Systems.

B. Top Well Seal
1. After all well construction and testing is completed, seal well casing with a 1/4 inch steel cover
2. The top of the completed well casing and top seal shall be a minimum of 18 inches above ground level.
3. Pitless unit with 18 inches above ground design may be used in place of this temporary welded plate.

C. Water Quality Protection
1. Perform necessary work to eliminate contamination. Re-disinfect due to neglect after well completion.
2. Protect well from tampering or entrance of foreign material during progress of work.
3. Provide welded cap until pitless unit is installed.

3.05 TESTING

A. Plumbness and Alignment
1. Test plumbness and alignment of the water supply well by lowering into the well a section of pipe or dummy 40 feet long which shall have an outside diameter 1/2 inch smaller than the inside diameter of the casing.
2. Should the pipe or dummy fail to move freely throughout the length of the casing, or should the well vary from vertical in excess of one (1) degree, or 0.0067 x smallest diameter of casing per foot whichever is less, correct the plumbness or alignment.
3. Contractor shall provide graph and diagram illustrating the results of the plumbness & alignment tests for engineer's review. Refer to AWWA A100 Section D.5 for items to be provided by contractor.

B. Pump Testing General
1. Notify Engineer of readiness for pumping tests.
2. Furnish necessary equipment to include but not limited to following:
   a. Pump capable of 24 hour operation at uniform rate.
   b. Pump capable of discharging 1.5 times design pumping rate with throttling devices to reduce discharge to 10% of test pump rate.
   c. Discharge pipe of sufficient size and length to conduct water to specified discharge point.
   d. Equipment to accurately measure flow of water.
   e. Necessary devices to measure water levels during pumping test including a water level sounding pipe extending from the surface to near the pump bowls.
   f. During the pumping tests and recovery time specified, monitor the water level in the pumping well and at nearby wells (Well #15 and Well #14 and Well #20, as available, coordinate with owner). Record when surrounding Dakota aquifer wells are pumping.

Measurements shall be by approved methods consisting of electric tapes.

3. Calibrate test pump and flow meter prior to initiation of test.
4. Aquifer tests shall consist of a step-drawdown test and a constant-rate test. Tests shall be conducted after water has been allowed to stabilize after development of the well.
    a. The constant-rate test shall be performed at a rate of 150% of the design flow required from the well. Contractor may use other rates upon approval by engineer.
    b. The step-drawdown test shall be performed at the following rates:
        1) 50% of design flow
        2) 100% of design flow
        3) 150% of design flow
        4) If 150% is not feasible, discuss with engineer and go to maximum sustainable well yield.
    c. Water level measurements shall be collected at one (1) hour into the continuous test, at intervals of 1/4, 1/2, and 3/4 of the total test time, and at the end of the test.

C. Step-Drawdown Test
1. Before commencing the tests, monitor the water level until it is essentially stable.
2. Each step shall be for a period of 30 minutes or until water levels have stabilized (allowing dissipation of wellbore storage effects), providing the pumping rate is properly adjusted in the first five minutes of the test. Each step shall be of equal duration. Tests in which the pumping rate is not properly adjusted in the first five minutes shall be discontinued and shall commence again after the water level in the well has stabilized.
3. At the end of the test, monitor and record water levels until water has stabilized.

D. Constant-Rate Pumping Test
1. Before commencing the constant rate pumping test, monitor water level until it is essentially stable.
2. Pumping rate shall be approved by Engineer.
3. Measure water levels in the pumping wells.
4. After monitoring water levels in the well to be pumped for a minimum of two hours, start the pump, measure, and record water levels in the pumped well at the following time intervals: one minute, two minutes, three minutes, five minutes, seven minutes, ten minutes, twenty minutes, fifty minutes, seventy minutes, 100 minutes, and at one-hour intervals thereafter.
5. Take water level measurements at the same time intervals for two hours after the pump is stopped.
6. Do not remove test pump until two hours after the pump is stopped.
7. Engineer reserves the right to continue monitoring water levels in the pumped well for up to 48 hours after the test.
8. Remove by bailing, sand pumping, or other methods, any sand, stones, or other foreign material that may have been deposited in the well during the test.
9. The Engineer reserves the right to perform other tests simultaneously with the pumping tests which aid in the design of other wells, such as flow meter tests. The Contractor will assist the Engineer in preparation and performance of the tests.

E. Minimum Well Efficiency
1. Wells with efficiencies of less that 70 percent as determined by a pumping test after 24 hours will not be acceptable.
2. If the well efficiency as calculated at the end of 24 hours is less than 70 percent, the Engineer shall have the option of terminating the pumping test and requiring additional development and testing.

3.06 CHEMICAL TREATMENT

A. It may be determined that chemical treatment is an acceptable and necessary method of development. The procedure for chemical treatment of the well shall be the responsibility of the Contractor. The following are suggested methods. Method and proposed chemicals shall be approved by the Engineer.
1. Liquid Polymers
    a. Chemicals suitable for the formation may include:
        1) NuWell 220 polymer dispersant
        2) Aqu-Clear PFD polymer dispersant

3) Engineer Approved Equal

b. Any sediment that has accumulated in the bottom of the well shall be removed per approved methods.

3.07 WELL ABANDONMENT

A. Comply with AWWA A100, A1-13, 567 IAC Chapter 39, and State of Iowa Regulations.

B. Abandon well for the following reasons:
   1. Not constructed plumb and true.
   2. Lost drilling tools or apparatus in well bore.
   3. Improper drilling methods and/or development procedures.

C. Drill new well at no additional cost to the Owner.

3.08 SITE RESTORATION

A. Clean up site to acceptable condition.

B. Replace all damaged site structures, plantings, etc. as determined by Engineer.

C. Place fill material around Pitless Unit to form 2% minimum slope away from well in all directions.

END OF SECTION

SECTION 40 2324
POTABLE WATER PROCESS PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flanged ductile iron pipe and fittings.

B. Plastic (PVC/CPVC) pipe and fittings.

C. Pipe expansion joints.

1.02 RELATED REQUIREMENTS

A. See drawings for pipe sizes.

B. Section 33 0110.58 - Disinfection and Bacterial Verification of Water Systems.

C. Section 40 0506 - Couplings, Adapters, and Specials for Process Piping: Sample ports, strainers, air release devices, vacuum breakers, valved drains, underground marking tape, heat tracing.

1.03 REFERENCE STANDARDS

A. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250; 2020.

B. ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard; 2020.

C. ASME B16.9 - Factory-Made Wrought Buttwelding Fittings; 2018.

D. ASME B16.11 - Forged Fittings, Socket-Welding and Threaded; 2016, with Errata (2017).

E. ASME B31.3 - Process Piping; 2020.

F. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings; 2004 (Reapproved 2019).

G. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.

H. AWWA C104/A21.4 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings; 2016.

I. AWWA C110/A21.10 - Ductile-Iron and Gray-Iron Fittings; 2012.

J. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; 2017.

K. AWWA C115/A21.15 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges; 2011.

L. AWWA C153/A21.53 - Ductile-Iron Compact Fittings; 2011.

M. AWWA C651 - Disinfecting Water Mains; 2014, with Addendum (2020).

N. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2018, with Amendment (2019).

O. MSS SP-69 - Pipe Hangers and Supports Selection and Application; 2019.

P. NSF 61 - Drinking Water System Components - Health Effects; 2020.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's descriptive and technical literature for each material and component, showing compliance with requirements and installation instructions.

C. Shop Drawings:
   1. List of piping systems, indicating application, material, size, and pressure rating.
   2. Detailed drawings of piping systems, showing locations of valves, expansion joints, specialties, and instrument connections.

D. Waste Water Disposal: Before starting operations that require a temporary water supply submit the method proposed for disposal of waste water; for information; where regulatory permits are required, submit evidence that permits have been obtained.

E. Pipe Testing Plan.

F. Field Quality Control Reports.

G. Operation and Maintenance Data: See Section 01 7000 - Execution and Closeout Requirements and 01 7800 - Closeout Submittals.

H. Project Record Documents: Record actual locations of pipe anchors and guides and layout of piping systems relative to other parts of the work including clearances for maintenance and operation.

I. American Iron and Steel (AIS) compliance certificates.

PART 2 PRODUCTS

2.01 PIPING APPLICATIONS

A. All Pipe Applications, Unless Otherwise Indicated:
   1. Above Grade, All Sizes: Cement-lined ductile iron, flanged.

B. Buried Site Piping:
   1. Per SUDAS specifications

2.02 PERFORMANCE REQUIREMENTS

A. Provide piping systems suitable for the design conditions and applications intended, coordinated to function as a system, and considering the piping both with and without internal pressure, installation factors, and supports.

B. The pressure ratings and materials specified represent minimum acceptable performance; provide fittings, flanges, valves, and appurtenances with pressure ratings no less than that required for the system in which they are installed.

C. Provide all work and equipment required to accommodate expansion and contraction of piping under varying temperature conditions; verify that anchors, guides, and expansion joints provided, adequately protect the piping systems.

2.03 PIPE AND FITTINGS - GENERAL REQUIREMENTS

A. Piping and Fittings: New and unused material.
   1. Nominal Sizes: As indicated on drawings.
   2. Fittings: Same pressure rating as pipe, or greater, unless higher rating is specified; same material as pipe unless otherwise indicated.
   3. Sizes: Use standardized nominal sizes for compatibility with future work.
   4. Material Identification: Permanently mark each piece of pipe and fitting with its AWWA or ASTM designation and other markings required for that designation.

B. Joints: Completed joints are to have working pressure rating for liquids equal to pressure rating of the pipe.

C. Flanged Joints and Fittings (Metal and Plastic): Internal diameter bores of flanges and flanged fittings same as that of pipe.

D. Bolts and Nuts:
   1. Non-Submerged: Zinc-plated; on cast iron and ductile iron couplings high-strength, low-alloy steel complying with AWWA C111/A21.11.
   2. Buried and Submerged: Stainless steel, TP304.

E. Isolation Devices for Dissimilar Metals: Where dissimilar metallic piping, fittings, or valves must be connected, use isolation devices as indicated and as required to separate the different materials to avoid galvanic action.
   1. For flanged connections use flange isolation gaskets; gas-tight where underground.
   2. For threaded and welded connections, use dielectric fittings.
   3. For mechanical joints, use joint devices that accomplish separation.

F. Pipe Closure Pieces: ASME B16.9 or ASME B16.11; provide wherever pipe runs end.
   1. Pressure Piping: Use blind flanges, as appropriate to pipe and jointing method, unless otherwise indicated.

G. External Coatings: Unless otherwise indicated; finish fittings with same coating as pipe.

H. All piping, fittings, and appurtenances for use with treated water shall be in compliance with NSF 61.

2.04 FLANGED DUCTILE IRON PIPE FOR PRESSURE SERVICE

A. Ductile-Iron Pipe: AWWA C115/A21.15, all pipe sizes, with ASME B16.1, Class 125 flanges.
   1. Cement-Mortar-Lining: AWWA C104/A21.4 standard thickness cement lining with tolerance of plus 1/8 inch permitted.
   2. External Coating: Coated on outside with manufacturer's standard asphaltic coating, approximately one mil thick.
   3. Nominal Size: As indicated on drawings.
   4. Joints: Comply with AWWA C110/A21.10.
      a. Provide gaskets, glands, bolts and nuts as required to completely assemble joints.
      b. Gaskets: Vulcanized synthetic rubber; reclaimed rubber is not acceptable.

B. Fittings: Ductile iron or gray iron, cement mortar lined same as pipe.
   1. 250 psi Service: AWWA C110/A21.10.
   2. 350 psi Service: AWWA C153/A21.53.
   3. For Mating to ASME B16.1 or ASME B16.5 Flanges: Provide pipe flanges and flanged fittings to match.
   4. Bolts and Nuts: Carbon steel complying with ASTM A307, Grade B, with washers of same material.
   5. Gaskets: Ring.

2.05 JOINING DEVICES FOR METAL PIPE

A. Dielectric Fittings: Material, shape, and design as required to prevent metal-to-metal contact of dissimilar metallic piping elements; suitable for required working pressure, temperature and corrosion environment.

B. Flange Isolation Gaskets: Dielectric isolation gasket, isolation washers and full length isolation sleeves for flange bolts; size and type to fit piping flanges.
   1. Gaskets: Full faced with outside diameter equal to flange outside diameter.
   2. Shape and design as required to prevent metal-to-metal contact of dissimilar metallic piping elements.

C. Flange Coupling Adapters for Joining Flange to Plain End: Gasketed assembly for connecting flanged pipe or fitting to plain end pipe; sized to match piping.
   1. Flange Material: Cast iron, ASTM A126 Class B.
   2. Flange Sizes: To mate accurately with specified flanged fittings.
   3. External Finish: Same as for pipe.
   4. Gaskets: Wedge type; natural rubber.
   5. Provide lock pins to prevent pipe movement out of adaptor.

2.06 WALL SLEEVES AND WALL PIPES

A. Wall sleeves and wall pipes shall conform to the requirements of the piping as indicated on the Drawings and as specified as follows:
   1. Cast Iron: ASTM A48/A48M, Class 30B.
   2. Ductile Iron: ASTM A536, Grade 60-40-18.
   3. Mechanical Joint: AWWA C111/A21.11.
   4. Integral cast or welded intermediate wall collar.

B. Full circle continuous welded or cast water stop plate shall provide positive water sealing on the sleeve outside diameter and shall anchor the sleeve to prevent thrust movement.

C. Contractor shall utilize the manufacturer's recommendations to determine the required sleeve dimensions and size and number of modular seals required at each location.

D. Coordinate wall and floor sleeves with materials as indicated on the Drawings.

2.07 MODULAR RUBBER WALL SEALS

A. Use mechanical-type modular rubber wall seal, consisting of interlocking synthetic rubber links. The elastomeric element shall be sized and selected per manufacturer's recommendations and have the following properties as designed:
   1. Standard service application (-40°F to 250°F) EPDM: ASTM D2000 M3BA510.
   2. Hydrocarbon service application (-40°F to 210°F) Nitrile: ASTM D2000 M1BF510.
   3. High temperature or fire seal application (-67°F to 400°F) Silicone: ASTM D2000 M1GE505.

B. Assembly of synthetic rubber link to be connected with stainless steel bolts. When bolts are tightened, pressure plates shall compress rubber links to fill annular space between pipe and wall to form a watertight seal.

C. Use modular rubber wall seals where pipes penetrate existing concrete wall and as otherwise indicated on the Drawings. Written approval of Owner required for use of modular rubber seals in other locations.

D. Manufacturer: Modular rubber wall seals as manufactured by Thunderline Corporation, or approved equal.

2.08 PIPE SUPPORTS AND HANGERS

A. Horizontal Piping Hangers and Supports:
   1. Except as otherwise indicated, provide factory fabricated horizontal piping hangers and supports complying with MSS SP-58 of one of the following MSS types listed, selected by Contractor to suit horizontal piping systems in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size of hangers and supports to exactly fit pipe size for bare piping, and to exactly fit around piping insulation with saddle or shield for insulated piping. Provide copper-plated hangers and supports for copper piping systems.
   2. Adjustable Steel Clevis Hangers: MSS Type 1.
   3. Steel Pipe Clamps: MSS Type 4.

B. Vertical Piping Clamps:
   1. Except as otherwise indicated, provide factory fabricated vertical piping clamps complying with MSS SP-58 of one of the following types listed, selected by Contractor to suit vertical piping systems in accordance with MSS SP-69 and manufacturer's published product information. Select size of vertical piping clamps to exactly fit pipe size of bare pipe. Provide copper-plated clamps for copper piping systems.
   2. Two-Bolt Riser Clamps: MSS Type 8.

C. Saddles and Shields:
   1. Except as otherwise indicated, provide saddles and shields under piping hangers and supports, factory-fabricated for all piping. Size saddles and shields for exact fit to mate with pipe.
   2. Protection shields shall be MSS Type 40 of length recommended by manufacturer.
   3. Subject to compliance with requirements, provide thermal hanger shields of one of the following:
      a. Elcen Metal Products Co.
      b. Pipe Shields, Inc.
      c. Or equal

D. Manufacturers of Hangers and Supports:
   1. Subject to compliance with requirements, provide hangers and supports of one of the following:
      a. B-Line Systems, Inc.
      b. Carpenter and Patterson, Inc.
      c. Corner & Lada Co., Inc.
      d. Elcen Metal Products Co.
      e. Fee & Mason Mfg. Co.; Div. Figge International.
      f. ITT Grinnell Corp.
      g. Or equal

E. Provide lateral bracing where needed for all vertically hung pipe.

F. Additional bracing may be required at Owner's discretion.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that size and location of piping, sleeves, and appurtenances embedded in concrete are correct.

B. Before installing, examine piping having factory-applied linings for damage to linings; replace pipe with damaged lining.

3.02 PREPARATION

A. Keep Interior of Pipes Clean:
   1. Prevent accumulation of weld rod, weld spatter, pipe cuttings and filings, gravel, cleaning rags, and other foreign material inside piping sections during fabrication.
   2. Close pipe openings with caps or plugs before, during, and after installation.
   3. Remove foreign objects and dirt prior to assembly and installation.

B. Protect pipe coatings from chemical and mechanical damage; do not install damaged products.

C. Repair damaged zinc, organic, and paint coatings with material equal to original coating.

3.03 INSTALLATION - GENERAL

A. Install piping and appurtenances in compliance with ASME B31.3, reviewed shop drawings, if any, and manufacturer's instructions, with all joints tight and no undue marring of finishes.
   1. Install piping to accurate lines and grades.
   2. Run piping as straight as practical in alignment shown with minimum of joints.
   3. Maintain required upstream and downstream clearances.
   4. At flow measuring devices, provide straight runs of piping upstream and downstream in accordance with device manufacturer's recommendations.
   5. Install piping without springing or forcing pipe to fit.
   6. Pitch piping toward low points and provide a valved drain at each low point.
   7. Provide a sufficient number of unions or flanges to allow for dismantling of pipe, valves, and equipment.
   8. Where temporary supports are used, make them sufficiently rigid to prevent shifting or distortion of pipe.
   9. Make installed piping, valves, and fittings free from strain and excessive stresses caused by weight or misalignment.

B. Provide isolation valves and miscellaneous devices as required for an operable installation.

C. Pipe Jointing: Clean the ends of pipes thoroughly, remove foreign matter and dirt from inside of pipes, and keep piping clean during and after installation.

D. Thermal Expansion and Contraction: Install piping to allow for thermal expansion and contraction resulting from difference between temperature during installation and during operation.
   1. Anchors: Locate as indicated on drawings and reviewed shop drawings, if any, to withstand expansion thrust loads and to direct and control thermal expansion.
   2. Intermediate Pipe Alignment Guides:
      a. Install adjacent to pipe expansion joints and within four pipe diameters each side.
      b. At pipe mounted on metal channel framing, install intermediate pipe guide at each metal channel framing support not carrying an anchor or alignment guide.

E. Flexible Couplings and Expansion Joints: Install in accordance with manufacturer's instructions, at connections to equipment and where shown on drawings and reviewed shop drawings, if any.

F. Couplings, Adapters and Service Saddles: Install in accordance with manufacturer's instructions.
   1. Gaskets: Thoroughly clean pipe ends of oil, scale, rust, and dirt to provide clean seat for gaskets.
      a. Wipe gaskets clean.
      b. Lubricate flexible couplings and flanged coupling adapter gaskets with manufacturer's standard lubricant before installation.
   2. Tighten bolts progressively, drawing up bolts on opposite sides a little at a time until all bolts have uniform tightness.
   3. Use torque-limiting wrenches to tighten bolts.

G. Pipe Tap Connections: Taps direct to pipe barrels are prohibited; make taps as follows:
   1. Ductile Iron Piping: Use service saddle or tapping boss of a fitting, valve body, or equipment casting.
   2. Plastic Piping: Use service saddle or tapping boss of a fitting, valve body, or equipment casting.

H. Joints at Rigid Structures:
   1. Provide flexible joints at face of rigid structures, whether or not shown on drawings.
   2. Flexible jointing methods include, but are not limited to, rubber ring joints, mechanical joints, flexible couplings, and proprietary restrained ductile iron pipe joints; welded joints are not considered flexible.
   3. Joint Location: Flush with structure face or up to one (1) pipe diameter from face; maximum distance from face:
      a. Pipe Diameter Over 18 inches: First joint within one (1) pipe diameter from face.
      b. Smaller Diameters: 18 inches from face.

I. Provide and install supports, hangers, and guides as specified in Section 40 0507.

3.04 METALLIC PIPE JOINTING

A. Connecting Dissimilar Metallic Pipe and Appurtenances: Use isolation devices as specified and as required to separate different materials to avoid galvanic action; install in accordance with manufacturer's instructions.

B. Flanged Joints: Make flanged joints up tight, taking care to avoid undue strain on flanges.
   1. Install flanged fittings true and perpendicular to axis of pipe.
   2. Install so that adjoining flange faces are not out of parallel to such degree that joint cannot be made watertight without overstraining flanges.
   3. Align bolt holes in both flanges; use full size bolts; use of undersized bolts to make up for misalignment of bolt holes or for any other purpose is not permitted.
   4. Where instrumentation device is indicated to be installed in the vertical centerline of pipe, install flanges with bolt holes straddling vertical centerline of pipe.
   5. Tighten bolts uniformly to prevent overstressing flanges and misalignment.
   6. Replace flanged pipe and fittings whose dimensions do not allow making flanged joint as specified.

3.05 FIELD QUALITY CONTROL - GENERAL

A. Test all parts of piping systems using clean water and hydrostatic pressure and leakage tests, unless otherwise indicated.

B. Above Ground Pressure Piping: Test after piping has been completely installed, including all supports, hangers, and anchors, and inspected for proper installation but prior to installation of insulation.

C. Leakage Testing: Perform after pressure tests have been satisfactorily completed, unless otherwise approved by Owner.

D. Water: Provide clean test water of such quality to avoid corrosion of piping system materials.

3.06 FIELD QUALITY CONTROL - HYDROSTATIC PRESSURE TESTING

A. Perform hydrostatic testing in accordance with ASME B31.3 under normal service conditions.

B. Test Pressure:
   1. Rigid Piping: Calculated according to not be less than 1.5 times design pressure and not exceeding yield strength of piping system.
   2. Non-Rigid, Non-Metallic Piping and Metallic Piping with Non-Metallic Liner: Calculated according to ASME B31.3 but not exceeding 1.5 times maximum pressure rating of lowest rated component in piping system.

C. Maximum Velocity During Filling: 0.25 fps applied over full area of pipe or as recommended by pipe manufacturer, whichever is lesser.

D. Venting Air While Filling: Purge all air in system; open air release vents to purge air pockets; venting may also be provided by loosening minimum of four bolts of flanges or by use of equipment vents.

E. Valves: Include each valve in at least one piping section tested; open and close valves several times during test.

F. Rigid Piping Test Procedure:
   1. Maintain test pressure continuously for minimum of 30 minutes and during examinations for leakage.

2. Leave piping system full of water after leaks are repaired, unless otherwise directed by Owner.

G. Non-Rigid, Non-Metallic Piping and Metallic Piping With Non-Metallic Liner Test Procedure:
   1. Raise pressure to 50 percent of normal service pressure.
   2. Inspect pipe, fittings, joints and connections, and valves for visible leakage; correct leaks and continue test.
   3. Raise pressure to test pressure and add small amounts of test liquid as required hourly for maximum of 3 hours as required to maintain test pressure.
   4. After 4 hours, lower test pressure by 10.2 psi.
   5. If pressure remains steady for one (1) hour, no leakage is indicated.
   6. Before retesting, allow piping system to relax for 8 hours.

H. Inspect pipe, fittings, joints and connections, and valves for visible leakage; correct leaks and re-test until results are satisfactory.

3.07 FIELD QUALITY CONTROL - PIPE LEAKAGE TESTING

A. Test piping for leakage by filling with water, or other appropriate test liquid, applying specified test pressure, and measuring amount of additional liquid is necessary to maintain the specified pressure for the specified duration.

B. Maximum Allowable Leakage: As determined by following formula, whichever is greater:
   1. L (allowable leakage) = Cf x N x D x P0.5, in gallons per hour.
   2. Cf = conversion factor = 0.0001351
   3. N = number of joints in the length of piping tested.
   4. D = nominal pipe diameter, inch
   5. P = average test pressure during the test, psig.

C. Duration of Leakage Test: At least 2 hours after piping has been filled and air has been expelled.

D. Test Pressure: 200 psig plus/minus 5 psig.

E. Locate leaks, repair, and re-test until leakage is within specified limits.

3.08 CLEANING PIPING - PRIOR TO STARTUP

A. After testing, flush piping with water to remove accumulated construction debris and other foreign matter; continue flushing until no foreign matter exits the pipe.

B. Install cone strainers in connections of attached equipment and leave in place until flushing is completed. Remove accumulated debris through drains or by removing spools or valves.

C. Minimum Flushing Velocity: 2.5 feet per second.

D. For large diameter pipe impractical to flush at minimum flushing velocity, clean pipe in place from inside by brushing and sweeping, then flush at a lower velocity.

3.09 DISINFECTION - PRIOR TO STARTUP

A. Disinfect in accordance with AWWA C651 and Section 33 0110.58.

END OF SECTION

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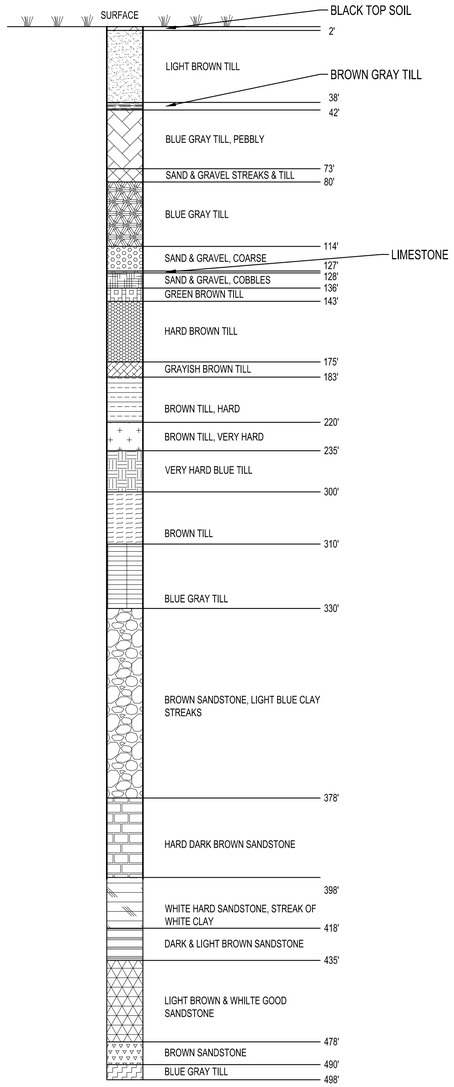
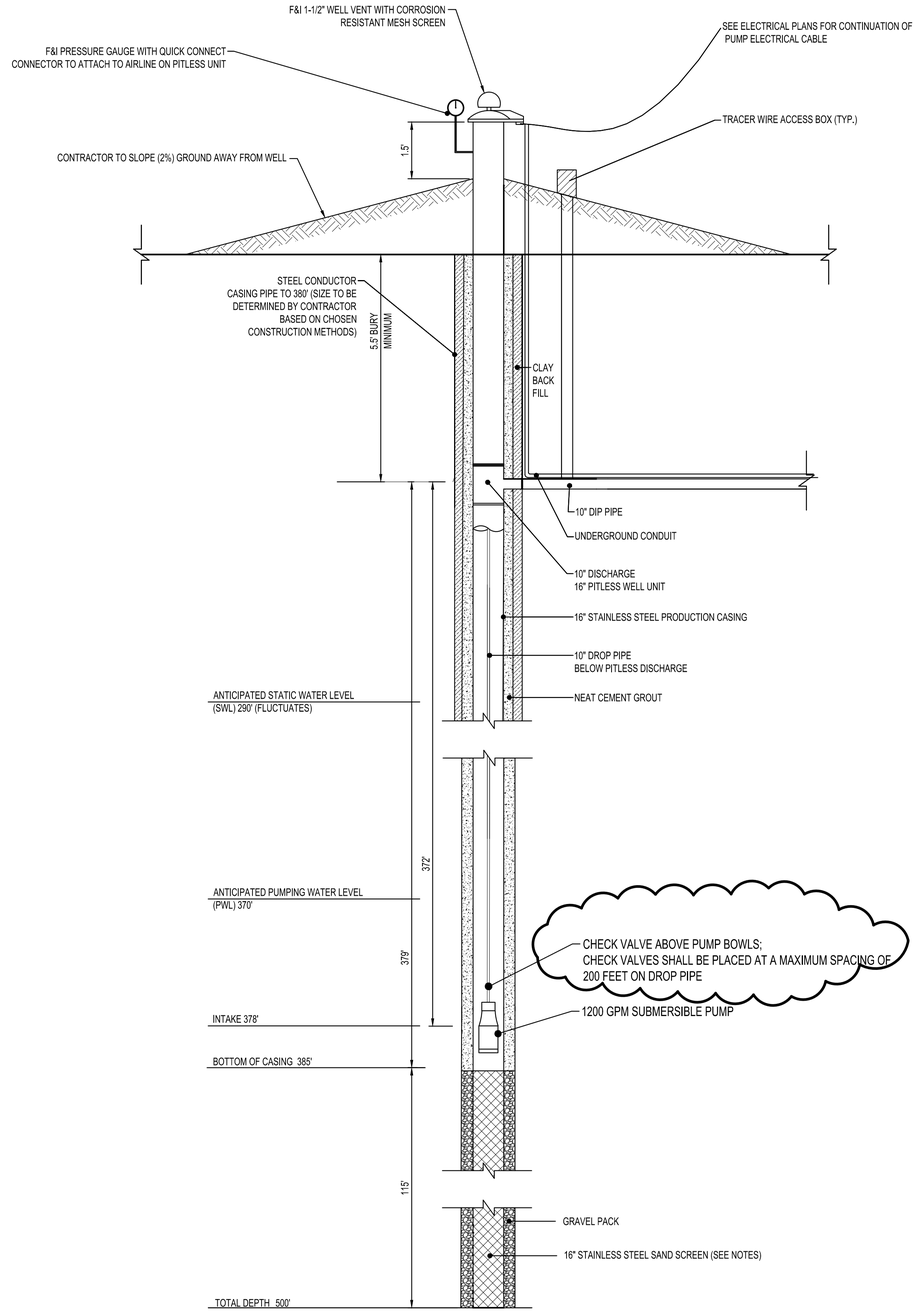
NOTE:
LOG IS BASED ON WELL 15 RECORD 31664. THIS WELL IS LOCATED APPROXIMATELY 50 FEET WEST FROM THE PROPOSED LOCATION OF NEW WELL.



ANTICIPATED BORING LOG
NOT TO SCALE



NEW WELL - SECTION
NOT TO SCALE

WELL NOTES

1. ALL PROPOSED MEASUREMENTS ARE ESTIMATES. CONTRACTOR IS TO VERIFY INSTALLATION DEPTHS WITH ENGINEER AND CONSTRUCT WELL TO PRODUCE REQUIRED FLOW RATE OF 1200 GPM.
2. SIEVE ANALYSIS TO BE CONDUCTED ON MATERIAL AT SCREEN DEPTH BY JOHNSON SCREENS. SCREEN SLOT SIZE AND GRAVEL PACK GRADATION TO BE RECOMMENDED BY JOHNSON SCREEN AND REVIEWED/APPROVED BY ENGINEER.
3. BORE HOLE DIAMETER SHALL BE DETERMINED BY CONTRACTOR BASED ON GEOLOGICAL FORMATION AND CHOSEN CONSTRUCTION METHODS. MINIMUM 1.5" GROUT MUST BE PLACED IN ANNULAR SPACE AROUND ALL CASING AND WELDS; ADJUST HOLE SIZE AS NEEDED BASED ON ACTUAL CASING AND WELDS.
4. CONTRACTOR TO POTHOLE TO VERIFY THE DEPTH OF EXISTING UTILITIES. RESTORATION OF THOSE POTHOLES IS CONTRACTOR'S RESPONSIBILITY.
5. CONTRACTOR TO PROTECT WELL FROM TAMPERING OR ENTRANCE OF FOREIGN MATERIAL DURING PROGRESS OF WORK WHEN NOT IN CONSTRUCTION.
6. WELL PUMP SETTING SHALL BE CONFIRMED BASED ON WELL TESTING RESULTS.

ISG

NOTE:
THE CLARITY OF THESE PLANS DEPEND UPON COLOR COPIES. IF THIS TEXT DOES NOT APPEAR IN COLOR, THIS IS NOT AN ORIGINAL PLAN SET AND MAY RESULT IN MISINTERPRETATION.

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IA

REVISION SCHEDULE

DATE	DESCRIPTION	BY
06/07/24	DESIGN ADDENDUM NO. 2	ALG

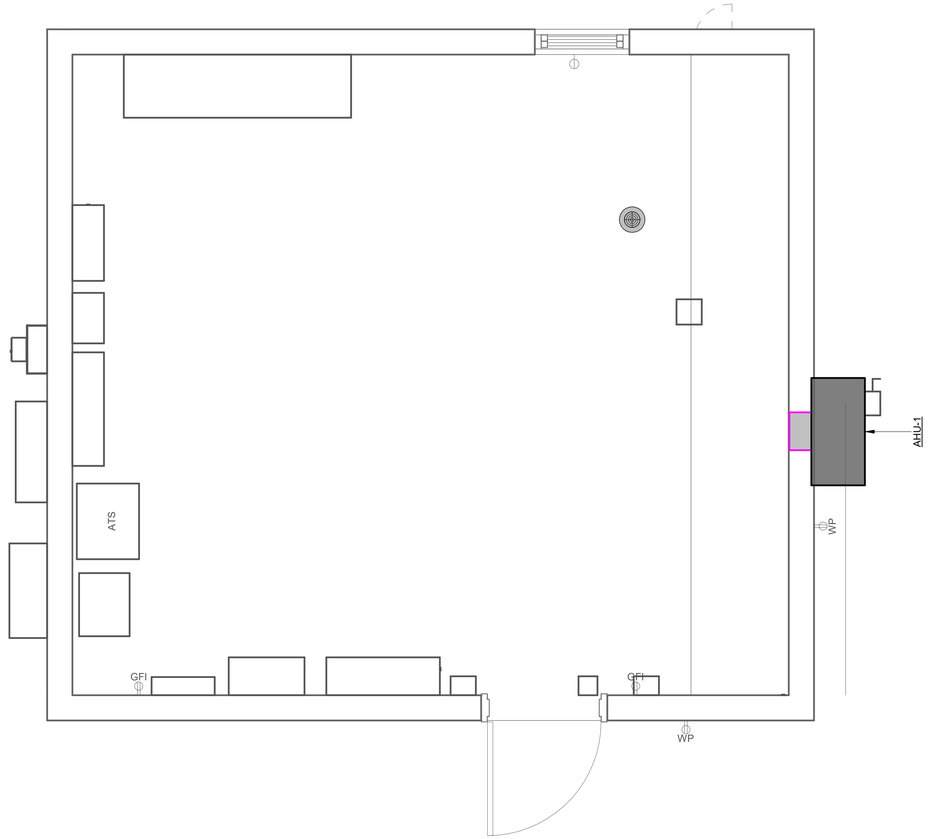
PROJECT NO.	22-27926
FILE NAME	27926 SITE
DRAWN BY	CBH
DESIGNED BY	EJB/ALG
REVIEWED BY	EJB/ALG
ORIGINAL ISSUE DATE	09/29/2023
CLIENT PROJECT NO.	-

TITLE

WELL SECTION & NOTES

SHEET

C3-20



1 FIRST FLOOR HVAC PLAN
1/2" = 1'-0"

AIR HANDLING UNIT SCHEDULE

MARK	WEIGHT (LBS)	EER	SUPPLY AIR		HEATING		COOLING		ELECTRICAL			COMMENTS
			CFM	ESP	TYPE	LOAD (KW)	TYPE	LOAD (Btuh)	VOLT/PH	FLA	BLOWER HP	
AHU-1	500	11	425	1	ELECTRIC	5	DX	13,000	208/1	28	1/8	1,2,3,4,5,6

NOTES:
1 INSTALL UNIT AS SHOWN AND AS PER MANUFACTURER'S INSTRUCTIONS
2 PROVIDE UNIT WITH FACTORY-MOUNTED DISCONNECT AND SINGLE ELECTRICAL CONNECTION
3 DIMENSIONS ARE APPROXIMATE, CHECK SUBMITTAL DRAWINGS FOR EXACT DIMENSIONS
4 SUPPLY UNIT WITH SUPPLY AND RETURN DIFFUSERS AND DUCTWORK AS NECESSARY
5 UNIT SHALL BE EQUIPPED WITH ENTHALPY ECONOMIZER
6 PROVIDE WITH PROGRAMMABLE THERMOSTAT

1

N

0 1/4" 1/2" 1" 2"

6/5/2024 9:11:25 AM

ISG

Storm Lake Proud

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO. 22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY
06/07/24	DESIGN ADDENDUM NO. 2	MJL

PROJECT NO.	22-27926
FILE NAME	
DRAWN BY	MJL
DESIGNED BY	MJL
REVIEWED BY	MJL
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	

TITLE

FIRST FLOOR HVAC PLAN

SHEET

M2-11

Branch Panel: L1

Location: Space 1
Supply From: T1
Mounting: Surface
Enclosure: Type 12

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 10,000
Mains Type: MCB
Mains Rating: 100 A
MCB Rating: 100 A

Notes:
F&I GFI type circuit breaker where indicated.

CKT	Circuit Description	Trip	Pole	A		B		C		Pole	Trip	Circuit Description	CKT
1	Lighting - Building Exterior	20 A	1	20	45					1	15 A	Lighting - Site	2
3	E1 G1 Generator Acc. Power	50 A	2			4000	180			1	20 A	Recep Panelboard	4
5								4000	180	1	20 A	Receps Interior	6
7	Lighting - Interior	20 A	1	128	360					1	20 A	Recep Exterior	8
9	SPARE	20 A	1			0	0			1	20 A	SPARE	10
11	SPARE	20 A	1					0	180	1	20 A	E2 Receptacle - G1 Gen	12
13	SPCP1	20 A	1	500	500					1	20 A	XR-MDF	14
15	SPARE	20 A	1			0	0			1	20 A	SPARE	16
17	SPARE	20 A	1					0	0	1	20 A	SPARE	18
19	GFI - Recep Window	20 A	1	528	2496					2	30 A	AHU-1	20
21	BLANK	--	1			--	2496						22
23	BLANK	--	1					--	--	1	--	BLANK	24
25	FT-1	20 A	1	30	--					1	--	BLANK	26
27	BLANK	--	1			--	--			1	--	BLANK	28
29	BLANK	--	1					--	--	1	--	BLANK	30
		Total Load:		4598 VA		6676 VA		4360 VA					
		Total Amps:		39 A		56 A		36 A					

Legend:

ELECTRICAL EQUIPMENT SCHEDULE

ITEM#	DESCRIPTION	POWER REQUIREMENTS HP	VOLTS	POLES	FLA	VA	PNL - CKT	WIRE #SIZE, GND, MINIMUM CONDUIT	STARTER TYPE	STARTER BY	DISCONNECT TYPE	DISCONNECT BY	NOTES
AHU-1	AIR HANDLER UNIT		208 V	2	28.0 A	4992 VA	L1 - 20,22	3/4"C, 2- #10's, #10GND	(none)	(none)	NF	WU	
E1	G1 GENERATOR ACCESSORY SYSTEMS POWER		208 V	2	38.0 A	8000 VA	L1 - 3,5	1"C, 3- 6's, 8GND	(none)	(none)	(none)	(none)	CONDUCTORS UPSIZED DUE TO VOLTAGE LOSS
E2	WEATHERPOOF DUPLEX RECEPTACLE		120 V	1	1.5 A	180 VA	L1 - 12	1"C, 2- 10's, 10GND	(none)	(none)	(none)	(none)	CONDUCTORS UPSIZED DUE TO VOLTAGE LOSS
P1	WELL 22 PUMP	200	480 V	3	240.0 A	191213 VA	VFD1 - 1,3,5	3"C, 3- 350's, 4GND	VFD	EC	(none)	(none)	F&I VFD CABLE, UPSIZE CONDUIT AS REQUIRED. F&I 250HP VFD.
SPCP1	WELL 22 CONTROL PANEL		120 V	1	4.1 A	500 VA	L1 - 13	3/4"C, 2- 12's, 12GND	(none)	(none)	(none)	(none)	
XR-MDF	EXISTING RELOCATED NETWORK ENCLOSURE		120 V	1	4.1 A	500 VA	L1 - 14	3/4"C, 2- 12's, 12GND	(none)	(none)	(none)	(none)	

STARTER TYPE	
COMB	COMBINATION STARTER
ECM	ELECTRONICALLY CONTROLLED MOTOR
MAG	MAGNETIC STARTER
MAN	MANUAL STARTER
SS	SOFT STARTER
VFD	VARIABLE FREQUENCY DRIVE

STARTER BY	
EC	ELECTRICAL CONTRACTOR
ES	EQUIPMENT SUPPLIER
MC	MECHANICAL CONTRACTOR
WU	WITH UNIT

DISCONNECT TYPE	
BO	BY OTHERS
F	FUSED DISCONNECT
NF	NON-FUSED DISCONNECT

DISCONNECT BY	
EC	ELECTRICAL CONTRACTOR
ES	EQUIPMENT SUPPLIER
MC	MECHANICAL CONTRACTOR
WU	WITH UNIT

INPUT AND OUTPUT CONTROL SCHEDULE

ITEM#	DESCRIPTION	PANEL	MINIMUM CONDUIT, WIRE # - SIZE, GND	I/O	DEVICE BY	NOTES
AUX11	G1 GENERATOR ALARM AND RUN MONITOR	SPCP1	3/4"C, 4-#14'S	2 DI	EC	
VFD1	WELL 22 VARIABLE FREQUENCY DRIVE	SPCP1	3/4"C, 2-#20 TWISTED PAIR SHIELDED, 4-#14'S	DO, DI, AI, AO	EC	
SPD	SURGE PROTECTION DEVICE ALARM	SPCP1	3/4"C, 2-#14'S	DI	EC	
ATS	AUTO TRANSFER SWITCH POSITION	SPCP1	3/4"C, 2-#14'S	DI	EC	
TT1	TEMPERATURE TRANSMITTER	SPCP1	3/4"C, 1-#20 TWISTED PAIR SHIELDED	AI	EC	
OS1	OPERATOR STATION - INTRUSION BYPASS SELECTOR SWITCH	SPCP1	3/4"C, 3-#14'S, #14 GND	2 DI	EC	
ZS1	DOOR INTRUSION PROXIMITY SENSOR	SPCP1	3/4"C, 3-#14'S, #14 GND	DI	EC	
PM1	3 PHASE POWER MONITOR ALARM	SPCP1	3/4"C, 2-#14'S	DI	EC	
FIT1	FLOW TRANSMITTER	SPCP1	3/4"C, 1-#20 TWISTED PAIR SHIELDED, 2-#14'S	AI, DI	EC	

I/O	
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
ENET	ETHERNET/IP

SUPPLIED BY	
BC	BY CONTRACTOR
BO	BY OWNER
EC	ELECTRICAL CONTRACTOR
ES	EQUIPMENT SUPPLIER
WU	WITH UNIT

LIGHT FIXTURE SCHEDULE NOTES: LIGHT FIXTURES LISTED MAY OR MAY NOT MEET BUILD AMERICAN BUY AMERICAN ACT (BABA) REQUIREMENTS. CONTRACTOR SHALL VERIFY LIGHT FIXTURES LISTED MEET BABA REQUIREMENTS AND SHALL BE RESPONSIBLE FOR PROVIDING EQUAL BABA COMPLIANT FIXTURES FOR ANY FIXTURES THAT DO NOT MEET BABA REQUIREMENTS.

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL	LAMP	Wattage Comments	TYPE COMMENTS
A	4' LINEAR	LITHONIA LIGHTING	CLX-L48-5000LM-SEF-L/LENS-MVOLT-GZ10-40K-80CRI	5292LM	32W	
B	EMERGENCY LIGHT	LITHONIA LIGHTING	EU2CM6		0.56W	INSTALL 108" AFF
C	WALL PACK	LITHONIA LIGHTING	WDGE2LED-P1-40K-80CRI-VF-MVOLT-SRM-PBBW	1256LM	10W	
D	AREA LIGHT	LITHONIA LIGHTING	DSX0 LED-P2-40K-80CRI-T5M-MVOLT-RPA-DBLXD	6453LM	45W	PROVIDE #PER OPTION WITH PHOTOCELL. F&I LIGHT POLE, INSTALL LIGHT 20 FEET ABOVE FINISHED GRADE.

LIGHTING SCENARIO SCHEDULE

SCENARIO#	LIGHTING SCENARIO DESCRIPTION
LS1	MANUAL ON MANUAL OFF

0 1/4" 1/2" 1" 2"

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY
06/07/24	DESIGN ADDENDUM NO. 2	CRI

PROJECT NO.	23-27926
FILE NAME	27926 Elec R22.rvt
DRAWN BY	CRI
DESIGNED BY	CRI
REVIEWED BY	RDS
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	

TITLE

SCHEDULES

SHEET

E5-11

CERTIFICATIONS PAGE

FOR

CITY OF STORM LAKE PRODUCTION WELL NO. 22

CITY OF STORM LAKE

STORM LAKE, IA

SEPTEMBER 29, 2023

PROJECT NO. 22-27926

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Amanda L. Goodenow — 9/29/2023 Date

License Number: 25734

My License Renewal Date is 12/31/2024

Pages or sheets covered by this seal: All of Project Manual Except Divisions 3-32, and 34-40

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Jasaon M. Burns — 9/29/2023 Date

License Number: 26658

My License Renewal Date is 12/31/2024

Pages or sheets covered by this seal: Divisions 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Royal D. Streed — 9/29/2023 Date

License Number: 26593

My License Renewal Date is 12/31/2024

Pages or sheets covered by this seal: Divisions 25, 26, 27, 28, 40

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

Matthew J. Larsen — 9/29/2023 Date

License Number: 24003

My License Renewal Date is 12/31/2024

Pages or sheets covered by this seal: Divisions 21, 22, 23

ISG
1725 N LAKE AVE
STORM LAKE, IA 50588

END OF CERTIFICATION PAGE

PROJECT MANUAL
FOR
CITY OF STORM LAKE PRODUCTION WELL NO. 22

CITY OF STORM LAKE, IA
SEPTEMBER 29, 2023
PROJECT NO. 22-27926

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ATTACHMENTS

3.01 ATTACHMENTS

A. Well 15 Log

B. Plan Set (Separate Attachment)

NOTE: Where there may be a variation between the plans, procurement and contracting requirements, specifications, and the referenced standards, the order of procedure shall be:

1. Detailed Plans
2. Procurement and Contracting Requirements, and Specifications
3. Recommended Standards for Water Works (10 States Standards), 2012 Edition
4. Statewide Urban Design and Specifications (SUDAS), 2023

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NOTICE OF PUBLIC HEARING

NOTICE OF PUBLIC HEARING ON PROPOSED PLANS AND SPECIFICATIONS, FORM OF CONTRACT AND ESTIMATE OF COST FOR THE CONSTRUCTION OF THE CITY OF STORM LAKE PRODUCTION WELL NO. 22 PROJECT

Notice is hereby given that the City Council of Storm Lake, Iowa, will meet at 620 Erie Street, Storm Lake, Iowa 50588 on the **20th day of February, 2023, at 5:00p.m.**, at which time and place a hearing will be held on the proposed plans and specifications, form of contract and estimate of cost for City of Storm Lake Production Well No. 22, in and for Storm Lake, Iowa. Any interested person may appear at said hearing and file objections to the proposed plans, specifications, form of contract and estimated costs for said improvements.

The project is located at 5923 90th Avenue in Storm Lake, Iowa.

The general description of types of construction and their limits for which bids will be received shall be as follows:

Base Bid
Construction of water well with stainless steel production casing, water main, well house and associated components, minor grading and seeding and all other miscellaneous components necessary to complete the project per plans and specifications.

Plans and specifications governing the construction of the proposed improvements have been prepared by the Engineer. These plans and specifications, and the proceedings of the City referring to and defining said improvements, are hereby made a part of this Notice and the proposed contract by reference, and the proposed contract shall be executed to comply therewith.

Published upon order of the Storm Lake City Council in Storm Lake, Iowa.

City of Storm Lake

BY /s/ Mike Porsch
Mayor

ATTEST:
BY /s/ Keri Navratil
City Manager

NOTICE TO BIDDERS

FOR THE CONSTRUCTION OF CITY OF STORM LAKE PRODUCTION WELL NO. 22
FOR STORM LAKE, IOWA

Sealed bids will be received by the City of Storm Lake, Iowa at 620 Erie Street, Storm Lake, Iowa before **10:00 a.m.** on the **17th day of February, 2023**, for the construction of the City of Storm Lake Production Well No. 22 project in Storm Lake, Iowa. At the above time and place all bids received by the City will be opened and publicly read with the results being reported to the Council at their meeting on **February 20, 2023, at 5:00 p.m.**, at 620 Erie Street, Storm Lake, Iowa, at which time and place the City may take action on the proposals submitted or at such time as may then be fixed.

The general description of types of construction and their limits for which bids will be received shall be as follows:

Base Bid
Construction of water well with stainless steel production casing, water main, well house and associated components, minor grading and seeding and all other miscellaneous components necessary to complete the project per plans and specifications.

A more detailed description of the kinds and approximate quantities of materials and types of construction for which bids will be received are set forth in the Bid Form included in the specifications prepared by I+S Group, Inc. (ISG) of Storm Lake, Iowa, which, together with the proposed form of contract, have heretofore been approved by the City, and are now on file for public examination in the office of the City Clerk and are by this reference made part hereof as though fully set out and incorporated herein.

All proposals shall be made on official proposal forms furnished by the Engineer and must be enclosed in a separate sealed envelope and plainly identified and addressed to the City of Storm Lake.

Each proposal shall be accompanied by a cashier's check or certified check drawn on a state-chartered or federally chartered bank, or a certified share draft drawn on a state-chartered or federally chartered credit union, or a bidder's bond with corporate surety satisfactory to the Board in an amount equal to Ten percent (10%) of the total amount of the proposal. If bid bond is submitted, it must be in the form provided in these specifications. Said check or share draft may be cashed, or the bid bond forfeited as liquidated damages in the event the successful bidder fails or refuses to enter into a contract within ten (10) days of issuance of a Notice of Award and post bond satisfactory to the Board insuring the faithful fulfillment of the contract and maintenance of said improvements as required by law. The bid bond should be executed by a corporation authorized to contract as a surety in the State of Iowa, and must not contain any conditions either in the body or as an endorsement thereon.

The successful bidder will be required to furnish a corporate surety bond in an amount equal to one hundred per cent (100%) of the contract price, said bond to be issued by a responsible surety approved by the City, and shall guarantee the faithful performance of the contract and the terms and conditions therein contained, the payment for materials used in the project and the maintenance of said improvements in good repair for not less than **two (2) years** from the time of acceptance of said improvements by the City.

The City reserves the right to defer acceptance of any proposal for a period not to exceed sixty (60) calendar days from the date of receipt of bids. The City reserves the right to reject any or all bids and to waive informalities.

Payment of the cost of said project will be made from such cash funds of the City as may be legally used for said purpose at the discretion of the City, including but not limited to, net revenues of the water department, the proceeds from the sale of Revenue or General Obligation Bonds, and/or the proceeds from the sale of warrants, as authorized by Section 384.57 of the Code of Iowa, made payable from any or all of the above-mentioned sources. This project is funded through the State Revolving Fund (SRF) Program

The Contractor will be paid ninety-five per cent (95%) of the Engineer's estimate of the value of acceptable work completed at the end of the preceding month. Final payment will be made not less than thirty-one (31) days after completion of the work and acceptance by the City, subject to the conditions and in accordance with the provisions of Chapter 573 of the Code of Iowa.

No such final payment will be due until the Contractor certifies to the City that the materials, labor, and services involved in the final estimate have been paid for in accordance with the requirements stated in the specifications. The City of Storm Lake is exempt from paying Sales and Use Tax and will supply Contractor with an “Iowa Sales

Tax Exemption Certificate" and an authorization letter to allow the Contractor to buy equipment and material for the project tax free.

The work on this project shall commence within ten (10) days after receipt by the contractor of a written notice to proceed. The work shall be substantially completed by **December 31, 2023**, subject to any changes in the contract period as provided for in these specifications.

Liquidated damages in the amount of **$500** per calendar day will be assessed for each day that the work shall remain uncompleted after the **above referenced completion date** with due allowance for extensions of the contract period due to conditions beyond control of the Contractor.

By virtue of statutory authority, a preference will be given to products and provisions grown and coal produced within the State of Iowa.

In accordance with Iowa statutes, a resident bidder shall be allowed a preference as against a nonresident bidder from a state or foreign country if that state or foreign country gives or requires any preference to bidders from that state or foreign country, including but not limited to any preference to bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident. In the instance of a resident labor force preference, a nonresident bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident bidder is a resident.

Failure to submit a fully completed Bidder Status Form with the bid may result in the bid being deemed nonresponsive and rejected.

Plans and specifications governing the construction of the proposed improvements have been prepared by the Engineer. These plans and specifications, and the proceedings of the City referring to and defining said improvements, are hereby made a part of this Notice and the proposed contract by reference, and the proposed contract shall be executed to comply therewith.

Copies of said plans and specifications and form of contract are now on file in the office of City Clerk of Storm Lake, IA, for examination by bidders. Copies may be obtained from ISG, 1725 North Lake Avenue, Storm Lake, IA 50588, (712) 732-7745 upon deposit of one hundred dollars ($100.00) which shall be refunded upon return of the plans and specifications within fourteen days after award of the project. If the plans and specifications are not returned within fourteen days after award of the project and in a reusable condition, the deposit shall be forfeited. Plans and specifications may also be obtained by download from the ISG website at www.isginc.com.

Any bidder or equipment supplier whose firm or affiliate is listed in the GSA publication "List of Parties Excluded from Federal Procurement and Non-procurement Programs" will be prohibited from the bidding process. Anyone submitting a bid who is listed in this publication will be determined to be a non-responsive bidder in accordance with 40 CFR Part 31.

Published upon order of the City of Storm Lake, Iowa.

City of Storm Lake

BY /s/ Mike Porsch
Mayor

ATTEST:
BY /s/ Keri Navratil
City Manager

INSTRUCTIONS TO BIDDERS

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ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued and the bidding procedures are to be administered as outlined in the Advertisement for Bids for Construction Contracts.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement or invitation to bid. The deposit will be refunded to each document holder of record who returns a complete set of Bidding Documents in good condition within 14 days after award of the project.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within five (5) days of Owner's request, Bidder shall submit (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:

A. Evidence of Bidder's authority to do business in the state where the Project is located.

B. Bidder's state or other contractor license number, if applicable.

C. Subcontractor and Supplier qualification information; coordinate with provisions of Article 12 of these Instructions, "Subcontractors, Suppliers, and Others."

D. Other required information regarding qualifications

3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 *Site and Other Areas*

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any

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additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

4.02 *Existing Site Conditions*

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:

a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.

b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

c. reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

d. Technical Data contained in such reports and drawings.

2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.

B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

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C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.

D. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.

E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.05 *Other Work at the Site*

A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 5 – BIDDER'S REPRESENTATIONS

5.01 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;

B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;

D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;

E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations

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obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;

F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;

I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and

J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 – PRE-BID CONFERENCE

6.01 A pre-Bid conference will be held at the time and location stated in the invitation or advertisement to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

ARTICLE 8 – BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of [10%] percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in

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the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.

8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.

8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall comply with the requirements of Paragraphs 7.04 and 7.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

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ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.

12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the Work.

If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

13.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."

13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.

13.03 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.

13.04 A Bid by an individual shall show the Bidder's name and official address.

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13.05 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.

13.06 All names shall be printed in ink below the signatures.

13.07 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

13.08 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.

13.09 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

14.01 *Lump Sum*

A. Bidders shall submit a Bid on a lump sum basis as set forth in the Bid Form.

ARTICLE 15 – SUBMITTAL OF BID

15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.

15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to [City Clerk City of Storm Lake, IA, 620 Erie Street, Storm Lake, Iowa 50588].

15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.

16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a

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material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.

19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.

19.03 Evaluation of Bids

A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 20 – BONDS AND INSURANCE

20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

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ARTICLE 21 – SIGNING OF AGREEMENT

21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner. Within ten days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 22 – SALES AND USE TAXES

22.01 Owner is exempt from Iowa state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Bid. Refer to Paragraph SC-7.09 of the Supplementary Conditions for additional information.

ARTICLE 23 – CONTRACTS TO BE ASSIGNED (NOT USED)

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BID FORM

CITY OF STORM LAKE PRODUCTION WELL NO. 22

Storm Lake, Iowa

Project No. 22-27926

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

City of Storm Lake
Attn: City Clerk
620 Erie Street
Storm Lake, Iowa 50588

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum, Date

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and

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observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

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4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the e execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following lump sum (stipulated) price:

Base Bid

Lump Sum Bid Price	$
Lump Sum Contingency Allowance	$50,000
Total of Lump Sums	

The contingency allowance is set aside for additional well development due to the geological formation. Any additional well development due to the contractor's construction methods will not be reimbursed.

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete on or before December 31, 2023, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **thirty-one (31) calendar days** after the completion of the work and acceptance by the owner.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security;

B. Required Bidder Status Form.

C. DUNS number, tax ID number, and Iowa Contractor's license number.

D. SRF Required Attachments

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

_____

By:
[Signature] _____

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_____

[Printed name] _____

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

_____

_____

_____

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

_____

Bidder's License No.: _____

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BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER *(Name and Address)*:

SURETY *(Name, and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:

BID

Bid Due Date:

Description *(Project Name— Include Location)*:

BOND

Bond Number:

Date:

Penal sum _____ $ _____

(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER	**SURETY**
_____ (Seal)	_____ (Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature (Attach Power of Attorney)
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
Title	Title

Note: Addresses are to be used for giving any required notice.
Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

3.2 All Bids are rejected by Owner, or

3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

Bidder Status Form

To be completed by all bidders — Part A

Please answer "Yes" or "No" for each of the following:

☐ Yes ☐ No My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).

☐ Yes ☐ No My company has an office to transact business in Iowa.

☐ Yes ☐ No My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.

☐ Yes ☐ No My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.

☐ Yes ☐ No My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders — Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: _____ /_____ /_____ to _____ /_____ /_____ Address: _____

City, State, Zip: _____

Dates: _____ /_____ /_____ to _____ /_____ /_____ Address: _____

City, State, Zip: _____

Dates: _____ /_____ /_____ to _____ /_____ /_____ Address: _____

You may attach additional sheet(s) if needed. City, State, Zip: _____

To be completed by non-resident bidders — Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State:

_____

2. Does your company's home state or foreign country offer preferences to bidders who are residents? ☐ Yes ☐ No

3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

_____

_____

You may attach additional sheet(s) if needed.

To be completed by all bidders — Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Firm Name: _____

Signature: _____ Date: _____

You must submit the completed form to the governmental body requesting bids per 875 Iowa Administrative Code Chapter 156.
This form has been approved by the Iowa Labor Commissioner.

Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

☐ Yes ☐ No My business is currently registered as a contractor with the Iowa Division of Labor.

☐ Yes ☐ No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.

☐ Yes ☐ No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.

☐ Yes ☐ No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.

☐ Yes ☐ No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.

☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.

☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.

☐ Yes ☐ No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.

☐ Yes ☐ No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.

☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.

☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

SRF Required Front-End Specifications

PLEASE NOTE: Attachment 10 is a new program requirement and is effective for all SRF projects bid after January 2021.

Attachment 1: Certification of Non-Segregated Facilities Form *(to be completed and signed by Prime Contractor and submitted with the bid)*

Attachment 2: Statement in Advertisement for Bids on Debarment and Suspension/Certification Regarding Debarment and Suspension Form *(to be completed and signed by Prime Contractor and submitted with the bid)*

Attachment 3: Disadvantaged Business Enterprise Certification Form *(to be completed and signed by Prime Contractor and submitted with the bid)*

Attachment 4: DBE Program Subcontractor Performance Form (*to be completed and signed by Prime and DBE Subcontractor for each subcontract and submitted with the bid)*

Attachment 5: DBE Program Subcontractor Utilization Form *(to be completed and signed by Prime Contractor and submitted with the bid)*

Attachment 6: DBE Program Subcontractor Participation Form *(for voluntary use of DBEs)*

Attachment 7: Other Federal Requirements Language

A. Standard Equal Employment Opportunity Specifications
B. Federal Labor Standards Provisions (including Davis-Bacon prevailing wage rates**)
C. Preservation of Open Competition and Government Neutrality
D. Historical and Archeological Finds
E. Prohibitions on Procurement from Violating Facilities

Attachment 8: Right of Entry and Records Retention

Attachment 9: Use of American Iron and Steel

Attachment 10: Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment *(to be completed and signed by Prime Contractor and submitted with the bid)*

***The Davis Bacon wage determination received from the Iowa Finance Authority must also be included in the front-end specifications.*

Attachment 1
SRF Required Front-End Specifications
(This form must be completed and signed by Prime Contractor and submitted with the bid)

U.S. Environmental Protection Agency
Certification of Non-Segregated Facilities

(Applicable to contracts, subcontracts, and agreements with applicants who are themselves performing federally assisted construction contracts, exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause.)

By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national original, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATIONS OF NON-SEGREGATED FACILITIES

A Certification of Non-segregated Facilities, as required by the May 9, 1967, order (33 F.R. 7808, May 28, 1968) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

_____
Signature Date

_____
Name and Title of Signer (Please Type)

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

EPA-7 5720-4.2

Attachment 2
SRF Required Front-End Specifications

(This form must be completed and signed by the Prime Contractor and submitted with the bid)

Debarments and Suspensions

Any bidder or equipment supplier whose firm or affiliate is listed in on the U.S. General Services Administration Excluded Parties List will be prohibited from the bidding process. The excluded parties records search engine is located at the System for Award Management (SAM) website: https://beta.sam.gov. Pursuant to 2 CFR Part 180, as supplemented by 2 CFR 1532, any entity submitting a bid while the SAM website lists that entity as having an active exclusion will be determined by the DNR to be a non-responsive bidder and will not be able to receive SRF funding.

United States Environmental Protection Agency Washington, DC 20460

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and the principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction: violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 U SC Sec. 10 01, a false statement may result in a fine of up to $10,000 or imprisonment for up to 5 years, or both.

_____

Typed Name & Title of Authorized Representative

_____

Signature of Authorized Representative Date

☐ I am unable to certify to the above statements. My explanation is attached.

Attachment 3

SRF Required Front-End Specifications

(This form must be completed and signed by Prime Contractor and submitted with the bid)

Disadvantaged Business Enterprise (DBE) Solicitation

It is EPA's policy that recipients of EPA financial assistance through the State Revolving Fund programs award a "fair share" of subagreements to small, minority and women-owned businesses, collectively know as Disadvantaged Business Enterprises (DBEs). Iowa's Fair Share goals are:

	Minority-Owned Business Enterprise (MBE) Goal	Women-Owned Business Enterprise (WBE) Goal
Construction	1.7%	2.2%
Supplies	0.6%	5.6%
Services	2.5%	11.3%
Goods/Equipment	2.5%	10.4%
Average	1.8%	7.4%

Only work performed by certified DBEs can be counted toward the goals. In Iowa, DBEs must be certified through the Iowa Department of Transportation (IDOT). Information on certification requirements and a list of certified DBEs is on the IDOT website at https://secure.iowadot.gov/DBE/Home/Index/.

Prime contractors' DBE requirements for SRF projects include:

- Taking affirmative steps for DBE participation
- Documenting the efforts and the proposed utilization of certified DBEs

PROJECT INFORMATION

SRF Applicant:	
Bidder:	
Address:	
Contact Person:	
Signature:	
Phone Number:	
E-Mail Address:	
Check if Prime Contractor is: ☐ **Minority-Owned** ☐ **Women-Owned**	

GOOD FAITH EFFORTS CHECKLIST

Please complete the checklist to determine if you have complied with the requirement to make good faith efforts to ensure that certified DBEs have the opportunity to compete for procurements funded by EPA financial assistance funds. Bidders/offerors must make good faith efforts prior to submission of bids/proposals.

1. Did you ensure that DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities? ☐ Yes ☐ No

2. Did you make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process? This includes, whenever possible, posting solicitation for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date. ☐ Yes ☐ No

3. Did you consider in the contracting process whether firms competing for large contracts could subcontract with DBEs? This will include dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process. ☐ Yes ☐ No

4. Did you encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually? ☐ Yes ☐ No

5. Did you use the services of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce to identify potential subcontractors? ☐ Yes ☐ No

6. List the potential DBE subcontractors that were contacted. Only list those that are certified through the Iowa Department of Transportation.

Name	**How Contacted (e.g. letter, phone call, fax, e-mail)**	**Response (e.g. did not respond, not interested, not competitive)**

PROPOSED UTILIZATION OF DBE SUBCONTRACTORS

Please include Attachments 4 and 5 to document the proposed utilization of certified DBE subcontractors.

CONTRACT ADMINISTRATION PROVISIONS

Several contract provisions are required to prevent unfair practices that adversely affect DBEs. These include:

1. Prime Contractor must pay its Subcontractor for satisfactory performance no more than 30 days from the Prime Contractor's receipt of payment from the SRF loan recipient.

2. Prime Contractor must notify the SRF loan recipient in writing prior to termination of a DBE subcontractor for convenience.

3. Prime Contractor must employ the six Good Faith Efforts to solicit a replacement subcontractor if a DBE subcontractor fails to complete work under a subcontract for any reason.

Attachment 4
SRF Required Front-End Specifications

(This form must be completed and signed by Prime and DBE Subcontractor for each subcontract and submitted with the bid)

Disadvantaged Business Enterprise Program
DBE Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractor's bid or proposal package.

Subcontractor Name	Project Name	
Bid/Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity	

Contract Item Number	Description of Work Submitted to the Prime Contractor Involving Construction, Services, Equipment or Supplies	Price of Work Submitted to the Prime Contractor

DBE Certified by ____ DOT _____ SBA _____Other: _____	Meets/exceeds EPA certification standards? _____ YES _____ NO _____ Unknown

[1]A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certification as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

IASRF6100-3 DBE Subcontractor Performance Form – Page 1

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	**Date**

Subcontractor Signature	Print Name
Title	**Date**

IASRF6100-3 DBE Subcontractor Performance Form – Page 2

Attachment 5
SRF Required Front-End Specifications
(This form must be completed and signed by Prime Contractor and submitted with the bid if utilizing DBE subcontractors)

Disadvantaged Business Enterprise Program
DBE Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or intended use of identified certified DBE[1] subcontractors[2] and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name	Project Name	
Bid/Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Issuing/Funding Entity		
I have identified potential DBE certified subcontractors _____ YES _____ NO If yes, please complete the table below. If no, please explain: _____		

Subcontractor Name/Company Name	Company Address/Phone/Email	Estimated Dollar Amount	Currently DBE Certified?

Continue on back if needed

[1]A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certification as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
Title	**Date**

IASRF6100-4 DBE Subcontractor Utilization Form – Page 2

Attachment 6
SRF Required Front-End Specifications
(This form is for the voluntary use of DBE Subcontractors)

Disadvantaged Business Enterprise Program
DBE Subcontractor Participation Form

An EPA Financial Assistance Agreement Recipient must require its prime contractors to provide this form to its DBE subcontractors. ***The use of this form by DBE subcontractors is voluntary and is not required for bidding.*** This form gives a DBE[1] subcontractor[2] the opportunity to describe work received and/or report any concerns regarding the EPA-funded project (e.g. in areas such as termination by prime contractor, late payments, etc.). The DBE subcontractor can, as an option, complete and submit this form to the EPA DBE Coordinator at any time during the project period of performance.

Subcontractor Name	Project Name	
Bid/Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity	

Contract Item Number	Description of Work Received from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Amount Received by Prime Contractor

[1]A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certification as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

IASRF6100-2 DBE Subcontractor Participation Form – Page 1

Please use the space below to report any concerns regarding the above EPA-funded project:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Subcontractor Signature	Print Name
Title	**Date**

Return to: Regional Coordinator, Small Business Utilization, U.S. Environmental Protection Agency, Region 7, 11201 Renner Blvd., Lenexa, KS 66219

IASRF6100-2 DBE Subcontractor Participation Form – Page 2

Attachment 7
SRF Required Front-End Specifications

Other Federal Requirements Language

A. Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

1. As used in these specifications:
   a. “Covered area” means the geographical area described in the solicitation from which this contract resulted;
   b. “Director” means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
   d. "Minority" includes:
      (i) Black (all persons having origin in any of the Black African racial groups not of Hispanic origin);
      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
      (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Sub-continent, or the Pacific Islands); and
      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 6-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor’s or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employee in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a

Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work in being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal emp1oyment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor employees are assigned to work. The Contractor, where possible will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's effort, to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The

Contractor shall provide notice of these programs to the source complied under 7b above.
f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and test to be used in the selection process.
j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.
k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
1. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
m. Ensure that seniority practices, job classifications work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
p. Conduct a review, at least annually, of all supervisors’ adherence to and performance under the Contractor’s EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetable or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps at least as extensive as those standards prescribed in paragraph 7 of these specifications so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

Federal Register, Vol. 43, No. 68 - Friday, April 7, 1978 (Corrected May 5, 1978).
Effective Date: May 8, 1978
Federal Register, Vol. 45, No. 194. Paragraph 4, revised October 3, 1980
Effective Date: September 30, 1980

APPENDICES A and B-80

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity

(Executive Order 11246)

1. The Offerors or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

(See Appendix B-80 and Appendix A Below)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and in the regulations in 41 CFR Part 60—4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60—4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60—4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer Identification number of the subcontractor, estimated dollar amount of the subcontract, and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the “covered area” is (State of Iowa).

APPENDIX A

The following goals and timetables for female utilization shall be included in all Federal and federally assisted construction contracts and subcontracts in excess of $10,000. The goals are applicable to the contractor’s aggregate on-site construction workforce whether or not part of that workforce is performing work on a Federal or federally assisted construction contract or subcontract.

Area covered: Goals for Women apply nationwide.

Timetable Goals (percent)
From Apr. 1, 1978 until March 31, 1979 . . . . . .3.1
From Apr. 1, 1979 until March 31, 1980 . . . . . .5.0
From Apr. 1, 1980 until March 31, 1981 . . . . . .6.9

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APPENDIX B-80

Until further notice, the following goals for minority utilization in each construction craft and trade shall be included in all Federal or federally assisted construction contracts and subcontracts in excess of $10,000 to be performed in the respective geographical areas. The goals are applicable to each nonexempt contractor’s total onsite construction workforce, regardless of whether or not part of that workforce is performing work in a Federal, federally assisted or nonfederally related project, contract or subcontract. Construction contractors which are participating in an approved Hometown Plan (see 41 CFR 60—4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply with the applicable SMSA of EA goal contained in this appendix B-80.

Economic Areas

State: Iowa Goal %

096 Dubuque IA:
SMSA Counties:
2200 Dubuque, IA …….. 0.6
IA Dubuque
Non-SMSA
Counties ……..… 0.5
IA Allamakee, IA Clayton, IA Delaware, IA, Jackson IA, Winneshiek

099 Davenport Rock Island Moline, IA-IL:
SMSA Counties:
1960 Davenport Rock Island Moline, IA-IL …..… 4.6
IL Henry, IL Rock Island Moline, IA Scott

Non-SMA
Counties ……. 3.4
IL Carroll, IL Hancock, IL Henderson, IL ,Mercer, IL Whiteside, IA Clinton, IA Des Moines, IA Henry, IA Lee, IA Louisa, IA, Muscatine, MO Clark

100 Cedar Rapids, IA:
SMSA Counties:
1360 Cedar Rapids, IA ……. 1.7
IA Linn

Non-SMSA Counties ……..…… 1.5
IA Benton, IA Cedar, IA Iowa, IA Johnson, IA, Jones, IA, Washington

101 Waterloo, IA:
SMSA Counties:
8920 Waterloo-Cedar Falls, IA …… 4.7
IA Black Hawk

Non-SMSA Counties ……..… 2.0
IA Bremer, IA Buchanan, IA Butler, IA Cerro Gordo, IA Chickasaw, IA Fayette, IA Floyd, IA Franklin, IA Grundy, IA Hancock, IA Hardin, IA Howard, IA Mitchell, IA Winnebago, IA Worth

102 Fort Dodge, IA:
Non-SMSA Counties …….. 0.4
IA Buena Vista, IA Calhoun, IA Carroll, IA Clay, IA Dickinson, IA Emmet, IA Greene, IA Hamilton, IA Humboldt, IA Kossuth, IA Palo Alto, IA Pocahontas, IA Sac, IA Webster, IA Wright

103 Sioux City, IA:
SMSA Counties:
7720 Sioux City, IA-NE ……..……..… 1.9
IA Woodbury, NE Dakota

Non-SMSA Counties …… 1.2
IA Cherokee, IA Crawford, IA Ida, IA Monona, IA O'Brien, IA Plymouth, IA Sioux, NE Antelope, NE Cedar, NE Cuming, NE Dixon, NE Knox, NE Madison, NE Pierce, NE Stanton, NE Thurston, NE Wayne, SD Bon Homme, SD Clay, SD Union, SD Yankton

104 Des Moines, IA:
SMSA Counties:
2120 Des Moines, IA ……..…… 4.5
IA Polk, IA Warren

Non SMSA Counties: ……..……. 2.4
IA Adair, IA Appanoose, IA Boone, IA Clarke, IA Dallas, IA Davis, IA Decatur, IA Guthrie, IA Jasper, IA Jefferson, IA Keokuk, IA Lucas, IA Madison, IA Mahaska, IA Marion, IA Marshall, IA Monroe, IA Poweshiek, IA Ringgold, IA Story, IA Tama, IA Union, IA Van Buren, IA Wapello, IA Wayne

143 Omaha, NE:
SMSA Counties:
5920 Omaha, NE-IA ……..…… 7.6
IA Pottawattamie, NE Douglas, NE Sarpy

Non-SMSA Counties ……..... 5.3
IA Adams, IA Audubon, IA Cass, IA Fremont, IA Harrison, IA Mills, IA Montgomery, IA Page, IA Shelby, IA Taylor, NE Burt, NE Cass, NE Colfax, NE Dodge, NE Platte, NE Saunders, NE Washington

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B. Federal Labor Standards Provisions (including Davis-Bacon prevailing wage rates)

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

(1) Minimum wages. (i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill,

except as provided in Sec. 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that, the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The EPA shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the EPA may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records. (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/whd/programs/dbra/forms.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its

own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

(B) Each payroll submitted shall be accompanied by a ``Statement of Compliance,'' signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under Sec. 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under Sec. 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the ``Statement of Compliance'' required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees--(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's

hourly rate) specified in the contractor's or subcontractors registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the (write in the name of the Federal agency) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (and any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility. (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(b) Contract Work Hours and Safety Standards Act. The Agency Head shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Sec. 5.5(a) or 4.6 of part 4 of this title. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The loan recipient shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the

subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in Sec. 5.1, the Agency Head shall cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Agency Head shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the EPA and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

C. Preservation of Open Competition and Government Neutrality Towards Government Contractors' Labor Relations on Federal and Federally Funded Construction Projects (Executive Order 13202, as amended by Executive Order 13208)

Executive Order 13202, signed February 17, 2001 and amended April 4, 2001, requires all executive agencies that issue grants to ensure Government neutrality toward contractors' labor relations. This applies to recipients of SRF assistance. The Executive Order prohibits discrimination against contractors and their employees in construction contracts based upon labor affiliation or lack thereof.

SRF assistance recipients and any construction managers acting on their behalf must ensure that bidding specifications, project agreements, and other controlling documents do not require, prohibit, or otherwise discriminate, with respect to labor affiliation or lack thereof.

D. Historical and Archeological Finds

If, during the course of construction, evidence of deposits of historical or archeological interest is found, the contractor shall cease operations affecting the find. The owner shall then notify the State Revolving Fund Environmental Review Specialist, who shall in turn notify the State Historic Preservation Office. The SRF shall consult with the SHPO and other interested parties to determine the proper course of action regarding the discovery. No further disturbance of the deposits shall ensue until the SRF Environmental Review Specialist determines that the project activities in that area may proceed. Compensation to the contractor, if any, for lost time or changes in construction to avoid the find, shall be determined in accordance with changed conditions or change order provisions of the specifications.

Authority for this derives from the National Historic Preservation Act (16 U.S.C. §§ 470 *et seq.*) and 36 CFR Part 800. If human remains are discovered then state law also applies IC 263B.

E. Prohibitions on Procurement from Violating Facilities (Section 306, Clean Air Act; Section 508, Clean Water Act; Executive Order 11738)

Both the Clean Water Act and the Clean Air Act prohibit federal agencies from extending assistance by way of loans or contracts to persons who have been convicted of violations of either law. Executive Order 11738 was issued to coordinate enforcement by the U.S. Environmental Protection Agency, which shall designate facilities which have given rise to a conviction for an offense under the criminal provisions of the Clean Air Act and the Clean Water Act.

The Executive Order also prohibits agencies from extending assistance to facilities that are not in compliance with either Act.

SRF assistance recipients may not procure goods, services, or materials from suppliers listed by the EPA as violators.

The Excluded Parties Listing search engine is located at the System for Award Management (SAM) website: https://www.sam.gov/SAM/.

Attachment 8
SRF Required Front-End Specifications

Right of Entry and Records Retention

The recipient shall provide access at all times for the Department of Natural Resources, the Iowa Finance Authority, the state auditor, and the U.S. EPA Office of the Inspector General to all project records and documents for inspection and audit purposes for a period of three years after the date of last loan payment. The same access to the project site(s) shall be provided for inspection purposes.

567 Iowa Administrative Code paragraph 92.8(2).e. State inspections. Personnel of the department shall have the right to examine all construction aspects of the project, including materials and equipment delivered and stored on site for use on the project.

Attachment 9
SRF Required Front-End Specifications

"American Iron and Steel" Requirements

H.R. 3547, the "Consolidated Appropriations Act, 2014," enacted January 17, 2014 by the U.S. Congress, includes "American Iron and Steel" provisions that require Clean Water and Drinking Water State Revolving Fund assistance recipients of these funds to use iron and steel produced in the United States.

H.R. 3547 includes the following language in Division G, Title IV, under the heading, "Use of American Iron and Steel":

> Sec. 436. (a)(1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.
>
> (2) In this section, the term "iron and steel products" means the following products made primarily of iron and steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.
>
> (b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the "Administrator") find that—
>
> (1) Applying subsection (a) would be inconsistent with the public interest;
>
> (2) Iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quantity; or
>
> (3) Inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.
>
> (c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

The final guidance and any published waivers are found at: https://www.epa.gov/cwsrf/state-revolving-fund-american-iron-and-steel-ais-requirement. In particular the contractor should pay attention to the guidance for documentation of compliance. There is also a waiver for incidental items; in order to qualify for this waiver the total materials and costs for the project must be tracked and incidental items identified.

Sample "American Iron and Steel" Contract Language

In order to fulfill the requirements, the assistance recipient must in good faith design the project and solicit bids for construction with U.S.-made iron and steel. The following information will be included in any contracts resulting from this request for bids:

The Contractor acknowledges to and for the benefit of the City of _____ ("Purchaser") and the State of Iowa (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund and such law contains provisions commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contactor pursuant to this Agreement.

The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

Sample Certifications

As indicated in the contract language, it will be the responsibility of the Contractor to obtain certifications that the products and materials used in the project are U.S.-made. EPA recommends the use of a step certification process for documenting compliance with AIS requirements, similar to one used by the Federal Highway Administration. Step certification creates a paper trail which documents the location of the manufacturing process involved with the production of steel and iron materials. Each handler (supplier, fabricator, manufacturer, processor, coater, etc.) of the iron and steel products certifies that their step in the process was domestically performed.

The following information is provided as a sample letter of step certification for AIS compliance. Documentation must be provided on company letterhead. In this example, there may be multiple letters from different manufacturers if one manufacturer did not perform all of the steps.

Date

Company Name
Company Address
City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxxx

2. Xxxx

3. Xxxx

Such process took place at the following location:

_____

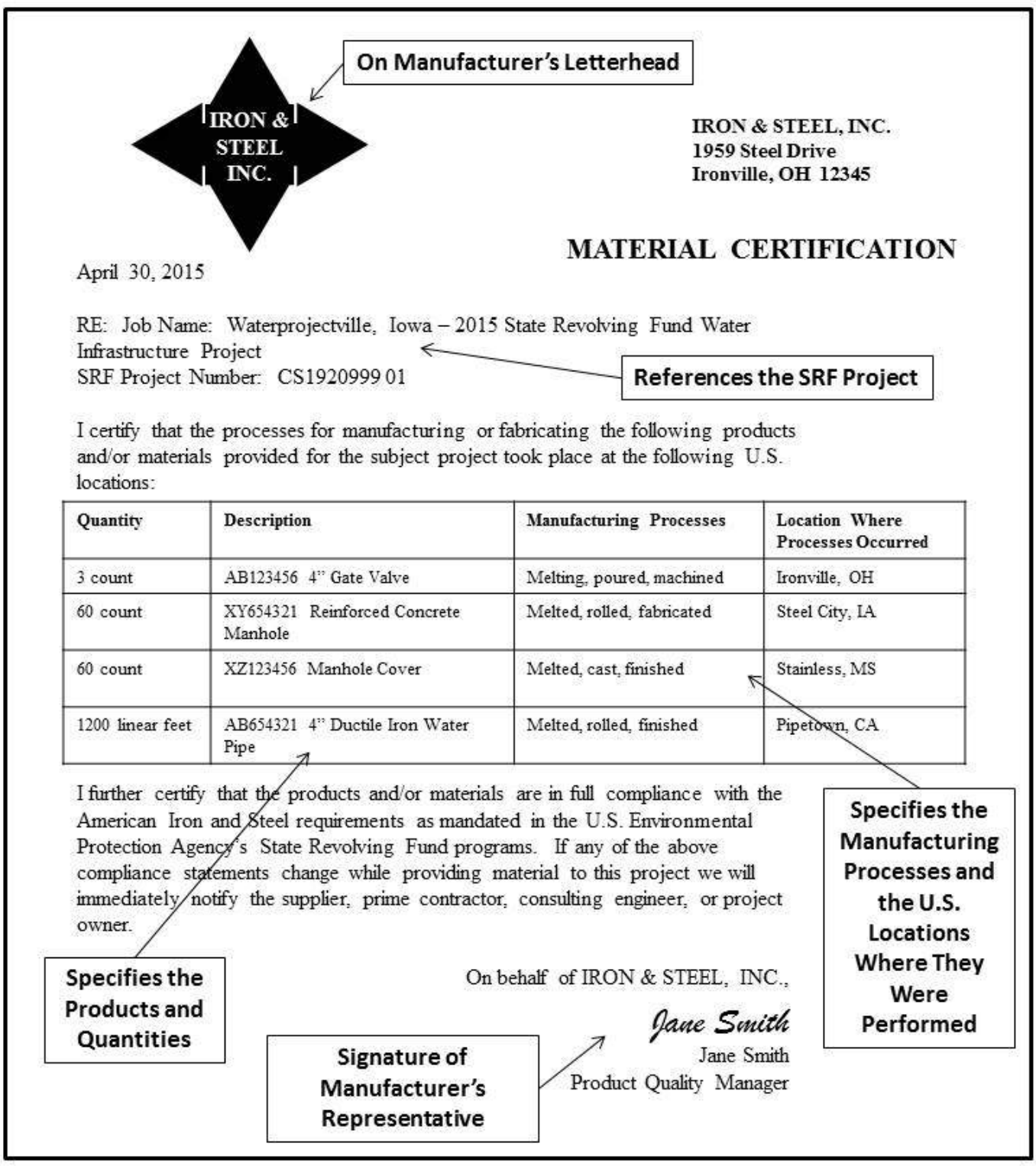
If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

Alternatively, the final manufacturer that delivers the iron or steel product to the worksite, vendor, or contractor, may provide a certification asserting that all manufacturing processes occurred in the U.S. and providing detailed information on the steps involved.

The following is a template for this type of final certification.

Template American Iron and Steel Certification Letter



On Manufacturer's Letterhead

IRON & STEEL INC.

IRON & STEEL, INC.
1959 Steel Drive
Ironville, OH 12345

MATERIAL CERTIFICATION

April 30, 2015

RE: Job Name: Waterprojectville, Iowa – 2015 State Revolving Fund Water Infrastructure Project
SRF Project Number: CS1920999 01

References the SRF Project

I certify that the processes for manufacturing or fabricating the following products and/or materials provided for the subject project took place at the following U.S. locations:

Quantity	Description	Manufacturing Processes	Location Where Processes Occurred
3 count	AB123456 4" Gate Valve	Melting, poured, machined	Ironville, OH
60 count	XY654321 Reinforced Concrete Manhole	Melted, rolled, fabricated	Steel City, IA
60 count	XZ123456 Manhole Cover	Melted, cast, finished	Stainless, MS
1200 linear feet	AB654321 4" Ductile Iron Water Pipe	Melted, rolled, finished	Pipetown, CA

I further certify that the products and/or materials are in full compliance with the American Iron and Steel requirements as mandated in the U.S. Environmental Protection Agency's State Revolving Fund programs. If any of the above compliance statements change while providing material to this project we will immediately notify the supplier, prime contractor, consulting engineer, or project owner.

Specifies the Products and Quantities

Specifies the Manufacturing Processes and the U.S. Locations Where They Were Performed

On behalf of IRON & STEEL, INC.,

Jane Smith
Jane Smith
Product Quality Manager

Signature of Manufacturer's Representative

Covered and Non-Covered Items

The EPA issued a waiver for De Minimis incidental components of eligible water and wastewater infrastructure projects. Funds used for such De Minimis incidental components cumulatively may comprise no more than a total of 5% of the total cost of the materials used in and incorporated into a project. The cost of an individual incidental item may not exceed 1% of the total cost of the materials used in and incorporated into a project.

De Minimis incidental items include miscellaneous, generally low-cost components that are essential for, but incidental to, the construction and are incorporated into the physical structure of the project. For many of these incidental components, the country of manufacture and the availability of alternatives are not readily or reasonably identifiable prior to procurement in the normal course of business. For others, the country of manufacture may be known but the miscellaneous character in conjunction with the low cost, individually and (in total) as typically procured in bulk, mark them as properly incidental.

Examples of incidental components could include small washers, screws, fasteners (i.e., nuts and bolts), miscellaneous wire, corner bead, ancillary tube, etc. Examples of items that are clearly not incidental include significant process fittings (i.e., tees, elbows, flanges, and brackets), distribution system fittings and valves, force main valves, pipes, treatment and storage tanks, large structural supports, etc.

In consultation with their contractors, assistance recipients should determine the items to be covered by this waiver and must retain relevant documentation (i.e. invoices) as to those items. Assistance recipients must summarize in reports to the State of Iowa the types and/or categories of items to which this waiver is applied, the total cost of incidental components for each type or category, and the calculations by which they determined the total cost of materials used in and incorporated into the project.

The successful bidder will fill out the materials spreadsheet (shown below) and submit it to the assistance recipient to indicate iron and steel items proposed to be procured for the project.

American Iron and Steel Materials Spreadsheet – to be Submitted by Successful Bidder
Iowa Department of Natural Resources - January 2021
Based on EPA Memorandum (4/15/2014): De Minimis Waiver of Section 436 of P.L. 113-76, Consolidated Appropriation Acts (CAA), 2014

Project:			
Bidder:		Date:	

*Covered Product Categories include: Lined or unlined pipes or fittings; manhole covers; municipal castings; pipe clamps and restraints; valves; structural steel; hydrants, tanks; flanges; reinforced precast concrete; construction materials.

**Incidental items are miscellaneous, generally low-cost items, often procured in bulk, such as washers, screws, fasteners, small amounts of wire, etc.

	Covered Products Category*	Description of Covered Products	Documentation Will be Obtained	Item is Incidental and will be claimed under De Minimis Waiver**	Bid Amount Covered Products	Bid Amount Incidentals
1	Choose an item.					
2	Choose an item.					
3	Choose an item.					
4	Choose an item.					
5	Choose an item.					

.

At the end of construction, the contractor will submit a final list showing covered items being claimed as incidental components under the De Minimis Waiver. Assistance recipients will complete a De Minimis Waiver Incidental Components List for the entire project to demonstrate compliance with the De Minimis Waiver cost requirements outlined above.

American Iron and Steel - De Minimus Waiver Incidental Components List

Iowa Department of Natural Resources – January 2021

Based on EPA Memorandum (4/15/2014): De Minimus Waiver of Section 436 of P.L. 113-76, Consolidated Appropriation Acts (CAA), 2014

This form is to be used by the State Revolving Fund (SRF) applicant to identify all non-domestic iron and steel incidental components permanently incorporated into an SRF project that meet the requirements of the public interest De Minimis Waiver. This form can also be used by individual contractors to submit their final incidental components list to the SRF applicant.

SRF Applicant:					
SRF Project #:		Submitted By:			
Date:		Individual Contractor De Minimis List ☐ Final De Minimis List for SRF Project ☐			
Total Materials Cost:		Total amount claimed as De Minimis Incidental Components:		Percent: *(must be 5% or less of total materials cost)*	

	Contractor Name	Covered Products	Description of Covered Products *(list each item type separately)*	Date Purchased	Individual Item/Unit Cost	Quantity Claimed as Incidental	Dollar Amount Incidental Components
Example	*JB Construction*	*Construction materials*	*Steel Doors*	*1-21-2020*	*$500*	*5*	*$2500*
1		Choose an item.					
2		Choose an item.					

These documents are available on-line at http://www.iowasrf.com/about_srf/use-of-american-iron-and-steel/.

Attachment 10
SRF Required Front-End Specifications
(This form must be completed and signed by Prime Contractor and submitted with the bid)

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

This term and condition implements 2 CFR 200.216 and is effective for obligations and expenditures of EPA financial assistance funding on or after 8/13/2020. EPA recipients and subrecipients, including borrowers under EPA funded revolving loan fund programs, are prohibited from obligating or expending loan or grant funds to:

(a) Procure or obtain, extend or renew a contract to procure or obtain;
(b) Enter into a contract (or extend or renew a contract) to procure; or
(c) Obtain the equipment, services, or systems that use "covered telecommunications equipment or services" identified in the regulation as a substantial or essential component of any system, or as critical technology as part of any system.

Certain equipment, systems, or services, including equipment, systems, or services produced or provided by entities subject to the prohibition are recorded in the System for Award Management exclusion list, website: **https://www.sam.gov/SAM/.**

(1) As described in Public Law 115-232, section 889, covered telecommunications equipment or services includes:

(i) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

(ii) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(iii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iv) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

(2) Consistent with 2 CFR 200.471, costs incurred for telecommunications and video surveillance services or equipment such as phones, internet, video surveillance, and cloud servers are allowable except for the following circumstances:

(i) Obligating or expending EPA funds for covered telecommunications and video surveillance services or equipment or services to procure (enter into, renew or extend contracts) or obtain the equipment, services, or systems as described in 2 CFR 200.216.

I understand the above prohibitions and certify that the project will be in compliance with all the requirements.

_____
Typed Name & Title of Authorized Representative

_____
Signature of Authorized Representative Date

Davis Bacon Wage Rates

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

NOTICE OF AWARD

Date of Issuance:

Owner: | Owner's Contract No.:

Engineer: ISG Inc. | Engineer's Project No.: 27926

Project: | Contract Name:

Bidder:

Bidder's Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated [_____] for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

_____ .

[describe Work, alternates, or sections of Work awarded]

The Contract Price of the awarded Contract is: $_____ *[note if subject to unit prices, or cost-plus]*

[ ] unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically. *[revise if multiple copies accompany the Notice of Award]*

☐ a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of this Notice of Award:

1. Deliver to Owner [____]counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner**:**

Authorized Signature

By:

Title:

Copy: Engineer

AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

THIS AGREEMENT is by and between _____ ("Owner") and _____ ("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – **WORK**

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

ARTICLE 2 – **THE PROJECT**

2.01 *The Project, of which the Work under the Contract Documents is a part, is generally described as follows:* _____

ARTICLE 3 – **ENGINEER**

3.01 The Project has been designed by I+S Group, Inc.

3.02 The Owner has retained I+S Group, Inc. to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – **CONTRACT TIMES**

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Dates*

A. The Work will be substantially completed on or before _____, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **thirty-one (31) calendar days** after the completion of the work acceptance by the owner.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of

EJCDC® C-520, Agreement Between Owner and Contractor for Construction Contract (Stipulated Price).
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and American Society of Civil Engineers. All rights reserved.

requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner $500 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.

2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $500 for each day that expires after such time until the Work is completed and ready for final payment.

3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

4.04 *Special Damages*

A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.

B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

ARTICLE 5 – **CONTRACT PRICE**

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

A. For all Work other than Unit Price Work, a lump sum of: $50,000.

All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.

ARTICLE 6 – **PAYMENT PROCEDURES**

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 20th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such

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Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract

    a. Ninety-five percent (95%) of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and

    b. Ninety-five percent (95%) of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to Ninety-five percent (95%) percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less two hundred percent (200%) of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – **INTEREST**

7.01 All amounts not paid when due shall bear interest at the rate of *10%* percent per annum.

ARTICLE 8 – **CONTRACTOR'S REPRESENTATIONS**

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.

B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and

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drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – **CONTRACT DOCUMENTS**

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to 7, inclusive).
2. Performance bond (pages 1 to 3, inclusive).
3. Payment bond (pages 1 to 3, inclusive).
4. General Conditions (pages 1 to 65, inclusive; not attached but incorporated by reference and provided in the Project Manual).
5. Supplementary Conditions (pages 1 to 10, inclusive; not attached but incorporated by reference and provided in the Project Manual).
6. Specifications as listed in the table of contents of the Project Manual (not attached but incorporated by reference).
7. Drawings (not attached but incorporated by reference) consisting of __ sheets with each sheet bearing the following general title:_____.
8. Addendums: Addendum No. 1 ( ) (not attached but incorporated by reference)
9. Exhibits to this Agreement (enumerated as follows):

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a. Contractor's Bid (pages 1 to _ inclusive; not attached but incorporated by reference).

10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:

a. Notice to Proceed.

b. Work Change Directives.

c. Change Orders.

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – **MISCELLANEOUS**

10.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

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1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:	CONTRACTOR:
_____	_____
By: _____	By: _____
Title: _____	Title: _____
	(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest: _____	Attest: _____
Title: _____	Title: _____
Address for giving notices:	Address for giving notices:
_____	_____
_____	_____
_____	_____
	License No.: _____

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NOTICE TO PROCEED

Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer: ISG Inc.	Engineer's Project No.: 27926
Project:	Contract Name:
	Effective Date of Contract:

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 20__]. *[see Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, [the date of Substantial Completion is _____, and the date of readiness for final payment is_____].

Before starting any Work at the Site, Contractor must comply with the following:
[Note any access limitations, security procedures, or other restrictions]

Owner**:**

Authorized Signature

By:

Title:

Date Issued:

Copy: Engineer

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PERFORMANCE BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

CONSTRUCTION CONTRACT
Effective Date of the Agreement:
Amount:
Description *(name and location)*:

BOND
Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ■ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	**By:** _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	**Attest:** _____
Signature	Signature
_____	_____
Title	Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

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10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

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PAYMENT BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

CONSTRUCTION CONTRACT

Effective Date of the Agreement:
Amount:
Description *(name and location)*:

BOND

Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ■ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	**By:** _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	**Attest:** _____
Signature	Signature
_____	_____
Title	Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond shall arise after the following:

    5.1 Claimants who do not have a direct contract with the Contractor,

        5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

        5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).

    5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

    7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

    7.2 Pay or arrange for payment of any undisputed amounts.

    7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

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12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. **Definitions**

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default**: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

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Contractor's Application for Payment No.

	Application Period:	Application Date:
To (Owner): City of Storm Lake	From (Contractor):	Via (Engineer): I+S Group, Inc. (ISG)
Project: City of Storm Lake Well No. 22	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.: 22-27926

Application For Payment
Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS	$0.00	$0.00
NET CHANGE BY CHANGE ORDERS	**$0.00**	

1. ORIGINAL CONTRACT PRICE			**$**	
2. Net change by Change Orders			**$**	**$0.00**
3. Current Contract Price (Line 1 ± 2)			**$**	**$0.00**
4. TOTAL COMPLETED AND STORED TO DATE (Column F total on Progress Estimates)			**$**	**$0.00**
5. RETAINAGE:				
a. 5%	**X**	$0.00 **Work Completed**	**$**	**$0.00**
b. 5%	**X**	$0.00 **Stored Material**	**$**	**$0.00**
c. Total Retainage (Line 5.a + Line 5.b)			**$**	**$0.00**
6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c)			**$**	**$0.00**
7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)			**$**	
8. AMOUNT DUE THIS APPLICATION			**$**	**$0.00**
9. BALANCE TO FINISH, PLUS RETAINAGE (Column G total on Progress Estimates + Line 5.c above)			**$**	**$0.00**

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:
(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;
(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and
(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents

Contractor Signature

By:	Date:

Payment of: $ **$0.00**
(Line 8 or other - attach explanation of the other amount)

is recommended by: _____ _____
(Engineer) (Date)

Payment of: $ **$0.00**
(Line 8 or other - attach explanation of the other amount)

is approved by: _____ _____
(Owner) (Date)

Approved by: _____ _____
Funding or Financing Entity (if applicable) (Date)

Progress Estimate - Lump Sum Work

Contractor's Application

For (Contract): 0	Application Number: 0
Application Period: 0	Application Date: 0

			Work Completed		E	F		G
A		B	C	D	Materials Presently Stored (not in C or D)	Total Completed and Stored to Date (C + D + E)	% (F / B)	Balance to Finish (B - F)
Specification Section No.	Description	Scheduled Value ($)	From Previous Application (C+D)	This Period				
			$0.00			$0.00		$0.00
						$0.00		$0.00
						$0.00		$0.00

Progress Estimate - Unit Price Work

Contractor's Application

For (Contract): 0	Application Number: 0
Application Period: 0	Application Date: 0

A					B	C	D	E	F		G
Item		Contract Information				Estimated Quantity Installed	Value of Work Installed to Date	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (F / B)	Balance to Finish (B - F)
Bid Item No.	Description	Item Quantity	Units	Unit Price	Total Value of Item ($)						
							$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
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					$0.00		$0.00		$0.00		$0.00
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					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
					$0.00		$0.00		$0.00		$0.00
	Totals				**$0.00**		**$0.00**	**$0.00**	**$0.00**		**$0.00**

Progress Estimate - Lump Sum Work

Contractor's Application

For (Contract): 0	Application Number: 0
Application Period: 0	Application Date: 0

			Work Completed		E	F		G
A		B	C	D	Materials Presently Stored (not in C or D)	Total Completed and Stored to Date (C + D + E)	% (F / B)	Balance to Finish (B - F)
Specification Section No.	Description	Scheduled Value ($)	From Previous Application (C+D)	This Period				
			$0.00			$0.00		$0.00
						$0.00		$0.00
						$0.00		$0.00

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CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer: ISG Inc.	Engineer's Project No.: 27926
Project:	Contract Name:

This [preliminary] [final] Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities: ☐ None ☐ As follows

Amendments to Contractor's responsibilities: ☐ None ☐ As follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY ENGINEER:	RECEIVED:	RECEIVED:
By: _____ (Authorized signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

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ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

NOTICE OF ACCEPTABILITY OF WORK

PROJECT:

OWNER:

CONTRACTOR:

OWNER'S CONSTRUCTION CONTRACT IDENTIFICATION:

EFFECTIVE DATE OF THE CONSTRUCTION CONTRACT:

ENGINEER: I + S GROUP, INC. (ISG)

NOTICE DATE:

To: **City of**
Owner

And To: _____
Contractor

From: **ISG**
Engineer

The Engineer hereby gives notice to the above Owner and Contractor that the Engineer has inspected the completed Work for the Project, and that the Work furnished and performed by Contractor is in compliance with the terms of the above Construction Contract and is acceptable, expressly subject to the provisions of the related Contract Documents, the Agreement between Owner and Engineer for Professional Services dated _____, and the following terms and conditions of this Notice:

CONDITIONS OF NOTICE OF ACCEPTABILITY OF WORK

The Notice of Acceptability of Work ("Notice") is expressly made subject to the following terms and conditions to which all those who receive said Notice and rely thereon agree:

1. The total cost of the completed work is $
2. This Notice is given with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.
3. This Notice reflects and is an expression of the Engineer's professional opinion.

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4. This Notice is given as to the best of Engineer's knowledge, information, and belief as of the Notice Date.

5. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor's work) under Engineer's Agreement with Owner, and applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Agreement.

6. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract, an acceptance of Work that is not in accordance with the related Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Construction Contract Documents, or to otherwise comply with the Construction Contract Documents or the terms of any special guarantees specified therein.

7. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner's reservations of rights with respect to completion and final payment.

8.

By: _____

Title: Project Manager

Dated: _____

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This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

EJCDC®
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Issued and Published Jointly by

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AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

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has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Engineer*—The individual or entity named as such in the Agreement.

21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.

23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

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24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.

26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.

32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.

33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.

35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

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37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.

38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.

45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

46. *Unit Price Work*—Work to be paid for on the basis of unit prices.

47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

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48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*:

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*:

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*:

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

E. *Furnish, Install, Perform, Provide*:

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

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3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.

C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

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3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.

B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

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computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

A. Standards Specifications, Codes, Laws and Regulations

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*:

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

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error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*:

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

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3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

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2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. abnormal weather conditions;

3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and

4. acts of war or terrorism.

D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.

E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

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G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*:

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

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by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and

3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

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5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or

2. is of such a nature as to require a change in the Drawings or Specifications; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

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c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or

b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

c. Contractor failed to give the written notice as required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;

c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

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becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

C. *Engineer's Review*: Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

    a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;

    b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

    c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and

    d. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

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5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

2. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

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F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.

H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

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ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.

B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.

D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.

E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

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maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.

H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.

I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.

J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.

2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).

3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

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4. Foreign voluntary worker compensation (if applicable).

B. *Commercial General Liability—Claims Covered*: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:

1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.

2. claims for damages insured by reasonably available personal injury liability coverage.

3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage:

a. Such insurance shall be maintained for three years after final payment.

b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.

2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.

3. Broad form property damage coverage.

4. Severability of interest.

5. Underground, explosion, and collapse coverage.

6. Personal injury coverage.

7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.

8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.

D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.

E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

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of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.

H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:

1. include at least the specific coverages provided in this Article.

2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.

3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.

4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.

5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.

J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

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6.04 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."

2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

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5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).

6. extend to cover damage or loss to insured property while in transit.

7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

8. allow for the waiver of the insurer's subrogation rights, as set forth below.

9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.

10. not include a co-insurance clause.

11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.

12. include performance/hot testing and start-up.

13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.

B. *Notice of Cancellation or Change*: All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.

C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

E. *Additional Insurance*: If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.

F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

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6.06 *Waiver of Rights*

A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.

D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

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policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

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guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 *"Or Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) it has a proven record of performance and availability of responsive service; and

4) it is not objectionable to Owner.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

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D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

a. shall certify that the proposed substitute item will:

1) perform adequately the functions and achieve the results called for by the general design,

2) be similar in substance to that specified, and

3) be suited to the same use as that specified.

b. will state:

1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,

2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

c. will identify:

1) all variations of the proposed substitute item from that specified, and

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2) available engineering, sales, maintenance, repair, and replacement services.

d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.

B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

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E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.

J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.

K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.

L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

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O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

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7.09 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

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2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

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exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements*:

1. Before submitting a Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings*:

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

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provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples*:

   a. Contractor shall submit the number of Samples required in the Specifications.

   b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Other Submittals*: Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review*:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

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8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures*:

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal;

6. the issuance of a notice of acceptability by Engineer;

7. any inspection, test, or approval by others; or

8. any correction of defective Work by Owner.

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D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.

B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

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Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

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8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. an itemization of the specific matters to be covered by such authority and responsibility; and

3. the extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner for whom the Owner is responsible causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.

C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

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D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

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9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

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or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.

B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.

C. Engineer's authority as to Change Orders is set forth in Article 11.

D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

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B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

1. *Change Orders*:

a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.

b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. *Work Change Directives*: A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

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adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

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the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.

B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

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the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures*: Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.

2. *Engineer's Action*: Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

3. *Binding Decision*: Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

B. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and

4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

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B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*:

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

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submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

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thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

    c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

    d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

    e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

    f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

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other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

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B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.

E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

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ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

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cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

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B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

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include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*:

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

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a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

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e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*:

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. the Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. the Contract Price has been reduced by Change Orders;

i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;

j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

l. there are other items entitling Owner to a set off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

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remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

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E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.

2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*:

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

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inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

   d. a list of all disputes that Contractor believes are unsettled; and

   e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance*:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

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including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such other adjacent areas;

2. correct such defective Work;

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

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E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

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and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

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expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this Article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and

2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this Article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or

2. agree with the other party to submit the dispute to another dispute resolution process; or

3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

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18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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I. SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.02 Copies of Documents

SC-2.02.A. Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to Contractor [3] copies of the Contract Documents (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional copies will be furnished upon request at the cost of reproduction.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.03 Subsurface and Physical Conditions

SC 5.03 Add the following new paragraphs immediately after Paragraph 5.03.B:

C. The following reports of explorations and tests of subsurface conditions at or adjacent to the Site are known to Owner:

1. Report dated *May 1990, prepared by Layne-Western Company, Inc., Ames, IA., entitled: "Well Information – Drift Wells, City of Storm Lake, Well No. 15", consisting of 3 pages.* **The Technical Data contained in such report upon whose accuracy Contractor may rely are those indicated in the definition of Technical Data in the General Conditions.**

SC-5.06 Hazardous Environmental Conditions

SC 5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.

B. Not Used.

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SC-5.07 Historic or Paleontological Conditions at Site

SC 5.07 Add the following new paragraph immediately following Paragraph 5.06:

A. Immediately upon discovery of potential historical objects of an archeological or paleontological nature with the Project Site do the following:

1. Restrict or suspend operations in the immediate area of the discovery to preserve the potential historical objects, and

2. Notify Engineer of presence of potential historical objects.

B. Engineer will make arrangements for objects disposition or record the desired relevant data.

C. Support the preservation and salvage effort directed by Engineer. Do not perform Work related to preservation and salvage efforts that Contractor considers Extra Work without written approval of Engineer.

D. Owner may restrict or suspend Contractor's operations in the immediate area of the historical objects for a period not to exceed 72-hours, without a Contractor claim for damages. Owner will not impose restrictions over 72-hours, unless agreed by Contractor and Owner in writing.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.03 Contractor's Liability Insurance

SC 6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:		**Statutory**
Federal, if applicable (e.g., Longshoreman's):		**Statutory**
Jones Act coverage, if applicable:		
Bodily injury by accident, each accident	**$**	**1,000,000**
Bodily injury by disease, aggregate	**$**	**1,000,000**
Employer's Liability:		
Bodily injury, each accident	**$**	**1,000,000**
Bodily injury by disease, each employee	**$**	**1,000,000**
Bodily injury/disease aggregate	**$**	**2,000,000**
For work performed in monopolistic states, stop-gap liability coverage shall be endorsed to either	**$**	**1,000,000**

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the worker's compensation or commercial general liability policy with a minimum limit of: _____

Foreign voluntary worker compensation **Statutory**

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	**$ 2,000,000**
Products - Completed Operations Aggregate	**$ 2,000,000**
Personal and Advertising Injury	**$ 1,000,000**
Each Occurrence (Bodily Injury and Property Damage)	**$ 1,000,000**

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person	**$ 1,000,000**
Each accident	**$ 2,000,000**

Property Damage:

Combined Single Limit of	**$ 2,000,000**

4. Excess or Umbrella Liability under Paragraph 6.03.E. of the General Conditions:

Per Occurrence	**$ 1,000,000**
General Aggregate	**$ 2,000,000**

5. Contractor's Pollution Liability under Paragraph 6.03.F. of the General Conditions:

☒ **If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract**

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6. **Additional Insureds: The Owner and Engineer shall be named as additional insureds on the Contractor's general liability, automobile liability, umbrella or excess, and pollution liability policies. The inclusion of more than one named insured shall not operate to impair the rights of one insured against another insured, and the coverages afforded shall apply as though separate policies had been issued to each insured.**

7. **Any insurance agent shall have in force for any coverage provided by this Contract an Errors and Omissions Coverage with limits of not less than:**

Per Occurrence	**$ 1,000,000**
Annual Aggregate	**$ 1,000,000**

L. Prior to commencement of this agreement, the Contractor shall obtain certificates of all insurance required on a form approved by the Owner, signed by an authorized representative of the insurance carrier and stating that all provisions of the specified requirements are satisfied. The certificates shall be submitted directly to the Owner for review and approval with a record copy only to the Engineer for their files. The Contractor shall not begin any work until the Owner has reviewed and approved the insurance certificates and has so notified the Contractor directly in writing. Any notice to proceed that is issued shall be subject to such approval by the Owner.

M. The insurance policy shall be a standard form policy provided for by a carrier approved by the State of Iowa and shall not contain any exclusions that will restrict coverage on any operations performed by the Contractor or any subcontractor hereof.

N. The insurance policy shall provide full insurance to cover the Contractor's operating exposures including the picking up of materials, the operation of vehicles, the operation of collection and processing sites, explosion, remote borrow site activities, collapse, underground hazards, and contractual liability as required in Articles 7.17 and 7.18.

O. It is a condition of the Contract that the policy waives any or all governmental immunity as a defense in any action brought against the insured or any other party to the Contract.

P. Approval of the insurance by the Owner shall not in any way relieve or decrease the liability of the Contractor hereunder, and it is expressly understood that the Owner or Engineer does not in any way represent that the above specified insurance or limits of liabilities are sufficient or adequate to protect the Contractor's interest or liabilities.

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SC-6.04 Owner's Liability Insurance

SC 6.04 Delete Paragraph 6.04.A in its entirety and reference is made to the additional Paragraph 6.03.K.6.

SC-6.05 Property Insurance

SC-6.05.A.1 Add the following new subparagraph after subparagraph 6.05.A.1:

a. In addition to Owner, Contractor, and all Subcontractors, include as insureds the following:

Engineer – I+S Group, Inc.

SC-6.05.A. Add the following to the list of items in Paragraph 6.05.A, as numbered items:

14. include for the benefit of Owner loss of profits and soft cost coverage including, without limitation, fixed expenses and debt service for a minimum of 12 months with a maximum deductible of 30 days, plus attorney's fees and engineering or other consultants' fees, if not otherwise covered;

SC 6.05 Add the following new paragraphs immediately after Paragraph 6.05.F:

G. All responsibility for maintaining property insurance on any project premises or structures owned, operated, or being constructed by the Contractor remains solely with the Contractor, who may at their option insure against any other perils, and such responsibility shall remain with the Contractor until such time as this Contract is terminated. Before commencement of the Work, the Contractor shall submit written evidence that the Contractor has obtained and paid, for this period of the Contract, Builder's Risk "All-Risk" Completed Value Insurance Coverage upon entire project, which is the subject of this Contract, and including completed Work, Work in progress, and materials stored off site or in transit. Such insurance shall include as additional named insureds: Owner, Engineer and their consultants, and each of their officers, employees and agents, and any other persons with an insurable interest designated by the Owner.

H. In the event of conflict between additional Paragraph 6.05.G with other provisions within Paragraph 6.05 of the General Conditions or Paragraph SC-6.05 of the Supplemental Conditions, Paragraph 6.05.G will assume precedence.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.01 Supervision and Superintendence

SC 7.01 Add the following new paragraphs immediately after Paragraph 7.01.B:

C. Contractor's assigned competent resident superintendent shall be personally available at the site of the work within 24 hour notice, and authorized to act in the Contractor's Behalf. This individual shall be fully authorized to:

1. Conduct all business with the subcontractors.

2. Negotiate and execute all Supplemental Agreements.

3. Execute the orders and directions of the Engineer without delay.

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4. Promptly supply the materials, equipment, tools, labor, and incidentals necessary for prosecution of the work.

D. The Contractor shall have a complete set of Drawings and Specifications available on the Project at all times while work is in progress, and shall assume full responsibility for supervision of the work irrespective of the quantity of work subcontracted.

E. At all times while work is actually being performed, the Contractor shall have at the site of the work a competent individual who is:

1. Authorized and fully capable of managing, directing, and coordinating the work in progress.

2. Thoroughly experienced in the type of work being performed.

3. Capable of reading and thoroughly understanding the Drawings and Specifications.

4. Authorized to receive instructions from the Engineer.

SC-7.02 Labor; Working Hours

SC 7.02 Add the following new subparagraph immediately after Paragraph 7.02.A:

1. Any person employed by the Contractor or by any subcontractor who does not perform assigned work in a proper and skillful manner, or who is intemperate or disorderly, shall be removed from the Project forthwith by the Contractor upon written order of the Engineer, and shall not be employed again on any portion of the Work without Engineer's consent. Should Contractor fail to remove such person, or fail to furnish suitable and sufficient personnel for the proper prosecution of the Work, Engineer may suspend the Work until Contractor has complied with the orders.

SC-7.02.B. Add the following new subparagraphs immediately after Paragraph 7.02.B:

1. Regular working hours will be 7:00AM to 6:00PM, Monday through Friday.

2. Owner's legal holidays are New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas.

SC-7.02.C. Add the following new paragraph immediately after Paragraph 7.02.B:

C. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as services performed by the Engineer (including the Resident Project Representative), Owner's representative, and materials testing laboratories considered routine to the project scope and not necessitated from a situation where the public welfare is put at risk.

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D. Upon request by the Engineer, Contractor shall submit satisfactory qualification evidence for any person engaged in special work requiring professional training.

SC-7.09 Taxes

SC 7.09 Add a new paragraph immediately after Paragraph 7.09.A:

B. Owner is exempt from payment of sales and compensating use taxes of the State of Iowa and of cities and counties thereof on all materials to be incorporated into the Work.

1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.

2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.03 Project Representative

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.A:

B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.

2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.

3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.

4. Liaison:

a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.

b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.

c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

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5. **Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.**

6. **Shop Drawings and Samples:**

    a. **Record date of receipt of Samples and Contractor-approved Shop Drawings.**

    b. **Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.**

    c. **Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.**

7. **Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.**

8. **Review of Work and Rejection of Defective Work:**

    a. **Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.**

    b. **Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.**

9. **Inspections, Tests, and System Start-ups:**

    a. **Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.**

    b. **Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.**

10. **Records:**

    a. **Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions,**

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observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.

c. Maintain records for use in preparing Project documentation.

11. Reports:

a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.

b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.

c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. Completion:

a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.

b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.

c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

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C. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.

5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

8. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

SC-17.01 Methods and Procedures

SC-17.02 Add the following new paragraphs immediately after Paragraph 17.01.B.

C. In an effort to resolve any conflicts that arise during the design or construction of the project or following the completion of the project, the Contractor and the Engineer agree that all disputes between them arising out of or relating to this agreement shall be resolved, if possible, at the lowest possible staff level. If the dispute cannot be resolved between Contractor and Engineer staff, the presidents of the respective firms will meet to attempt to resolve the dispute(s). If resolution is not achieved, the dispute shall be submitted to non-binding mediation.

D. The rights and remedies available to the Contractor shall be limited to breach of Contract, and no other cause of action, including, without limitation, negligence, misrepresentation or other tort theory. Any litigation concerning claims under the Contract shall be venued in the County District Court of the County the project is located within. Neither the Engineer, nor the Contractor shall be entitled to a jury trial in any such action. If the Owner or Engineer is a prevailing party the Contractor shall reimburse the Owner or Engineer its costs and reasonable attorney's fees. The right and remedies to the Owner hereunder shall be in addition to and shall not be construed in any way as a limitation of any rights and remedies available to the Owner which are otherwise available by law or contract, by special warranty or guarantee, or by other provision of the Contract documents. The provision of this paragraph shall be as effective as if repeated specifically in the contract documents in connection with each

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particular duty, obligation, right and remedy to which it may apply. All representations, warranties and guarantees made in the Contract documents shall survive final payment, termination or completion of this agreement.

E. No waiver or failure to enforce any part or provision of the contract documents, including but not limited to the change order process, shall be deemed to be waiver by the Owner of any subsequent default or breach of the same or any other part of provision contained herein, or right to enforce the same or any other part or provision contained herein.

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EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

CHANGE ORDER NUMBER: .....

Date of Issuance: ..... Effective Date: .....

PROJECT:	ENGINEER'S PROJECT NUMBER: 27926
OWNER:	DATE OF CONTRACT:
CONTRACTOR:	OWNER'S CONTRACT NUMBER:

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Attachments:

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIMES:
Original Contract Price:	Original Contract Times: ☐ Working Days ☐ Calendar Days Substantial Completion (day or dates): ..... Ready for Final Payment (day or dates): .....
(Increase) (Decrease) from previously approved Change Orders Number ..... to	(Increase) (Decrease) from previously approved Change Orders Number ..... to ..... Substantial completion (day or dates): ..... Ready for Final Payment (day or dates): .....
Contract Price prior to this Change Order: $0.00	Contract Times prior to this Change Order: Substantial Completion (day or dates): ..... Ready for Final Payment (day or dates): .....
(Increase) (Decrease) of this Change Order: $0.00	(Increase) (Decrease) of this Change Order: Substantial Completion (day or dates): ..... Ready for Final Payment (day or dates): .....
Contract Price Incorporating this Change Order: $0.00	Contract Times with all approved Change Orders: Substantial Completion (day or dates): ..... Ready for Final Payment (day or dates): .....

RECOMMENDED:	ACCEPTED:	ACCEPTED:
I +S GROUP	0	0
By:	By:	By: .....
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Date:	Date:	Date: .....

					Amount	
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	Increase	Decrease

TOTALS	$0.00	$0.00
NET CHANGE IN CONTRACT PRICE	$0.00	
INCREASE (DECREASE) IN CONTRACT TIME, days		

Justification For Changes:

Division 01: General Requirements

SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.

B. Progress meetings.

C. Submittals for review, information, and project closeout.

D. Requests for Interpretation (RFI) procedures.

E. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 01 7800 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 01 7000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

B. Make the following types of submittals to Engineer:
   1. Requests for Interpretation (RFI).
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Design data.
   6. Manufacturer's instructions and field reports.
   7. Applications for payment and change order requests.
   8. Progress schedules.
   9. Coordination drawings.
   10. Correction Punch List and Final Correction Punch List for Substantial Completion.
   11. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the work at maximum bi-monthly intervals.

B. Engineer will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required:
   1. Contractor.
   2. Owner.
   3. Engineer.
   4. Contractor's superintendent.
   5. Major subcontractors.

D. Agenda:
   1. Review minutes of previous meetings.
   2. Review of work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems that impede, or will impede, planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Maintenance of progress schedule.
   7. Corrective measures to regain projected schedules.
   8. Planned progress during succeeding work period.
   9. Maintenance of quality and work standards.
   10. Effect of proposed changes on progress schedule and coordination.

11. Other business relating to work.

E. Record minutes and distribute copies within 5 days after meeting to participants.

3.02 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Engineer for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

C. Samples will be reviewed for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

3.03 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Certificates.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field reports.
   7. Other types indicated.

B. Submit for Engineer's knowledge as contract administrator or for Owner.

3.04 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 7800 - Closeout Submittals:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.05 SUBMITTAL PROCEDURES

A. General Requirements:
   1. Use a single transmittal for related items.
   2. Submit separate packages of submittals for review and submittals for information, when included in the same specification section.
   3. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
   4. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
   5. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
      a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
   6. Schedule submittals to expedite the Project, and coordinate submission of related items.
      a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.

b. For sequential reviews involving Engineer's consultants, Owner, or another affected party, allow an additional 7 days.
c. For sequential reviews involving approval from authorities having jurisdiction (AHJ), in addition to Engineer's approval, allow an additional 30 days.

7. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
8. Provide space for Contractor and Engineer review stamps.
9. When revised for resubmission, identify all changes made since previous submission.
10. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.

B. Product Data Procedures:
1. Submit only information required by individual specification sections.
2. Collect required information into a single submittal.
3. Submit concurrently with related shop drawing submittal.

C. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
2. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.

3.06 SUBMITTAL REVIEW

A. Submittals for Review: Engineer will review each submittal, and approve, or take other appropriate action.

B. Submittals for Information: Engineer will acknowledge receipt and review. See below for actions to be taken.

C. Engineer's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.

D. Engineer's and consultants' actions on items submitted for review:
1. Authorizing purchasing, fabrication, delivery, and installation:
a. "Reviewed", or language with same legal meaning.
b. "Furnish as corrected", or language with same legal meaning.
1) At Contractor's option, submit corrected item, with review notations acknowledged and incorporated.
2. Not Authorizing fabrication, delivery, and installation:

E. Engineer's and consultants' actions on items submitted for information:
1. Items for which no action was taken:
a. "Received" - to notify the Contractor that the submittal has been received for record only.
2. Items for which action was taken:
a. "Reviewed" - no further action is required from Contractor.

END OF SECTION

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SECTION 01 3510
STRUCTURAL TESTING AND SPECIAL INSPECTION

PART 1 GENERAL

1.01 INTENT AND CONDITIONS

A. Intent
   1. Define and coordinate structural testing and special inspection services.
   2. Define and coordinate conventional testing and inspection services.
   3. Provide greater confidence that the specified work is constructed in compliance with the contract documents and Chapter 17 of the 2015 International Building Code.
   4. Testing and Inspection services are intended to assist in determining probable compliance of the work with requirements specified. These services do not relieve the Contractor of responsibility for compliance with the requirements of the contract documents.

B. Conditions
   1. If inspection of fabricator's work is required, the Owner's representative may require testing and inspection of the work at the plant, before shipment. Owner, Engineer and Structural Engineer of Record (SER) reserve the right to reject material not complying with the contract documents.
   2. Testing and inspection shall be performed in accordance with the industry standard used as the reference for the specific material or procedure unless other criteria are specified. In the absence of a referenced standard, tests shall be accomplished in accordance with generally accepted industry standards.
   3. Work shall be checked as it progresses, but failure to detect any defective work or materials shall in no way prevent later rejection if defective work or materials are discovered, nor shall it obligate Owner to accept such work.

1.02 RELATED REQUIREMENTS

A. Refer to PART 3 for technical scope sections regarding specific qualifications, inspections, tests, frequency and standards required.

1.03 DEFINITIONS

A. Testing – Evaluation of systems, primarily requiring physical manipulation and analysis of materials, in accordance with approved standards.

B. Inspection – Evaluation of systems, primarily requiring observation and engineering judgment.

C. Structural Testing and Special Inspection – Structural Testing and Special Inspection Services herein include items required by the 2015 International Building Code, and other items which in the professional judgment of the Structural Engineer of Record, are critical to the integrity of the building structure.

D. Conventional Testing and Inspection – Conventional Testing and Inspection Services herein describe those items not specially required by Code but may be considered essential to the proper performance of the building systems.

E. Architect of Record – The prime consultant in charge of overall design and coordination of the project.

F. Structural Engineer of Record (SER) – The Licensed Engineer in responsible charge of the structural design for the project.

G. Licensed Structural Engineer: – A professional engineer with education and experience in the design of structures similar to this project licensed to practice in the state in which the project is located.

H. Testing Agency (TA) – The properly qualified firm performing testing services.

I. Special Inspector (SI) – A properly qualified individual or firm performing special inspections.

J. Building Official – The Officer or his duly authorized representative charged with the administration and enforcement of the 2015 International Building Code.

K. Continuous –The full-time observation of work requiring special inspection by an approved special inspector who is present in the area where the work is being performed.

L. Periodic –The part-time or intermittent observation of work requiring special inspection by an approved special inspector who is present in the area where the work is being performed.

1.04 REFERENCES

A. ASTM E329-13 - Standard Specification for Agencies Engaged in Construction, Inspection, Testing, or Special Inspection.

B. ASTM E543-15 - Standard Practice for Agencies Performing Nondestructive Testing.

C. ASTM C1077-15 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation.

D. ASTM C1093-15 - Standard Practice for Accreditation of Testing Agencies for Masonry.

E. ASTM D3740-12 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

F. AISC Steel Construction Manual 14th Edition (2010)

G. 2015 International Building Code.

H. See technical sections of PART 3 for specific references.

1.05 QUALIFICATIONS

A. Testing Agency (TA) – The testing agency shall be an approved independent testing agency acceptable to the Owner, Architect, SER and as noted below:
   1. Authorized to operate in the state in which the project is located and experienced with the requirements and testing methods specified in the technical scope sections of PART 2.
   2. Meeting applicable requirements of Section 1.04 "References".
   3. Testing equipment shall be calibrated at reasonable intervals by devices of accuracy traceable to either the National Bureau of Standards, or to accepted values of natural physical constants.

B. Special Inspector (SI) – The special inspector shall be under the direct supervision of a registered civil/structural engineer, experienced with the type of work requiring structural testing and special inspection.
   1. The categories of special inspector are:
      a. Special Inspector - Technical I, II, and III: Usually an employee of a testing agency.
      b. Special Inspector - Structural I and II: Preferably an employee of the SER's firm.
   2. Unique special inspector requirements, for specific materials and system, are noted in related technical specification sections.

1.06 RESPONSIBILITIES

A. Structural Testing and Special Inspection
   1. Special Inspectors:
      a. Sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencement of construction.
      b. If requested, attend a pre-construction meeting to review the scope of structural testing and special inspection.
      c. Test and/or inspect the work assigned for conformance with the building department approved design drawings, specifications and applicable material and workmanship provisions of the Code. Perform testing and inspection in a timely manner to avoid delay of work.
      d. Bring discrepancies to the immediate attention of the contractor for correction, confirm that they are corrected and, if uncorrected after a reasonable period of time, bring to the attention of the Structural Engineer of Record, the Building Official, and to the Architect.
      e. Submit test and/or inspection reports to the Building Official, Contractor, the Structural Engineer of Record, and other designated persons in accordance with the Structural Testing and Special Inspection Summary Schedule.
      f. Submit a final signed report stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans, specifications and the applicable workmanship provisions of the Code.
   2. Testing Agency:
      a. Sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencement of construction.

b. If requested, attend a pre-construction meeting to review the scope of structural testing and special inspection.
c. When engaged as a special inspector, provide structural testing and special inspection services as previously described.

3. Architect of Record (or other prime consultant):
   a. Complete and sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencement of construction. Provide a completed copy of the schedule to all signed parties including Building Official.
   b. If appropriate, arrange and attend a pre-construction meeting to review the scope of structural testing and special inspection. Include Contractor, Building Official, SER, Testing Agency and other parties concerned.
   c. Coordinate the flow of reports and related information to expedite resolution of construction issues.
4. Structural Engineer of Record (SER):
   a. Identify items requiring structural testing and special inspection including special cases.
   b. Define "type" of special inspector required for "description" of work indicated on the structural testing and special inspection schedule.
   c. Complete and sign the Structural Testing and Special Inspection Summary Schedule prior to commencement of construction.
   d. If requested, attend a pre-construction meeting to review the scope of structural testing and special inspection.
   e. Review reports submitted by special inspectors.
   f. If engaged as a special inspector, provide structural testing and special inspection services as previously described.
5. Contractor:
   a. Sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencement of construction.
   b. Coordinate efforts to gain signatures of all signing parties other than the Architect and Structural Engineer of Record (SER).
   c. If requested, attend a pre-construction meeting to review the scope of structural testing and special inspection.
   d. Post or make available the Structural Testing and Special Inspection Summary Schedule within its office at the job site. Also, provide adequate notification to those parties designated on the schedule so they may properly prepare for and schedule their work.
   e. Provide the special inspectors access to the approved drawings and specifications at the job site.
   f. Review reports submitted by special inspectors.
   g. Retain at the job site all reports submitted by the special inspectors for review by the building official upon request.
   h. Correct in a timely manner, deficiencies identified in inspection and/or testing reports.
   i. Provide the special inspector safe access to the work requiring inspection and/or testing.
   j. Provide labor and facilities to provide access to the work and to obtain, handle and deliver samples, to facilitate testing and inspection and for storage and curing of test samples.
   k. Verification of conformance of the work within specified construction tolerances is solely the Contractor's responsibility.
6. Fabricator:
   a. Sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencing construction.
   b. Submit a Certificate of Compliance to the Building Official, Special Inspector, and Structural Engineer of Record that the work was performed in accordance with the approved plans and specifications.
7. Building Official (Typical responsibilities noted for information only):
   a. Determine work, which in the Building Officials opinion, involves unusual hazards or conditions in accordance with the 2015 International Building Code.

b. Review special inspector qualifications.
c. Accept and sign the completed Structural Testing and Special Inspection Summary Schedule.
d. Review all fabricators who perform work in their shop, which requires special inspection.
e. Review reports and recommendations submitted by the special inspectors.
f. Review the "final signed reports" submitted by the special inspector(s). These documents should be accepted and approved by the building department prior to issuance of a Certificate of Occupancy.

8. Owner:
a. Establish direct funding to provide for cost of structural testing and special inspection services.
b. Provide special inspector with approved design drawings, specifications and approved shop drawings.
c. Provide special inspectors and testing agencies with full access to site at all times.
d. Sign the Structural Testing and Special Inspection Summary Schedule in conjunction with other responsible parties prior to commencement of construction.

B. Conventional Testing and Inspection
1. Testing Agency:
a. Test or inspect the work assigned, for conformance with building department approved plans, specifications and applicable workmanship provisions of the 2015 International Building Code.
b. Bring non-conforming items to the immediate attention of the Contractor, and if uncorrected to the Architect of Record.
c. Submit test and/or inspection reports to the Architect of Record, the Contractor and other designated persons.

2. Contractor:
a. Provide adequate notification to testing agency so they may properly prepare for and schedule their work.
b. Provide testing agency with access to the approved design drawings, approved shop drawings and specifications at the job site.
c. Correct in a timely manner, deficiencies identified in test and/or inspection reports.
d. Provide testing agency with safe access to the work requiring testing and inspection.
e. Provide labor and facilities to provide access to the work and to obtain and handle samples, to facilitate testing and inspection and for storage and curing of test samples.
f. Verification of conformance of the work within specified construction tolerances is solely the Contractor's responsibility.

3. Architect of Record (or other prime consultant):
a. Coordinate the flow of reporting and related information to expedite resolution of construction issues.

C. Inspections by Building Official
1. Contractor shall provide adequate notice for inspections performed by the Building Official, as required by the 2015 International Building Code, and local ordinance.

D. Periodic Site Observations by Design Consultant
1. Special structural testing and inspection, conventional testing and inspection, and periodic inspections by the Building Official do not preclude the normal field involvement and site observations by Architect or Structural Engineer of Record, nor shall it relieve the Contractor of any responsibility to complete the work in accordance with the approved drawings and specifications.

E. Limits of Authority
1. Testing agents and/or special inspectors may not waive or alter contract requirements, or approve or accept any portion of the work unless specifically authorized by the Architect or Structural Engineer of Record. They may not assume any duties of the Contractor, and they have no authority to stop or reject "Work".

1.07 PAYMENT

A. Owner shall directly employ and pay for services of the special inspectors to perform required Structural Testing and Special Inspection.

B. Owner shall employ and pay for services of the testing agency to perform required Conventional Testing and Inspection.

C. Unless noted otherwise, the Contractor shall provide and pay for all materials, samples, mock-ups, and assemblies required for testing and inspection and shall pay for all shipping costs related to delivery of this work. Testing agency will pay for shipping costs of samples transported from site to lab.

D. If exploratory work is required to determine the cause of defects, the cost of such work shall be paid by the Contractor, if the work is found to be defective, in the judgment of the Architect/Engineer. Contractor shall reimburse the Owner for all costs incurred in this event.

E. Any tests required to qualify the Contractor, or the workmen for any phase of the work, shall be performed at no additional cost to the Owner.

1.08 INSPECTION NOTICE

A. Contractor shall provide minimum of 24 hours notice for all items requiring testing or inspection. Items requiring testing and inspection services prior to or during placement shall not be placed until testing and inspection services are available. Items requiring testing and inspection services after placement shall not be enclosed or obscured until testing and inspection services are performed.

1.09 REPORTS

A. Testing agency and/or special inspectors shall submit reports in accordance with the Structural Testing and Special Inspection Summary Schedule and shall conduct and interpret tests and inspections and state in each report whether; (1) test specimens and observations comply with Contract Documents, and specifically state any deviations, (2) record types and locations of defects found in work, (3) record work required and performed, to correct deficiencies.

B. Reports for structural testing and special inspection, shall be submitted in timely manner to the Contractor, Building Official, SER, and Architect of Record.
   1. Submit reports for ongoing work, to provide the information noted below:
      a. Date issued.
      b. Project title and number.
      c. Firm name and address.
      d. Name and signature of tester or inspector.
      e. Date and time of sampling.
      f. Date of test or inspection.
      g. Identification of product and specification section.
      h. Location in project, including elevations, grid location and detail.
      i. Type of test or inspections.
      j. Results of tests or inspections and interpretation of same.
      k. Observations regarding compliance with Contract Documents or deviations there from.
   2. Submit a final signed report stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans, specifications and the applicable workmanship provisions of the code.

C. Reports for conventional testing and inspection shall be submitted in a timely manner to the Contractor and the Architect of Record.

1.10 FREQUENCY OF TESTING AND INSPECTION

A. For detailed requirements see technical sections of PART 3.

1.11 PROTECTION AND REPAIR

A. Upon completion of testing, sample-taking, or inspection, the Contractor shall repair damaged work and restore substrates and finishes to eliminate deficiencies, including deficiencies in the visual qualities of exposed surfaces, as judged solely by the Architect/Engineer of Record. Protect work exposed by or for testing and/or inspection and protect repaired work. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for testing and/or inspection.

1.12 TESTS TO DEMONSTRATE QUALIFICATION

A. If the Contractor proposes a product material, method, or other system that has not been pre-qualified, the Architect may require applicable tests, to establish a basis for acceptance or rejection. These tests will be paid for by the Contractor.

B. The Engineer/Engineer of Record reserves the right to require certification or other proof that the system proposed, is in compliance with any tests, criteria or standards called for. The certificate shall be signed by a representative of an independent testing agency.

PART 2 MATERIALS (NOT USED)

PART 3 SCOPE OF TESTING AND INSPECTION

3.01 STRUCTURAL TESTING AND SPECIAL INSPECTION PROGRAM SUMMARY

A. The parties involved shall complete and sign the Structural Testing and Special Inspection Summary Schedule. The Program, including Summary Schedule, shall be submitted to the building official for approval prior to issuance of a building permit. The competed schedule includes the following:
   1. A specific listing of the items requiring inspection and testing.
   2. The associated technical scope sections that define the applicable standards by which to judge conformance with the approved plans and specifications in accordance with 2015 International Building Code. The technical scope sections should also include the degree or basis of inspection and testing; i.e., intermittent/will-call or full-time/continuous.
   3. The frequency of reporting, i.e., weekly, monthly, per test/inspection, per floor, etc.
   4. The parties responsible for performing the inspection and testing work.
   5. The required acknowledgments by each designated party.

3.02 CONVENTIONAL TESTING AND INSPECTION

A. (Not Used)

3.03 STRUCTURAL TESTING AND SPECIAL INSPECTION STATEMENT OF SPECIAL INSPECTIONS

A. Refer to attached Program Summary Schedule for this project. It includes a schedule of Special Inspection services applicable to this project and the identity of agencies to be retained for conducting these inspections and tests.

B. The Special Inspector shall keep records of all inspections and shall furnish inspection reports to the Building Official, the Architect and Structural Engineer of Record. Discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official, the Architect and SER. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

C. Interim reports shall be submitted to the Building Official, Architect, and SER.

D. A Final Report of Special Inspections documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

3.04 TECHNICAL SECTIONS

A. **Section 31 2200 - Earthwork - Grading, Excavation Filling**
   1. (Not Used)
   2. Definitions
      a. Refer to PART 1 for standard definitions.
      b. Special Inspector – Technical
         1) Technical I: Technician shall be under the direct supervision of a Technical III. Work shall be performed in a qualified geotechnical/testing laboratory.
         2) Technical II: Technical with a minimum of 2 years experience, or a graduate engineer, and is an employee of a qualified and approved geotechnical/testing laboratory, under the direct supervision of a Technical III.
         3) Technical III: A civil/geotechnical engineer regularly engaged in this type of work with a minimum of 4 years experience, licensed in the State in which the project is located, and is an employee of a qualified and approved geotechnical/testing laboratory. This licensed engineer shall review and

approve all final field reports.

3. Structural Testing and Special Inspection Requirements (Item and Frequency and Qualifications)
    a. Classification of materials used and encountered during construction per ASTM:D2488 and ASTM:D2487. Technical I
    b. Performance of laboratory testing of materials, as needed (Proctor, Sieve Analysis, Atterberg Limits, Consolidation Test, etc.). Technical I
    c. Field Density Tests: Technical I
    d. Provide periodic results of field compaction and laboratory work for general compliance with Contract Documents and Geotechnical Reports. Technical I
    e. Observe all subgrades/excavation bases below footings and slabs and verify design bearing capacity is achieved. Technical II
    f. Document presence of groundwater within excavations. Technical I
    g. Provide reports of subgrade observations for general compliance with Contract Documents and Geotechnical Report. Technical II
    h. Verify cut and fill slopes as specified in the contract documents. Technical III
4. Conventional Testing and Inspections Requirements
    a. Contractor shall verify that footings comply with frost depth requirements and shall report any variances to the SER in a timely manner.

B. **Section 03 3000 - Cast-in-Place Concrete**

1. General
    a. Structural testing is required for all concrete. Thus, Special inspections as outlined below are not required for the following items:
        1) Isolated spread footings of buildings three stories or less in height that are fully supported on earth or rock.
        2) Strip footings of buildings three stories or less in height that are fully supported on earth or rock, where the footings support walls of light frame construction, the footings are designed in accordance with Table 1809.7, or the footing structural design is based on a f 'c no greater than 2500 psi.
        3) Non-structural slabs on grade, including prestressed slabs on grade when effective prestress in concrete is less than 150 pounds per square inch.
        4) Concrete foundation walls constructed in accordance with Table 1807.1.6.2.
2. Definitions
    a. Refer to PART 1 for standard definitions.
    b. Special Inspector – Technical
        1) Technical I: ACI Certified Grade I inspector. Inspector shall be employed by a testing laboratory, under the direct supervision of a Technical III.
        2) Technical II: ACI Certified Grade II inspector. Inspector shall be employed by a testing laboratory, under the direct supervision of a Technical III.
        3) Technical III: A civil/structural engineer regularly engaged in this type of work, with a minimum of 4 years experience and licensed in the State in which the project is located and is an employee of a qualified and approved testing laboratory. The licensed engineer shall review and approved all reports.
        4) Testing laboratory shall have C.C.R.L. certification at the National Bureau of Standards.
    c. Special Inspector – Structural
        1) Structural I: Graduate civil/structural engineer, or other personnel acceptable to the SER, with experience in the design of structural systems of this type. Inspections shall be performed under the direct supervision of a Structural II.
        2) Structural II: Civil/structural engineer regularly engaged in the design of structural systems of this type, licensed in the State in which the project is located. The licensed engineer shall review and approve all inspection reports.
        3) Special Inspector - Structural may be an employee of the SER.
3. Structural Testing and Special Inspection Requirements (Item and Frequency and Qualifications)
    a. Sample and test all cast in place concrete; Technical I.
        1) Prepare compression test specimens (ASTM C31), one set of four standard cylinders of concrete for each compressive strength test, mold and store

cylinders for laboratory-cured specimens. Specimens shall be 4x8 cylinders except where an alternate size has been approved by the structural engineer.

2) Perform compressive strength tests (ASTM C39). One set of four cylinders for each day's pour between one and 25 cubic yards. If a day's pour exceeds 25 cubic yards, one set of four cylinders for each additional 50 cubic yards, or fraction thereof. One specimen at seven days, two at 28 days, and one specimen retained in reserve for later testing if required. For post tensioned concrete, make and test an additional cylinder at three days to verify strength prior to stressing. (When frequency of testing will provide less than five strength tests for a given class of concrete, conduct at least five strength tests from randomly selected batches. If fewer than five batches are used, conduct one test from each batch.)

3) Slump (ASTM C143): One test at point of discharge for each set of compression test specimens; additional tests when concrete consistency appears to have changed.

4) Air entrainment (ASTM C231): Test the first batch of air entrained concrete and one additional test for each set of compression test specimens.

5) Concrete Temperature: Test concrete temperature hourly when air temperature is 40F and below and when 80F and above, and each time a set of compression test specimens is made.

b. On a periodic basis, perform concrete mix verification; Technical I.
   1) Verify mixer truck trip ticket conforms to approved mix design.
   2) Verify that total water added to mix on site does not exceed that allowed by concrete mix design.
   3) Verify that concrete quality is indicative of adequate mixing time, consistency, and relevant time limits. Technical I

c. On a continuous basis, inspect preparation and placement of all concrete.
   1) Verify the following; Structural I:
      (a) Verify acceptable general condition of concrete base prior to placement.
      (b) Verify concrete has been sampled for required concrete tests.
      (c) Verify that concrete conveyance and depositing avoids segregation and contamination.
      (d) Verify that concrete is properly consolidated.
      (e) Verify reinforcement remains at proper location.
      (f) Unless noted, inspections shall be on a continuous basis. Inspections may be performed on a periodic basis for the following types of work:

d. On a periodic basis, observe protection and curing methods for all concrete requiring inspections as outlined above; Structural I:
   1) Verify specified curing procedures are followed.
   2) Verify specified hot and cold weather procedures are followed.

e. On a continuous basis, inspect all bolts installed in concrete prior to and during concrete placement; Structural I:
   1) Verify specified size, type, spacing, configuration, embedment, and quantity.
   2) Verify proper concrete placement and means have been taken to achieve consolidation around all bolts.

4. Conventional Testing and Inspection Requirements
   a. (Not Used)

END OF SECTION

SECTION 01 7800
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project record documents.

B. Operation and maintenance data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

B. Individual Product Sections: Specific requirements for operation and maintenance data.

C. Individual Product Sections: Warranties required for specific products or Work.

PART 3 EXECUTION

2.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Addenda.
   3. Change Orders and other modifications to the Contract.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Record Drawings: Legibly mark each item to record actual construction including:
   1. Field changes of dimension and detail.
   2. Details not on original Contract drawings.

2.02 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

2.03 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

B. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

C. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

D. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

E. Provide control diagrams by controls manufacturer as installed.

F. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

G. Additional Requirements: As specified in individual product specification sections.

2.04 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Engineer, Consultants, Contractor and subcontractors, with names of responsible parties.

F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

H. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

2.05 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 30 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

Division 03: Concrete

SECTION 03 3000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.

B. Floors and slabs on grade.

C. Concrete foundation walls.

D. Concrete reinforcement.

E. Joint devices associated with concrete work.

F. Concrete curing.

G. Concrete finishing.
   1. Floor surfaces to be left exposed.

1.02 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

B. Section Division 22 - Plumbing Piping Specialties: Mechanical items for casting into concrete.

C. Section Division 26 - Grounding and Bonding for Electrical Systems: Electrical items for casting into concrete. Coordinate location with electrical contractor.

D. Section Division 32 - Exterior Concrete Flatwork. Refer to concrete flatwork for all aspects of exterior concrete flatwork except stoops, aprons, and any other concrete element bearing on the building's foundation walls.

1.03 REFERENCE STANDARDS

A. ACI 207.1R - Guide to Mass Concrete (Re-approved 2012).

B. ACI 211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide 2022.

C. ACI 301 - Specifications for Concrete Construction 2020.

D. ACI 302.1R - Guide to Concrete Floor and Slab Construction 2015.

E. ACI 302.2R - Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials

F. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000 (Reapproved 2009).

G. ACI 305R - Guide to Hot Weather Concreting 2020.

H. ACI 306R - Guide to Cold Weather Concreting 2016.

I. ACI 308R - Guide to External Curing of Concrete 2016.

J. ACI 318 - Building Code Requirements for Structural Concrete 2019 (Reapproved 2022).

K. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2022.

L. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete 2018.

M. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2023.

N. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2021.

O. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2023.

P. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens) 2021.

Q. ASTM C150/C150M - Standard Specification for Portland Cement 2022.

R. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete 2020.

S. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method 2016.

T. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete 2010a (Reapproved 2016).

U. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete 2023, with Editorial Revision.

V. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing 2017.

W. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete 2021.

X. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures 2020.

Y. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete 2018.

Z. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers 2020.

AA. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs 2018a.

BB. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs 2017 (Reapproved 2023).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

C. Mix designs: Submit mix design for each mix showing compliance with specified requirements.

D. Samples: Submit samples of underslab vapor retarder to be used.

E. Test Reports: Submit report for each test or series of tests specified.

F. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.

G. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

A. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
   1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
   2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
   3. Form Ties: Contractor's choice of standard product type that will leave no metal within 1-1/2 inches of concrete surface.

2.02 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
   1. Type: Deformed billet-steel bars.
   2. Finish: Unfinished, unless otherwise indicated.

B. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

3. Do not use clay bricks or similar blocks/chunks of material as rebar chairs. Concrete dobies as rebar chairs are acceptable.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
   1. Acquire cement for entire project from same source.

B. Cement: ASTM C150/C150M, Type I - Normal, Type II - Moderate, Portland type; or ASTM C595 Type IL - Portland-Limestone Cement Type.
   1. Acquire cement for entire project from same source.

C. Fine and Coarse Aggregates: ASTM C33/C33M.
   1. Acquire aggregates for entire project from same source.
   2. Provide aggregate free of shale at all slab locations exposed to freeze/thaw action.

D. Fly Ash: ASTM C618, Class C or F.

E. Calcined Pozzolan: ASTM C618, Class N.

F. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.

G. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

A. Chemical Admixture:
   1. Manufacturers by concrete supplier:
      a. Master Builders Solutions: www.master-builders-solutions.com.
      b. Grace Construction Products: www.gcpat.com.
      c. Fritz-Pak: www.fritzpak.com.
      d. Mapei GRT: www.mapei.com.
      e. Sika Corporation U.S.: www.usa.sika.com
      f. Euclid Chemical: www.euclidchemical.com.
      g. Substitutions: See Section 01 6000 - Product Requirements.

B. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

C. Admixtures shall comply with ASTM C494.

D. Air Entrainment Admixture: ASTM C260/C260M.

2.05 ACCESSORY MATERIALS

A. Underslab Vapor Retarder: Multi-layer polyethylene or equivalent, complying with ASTM E 1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. 10 mil minimum. The use of single ply polyethylene is prohibited.
   1. Acceptable Products:
      a. Intertape Polymer Group, Inc; VaporMaster 10: www.intertapepolymer.com.
      b. W.R. Meadows, Inc.; PERMINATOR 10 mils: www.wrmeadows.com.
      c. Vapor Block 10 mil, Class A by Raven Industries: www.vaporblock.com.
      d. Stego Wrap 10 mil, Class A by Stego Industries, LLC: www.stegoindustries.com.
      e. Moistop Ultra 10 mil, Class A by Henry Company: www.henry.com.
      f. Griffolyn 10 mil, Class A by Reef Industries, Inc.: www.reefindustries.com.
      g. Perminator 10 mil, Class A by W.R. Meadows, Inc.: www.wrmeadows.com.
      h. Viper II 10 mil, Class A by Insulation Solutions, Inc.: www.insulationsolutions.com.
      i. Yellow Guard 10 mil, Class A by Poly America: www.yellowguard.com.
      j. Barrier-Bac IntePlus VB-250 (11 mil): www.barrierbac.com.
      k. Substitutions: See Section 01 6000 - Product Requirements.
   2. Vapor Retarder Accessories: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.
   3. Location: Use at all locations indicated to have a vapor retarder; at areas with Moisture-Sensitive Flooring Materials provide an approved vapor barrier in lieu of a vapor retarder. Verify requirement of vapor barrier with final flooring and adhesive manufacturer.

B. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

1. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch.
2. Minimum Compressive Strength at 28 Days: 7,000 pounds per square inch.

C. Epoxy Grout Systems: Where indicated provide Hilti Hit-Hy 200 Epoxy System; other indicated systems; or approved equivalent system.
1. Hilti: www.hilti.com.
2. Substitutions: See Section 01 6000 - Product Requirements.

2.06 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
1. Products:
a. SpecChem, LLC; Strong Bond Acrylic Bonder: www.specchemllc.com/#sle.
b. W. R. Meadows, Inc; ACRY-LOK-: www.wrmeadows.com/#sle.
c. Substitutions: See Section 01 6000 - Product Requirements.

B. Expansion-Joint Filler: Polyethylene/polypropylene semi-rigid closed-cell backing complying with ASTM D 3575/ASTM D 8139/ASTM D 1751, 1/2 inch thick and full depth of slab less 1/2 inch with peel-off feature. Provide product by Master Builders Solutions, W.R. Meadows, Namaco, or equivalent.
1. Place peel-off feature at top of slab when sealants are specified. Remove peel-off portion of expansion-joint filler prior to application of sealants.
2. Place peel off feature at bottom of slab when no sealants are specified.

2.07 CURING MATERIALS

A. Liquid Membrane Curing Compound: ASTM C 309, Type 2, Class B, White Pigmented.
1. Product: L&M CURE R2 by Laticrete or approved equivalent.
a. Other Approved Products:
1) SpecRez White by SpecChem.
2. Application Locations: Exterior Concrete surfaces unless indicated otherwise. Finish surfaces to a light broom finish prior to applying curing compound.

B. Moisture-Retaining Sheet: ASTM C171.
1. White-burlap-polyethylene sheet, weighing not less than 3.8 ounces per square yard.

2.08 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
1. For trial mixtures method, employ independent testing agency acceptable to Engineer for preparing and reporting proposed mix designs.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.

D. Materials In General: Do not use materials or combinations thereof that will result in a reaction that is detrimental to the structural integrity or visual appearance of concrete.

E. Normal Weight Concrete: Refer to structural notes on the drawings.

2.09 MIXING

A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685/C685M. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.

B. Transit Mixers: Comply with ASTM C94/C94M.

C. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. Verify that forms are clean and free of rust before applying release agent.

C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
   1. Use latex bonding agent only for non-load-bearing applications.

E. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

F. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade according to ASTM E 1643 and manufacturer's written instructions; place sheets in position with longest dimension parallel with direction of pour.
   1. Vapor Retarder Over Granular Fill: Install compactable granular fill before placing vapor retarder as shown on the drawings. Do not use sand unless indicated otherwise.
   2. Install vapor barrier in lieu of retarder at indicated locations. Refer to accessory materials of this section.
   3. Level and compact base material.
   4. Extend vapor barrier to the perimeter of the slab. If practicable, terminate it at the top of the slab, otherwise (a) at a point acceptable to the Engineer or (b) where obstructed by impediments (such as dowels, waterstops, or any other site condition requiring early termination of the vapor barrier). At the point of termination, seal vapor barrier to the foundation wall, grade beam or slab itself.
   5. Lap joints minimum 6 inches and seal with manufacturer's recommended tape.
   6. Apply seam tape to a clean and dry vapor barrier.
   7. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions.
   8. Avoid the use of non-permanent stakes driven through vapor retarder.
   9. If non-permanent stakes are driven through vapor retarder, repair as recommended by vapor retarder manufacturer.
   10. Repair damaged vapor retarder before covering with vapor barrier material of similar (or better) permeance, puncture and tensile.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

A. Locate joints as indicated on drawings.
   1. If no pattern is shown, contractor shall provide for 15 by 15 feet saw cut areas and shall contact Engineer for exact locations of joints.

B. Anchor joint fillers and devices to prevent movement during concrete placement.

C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
   1. Install wherever necessary to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.

D. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 24 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.
   1. Do not exceed 2 inches deep when/if slab thicknesses are greater than 8 inches.

E. Construction Joints: Where not otherwise indicated, use materials compatible with plate dowel system steel plate dowel and plastic dowel sleeves with integral fasteners for attachment to formwork.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. Refer to structural notes on the drawings.

3.07 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.
   1. Where indicated install mechanical plugs for tie holes in accordance with manufacturers instructions.

B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.

C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide other finishes as follows:
   1. Grout-Cleaned Finish (Class A per ACI 347): Wet concrete surfaces and apply grout of a consistency of thick paint to coat surface and fill small holes. Mix one part portland cement to one and one-half parts fine sand with 1:1 moisture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
      a. Locations: Provide this finish only where indicated on the drawings.

D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
   2. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.
      a. Installation of sealant is recommended prior to installation of floor sealers to prevent the need for cleaning of saw cut joints for proper sealant adhesion.
      b. Chemical Curer/Sealer/Dustproofer/Hardener(When Applicable): Apply product per manufacturer's instructions after curing and protection procedures are complete.
         1) Acceptable Product:
            (a) Laticrete: www.laticrete.com.
            (b) Product: L&M Dress & Seal; Acrylic Cure, Sealer, and Dustproofer.
               (1) Location: Storage/mechanical/exposed areas not to receive other finishes.
            (c) Product: L&M Seal Hard; Concrete Sealer, Densifier, Chemical Hardener.
               (1) Location: Garage/shop/warehouse type areas.
         2) Other Acceptable Manufacturers:
            (a) Dayton Superior Corporation: www.daytonsuperior.com.
            (b) Master Builders Solutions: www.master-builders-solutions.com.
            (c) Ashford Formula by Curecrete Distribution, Inc: www.ashfordformula.com.
            (d) L.M. Scofield Company: www.scofield.com.
            (e) The Euclid Chemical Company: www.euclidchemical.com.
         3) Substitutions: See Section 01 6000 - Product Requirements.

E. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains as indicated on drawings.

F. At exterior slabs, aprons, and other horizontal locations provide a light broom finish and liquid membrane curing compound finish unless indicated otherwise.

G. At interior slabs do not over trowel where concrete is to be left exposed to avoid slippery surfaces when wet. Review finishing with Architect's representative prior to completing the work.

3.08 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than 7 days by saturated burlap unless noted otherwise.
      a. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.
   2. Final Curing: Begin after initial curing but before surface is dry.
   3. Where damp curing is not feasible due to location, and with written permission of SER, spray with an approved curing compound. In general, curing compound is not an acceptable substitute for damp curing.

3.09 MASS CONCRETE

A. Unless otherwise noted, any concrete member with least dimension greater than 29 inches is defined as Mass Concrete. Smaller elements utilizing high strength concrete may be identified as Mass Concrete in the drawings or specification.

B. Mass Concrete is subject to the following temperature limitations:
   1. Maximum internal temperature is 150 degrees Fahrenheit.
   2. Maximum differential (gradient) between internal (core) and nearby surface temperatures is 35 degrees Fahrenheit. Maximum differential between core and surface temperatures more than 20 feet apart is 40 degrees Fahrenheit.

C. Contractor shall submit a Thermal Control and Placement Plan containing:
   1. Calculations of maximum internal temperature and maximum gradient, based on the approved mix design or designs.
   2. Required concrete temperature at time of placement (Maximum Placement Temperature).
   3. Estimated set time and finishing plan.
   4. Number and approximate location of temperature sensors, and measurement interval.
   5. Intended blanketing, with assumed likely range of external temperatures during and after placement. Note that blankets may be required in warm weather to control temperature gradient.
   6. Likely length of time that blankets are required to minimize gradient.
   7. If necessary, Plan shall also include cooling through internal piping.
   8. Through-thickness construction joints.
   9. Placement methodology (bucketing, pumps, conveyors, etc.) and intended placement rate.
   10. Placement intent for slabs (full thickness, or layers).

D. On slabs, recheck surface elevations for changes due to subsidence or sloughing after initial screeding.

E. Typical wet curing requirements apply to Mass Concrete, but blanket requirements in other sections are superseded by requirement C.5 above. Blankets are required in warm weather to reduce thermal gradient. Maintain blankets until core and surface temperatures are and are expected to remain within 40 degrees of one another; but blankets need not be maintained for more than two weeks.

F. Typical cold weather temperature requirements apply to Mass Concrete unless superseded by the approved Thermal Control and Placement Plan.

3.10 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Submit proposed mix design of each class of concrete to Engineer for review prior to commencement of concrete operations.

D. For testing requirements refer to structural notes on the drawings and, where applicable, as indicated below.

E. Refer to Section 01 3510 - Structural Testing and Special Inspection Requirements for testing requirements.

3.11 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Engineer and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
   1. Concrete damaged by the construction activities required to complete the Work of this section shall also be considered defective concrete.

C. Repair or replacement of defective concrete will be determined by the Engineer. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

3.12 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

Division 06: Wood, Plastics, and Composites

SECTION 06 1000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.

B. Nonstructural dimension lumber framing.

C. Preservative treated wood materials.

D. Miscellaneous framing and sheathing.

E. Concealed wood blocking, nailers, and supports.

1.02 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2023.

B. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings 2018, with Errata (2019).

C. AWPA U1 - Use Category System: User Specification for Treated Wood 2023.

D. PS 1 - Structural Plywood 2019.

E. PS 2 - Performance Standard for Wood Structural Panels 2018.

F. PS 20 - American Softwood Lumber Standard 2021.

G. WWPA G-5 - Western Lumber Grading Rules 2021.

1.03 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
   2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: Western Wood Products Association; WWPA G-5.

B. Sizes: Nominal sizes as indicated on drawings, S4S.

C. Moisture Content: S-dry or MC19.
   1. Plates: MC15 or KD15.

D. Stud Framing (2 by 2 through 2 by 6):
   1. Species: Douglas Fir-Larch.
   2. Grade: No. 2 & Btr.

E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS

A. Roof Sheathing, OSB: PS 2 type, rated Structural I Sheathing.
   1. Bond Classification: Exposure 1.
   2. Span Rating: 24.
   3. Performance Category: 5/8 PERF CAT.

B. Wall Sheathing, For Interior wall and ceiling: PS 2 type.
   1. Bond Classification: Exposure 1.
   2. Grade: Structural I Sheathing.
   3. Span Rating: 24.
   4. Performance Category: 1/2 PERF CAT.
   5. Edge Profile: Square edge.

C. Miscellaneous Applications:
   1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
   2. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
   3. Other Locations: PS 1, C-D Plugged or better.

2.04 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.

B. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.

2.05 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Preservative Treatment:
   1. Products:
      a. Lonza Group: www.wolmanizedwood.com/#sle.
      b. Viance, LLC; Preserve ACQ: www.treatedwood.com/#sle.
      c. Substitutions: See Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. All wood exposed to or in contact with masonry or concrete shall be Preservative Treated Wood.

B. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

C. Securely install blocking, size within 1/16 of required dimension, and install plumb and level.

3.02 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

E. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.03 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

3.04 INSTALLATION OF CONSTRUCTION PANELS

A. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
   1. At long edges use sheathing clips where joints occur between roof framing members.
   2. Nail panels to framing; staples are not permitted.

B. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using screws.

C. Blocking: As indicated on drawings.

3.05 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane, Other than Floors: 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.06 CLEANING

A. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.

B. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

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SECTION 06 1613
NON-INSULATING SHEATHING (ZIP SYSTEM SHEATHING)

PART 1 GENERAL

1.01 SUMMARY

A. Section includes non-insulated wall sheathing with integral water-resistive barrier and air barrier.

1.02 REFERENCES

A. American Society of Mechanical Engineers (ASME): www.asme.org.
   1. ASME B18.6.1 - Wood Screws (Inch Series)

B. ASTM International (ASTM): www.astm.org.
   1. ASTM A153/A153M - Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
   2. ASTM D779 - Test Method for Water Resistance of Paper, Paperboard, and Other Sheet Materials by the Dry Indicator Method
   3. ASTM D1621 - Test Method for Compressive Properties Of Rigid Cellular Plastics
   4. ASTM D2247 - Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
   5. ASTM E96/E 96M - Test Methods for Water Vapor Transmission of Materials
   6. ASTM E331 - Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
   7. ASTM E2357 - Test Method for Determining Air Leakage of Air Barrier Assemblies
   8. ASTM F1667 - Specification for Driven Fasteners: Nails, Spikes, and Staples
   9. ASTM G154 - Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials

C. US Department of Commerce (DOC): http://gsi.nist.gov/global/index.cfm/L1-5/l2-44/A-355.
   1. DOC PS 2 - Performance Standard for Wood-Based Structural Panels

D. International Code Council (ICC): www.iccsafe.org.
   1. ICC IBC - International Building Code
   2. ICC IRC - International Residential Code for One and Two-Family Dwellings

E. ICC Evaluation Service, Inc. (ICC-ES): www.icc-es.org.
   1. ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers
   2. ICC-ES AC116 - Acceptance Criteria for Nails and Spikes
   3. ICC-ES AC148 - Acceptance Criteria For Flexible Flashing Materials
   4. ICC-ES AC201 - Acceptance Criteria for Staples
   5. ICC-ES AC269 - Acceptance Criteria for Racking Shear Evaluation of Proprietary Sheathing Materials attached to Light-Frame Wall Construction or Code-Complying Sheathing Attached to Light-Framed Walls with Proprietary Fasteners
   6. ICC-ES AC310 - Acceptance Criteria for Water-Resistive Membranes Factory-bonded to Wood-based Structural Sheathing, Used as Water-Resistive Barriers
   7. ICC-ES ESR-1539 - Power Driven Staples and Nails for Use in Engineered and Non-Engineered Connections
   8. ICC-ES NER-272 - Power Driven Staples and Nails for Use in All Types of Building Construction

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: For each type of sheathing product specified.

C. Samples: Submit one sample of each accessory related toSheathing.

1.04 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: From ICC-ES, for wood sheathing and seam tape.

B. Product Certifications: From manufacturer, indicating that sheathing products comply with ICC-ES AC269 and ICC-ES AC310.

1.05 CLOSEOUT SUBMITTALS

A. Warranty: Executed copy of manufacturer special warranties.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide wood products from manufacturer certified by SFI, FSC, or comparable sustainable forestry program acceptable to Architect.

B. Provide wall sheathing products meeting requirements for water-resistive barrier in accordance with ICC-ES AC310.

C. Provide wall sheathing products meeting requirements of ICC-ES AC269.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's written instructions for protection of sheathing products from weather prior to installation.

1.08 WARRANTY

A. Special Manufacturer's Warranty: Manufacturer's standard form in which sheathing manufacturer agrees to repair or replace sheathing products that demonstrate deterioration or failure under normal use due to manufacturing defects within warranty period specified, when installed according to manufacturer's instructions.
   1. Warranty Period for Sheathing Products: 30 years following date of Substantial Completion.
   2. Warranty Conditions: Special warranties exclude deterioration or failure due to structural movement resulting in stresses on sheathing products exceeding manufacturer's written specifications, or due to air or moisture infiltration resulting from cladding failure or mechanical damage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design Product: Provide sheathing products manufactured by Huber Engineered Woods LLC, Charlotte NC; Phone: (800) 933-9220; Website: www.zipsystem.com.

2.02 PERFORMANCE REQUIREMENTS

A. Air-Barrier Assembly Air Leakage: Less than 0.04 cfm/sq. ft. at 1.57 lbf/sq. ft. (0.2 L/s x sq. m at 75 Pa), per ASTM E2375.

B. Water-Vapor Permeance, Facer: Minimum 12 perms (689 ng/Pa x s x sq. m), ASTM E96/E96M.

C. Weather Exposure: Manufacturer warranty applies for maximum allowable exposure period of 180 days.

2.03 MATERIALS

A. Oriented Strand Board: DOC PS 2, made with binder containing no added urea formaldehyde.

2.04 COMPOSITE NON-INSULATING WALL SHEATHING

A. Composite Non-Insulating Wall Sheathing: Oriented-strand-board Exposure 1 sheathing 7/16 inch (11.1 mm) thick, with factory-laminated water-resistive barrier exterior facer.
   1. Basis-of-Design Product: Provide Huber Engineered Woods LLC; ZIP System R Sheathing.
   2. Span Rating and Performance Category of Sheathing Layer: Not less than 24/16; 7/16 Performance Category.
   3. Edge Profile: Square edge.
   4. Exterior Facer: Medium-density, phenolic-impregnated polymer-modified sheet material meeting requirements for ASTM D779 Grade D weather-resistive barrier in accordance with ICC AC38 and AC310, with fastener spacing symbols on exterior facer for 16-inch (406 mm) on center spacing, with the following characteristics
      a. Water Resistance of Coatings, ASTM D2247: Pass 14 day exposure test.
      b. Moisture Vapor Transmission, ASTM E96: Not less than 12 perms.
      c. Water Penetration, ASTM E331: Pass at 2.86 lbf/sq. ft. (137 Pa).
      d. Wind Driven Rain, TAS-100: Pass.
      e. Accelerated Weathering, ASTM G154: Pass.

2.05 FASTENERS

A. Fasteners, General: Size and type complying with manufacturer's written instructions for Project conditions and requirements of authorities having jurisdiction.
   1. Corrosion Resistance: Hot-dip zinc coating, ASTM A153/A 153M or Type 304 stainless steel.

B. Nails, Brads, and Staples: ICC AC116 and ICC AC201.

C. Power-Driven Fasteners: ICC-ES-1539 or NER-272.

D. Wood Screws: ASME B18.6.1.

2.06 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIAL

A. Self-Adhering Seam and Flashing Tape: Pressure-sensitive, self-adhering, cold-applied, seam tape consisting of polyolefin film with acrylic adhesive, meeting ICC AC148.
   1. Basis-of-Design Product: Provide Huber Engineered Woods; ZIP System Tape.
   2. Thickness: 0.012 inch (0.3 mm).

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine framing spacing and alignment to determine if work is ready to receive sheathing. Proceed with sheathing work once conditions meet requirements.

3.02 SHEATHING INSTALLATION

A. Install sheathing panels in accordance with manufacturer's written instructions, requirements of applicable Evaluation Reports, and requirements of authorities having jurisdiction.

B. Air and Moisture Barrier: Coordinate sheathing installation with flashing and joint sealant installation and with adjacent building air and moisture barrier components to provide complete, continuous air- and moisture- barrier.

C. Do not bridge expansion joints; allow joint spacing equal to spacing of structural supports.

D. Install panels with laminated facer to exterior. Stagger end joints of adjacent panel runs.

E. Attach sheathing panels securely to substrate with manufacturer-approved fasteners in compliance with the following:
   1. ICC-ES ESR-1539 or ICC-NES NER-272 for power-driven fasteners.
   2. IBC: Table 2304.9.1 Fastening Schedule.

F. Apply seam tape at all panel seams, penetrations, and facer defects or cracks to form continuous weathertight surface. Apply tape according to manufacturer's written instructions and requirements of ICC-ES applicable to tape application.

END OF SECTION

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SECTION 06 1753
SHOP-FABRICATED WOOD TRUSSES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated wood trusses for roof framing.

B. Bridging, bracing, and anchorage.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Installation requirements for miscellaneous framing.

B. Section 06 1000 - Rough Carpentry: Material requirements for blocking, bridging, plates, and miscellaneous framing.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2023.

B. TPI BCSI 1 - Building Component Safety Information Booklet: The Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses 2018.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on plate connectors, bearing plates, and metal bracing components.

C. Shop Drawings: Show truss configurations, sizes, spacing, size and type of plate connectors, cambers, framed openings, bearing and anchor details, and bridging and bracing.
   1. Include identification of engineering software used for design.
   2. Provide shop drawings stamped or sealed by design engineer.

1.05 QUALITY ASSURANCE

A. Designer Qualifications: Perform design by or under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State in which the Project is located.

B. Fabricator Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Handle and erect trusses in accordance with TPI BCSI 1.

B. Store trusses in vertical position resting on bearing ends.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Truss Plate Connectors:
   1. Alpine, an ITW Company: www.alpineitw.com.
   2. MiTek Industries, Inc: www.mii.com.
   3. Substitutions: See Section 01 6000 - Product Requirements.

2.02 TRUSSES

A. Wood Trusses: Designed and fabricated in accordance with TPI 1 and TPI DSB-89 to achieve structural requirements indicated.
   1. Design Roof Live and Dead Load: Deflection limited to 1/240. See drawings for loading.

2.03 MATERIALS

A. Lumber:
   1. Species: SPF or better.
   2. Grade: RIS (GR), Grade Min. No. 2.
   3. Moisture Content: Between 7 and 9 percent.
   4. Lumber fabricated from old growth timber is not permitted.

B. Steel Connectors: Hot-dipped galvanized steel sheet, ASTM A653/A653M Structural Steel (SS) Grade 33/230, with G90/Z275 coating; die stamped with integral teeth; thickness as indicated.

C. Truss Bridging: Type, size and spacing recommended by truss manufacturer.

2.04 ACCESSORIES

A. Wood Blocking, Bridging, Plates, and Miscellaneous Framing: Softwood lumber, Spruce/Pine/Fir, construction grade, 19 percent maximum and 7 percent minimum moisture content.

B. Fasteners: Hot-dip galvanized steel, type to suit application.

C. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions. Simpson, USP, or approved equivalent.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that supports and openings are ready to receive trusses.

3.02 PREPARATION

A. Coordinate placement of bearing items.

3.03 ERECTION

A. Install trusses in accordance with manufacturer's instructions and TPI DSB-89 and TPI BCSI 1; maintain a copy of each TPI document on site until installation is complete.

B. Set members level and plumb, in correct position.

C. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure plumb, and in true alignment until completion of erection and installation of permanent bracing.

D. Do not field cut or alter structural members without approval of Engineer.

E. Install permanent bridging and bracing.

F. Install headers and supports to frame openings required.

G. Frame openings between trusses with lumber in accordance with Section 06 1000.

H. Coordinate placement of decking with work of this section.

I. After erection, touch-up galvanized surfaces with zinc primer.

3.04 TOLERANCES

A. Framing Members: 1/4 inch maximum, from true position.

END OF SECTION

Division 07: Thermal and Moisture Protection

SECTION 07 2100
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Board insulation at perimeter foundation wall and below grade.

B. Batt insulation and vapor retarder in exterior wall construction.

1.02 REFERENCE STANDARDS

A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation 2022.

B. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing 2023.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023b.

D. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 °C 2022.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

1.04 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 FOAM BOARD INSULATION MATERIALS

A. Extruded Polystyrene (XPS) Board Insulation: Comply with ASTM C578 with either natural skin or cut cell surfaces.
   1. Type and Compressive Resistance: Type IV, 25 psi (173 kPa), minimum.
   2. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
   3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
   4. Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88), minimum, per 1 inch thickness at 75 degrees F mean temperature.
   5. Board Size: 48 x 96 inch.
   6. Board Thickness: As indicated on the drawings.
   7. Board Edges: Square.
   8. Thermal Conductivity (k factor) at 75 degrees F: 0.18.
   9. Compressive Resistance: 25 psi.
   10. Installation Locations:
      a. Natural Skin Surfaces: All locations unless indicated otherwise.
      b. Cut Cell Surfaces: Locations at grade where parging is indicated.
   11. Manufacturers:
      a. DuPont de Nemours, Inc: building.dupont.com/#sle.
      b. Owens Corning Corporation: www.ocbuildingspec.com/#sle.
      c. Kingspan Insulation LLC: www.trustgreenguard.com.
      d. Diversifoam Products: www.diversifoam.com.
   12. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MINERAL FIBER BLANKET INSULATION MATERIALS

A. Flexible Glass Fiber Blanket Thermal Insulation: Preformed insulation, complying with ASTM C665; friction fit.
   1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
   2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
   3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
   4. Formaldehyde Content: Zero.

5. Facing: Unfaced.
6. Products:
    a. CertainTeed Corporation: www.certainteed.com.
    b. Johns Manville: www.jm.com.
    c. Owens Corning Corporation: www.ocbuildingspec.com/#sle.

B. Mineral Wool Blanket Thermal Insulation: Flexible or semi-rigid preformed insulation, complying with ASTM C665.
1. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
2. Products:
    a. Johns Manville: www.jm.com/#sle.
    b. Knauf Insulation: www.knaufinsulation.com/#sle.
    c. ROCKWOOL (ROXUL, Inc): www.rockwool.com/#sle.
    d. Thermafiber, Inc: www.thermafiber.com/#sle.
    e. Substitutions: See Section 01 6000 - Product Requirements.

2.03 ACCESSORIES

A. Sheet Vapor Retarder: Clear polyethylene film for above grade application, 6 mil thick.

B. Tape: Polyethylene self-adhering type, 2 inch wide.

C. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER

A. Apply adhesive to back of boards:
1. By methods approved by board and adhesive manufacturers.

B. Install boards horizontally on foundation perimeter.

C. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.03 BATT INSTALLATION

A. Install insulation and vapor retarder in accordance with manufacturer's instructions.

B. Install in exterior wall spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. At wood framing, place vapor retarder on warm side of insulation by stapling at 6 inches on center. Lap and seal sheet retarder joints over face of member.

F. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over face of member

G. Tape seal tears or cuts in vapor retarder.

H. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane; tape seal in place.

3.04 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 2126
BLOWN INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Ceiling and Attic: Blown insulation pneumatically placed into joist spaces through access holes.

1.02 REFERENCE STANDARDS

A. ASTM C1015 - Standard Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation 2017.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and limitations.

C. Manufacturer's Installation Instructions: Indicate procedure for preparation and installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Blown Insulation:
   1. GreenFiber: www.greenfiber.com/#sle.
   2. Thermafiber, Inc: www.thermafiber.com/#sle.
   3. Fiberlite Technologies, Inc: www.fiberlitetech.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

A. Applications: Provide blown insulation in attic and ceiling as indicated on drawings.

B. Loose Fill Insulation: ASTM C739, cellulose fiber type, bulk for pneumatic placement.

2.03 ACCESSORIES

A. Roof Ventilation Baffles: Prefabricated ventilation channels for placement under roof sheathing with baffles to prevent wind-washing.
   1. Material: Polyvinyl chloride (PVC), polystyrene, or similar material.
   2. Roof Joist/Truss Spacing: 24 inch on center, nominal.
   3. Manufacturers:
      a. Brentwood Industries, Inc; AccuVent Original: www.brentwoodindustries.com/#sle.
      b. Durovent or ProVent by ADO Product or equivalent.
      c. Substitutions: Or equivalent.
   4. Sheet Vapor Retarder: Clear polyethylene film for above grade application, 6 mil thick.
   5. Tape: Polyethylene self-adhering type, 2 inch wide.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify spaces are unobstructed to allow for proper placement of insulation.

3.02 INSTALLATION

A. Install insulation and ventilation baffle in accordance with ASTM C1015 and manufacturer's instructions.

B. At wood framing, place vapor retarder on warm side of insulation by stapling at 6 inches on center. Lap and seal sheet retarder joints over member face.

C. Place insulation pneumatically to completely fill joist and rafter spaces.

D. Place insulation against baffles, and do not impede natural attic ventilation to soffit.

E. Completely fill intended spaces leaving no gaps or voids.

3.03 CLEANING

A. Remove loose insulation residue.

END OF SECTION

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SECTION 07 2500
WEATHER BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Air Barriers: Materials that form a system to stop passage of air through exterior walls.

1.02 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Sealing building expansion joints.

1.03 REFERENCE STANDARDS

A. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection 2021.

B. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials 2022a, with Editorial Revision (2023).

C. ASTM E2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials 2021a.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on material characteristics, system components, and system components.

C. Manufacturer's Installation Instructions: Indicate preparation and installation methods.

1.05 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

A. Air Barrier:
   1. On outside surface of sheathing of exterior walls use air barrier sheet, mechanically fastened type sheet, mechanically fastened type.

2.02 AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

A. Air Barrier Sheet, Mechanically Fastened:
   1. Air Permeance: 0.004 cfm/sq ft, maximum, when tested in accordance with ASTM E2178.
   2. Ultraviolet and Weathering Resistance: Approved in writing by manufacturer for minimum of 4 month weather exposure.
   3. Surface Burning Characteristics: Flame spread index of 25 or less, and smoke developed index of 50 or less, when tested in accordance with ASTM E84.
   4. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches wide, compatible with sheet material; unless otherwise specified.
   5. Manufacturers:
      a. DuPont Company; Tyvek HomeWrap: www.dupont.com.
      b. Fiberweb, Inc; Typar MetroWrap: www.typar.com/#sle.
      c. Fortifiber Building Systems Group; WeatherSmart: www.fortifiber.com/#sle.
      d. VaproShield, LLC; WrapShield: www.vaproshield.com.
      e. DOW; Weathermate Plus Housewrap: www.dow.com.
      f. Barricade Building Products; Barricade Plus: www.barricadebp.com.
      g. Benjamin Obdyke; HydroGap Drainable Housewrap: www.benjaminobdyke.com.
      h. Grip Rite; Commercial Grade Weather Barrier: www.grip-rite.com.
      i. TamlynWrap; Drainable Housewrap: www.tamlynwrap.com.
      j. Substitutions: See Section 01 6000 - Product Requirements.

2.03 ACCESSORIES

A. Flexible Flashing: Self-adhesive sheet flashing complying with ASTM D1970/D1970M, except slip resistance requirement is waived if not installed on a roof.

B. Seam Tape: As recommended by the weather barrier manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions are ready to accept the work of this section.

B. Verify that all openings and penetrations are in place and ready for the work of this section. It is the responsibility of the contractor of this section to repair new penetrations at the cost of the contractor who created new penetrations after the work of this section was completed.

3.02 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Air Barriers: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

C. Mechanically Fastened Sheets - On Exterior:
   1. Install sheets shingle-fashion to shed water, with seams generally horizontal.
   2. Overlap seams as recommended by manufacturer but at least 6 inches.
   3. Overlap at outside and inside corners as recommended by manufacturer but at least 12 inches.
   4. For applications specified to be air tight, seal seams, laps, penetrations, tears, and cuts with self-adhesive tape; use only large-headed, gasketed fasteners recommended by the manufacturer.
   5. Install air barrier and vapor retarder underneath the jamb flashings.
   6. Install head flashings under weather barrier.
   7. At openings to be filled with frames having nailing flanges, wrap excess sheet into opening; at head, seal sheet over flange and flashing.

D. Openings and Penetrations in Exterior Weather Barriers:
   1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches onto weather barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
   2. At openings to be filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches wide; do not seal sill flange.
   3. At openings to be filled with non-flanged frames, seal weather barrier to each side of opening framing, using flashing at least 9 inches wide, covering entire depth of framing.
   4. At head of openings, install flashing under weather barrier extending at least 2 inches beyond face of jambs; seal weather barrier to flashing.
   5. At interior face of openings, seal gap between window/door frame and rough framing, using joint sealant over backer rod.
   6. Service and Other Penetrations: Form flashing around penetrating item and seal to weather barrier surface.

3.03 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

SECTION 07 4113
METAL ROOF PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal roof panel system of preformed steel panels.

B. Attachment system.

C. Finishes.

D. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Roof sheathings and coverboards.

1.03 REFERENCE STANDARDS

A. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process 2022.

B. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference 2005 (Reapproved 2017).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
   1. Show work to be field-fabricated or field-assembled.

C. Verification Samples: For each roofing system specified, submit samples of minimum size 12 inches square, representing actual roofing metal, thickness, profile, color, and texture.

D. Test Reports: Indicate compliance of metal roofing system to specified requirements.

E. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

1.05 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Finish Warranty: Provide manufacturer’s special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of twenty year period from date of Substantial Completion.

C. Special Warranty: Provide 2-year warranty for weathertightness of roofing system, including agreement to repair or replace metal roof panels that fail to keep out water commencing on the Date of Substantial Completion. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metal Roof Panel Manufacturers:
   1. MBCI; PBR Panel: www.mbci.com/#sle.
   2. Substitutions: See Section 01 6000 - Product Requirements.

B. Other Acceptable Manufacturers; Metal Roof Panels:
   1. ATAS International, Inc: www.atas.com/#sle.
   2. Holcim Elevate; Product UNA-CLAD UC-4: www.holcimelevate.com.
   3. Petersen Aluminum Corporation: www.pac-clad.com/#sle.
   4. Varco Pruden Buildings: www.vp.com .
   5. Berridge: www.berridge.com .
   6. Metal Sales Manufacturing Corporation: www.metalsales.us.com .
   7. Kingspan: www.kingspanpanles.us .
   8. McElroy Metal, Inc.: www.mcelroymetal.com .
   9. IMETCO Innovative Metals Company, Inc.: www.imetco.com .
   10. Metl-Span LLC: wwww.metlspan.com.

11. MBCI: www.mbci.com.
12. Mac Metals Architectural: www.macmetalarchitectural.com.

2.02 PERFORMANCE REQUIREMENTS

A. Metal Roof Panels: Provide complete roofing assemblies, including roof panels, clips, fasteners, connectors, and miscellaneous accessories, tested for compliance with the following minimum standards:
   1. Structural Design Criteria: Provide panel assemblies designed to safely support design loads at support spacing indicated, with deflection not to exceed L/180 of span length(L) when tested in accordance with ASTM E1592.
   2. Overall: Complete weathertight system tested and approved in accordance with ASTM E1592.
   3. Thermal Movement: Design system to accommodate without deformation anticipated thermal movement over ambient temperature range of 100 degrees F.

2.03 METAL ROOF PANELS

A. Metal Roof Panels: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.

B. Metal Panels: Factory-formed panels with factory-applied finish.
   1. Steel Panels:
      a. Aluminum-zinc alloy-coated steel complying with ASTM A792/A792M; minimum AZ50 coating.
      b. Steel Thickness: Minimum 24 gauge, 0.024 inch.
   2. Texture: Smooth.
   3. Length: Full length of roof slope, without lapped horizontal joints.
   4. Width: Maximum panel coverage of 18 inches.

2.04 ATTACHMENT SYSTEM

A. Exposed System: Provide manufacturers recommended stainless steel fasteners engineered to meet performance requirements and equipped with appropriate sealant separators to provide weathertight connections that will accommodate anticipated thermal movement.

2.05 FABRICATION

A. Panels: Provide factory fabricated panels with applied finish and accessory items, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

2.06 FINISHES

A. Fluoropolymer Coating System: Manufacturer’s standard multi-coat thermocured coating system, including minimum 70 percent fluoropolymer color topcoat with minimum total dry film thickness of 0.9 mil; color and gloss as selected from manufacturers full range of colors by the Architect.

2.07 ACCESSORIES

A. Miscellaneous Sheet Metal Items: Provide flashings, trim, moldings, closure strips, caps, and equipment curbs of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.

B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.

C. Sealants:
   1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
   2. Concealed Sealant: Non-curing butyl sealant or tape sealant.

D. Self-adhering/adhesive membrane roofing underlayment 2 Layers: Underlayment shall be manufactured by same manufacturer as metal panels when available; Grace Construction Products Ice and water shield HT; Tamko Building Products, Inc. TW Underlayment; Elevate Clad-Gard SA; or approved equivalent with a minimum of 25 years experience in the production and sales of self-adhered membrane roofing underlayments. Underlayment products shall meet the requirements of ASTM D 1970 for self-adhering roofing underlayments.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

3.02 INSTALLATION

A. Overall: Install roofing system in accordance with approved shop drawings and metal roof panel manufacturer's instructions and recommendations, as applicable to specific project conditions; securely anchor components of roofing system in place allowing for thermal and structural movement.
   1. Install roofing system with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances.
   2. Install roofing system with exposed fasteners prefinished to match panels.
   3. Minimize field cutting of panels. Where field cutting is required, use methods that will not distort panel profiles. Use of torches for field cutting is prohibited.
      a. Field cutting shall be done in accordance with panel manufacturer's recommendations and shall not void panel warranty.

B. Accessories: Install necessary components that are required for complete roofing assembly, including flashings, trim, moldings, closure strips, caps, equipment curbs, rib closures, ridge closures, and similar roof accessory items.

C. Underlayment 2 Layers: Install roofing underlayment per manufacturers instructions before installing preformed metal roof panels. Secure by methods acceptable to metal roof panel manufacturer. Apply from eaves to ridge in shingle fashion, overlapping joints according to manufactures recommendations to meet the requirements of the metal roof panel system.

3.03 CLEANING

A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.04 PROTECTION

A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.

B. Touch-up, repair, or replace damaged roof panels or accessories before Date of Substantial Completion.

END OF SECTION

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SECTION 07 4213
METAL WALL PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured metal panels for exterior wall panels, with related flashings and accessory components.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wall panel substrate.

B. Section 07 2500 - Weather Barriers: Weather barrier under wall panels.

1.03 REFERENCE STANDARDS

A. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process 2022.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Verification Samples: For each wall panel system specified, submit samples of minimum size 12 inches square, representing actual roofing metal, thickness, profile, color, and texture.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

B. Store prefinished material off the ground and protected from weather; prevent twisting, bending, or abrasion; provide ventilation; slope metal sheets to ensure proper drainage.

C. Prevent contact with materials that may cause discoloration or staining of products.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Finish Warranty: Provide 5-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Design is based on PBR manufactured by MBCI.

B. Other Acceptable Manufacturers:
   1. Varco Pruden Buildings: www.vp.com .
   2. Holcim Elevate: www.holcimelevate.com.
   3. Berridge: www.berridge.com .
   4. Metal Sales Manufacturing Corporation: www.metalsales.us.com .
   5. McElroy Metal, Inc.: www.mcelroymetal.com .
   6. Kingspan: www.kingspanpanles.us .
   7. MBCI Panel: www.mbci.com.
   8. Metl-Span LLC: wwww.metlspan.com.
   9. Mac Metals Architectural: www.macmetalarchitectural.com.
   10. Waard Metals: www.waardmetals.com.
   11. Substitutions: See Section 01 6000 - Product Requirements.

2.02 METAL WALL PANEL SYSTEM

A. Wall Panel System: Factory fabricated prefinished metal panel system, site assembled.
   1. Provide exterior wall panels.
   2. Design and size components to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of wall.
   3. Maximum Allowable Deflection of Panel: L/180 for length(L) of span.
   4. Movement: Accommodate movement within system without damage to components or deterioration of seals, movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; and

deflection of structural support framing.

5. Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
6. Fabrication: Formed true to shape, accurate in size, square, and free from distortion or defects; pieces of longest practical lengths.

B. Exterior Wall Panels:
1. Profile: Vertical; style as indicated.
2. Side Seams: Double-interlocked, tight-fitting, unsealed without sealant.
3. Steel Thickness: Minimum 24 gauge.
4. Panel Width: 36 inches.

C. Internal and External Corners: Same material, thickness, and finish as exterior sheets; smoothprofile to suit system; shop cut and factory mitered to required angles.

D. Trim: Same material, thickness and finish as exterior sheets; brake formed to required profiles.

E. Anchors: Galvanized steel.

2.03 MATERIALS

A. Precoated Steel Sheet: Aluminum-zinc alloy-coated steel sheet, ASTM A792/A792M, Commercial Steel (CS)) or Forming Steel (FS), with AZ50/AZM150 coating; continuous-coil-coated on exposed surfaces with specified finish coating and on panel back with specified panel back coating.

2.04 FINISHES

A. Exposed Surface Finish: Panel manufacturer's standard polyvinylidene fluoride (PVDF) coating, top coat over epoxy primer.

2.05 ACCESSORIES

A. Concealed Sealants: Non-curing butyl sealant or tape sealant, see Section 07 9200

B. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.

C. Sealants: Manufacturer's standard type suitable for use with installation of system; non-staining, non-skinning, non-shrinking, non-sagging, and ultra-violet resistant and ozone resistant.

D. Fasteners: Manufacturer's standard type to suit application; steel, hot dip galvanized.

E. Field Touch-up Paint: As recommended by panel manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that building framing members are ready to receive panels.

3.02 INSTALLATION

A. Install panels on walls and soffits in accordance with manufacturer's instructions.

B. Fasten panels to structural supports; aligned, level, and plumb.

C. Locate joints over supports.

D. Lap panel ends 2 inches, minimum.

E. Seal and place gaskets to prevent weather penetration. Maintain neat appearance.

3.03 TOLERANCES

A. Offset From True Alignment Between Adjacent Members Abutting or In Line: 1/16 inch, maximum.

B. Variation from Plane or Location As Indicated on Drawings: 1/4 inch, maximum.

3.04 CLEANING

A. Remove site cuttings from finish surfaces.

B. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.

END OF SECTION

SECTION 07 6200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, and other items indicated on the drawings.

B. Manufactured metal soffit panel.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wood nailers for sheet metal work.

B. Section 07 9200 - Joint Sealants: Sealing non-lap joints between sheet metal fabrications and adjacent construction.

1.03 REFERENCE STANDARDS

A. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free 2007 (Reapproved 2018).

B. CDA A4050 - Copper in Architecture - Handbook current edition.

C. SMACNA (ASMM) - Architectural Sheet Metal Manual 2012.

D. NRCA's ANSI/SPRI ES-1 - American National Standard for Edge Systems Used with Low Slope Roof Systems - Certification Listing for Shop-fabricated Edge Metal Flashings; Current Edition.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

C. Samples: Submit two samples 8 by 8 inch in size illustrating metal finish color.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 5 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239 inch) thick base metal.
   1. Do not use unfinished galvanized steel flashings in finished locations, interior or exterior, unless specifically indicated.

B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage, (0.0239) inch thick base metal, shop pre-coated with PVDF coating.
   1. Color: As selected by Engineer from manufacturer's full colors.
   2. Face Heights: Flashings 8 inch or less shall be a minimum of 24 gauge, over 8 inches shall be 22 gauge, or as indicated on the drawings. Continuously supported flashing over 8 inches may be 24 gauge unless noted otherwise.

2.02 MANUFACTURED PRODUCTS

A. Metal Soffit Panel.
   1. Product: Rollex System 3 16in. Aluminum Soffit Panels: www.rollex.com.
      a. Other acceptable Manufacturers:

1) EDCO: www.edcoproducts.com.
2) ATAS International, Inc: www.atas.com.
3) ABC Seamless: www.abcseamless.com.
4) Substitutions: See Section 01 6000 - Product Requirements.

2. Venting: Solid (No venting).
3. Accessories: Fasteners, trim, drip edge, fascia and other related flashings.
4. Color: As indicated on the drawings.

2.03 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

2.04 ACCESSORIES

A. Fasteners: Galvanized steel, with soft neoprene washers.

B. Primer: Zinc chromate type.

C. Sealant: Type specified in Section 07 9200.

D. Plastic Cement: ASTM D4586/D4586M, Type I.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 INSTALLATION

A. Install manufactured products according to manufacturers instructions including all accessory components to create a complete system.

B. Secure flashings in place using concealed fasteners.

C. Apply sealant between metal flashings and felt flashings.

D. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

E. Seal metal joints watertight.

END OF SECTION

SECTION 07 9200
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Self-leveling pourable joint sealants.

C. Joint backings and accessories.

1.02 REFERENCE STANDARDS

A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.

B. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016 (Reapproved 2023).

C. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants 2023.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
   1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
   2. List of backing materials approved for use with the specific product.
   3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
   4. Substrates the product should not be used on.

C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

E. Samples for Verification: Where custom sealant color is specified, obtain directions from Engineer and submit at least two physical samples for verification of color of each required sealant.

F. Executed warranty.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.

1.05 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide 5-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.

C. Extended Correction Period: Correct defective work within 5-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Base Manufacturer: Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com.

B. Other Acceptable Manufacturers:
   1. Master Builders Solutions: www.master-builders-solutions.com/en-us.
   2. Bostik Inc: www.bostik-us.com.
   3. Dow Chemical Company: www.dow.com.

4. Manus Products, Inc.: www.manus.net.
5. Pecora Corporation: www.pecora.com.
6. Red Devil: www.reddevil.com.
7. Sherwin-Williams Company: www.sherwin-williams.com.
8. Sika Corporation: www.usa.sika.com.
9. W.R.Meadows, Inc: www.wrmeadows.com.
10. Hilti: www.hilti.com.
11. Substitutions: See Section 01 6000 - Product Requirements.

2.02 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to:
      a. Wall expansion and control joints.
      b. Joints between door, window, and other frames and adjacent construction.
      c. Joints between different exposed materials.
      d. Other joints indicated below.
   2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
      a. Joints between door, window, and other frames and adjacent construction.
      b. Other joints indicated below.
      c. Other joints where indicated on the drawings.
   3. Do not seal the following types of joints:
      a. Joints indicated to be treated with manufactured expansion joint cover, or some other type of sealing device.
      b. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
      c. Joints where installation of sealant is specified in another section.
      d. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use nonsag polyurethane sealant, unless otherwise indicated.
   1. Control and Expansion Joints in Concrete Paving: Self-leveling polyurethane traffic-grade sealant.

C. Interior Joints: Use nonsag polyurethane sealant, unless otherwise indicated.

2.03 JOINT SEALANTS - GENERAL

A. Colors: Color shall be selected by the Engineer from manufacturer's full range unless specifically indicated to be a specific color.

2.04 NONSAG JOINT SEALANTS

A. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 25 percent, minimum.
   2. Color: To be selected by Engineer from manufacturer's standard range.
   3. Products:
      a. Master Builders Solutions; MasterSeal NP1 or NP2: www.master-builders-solutions.com/en-us/#sle.
      b. Tremco Commercial Sealants & Waterproofing; Dymeric 240 FC or Dymonic FC: www.tremcosealants.com/#sle.
      c. Substitutions: See Section 01 6000 - Product Requirements.

2.05 SELF-LEVELING JOINT SEALANTS

A. Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multicomponent; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion.
   1. Movement Capability: Plus and minus 25 percent, minimum.
   2. Color: To be selected by Engineer from manufacturer's full range.
   3. Products:

a. THC-901, Vulkem 445SSL (also Dymonic FC, or Dymeric 240 FC) manufactured by Tremco Commercial Sealants & Waterproofing.
b. MasterSeal SL 1, SL 2 (also NP 1, or NP 2 manufactured by Master Builders Solutions.
c. Substitutions: See Section 01 6000 - Product Requirements.

2.06 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type C - Closed Cell Polyethylene.
3. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.

E. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Provide joint sealant installations complying with ASTM C1193.

C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

D. Install bond breaker backing tape where backer rod cannot be used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

H. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION

A. Protect sealants until cured.

END OF SECTION

Division 08: Openings

SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Thermally insulated hollow metal doors with frames.

B. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 08 7100 - Door Hardware.

B. Section 09 9113 - Exterior Painting: Field painting.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.

B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors 2022.

C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100) 2023.

D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames 2020.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2023.

F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable 2021a.

G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2023.

H. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023b.

I. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames 2016.

J. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

K. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames 2002.

L. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames 2011.

M. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames 2017.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
   1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com/#sle.
   2. Curries, an Assa Abloy Group company: www.assaabloydss.com/#sle.
   3. Fleming Door Products, an Assa Abloy Group company: www.assaabloydss.com/#sle.
   4. Mesker, dormakaba Group: www.meskeropeningsgroup.com/#sle.
   5. Republic Doors, an Allegion brand: www.republicdoor.com/#sle.
   6. Steelcraft, an Allegion brand: www.allegion.com/#sle.
   7. Technical Glass Products: www.tgpamerica.com/#sle.
   8. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Requirements for Hollow Metal Doors and Frames:
   1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
   2. Accessibility: Comply with ICC A117.1 and ADA Standards.
   3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
   4. Door Edge Profile: Manufacturers standard for application indicated.
   5. Typical Door Face Sheets: Flush.
   6. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
   7. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
      a. Based on NAAMM HMMA Custom Guidelines: Provide at least A25/ZF75 (galvannealed) for interior applications, and at least A60/ZF180 (galvannealed) or G60/Z180 (galvanized) for corrosive locations.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

A. Exterior Doors: Thermally insulated.
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 3 - Extra Heavy-duty.
      b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
      c. Model 2 - Seamless.
      d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
      e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
   2. Door Core Material: Polystyrene, 1 lbs/cu ft minimum density.
      a. Foam Plastic Insulation: Manufacturer's standard board insulation with maximum flame spread index (FSI) of 75, and maximum smoke developed index (SDI) of 450 in accordance with ASTM E84, and completely enclosed within interior of door.
   3. Door Thickness: 1-3/4 inches, nominal.
   4. Door Finish: Factory primed and field finished.

2.04 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Exterior Door Frames: Full profile/continuously welded type.
   1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A60/ZF180 coating.
   2. Frame Metal Thickness: 14 gauge, 0.067 inch, minimum.
   3. Frame Finish: Factory primed and field finished.
   4. Weatherstripping: Separate, see Section 08 7100.

C. Frames Depth: Size frame depth to accommodate wall assembly thickness and to allow proper attachment to assembly components.

2.05 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Finish: Paint in field. Color as selected by the Architect.

2.06 ACCESSORIES

A. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

A. Fill frames at exterior doors and doors between heated and unconditioned space with foam-in-place insulation. Product: Great Stuff Pro window and door by Dupont or approved equivalent.

3.03 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Coordinate frame anchor placement with wall construction.

C. Install door hardware as specified in Section 08 7100.

3.04 TOLERANCES

A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.05 ADJUSTING

A. Adjust for smooth and balanced door movement.

3.06 SCHEDULE

A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION

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SECTION 08 3100
ACCESS DOORS AND PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall mounted access units.

1.02 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

C. Manufacturer's Installation Instructions: Indicate installation requirements and rough-in dimensions.

PART 2 PRODUCTS

2.01 WALL AND CEILING MOUNTED ACCESS UNITS

A. Basis of Design:
   1. Type AP-1: WB EXT 1300 Series; Steel Trim, Steel Flush Face.

B. Manufacturers:
   1. Activar Construction Products Group, Inc. - JL Industries: www.activarcpg.com/#sle.
   2. ACUDOR Products Inc: www.acudor.com/#sle.
   3. Babcock-Davis: www.babcockdavis.com/#sle.
   4. Bilco Co: www.bilco.com.
   5. Cendrex, Inc: www.cendrex.com/#sle.
   6. Elmdor Stonemen: www.elmdorstoneman.com/#sle.
   7. Dur-Red Products: www.dur-red.com.
   8. JL Industries, Inc: www.jlindustries.com.
   9. Karp Associates, Inc: www.karpinc.com.
   10. Milcor, Inc: www.milcorinc.com.
   11. Nystrom, Inc: www.nystrom.com/#sle.
   12. Williams Brothers Corporation of America: www.wbdoors.com.
   13. Substitutions: See Section 01 6000 - Product Requirements.

C. Wall Mounted Units: Factory fabricated door and frame, fully assembled units with corner joints welded, filled and ground flush; square and without rack or warp; coordinate requirements with type of installation assembly being used for each unit.
   1. Style: As indicated by Basis of Design.
   2. Door/Panel Size: As indicated on the drawings.
      a. Latch/Lock: Locking T-Handle.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings are correctly sized and located.

3.02 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Install frames plumb and level in openings, and secure units rigidly in place.

C. Position units to provide convenient access to concealed equipment when necessary.

END OF SECTION

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SECTION 08 5313
VINYL WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Vinyl-framed, factory-glazed windows.

B. Operating hardware.

C. Insect screens.

D. Perimeter sealant.

1.02 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Sealing joints between frames and adjacent construction.

1.03 REFERENCE STANDARDS

A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights 2022.

B. AAMA 701/702 - Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals 2011.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide component dimensions, anchors, fasteners, glass, and internal drainage.

C. Submit two samples of operating hardware.

D. Grade Substantiation: Prior to submitting shop drawings or starting fabrication, submit one of the following showing compliance with specified grade:
   1. Evidence of AAMA Certification.
   2. Evidence of WDMA Certification.
   3. Evidence of CSA Certification.
   4. Test report(s) by independent testing agency itemizing compliance and acceptable to authorities having jurisdiction.

E. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect finished surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.

B. Jig, brace, and box the window frame assemblies for transport to minimize flexing of members or joints.

1.06 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F.

B. Maintain this minimum temperature during and after installation of sealants.

1.07 WARRANTY

A. Correct defective Work within a five year period after Date of Substantial Completion.

B. Provide five year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same. Include coverage for degradation of color finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Vinyl Windows:
   1. Lindsay Windows & Door, LLC: www.lindsaywindows.com.
   2. Thermo-Tech Window: www.ttwindows.com.
      a. Window: ClassicSeries, **High-Performance LoE²™ 272 Double insulated glass with LoE²™ 272/Argon on one glass surface, Single-Hung Windows.**

b. Patio Door: PatioDoor Series, **High-Performance LoE²™ 272 Double insulated glass with LoE²™ 272/Argon on one glass surface, Classic French Patio Doors.**

2.02 DESCRIPTION

A. Vinyl Windows: Factory fabricated frame and sash members of extruded, hollow, ultra-violet-resistant, polyvinyl chloride (PVC) with integral color; with factory-installed glazing, hardware, related flashings, anchorage and attachment devices.
   1. Configuration: As indicated on drawings.
      a. Product Type: HS - Horizontal sliding window in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.
   2. Color: Color as selected.
   3. Size to fit openings with minimum clearance around perimeter of assembly providing necessary space for perimeter seals.
   4. Framing Members: Fusion welded corners and joints, with internal reinforcement where required for structural rigidity; concealed fasteners.
   5. System Internal Drainage: Drain to exterior side by means of weep drainage network any water entering joints, condensation within glazing channel, or other migrating moisture within system.
   6. Glazing Stops, Trim, Flashings, and Accessory Pieces: Formed of rigid PVC, fitting tightly into frame assembly.

B. Performance Requirements: Provide products that comply with the following:
   1. Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:
      a. Performance Class (PC): R.

2.03 COMPONENTS

A. Glazing: Insulated double pane, annealed glass, frosted, low-E coated, argon filled, with glass thicknesses as recommended by manufacturer for specified wind conditions.

B. Operable Sash Weatherstripping: Nylon pile; permanently resilient, profiled to maintain weather seal in accordance with AAMA 701/702.

C. Fasteners: Stainless steel.

D. **Material: High-Performance LoĒ²™ 272 Double insulated glass with LoĒ²™ 272/Argon on one glass surface.**

2.04 SEALANT MATERIALS AND ACCESSORIES

A. Perimeter Sealant and Backing Materials: Single or multi-component polyurethane type as specified in Section 07 9200.

B. Sill Pans Flashing: Jamsill Guard, Dow Weathermate Sill Pan or equivalent.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify wall openings and adjoining air and vapor seal materials are ready to receive this work.

3.02 INSTALLATION

A. Install window unit assemblies in accordance with manufacturers instructions and applicable building codes.

B. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities as necessary.

C. Align window plumb and level, free of warp or twist, and maintain dimensional tolerances and alignment with adjacent work.

D. Coordinate attachment and seal of perimeter air and vapor barrier materials.

E. Install perimeter sealant and backing materials in accordance with Section 07 9200.

3.03 TOLERANCES

A. Maximum Variation from Level or Plumb: 0.06 inches every 3 ft non-cumulative or 0.5 inches per 100 ft, whichever is less.

3.04 ADJUSTING

A. Adjust hardware for smooth operation and secure weathertight closure.

3.05 CLEANING

A. Remove protective material from pre-finished surfaces.

B. Wash surfaces by method recommended and acceptable to window manufacturer; rinse and wipe surfaces clean.

C. Remove excess glazing sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer and appropriate for application indicated.

END OF SECTION

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SECTION 08 7100
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hardware for hollow metal doors.

B. Thresholds.

C. Weatherstripping and gasketing.

1.02 RELATED REQUIREMENTS

A. Section 08 1113 - Hollow Metal Doors and Frames.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.

B. BHMA A156.5 - Cylinders and Input Devices for Locks 2020.

C. BHMA A156.13 - Mortise Locks & Latches Series 1000 2022.

D. BHMA A156.18 - Materials and Finishes 2020.

E. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames 2004.

F. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

G. NFPA 101 - Life Safety Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives 2022.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.

B. Keying Requirements Meeting:
   1. Schedule meeting at project site prior to Contractor occupancy.
   2. Attendance Required:
      a. Contractor.
      b. Owner.
      c. Engineer.
      d. Installer's Architectural Hardware Consultant (AHC).
   3. Agenda:
      a. Establish keying requirements.
   4. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:
   5. Record minutes and distribute copies within two days after meeting to participants, with two copies to Engineer, Owner, participants, and those affected by decisions made.
   6. Deliver established keying requirements to manufacturers.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.

C. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
   1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
   2. Provide complete description for each door listed.

D. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

E. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

F. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Tools: One set of each special wrench or tool applicable for each different or special hardware component, whether supplied by hardware component manufacturer or not.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.

C. Supplier Qualifications: Company with certified Architectural Hardware Consultant (AHC) to assist in work of this section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

1.08 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion.
   1. Closers: Five years, minimum.
   2. Exit Devices: Three years, minimum.
   3. Locksets and Cylinders: Three years, minimum.
   4. Other Hardware: Two years, minimum.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

B. Provide individual items of single type, of same model, and by same manufacturer.

C. Provide door hardware products that comply with the following requirements:
   1. Applicable provisions of federal, state, and local codes.
   2. Accessibility: ADA Standards and ICC A117.1.
   3. Applicable provisions of NFPA 101.

D. Fasteners:
   1. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
      a. Aluminum fasteners are not permitted.
      b. Provide phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.

2.02 HINGES

A. Manufacturers:
   1. McKinney; an Assa Abloy Group company: www.assaabloydss.com.
   2. Bommer Industries, Inc: www.bommer.com.
   3. Hager Companies: www.hagerco.com/#sle.
   4. Stanley, dormakaba Group: www.stanleyhardwarefordoors.com/#sle.
   5. Ives, an Allegion brand: www.allegion.com/us.
   6. Substitutions: See Section 01 6000 - Product Requirements.

B. Hinges: Complying with BHMA A156.1, Grade 1.
   1. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
   2. Provide ball-bearing hinges at each door.
   3. Provide non-removable pins on exterior outswinging doors.

4. Provide non-removable pins on interior outswinging doors at locations where hinge knuckle is to non-secured side.
5. Provide stainless steel hinges on exterior doors and interior doors in wet locations.
    a. Doors From 60 inches High up to 90 inches High: Three hinges.
    b. Doors 90 inches High up to 120 inches High: Four hinges.
    c. Doors over 36 inches Wide: One additional hinge per each additional 12 inches in width.

2.03 LOCK CYLINDERS

A. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
1. Provide standard type cylinders, Grade 1, with six-pin core in compliance with BHMA A156.5 at locations indicated.
2. Provide cylinders from same manufacturer as locking device.
3. Provide cams and/or tailpieces as required for locking devices.
    a. Finish: To match lock or latch.

2.04 MORTISE LOCKS

A. Manufacturers:
1. Basis of Design: Grade 1 - Lever Handle as Selected..
2. Corbin Russwin, Sargent, or Yale; an Assa Abloy Group company: www.assaabloydss.com.
3. Best, dormakaba Group: www.bestaccess.com/#sle.
4. Hager Companies: www.hagerco.com/#sle.
5. Schlage, an Allegion brand: www.allegion.com/us.
6. Substitutions: See Section 01 6000 - Product Requirements.

B. Mortise Locks: Comply with BHMA A156.13, Grade 1, Security, 1000 Series.
1. Latchbolt Throw: 3/4 inch, minimum.
2. Deadbolt Throw: 1 inch, minimum.
3. Backset: 2-3/4 inch unless otherwise indicated.
4. Strikes: Provide manufacturer's standard strike for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
    a. Finish: To match lock or latch.
    b. Edges: Beveled, unless otherwise indicated.

2.05 CLOSERS

A. Manufacturers; Surface Mounted:
1. Basis of Design: Grade 1 - Parallel Arm Push Side Mount - Metal Cover Plate - Sprayed to match.
2. Corbin Russwin, Norton, Rixson, Sargent, or Yale; an Assa Abloy Group company: www.assaabloydss.com.
3. Hager Companies: www.hagerco.com/#sle.
4. LCN, an Allegion brand: www.allegion.com/us.
5. Substitutions: See Section 01 6000 - Product Requirements.

B. Closers: Complying with BHMA A156.4, Grade 1.

2.06 KICK PLATES

A. Manufacturers:
1. Basis of Design: 10 inch high x .05 inch thick, stainless steel.
2. Hiawatha, Inc, an Activar Construction Products Group company: www.activarcpg.com/hiawatha/#sle.
3. Ives, an Allegion brand: www.allegion.com/us/#sle.
4. Trimco: www.trimcohardware.com/#sle.
5. Substitutions: See Section 01 6000 - Product Requirements.

B. Kick Plates: Provide along bottom edge of push side of every door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.
1. Size: 8 inch high by 2 inch less door width (LDW) on push side of door.

2.07 THRESHOLDS

A. Manufacturers:

1. Basis of Design: Reese S205A.
2. Pemko; an Assa Abloy Group company: www.assaabloydss.com.
3. Hager Companies: www.hagerco.com/#sle.
4. National Guard Products, Inc: www.ngpinc.com.
5. Zero International, Inc: www.zerointernational.com.
6. Substitutions: See Section 01 6000 - Product Requirements.

B. Thresholds: Complying with BHMA A156.21.

2.08 WEATHERSTRIPPING AND GASKETING

A. Manufacturers:
1. Pemko; an Assa Abloy Group company: www.assaabloydss.com.
2. Hager Companies: www.hagerco.com/#sle.
3. National Guard Products, Inc: www.ngpinc.com.
4. Zero International, Inc: www.zerointernational.com.
5. Substitutions: See Section 01 6000 - Product Requirements.

B. Weatherstripping and Gasketing: Complying with BHMA A156.22.
1. Provide gasketing for smoke and draft control doors that complies with local codes, requirements of assemblies tested in accordance with UL 1784.
2. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated; .
3. Provide door bottom sweep on each exterior door, unless otherwise indicated.
4. Provide sound-rated gasketing and automatic door bottom on doors indicated as "Sound-Rated", "Acoustical", or with "Sound Transmission Class (STC) rating"; fabricate as continuous gasketing, do not cut or notch gasketing material.

2.09 LATCH PROTECTOR

A. Latch Protector: Provide on door to protect latch from being tampered with while in locked position.
1. Type: Standard latch protector.
2. Material: Stainless steel.

2.10 KEY CONTROL SYSTEMS

A. Key Control Systems: Complying with guidelines of BHMA A156.28.

2.11 FINISHES

A. Finishes: Provide door hardware of same finish, unless otherwise indicated.
1. Primary Finish: 626; satin chromium plated over nickel, with brass or bronze base material (former US equivalent US26D); BHMA A156.18.
2. Secondary Finish: 626; satin chromium plated over nickel, with brass or bronze base material (former US equivalent US26D); BHMA A156.18.
a. Use secondary finish in kitchens, bathrooms, and other spaces containing chrome or stainless steel finished appliances, fittings, and equipment; provide primary finish on one side of door and secondary finish on other side if necessary.
3. Exceptions:
a. Where base material metal is specified to be different, provide finish that is an equivalent appearance in accordance with BHMA A156.18.
b. Aluminum Surface Trim and Gasket Housings: Anodized to match door panel finish, not other hardware, unless otherwise indicated.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Install hardware for smoke and draft control doors in accordance with NFPA 105.

C. Use templates provided by hardware item manufacturer.

D. Do not install surface mounted items until application of finishes to substrate are fully completed.

E. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on

drawings.

1. For Steel Doors and Frames: Install in compliance with DHI (LOCS) recommendations.

F. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

3.02 ADJUSTING

A. Adjust work under provisions of Section 01 7000 - Execution and Closeout Requirements.

B. Adjust hardware for smooth operation.

C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.03 CLEANING

A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.

B. Clean adjacent surfaces soiled by hardware installation.

C. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.04 PROTECTION

A. Protect finished Work under provisions of Section 01 7000 - Execution and Closeout Requirements.

B. Do not permit adjacent work to damage hardware or finish.

PART 4 SCHEDULE

4.01 BASIC DOOR HARDWARE AND DOOR OPERATION INTENT HAS BEEN LISTED BELOW. PROVIDE ANY ADDITIONAL HARDWARE TO MEET APPLICABLE CODES AND TO ACHIEVE OPERATION, FUNCTION, AND INTENT. IF INTENT IS UNCLEAR TO BIDDER, CONTACT THE ARCHITECT REPRESENTATIVE FOR CLARIFICATION. PLEASE NOTE THAT SOME REQUIRED DOOR HARDWARE ITEMS ARE ONLY LISTED ABOVE AND NOT WITHIN THE HARDWARE GROUP.

5.01 HARDWARE GROUP 1

A. Hinges

B. Mortise Lockset - Entrance Function - With Deadbolt

C. Cylinder

D. Closer

E. Latch Guard/Protection Plate

F. Gasketing

G. Drip

H. Threshold

I. Sweep

END OF SECTION

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Division 09: Finishes

SECTION 09 9113
EXTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
   1. Exposed surfaces of primed and unprimed metal items unless specifically indicated to not be painted.
   2. Mechanical and Electrical:
      a. Shop-primed items.
      b. Paint metals that are not resistant to corrosion.

D. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Floors, unless specifically indicated.
   6. Glass.
   7. Concealed pipes, ducts, and conduits.

1.02 DEFINITIONS

A. Conform to ASTM D16 for interpretation of terms used in this section.

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency current edition.

B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual Current Edition.

C. SSPC-SP 1 - Solvent Cleaning 2015, with Editorial Revision (2016).

D. SSPC-SP 2 - Hand Tool Cleaning 2018.

E. SSPC-SP 3 - Power Tool Cleaning 2018.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
   2. MPI product number (e.g. MPI #47).
   3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
   4. Manufacturer's installation instructions.
   5. If proposal of substitutions is allowed under submittal procedures, explanation of substitutions proposed.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
   1. Where sheen is specified, submit samples in only that sheen.
   2. Where sheen is not specified, discuss sheen options with Engineer before preparing samples, to eliminate sheens definitely not required.
   3. Allow 15 days for approval process, after receipt of complete samples by Engineer.

4. Paint color submittals will not be considered until color submittals for major materials not to be painted, such as factory finished items, have been approved.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Do not provide or leave extra paint materials for the Owner.
   3. Do provide product info, color names, and installation locations for all products and colors. Information shall be included in the Operation and Maintenance Manual.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
   1. In the event that a single manufacturer cannot provide specified products, minor exceptions will be permitted provided approval by Engineer is obtained using the specified procedures for substitutions.

B. Paints:
   1. Base Manufacturer: Sherwin Williams: www.sherwin-williams.com.
   2. Other Manufacturers: Approved products shall meet performance and physical characteristics of base manufacturer (basis of design) product including published ratio of solids by volume, plus or minus two percent.

C. Other Acceptable Manufacturers: Submit product information for each line of paint for Architect's approval. Substitutions of Base Manufacturer's products may not be accepted during the shop drawing process.
   1. Behr Process Corporation: www.behr.com/#sle.
   2. Benjamin Moore & Co: www.benjaminmoore.com.
   3. Carboline: www.carboline.com.
   4. Diamond Vogel Paints: www.diamondvogel.com/#sle.
   5. Hallman Lindsay Paint of Wisconsin: www.hallmanlindsay.com.
   6. PPG Paints: www.ppgpaints.com/#sle.
   7. Pratt & Lambert Paints: www.prattandlambert.com/#sle.
   8. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
   9. Tnemec: www.tnemec.com.
   10. Valspar Corporation: www.valsparpaint.com/#sle.

D. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready mixed, unless required to be a field-catalyzed paint.
   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties,

and capable of drying or curing free of streaks or sags.
    a. Spayed finish; is preferred on all metal surfaces; is required on the following surfaces:
        1) Metal doors and frames; prior to hardware installation.
2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
3. Provide commercial grade paint systems by approved paint manufacturer for substrates not specifically covered under paint systems.
    a. Consult with Architect/Engineer/Designer for approval of additional products and systems. Provide quantifiable product information.
4. Supply each paint material in quantity required to complete entire project's work from a single production run.
5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

C. Volatile Organic Compound (VOC) Content:
1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
    a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

D. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Engineer from the manufacturer's full line.

E. Colors: As indicated on drawings.
1. Where indicated or scheduled colors do not match the paint product lines indicated below it is anticipated that colors will be color matched; product lines below are intended to set a level of standard for the product lines used for each application.
2. Locations Not Indicated: Selection to be made by Engineer after award of contract.
3. Extend colors to surface edges; colors may change at any edge as directed by Engineer.

F. Coats: The number of coats specified, are based on manufacturer’s recommendations. Provide for additional coats, as necessary, for complete coverage and true color. Additional coats due to a lack of coverage shall be provided at no additional cost to the Owner. No exceptions.

G. Coverage: Do not stretch products beyond their recommended coverage rate nor install fewer coats than specified regardless of appearance after previous coats are applied. Thin product application may show surface imperfections or inconsistencies that would otherwise not be visible. Additional coats due to a lack of proper coverage shall be provided at no additional cost to the Owner. No exceptions.

2.03 PAINT SYSTEMS - EXTERIOR

A. Paint Product: **Pro Industrial Acrylic**
1. Primer: Prime and/or touch up as per Manufacturers recommended Specifications in accordance with specified Product.
2. Number of Paint Coats Over Primer: Two.
3. Types of Substrates:
    a. Steel.
4. Sheen: semi-glos
5. Location Types:
    a. Hollow metal doors and frames.
    b. Other metals unless noted otherwise.

2.04 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of paints and finishes until substrates have been properly prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

E. Test shop-applied primer for compatibility with subsequent cover materials.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask and/or protect all surfaces, appurtenances not affiliated with coating process, including but not limited to electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Ferrous Metal:
   1. Solvent clean according to SSPC-SP 1.
   2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
   3. Painted Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

E. Painting shall be free from paint runs; no exceptions.

F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

G. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

Division 22: Plumbing

SECTION 22 0010
BASIC MECHANICAL PLUMBING REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Basic Mechanical Plumbing Requirements specifically applicable to Division 22 in addition to Division 1 - General Requirements.

1.02 SCOPE OF WORK

A. The Mechanical Plumbing Contract shall also include furnishing and installing a complete plumbing system for the new building and all other related work as called for under the specifications and shown on plans.

1.03 WORK INCLUDED

A. The Mechanical Plumbing Contract shall include all work under the listed Division 22 of the Specifications Index and all related Mechanical work as shown on the Drawings for the project.

B. A Complete table of Mechanical Reference Symbols is shown on the plans.

C. Under this Contract the Mechanical Contractor shall furnish the Owner with a PDF of all pertinent systems related documents stored on a soild state external hard drive or a single flash stick. Submit a single PDF to the Engineer for his review. The Engineer will then turn information provided over to the Owner. The PDF shall contain the following items:
   1. Shop drawings on all major equipment.
   2. Operating Instructions for all major equipment.
   3. Maintenance Instructions for all major equipment.
   4. Wiring diagrams for all equipment.
   5. Test and Balance Reports.
   6. The Mechanical installation to be made under Division 23 is set up for contract bidding as follows:
      a. Mechanical HVAC Contractor is a sub-contractor to the General Contractor.
         1) The Mechanical contractor is responsible for own equipment, such as cranes, lifts, etc. in order to provide a complete installation of mechanical systems.
         2) The Mechanical contractor shall be a sub-contractor to the General Contractor and shall include in his bid, prices from sub-contractors for control wiring, and other trades necessary to complete the entire job.

D. Under this Contract the Mechanical Contractor shall furnish the Owner with two 3-ring binders of all pertinent systems related documents. Submit manuals to the Engineer for his review. The Engineer will then turn books over to the Owner. The books shall contain the following items:
   1. Shop drawings on all major equipment.
   2. Operating Instructions for all major equipment.
   3. Maintenance Instructions for all major equipment.
   4. Wiring diagrams for all equipment.
   5. Test and Balance Reports.

E. The Mechanical Contractor is responsible for contacting the utility companies and coordinating the water, sewer and natural gas connections for the building service. Include all costs in bid.

F. The Mechanical installation to be made under Divisions 22 is set up for contract bidding as follows:
   1. Mechanical Plumbing Contractor is a sub-contractor to the General Contractor.
      a. The Mechanical contractor is responsible for own equipment, such as cranes, lifts, etc. in order to provide a complete installation of mechanical systems.
      b. The Mechanical contractor shall be a sub-contractor to the General Contractor and shall include in his bid, prices from sub-contractors for control wiring, and other trades necessary to complete the entire job.

1.04 SPECIFICATIONS COMPLIANCE

A. The requirements of these specifications shall be complied with in every respect. Therefore, it shall be absolutely mandatory that the job foreman, all lead mechanics, subcontractors and their foreman have completely studied these specifications, be completely knowledgeable as to

their entire contents, and maintain a copy at the job-site. Failure to comply with this requirement will be reason to presume the mechanic or subcontractor is not in responsible charge of his work due to ignorance of job requirements, and will be reason for the owner to require dismissal and replacement with approved personnel. Every foreman and lead mechanic shall be provided with a complete copy of this specification.

1.05 INCONSISTENCIES

A. If there is an inconsistency in the quality and/or quantity of Work required by the Contract Documents, either the greater quality and/or quantity of Work indicated shall be provided in accordance with the Engineer/Architect's interpretation without change in the contract sum.

1.06 WORK NOT INCLUDED

A. The following work is not included as part of the Contract.
   1. The removal and storage of any equipment in the building required to be moved or relocated during the construction process.

1.07 CODES, FEES AND LATERAL COSTS

A. The Plumbing Installation shall meet all applicable local, state and federal codes and standards.

B. All permits necessary for a complete plumbing installation shall be paid for by this Contractor.

C. This contractor shall contact the local utilities for gas, water, sanitary and storm sewers, and include in their bid the any costs associated with service installation charges of the utility(s).

D. Except in those municipalities which provide state- approved electrical inspection, all installation of electrical equipment wiring shall be inspected by the State Board of Electricity. Allowance shall be made in the bid and contract for the cost of such inspection.
   1. Fees for such inspection will be charged in accordance with the rules and regulations of the State Board of Electricity. Evidence of payment of fees shall be provided by the Contractor with his Request for Payment.

1.08 REFERENCES

A. All equipment, piping, etc., shall be new and shall be installed to meet the approval of the following additional ordinances: ASME Rules for Pressure Tanks, National Board of Fire Underwriter's Rules, American Waterworks and the American Gas Association.

1.09 SUBMITTALS

A. Submit under provisions of Division 01 3000.

B. Products Scheduled on the Drawings by Naming one Manufacturer, but not Indicating Other Approved Manufactures in the Specifications: Use any equivalent product complying with the specifications in general and equivalent to the “Basis of Design” identified in the drawing’s schedules. Pre-bid substitutions are not required in this situation.

C. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.

D. All documents shall be submitted in .pdf format unless pre-approved by Engineer.

E. The contractor shall not use any equipment or materials that does not have the engineer’s stamped approval.

F. Mark dimensions and values in units to match those specified.

1.10 PROJECT/SITE CONDITIONS

A. Install Work in locations shown on Drawings, unless prevented by Project conditions.

1.11 SEQUENCING AND SCHEDULING

A. Construct Work in sequence under provisions of Division 1.

1.12 PRE-CONSTRUCTION COORDINATION AND VERIFICATION

A. This Contractor shall coordinate his work with other Contractors on this job. Any conflict which cannot be resolved shall be settled by the Architect/Engineer.

B. Field verification of scale dimensions on plans is directed since actual locations, distances and levels will be governed by actual field conditions.

C. The Contractors shall check architectural, structural, plumbing, heating, ventilating and electrical plans to avert possible installation conflicts. Should drastic changes from original plans be necessary to resolve such conflicts this Contractor shall notify the Architect/Engineer and secure written approval and agreement on necessary adjustments before the installation is started.

D. Discrepancies shown on different plans or between plans and actual field conditions or between plans and specifications shall promptly be brought to the attention of the Architect/Engineer for a decision.

E. The Contractor shall consider and review the complete set of documents, etc., Architectural, Structural, Mechanical, Electrical, etc., (Drawings and Specifications) as his complete set. He will be responsible for any and all mechanical work shown or stated (to be by him), to include this work in his bid and install such items even though they are not specifically shown or stated on the Mechanical section of the plans and specifications.

1.13 COORDINATION

A. Contractor shall be responsible for continual coordination of the mechanical work with other trades so as to avoid conflicts in installation. Contractor shall cooperate with other trades to assure that construction proceeds in an orderly and timely manner.

B. Study the civil, structural, electrical, shop and any specialty drawings and specifications to determine required coordination.
   1. Anchor bolts, sleeves, inserts and supports that may be required for the mechanical work shall be furnished and installed under the same division of the specifications as the respective items to be supported. Excluded from this requirement are cast in place anchor bolts.
   2. Slots, chases, openings and recesses through floors and walls as specified will be provided by the various trades in their respective materials, but the trade requiring them shall see that they are properly located in zones provided or otherwise approved by the Engineer or Architect and/or Owner.
   3. Locations of pipes, panels, equipment, fixtures, etc., shall be adjusted to accommodate interferences encountered. The Project Coordinator shall determine the exact rerouting and location of each pipe and/or duct encountered prior to fabrication.
      a. Right-of-Way: Lines which pitch shall have the right of way over those which do not pitch. Lines whose elevations cannot be changed shall have the right of way over lines whose elevations can be changed.
      b. Offsets, transitions and changes in direction in pipes shall be made as required to maintain proper head room and pitch of sloping lines whether or not indicated on the drawings.
   4. Installation of Arrangement: The contractor shall install all mechanical work to permit removal of, and access to, (without damage to other parts) all parts requiring periodic replacement or maintenance.

C. Contractor to expose and verify

D. Layout Priority:
   1. All trades shall understand that other trades will need to work in the same areas during the project. All final decisions as to the right-of-way and runs of utility lines (pipes, ducts, etc.) shall be made by Owner and/or Architect. In general, priority shall be given as follows:
      a. Process piping which must be drainable
      b. Sheet metal ductwork
      c. Light Fixtures
      d. Plumbing waste lines, downspouts, and vents
      e. Sprinkler piping
      f. Gravity water lines
      g. Ice water or steam lines
      h. Refrigerant lines
      i. Gas and air lines
      j. Plumbing water
      k. Electrical conduit
      l. Control air lines

E. PREPARE DETAILED SHOP DRAWINGS WHERE NECESSARY TO ASSURE PROPER FIT AND NECESSARY CLEARANCE.

1.14 CUTTING, PATCHING AND FIRESTOPPING

A. The Plumbing Contractor shall set all sleeves in construction for their Work.

B. Where cutting is required, it shall be done by the Plumbing Contractor.

C. All patching shall be done by Plumbing Contractor.

D. All cutting of any kind must be done with great care so as not to leave unsightly surfaces which may not be entirely concealed by plates, escutcheons, or their normal concealing construction, if such unsightly conditions occur, Plumbing Contractor will be required, at their own expense, to replace the damaged construction.

E. This Plumbing Contractor shall provide and install firestopping materials per Section 07 8400 - Firestopping.

1.15 ACCESS PANELS REQUIRED BY TRADE

A. Trade requiring access shall provide and install access panels where not shown or specified.

B. The finished appearance and function will be subject to approval by the Architect/Owner.

C. Provide panels that accommodate adjacent finishes in finished spaces.

D. Access panels shall meet all code requirements for each location they are installed and shall be sized appropriately.

1.16 ELECTRICAL

A. Electrical Contractor shall furnish all motor starters and motor controls and provide all wiring for motor control operation, except if specified otherwise.

1.17 ADDITIONAL ELECTRICAL COSTS

A. If the Mechanical Contractor substitutes equipment for specified units, the mechanical contractor shall be responsible for any additional electrical installation costs for this substitution whether the other equipment was listed as equal in the specification or was approved equal after the project was in the bidding process.

1.18 GUARANTEE

A. This Contractor shall be responsible for the proper installation and working of everything in this contract and shall guarantee to remedy free of charge any defects in workmanship and materials that may appear to give or gives rise to trouble of any kind for a period of one year from date of final substantial completion.

PART 2PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 22 1005
PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Pipe, pipe fittings, specialties, and connections for piping systems.
   1. Sanitary sewer.
   2. Condensate.

1.02 REFERENCE STANDARDS

A. ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings: DWV 2021.

B. ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings—DWV 2022.

C. ASTM B32 - Standard Specification for Solder Metal 2020.

D. ASTM B302 - Standard Specification for Threadless Copper Pipe, Standard Sizes 2017.

E. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems 2020.

F. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings 2020.

G. ASTM D2855 - Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets 2020.

H. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings 2021.

I. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation 2018, with Amendment (2019).

J. NSF 61 - Drinking Water System Components - Health Effects 2022, with Errata.

K. NSF 372 - Drinking Water System Components - Lead Content 2022.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with applicable codes.

B. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.02 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. PVC Pipe: ASTM D2665 or ASTM D3034.
   1. Fittings: PVC.
   2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.03 CONDENSATE PIPING ABOVE GRADE

A. Copper Pipe: ASTM B42.
   1. Fittings: ASME B16.23, cast copper, or ASME B16.29, wrought copper.
   2. Joints: ASTM B32, alloy Sn50 solder.

B. PVC Pipe: ASTM D2665.
   1. Fittings: PVC.
   2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.04 PIPE HANGERS AND SUPPORTS

A. Provide hangers and supports that comply with MSS SP-58.
   1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
   2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
   3. Trapeze Hangers: Welded steel channel frames attached to structure.
   4. Vertical Pipe Support: Steel riser clamp.

PART 3 EXECUTION

3.01 PREPARATION

A. Remove scale and dirt, on inside and outside, before assembly.

B. Prepare piping connections to equipment with flanges or unions.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.

END OF SECTION

SECTION 22 1006
PLUMBING PIPING SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Drains.

1.02 REFERENCE STANDARDS

A. Applicable State Plumbing Code with Amendments

B. ADA Standards - 2010 ADA Standards for Accessible Design 2010.

C. ASME A112.6.3 - Floor and Trench Drains 2019.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.

C. Shop Drawings: Indicate dimensions, weights, and placement of openings and holes.

PART 2 PRODUCTS

2.01 DRAINS

A. Floor Drain (FD-1):

1. ASME A112.6.3; lacquered cast iron or stainless steel, two piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable nickel-bronze strainer.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

END OF SECTION

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Division 23: Heating, Ventilating, and Air-Conditioning (HVAC)

SECTION 23 0010
BASIC MECHANICAL HVAC REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Basic Mechanical HVAC Requirements specifically applicable to Division 23 in addition to Division 1 - General Requirements.

1.02 SCOPE OF WORK

A. The Mechanical HVAC Contract shall also include furnishing and installing a complete heating, ventilating and air conditioning system for the new building and all other related work as called for under the specifications and shown on plans.

1.03 WORK INCLUDED

A. The Mechanical HVAC Contract shall include all work under the listed Division 23 of the Specifications Index and all related Mechanical work as shown on the Drawings for the project.

B. A Complete table of Mechanical Reference Symbols is shown on the plans.

C. Under this Contract the Mechanical Contractor shall furnish the Owner with a PDF of all pertinent systems related documents stored on a soild state external hard drive or a single flash stick. Submit a single PDF to the Engineer for his review. The Engineer will then turn information provided over to the Owner. The PDF shall contain the following items:
   1. Shop drawings on all major equipment.
   2. Operating Instructions for all major equipment.
   3. Maintenance Instructions for all major equipment.
   4. Wiring diagrams for all equipment.
   5. Test and Balance Reports.
   6. The Mechanical installation to be made under Division 23 is set up for contract bidding as follows:
      a. Mechanical HVAC Contractor is a sub-contractor to the General Contractor.
         1) The Mechanical contractor is responsible for own equipment, such as cranes, lifts, etc. in order to provide a complete installation of mechanical systems.
         2) The Mechanical contractor shall be a sub-contractor to the General Contractor and shall include in his bid, prices from sub-contractors for control wiring, and other trades necessary to complete the entire job.

1.04 SPECIFICATIONS COMPLIANCE

A. The requirements of these specifications shall be complied with in every respect. Therefore, it shall be absolutely mandatory that the job foreman, all lead mechanics, subcontractors and their foreman have completely studied these specifications, be completely knowledgeable as to their entire contents, and maintain a copy at the job-site. Failure to comply with this requirement will be reason to presume the mechanic or subcontractor is not in responsible charge of his work due to ignorance of job requirements, and will be reason for the owner to require dismissal and replacement with approved personnel. Every foreman and lead mechanic shall be provided with a complete copy of this specification.

1.05 INCONSISTENCIES

A. If there is an inconsistency in the quality and/or quantity of Work required by the Contract Documents, either the greater quality and/or quantity of Work indicated shall be provided in accordance with the Engineer/Architect's interpretation without change in the contract sum.

1.06 WORK NOT INCLUDED

A. The following work is not included as part of the Contract.
   1. The removal and storage of any equipment in the building required to be moved or relocated during the construction process.

1.07 CODES, FEES AND LATERAL COSTS

A. The Heating, Ventilation and Air Conditioning Installation shall meet all applicable local, state and federal codes and standards.

B. All permits necessary for a complete heating and ventilation installation shall be paid for by this Contractor.

C. Except in those municipalities which provide state- approved electrical inspection, all installation of electrical equipment wiring shall be inspected by the State Board of Electricity. Allowance shall be made in the bid and contract for the cost of such inspection.
   1. Fees for such inspection will be charged in accordance with the rules and regulations of the State Board of Electricity. Evidence of payment of fees shall be provided by the Contractor with his Request for Payment.

1.08 REFERENCES

A. All equipment, piping, etc., shall be new and shall be installed to meet the approval of the following additional ordinances: ASME Rules for Pressure Tanks, National Board of Fire Underwriter's Rules, American Waterworks and the American Gas Association.

1.09 SUBMITTALS

A. Submit under provisions of Division 01 3000.

B. Products Scheduled on the Drawings by Naming one Manufacturer, but not Indicating Other Approved Manufactures in the Specifications: Use any equivalent product complying with the specifications in general and equivalent to the “Basis of Design” identified in the drawing’s schedules. Pre-bid substitutions are not required in this situation.

C. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.

D. All documents shall be submitted in .pdf format unless pre-approved by Engineer. The contractor shall not use any equipment or materials that does not have the engineer’s stamped approval.

E. Mark dimensions and values in units to match those specified.

1.10 PROJECT/SITE CONDITIONS

A. Install Work in locations shown on Drawings, unless prevented by Project conditions.

1.11 SEQUENCING AND SCHEDULING

A. Construct Work in sequence under provisions of Division 1.

1.12 PRE-CONSTRUCTION COORDINATION AND VERIFICATION

A. This Contractor shall coordinate his work with other Contractors on this job. Any conflict which cannot be resolved shall be settled by the Architect/Engineer.

B. Field verification of scale dimensions on plans is directed since actual locations, distances and levels will be governed by actual field conditions.

C. The Contractors shall check architectural, structural, plumbing, heating, ventilating and electrical plans to avert possible installation conflicts. Should drastic changes from original plans be necessary to resolve such conflicts this Contractor shall notify the Architect/Engineer and secure written approval and agreement on necessary adjustments before the installation is started.

D. Discrepancies shown on different plans or between plans and actual field conditions or between plans and specifications shall promptly be brought to the attention of the Architect/Engineer for a decision.

E. The Contractor shall consider and review the complete set of documents, etc., Architectural, Structural, Mechanical, Electrical, etc., (Drawings and Specifications) as his complete set. He will be responsible for any and all mechanical work shown or stated (to be by him), to include this work in his bid and install such items even though they are not specifically shown or stated on the Mechanical section of the plans and specifications.

1.13 COORDINATION

A. Contractor shall be responsible for continual coordination of the mechanical work with other trades so as to avoid conflicts in installation. Contractor shall cooperate with other trades to assure that construction proceeds in an orderly and timely manner.

B. Study the civil, structural, electrical, shop and any specialty drawings and specifications to determine required coordination.
   1. Anchor bolts, sleeves, inserts and supports that may be required for the mechanical work shall be furnished and installed under the same division of the specifications as the

respective items to be supported. Excluded from this requirement are cast in place anchor bolts.

2. Slots, chases, openings and recesses through floors and walls as specified will be provided by the various trades in their respective materials, but the trade requiring them shall see that they are properly located in zones provided or otherwise approved by the Engineer or Architect and/or Owner.
3. Locations of pipes, panels, equipment, fixtures, etc., shall be adjusted to accommodate interferences encountered. The Project Coordinator shall determine the exact rerouting and location of each pipe and/or duct encountered prior to fabrication.
    a. Right-of-Way: Lines which pitch shall have the right of way over those which do not pitch. Lines whose elevations cannot be changed shall have the right of way over lines whose elevations can be changed.
    b. Offsets, transitions and changes in direction in pipes shall be made as required to maintain proper head room and pitch of sloping lines whether or not indicated on the drawings.
4. Installation of Arrangement: The contractor shall install all mechanical work to permit removal of, and access to, (without damage to other parts) all parts requiring periodic replacement or maintenance.

C. Layout Priority:
1. All trades shall understand that other trades will need to work in the same areas during the project. All final decisions as to the right-of-way and runs of utility lines (pipes, ducts, etc.) shall be made by Owner and/or Architect. In general, priority shall be given as follows:
    a. Process piping which must be drainable
    b. Sheet metal ductwork
    c. Light Fixtures
    d. Plumbing waste lines, downspouts, and vents
    e. Sprinkler piping
    f. Gravity water lines
    g. Ice water or steam lines
    h. Refrigerant lines
    i. Gas and air lines
    j. Plumbing water
    k. Electrical conduit
    l. Control air lines

D. PREPARE DETAILED SHOP DRAWINGS WHERE NECESSARY TO ASSURE PROPER FIT AND NECESSARY CLEARANCE.

1.14 CUTTING, PATCHING, AND FIRESTOPPING

A. The Mechanical Contractor shall set all sleeves in construction for their Work.

B. Where cutting is required, it shall be done by the Mechanical Contractor.

C. All patching shall be done by Mechanical Contractor.

D. All cutting of any kind must be done with great care so as not to leave unsightly surfaces which may not be entirely concealed by plates, escutcheons, or their normal concealing construction, if such unsightly conditions occur, Mechanical Contractor will be required, at their own expense, to replace the damaged construction.

E. This Mechanical Contractor shall provide and install firestopping materials per Section 07 8400 - Firestopping.

1.15 ACCESS PANELS REQUIRED BY TRADE

A. Trade requiring access shall provide and install access panels where not shown or specified.

B. The finished appearance and function will be subject to approval by the Architect/Owner.

C. Provide panels that accommodate adjacent finishes in finished spaces.

D. Access panels shall meet all code requirements for each location they are installed and shall be sized appropriately.

1.16 ELECTRICAL

A. Electrical Contractor shall furnish all motor starters and motor controls and provide all wiring for motor control operation, except if specified otherwise.

1.17 ADDITIONAL ELECTRICAL COSTS

A. If the Mechanical Contractor substitutes equipment for specified units, the mechanical contractor shall be responsible for any additional electrical installation costs for this substitution whether the other equipment was listed as equal in the specification or was approved equal after the project was in the bidding process.

1.18 GUARANTEE

A. This Contractor shall be responsible for the proper installation and working of everything in this contract and shall guarantee to remedy free of charge any defects in workmanship and materials that may appear to give or gives rise to trouble of any kind for a period of one year from date of final substantial completion.

PART 2PRODUCTS

2.01 NOT USED

PART 3EXECUTION

3.01 NOT USED

END OF SECTION

SECTION 23 8119
SELF-CONTAINED AIR-CONDITIONERS

<<<< UPDATE NOTES

PART 1 GENERAL

2.01 SECTION INCLUDES

A. Packaged terminal air conditioning units.

2.02 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide drawings indicating dimensions, rough-in connections, and electrical characteristics and connection requirements.

2.03 DELIVERY, STORAGE, AND HANDLING

A. Protect finished cabinets from physical damage by leaving factory packing cases in place before installation and providing temporary covers after installation.

PART 2 PRODUCTS

3.01 MANUFACTURERS

A. Bard Manufacturing Company, Inc. www.bardhvac.com

B. Substitutions: See Section 01 6000 - Product Requirements.

3.02 PERFORMANCE REQUIREMENTS

A. See Schedule on plan drawings.

3.03 AIR CONDITIONING UNITS

A. Description: Packaged, self-contained, through-the-wall air cooled terminal air conditioning units, with wall sleeve, room cabinet, electric refrigeration system, electric heating, outside air louvers, built-in temperature controls; fully charged with refrigerant and filled with oil.

3.04 CABINET

A. Each exterior casing panel to be bonderized and finished with baked-on exterior polyester enamel paint prior to assembly. The baked-on cured paint finish shall pass the industry rub test with a minimum of 72 rubs MEK (Methyl Ethyl Ketone) or standard rub test of a minimum of 100 rubs using Toluene.

B. Cooling section shall be fully insulated with a non –fiberglass material with heavy duty foil facing for durability and ease of cleaning. Fiberglass insulation is not acceptable.

C. Openings shall be provided for power connections. Access openings appropriate for outside structure to all fan motors and compressor for making repairs and for removing internal components without removing unit from its permanent installation. Fresh air intake and outdoor coil shall be protected from intrusions by a sturdy metal grating with less than 1/4 inch openings.

3.05 DRAIN PAN

A. Drain pan shall be constructed of 20-gauge galvanized steel, bonderized and finished with baked-on exterior polyester enamel paint.

3.06 REFRIGERATION SYSTEM

A. All models shall use a high efficiency hermetic scroll compressor. The refrigeration circuit shall be equipped with factory installed high and low pressure controls, suction and liquid access valves, compressor control module and liquid line filter dryer. A refrigerate metering device is included. Compressor shall be mounted on rubber grommets. Unit shall be provided with R-410A (HFC) non-ozone depleting refrigerant.

B. The condenser coil shall be constructed of aluminum plate fins mechanically bonded to seamless copper tubes. The condenser fan, motor and shroud shall be of slide out configuration for easy access. Condenser fan motor shall be enclosed casing with ball bearings. Open winding motors are not accepted.

C. The evaporator coil shall constructed of aluminum fins mechanically bonded to seamless copper tubes. Aluminum fins shall have a hydrophilic coatings, to aid in condensate drainage,

inhibit mold growth and protect aluminum fins from oxidation. 5 speed indoor blower motor shall be twin wheels with forward curve blades. Motor shall be high efficiency ECM with overload protection.

3.07 ELECTRICAL COMPONENTS

A. Electrical components are easily accessible for routine inspection and maintenance through front service panels. Circuit breaker is standard on all 208/230-volt models equipped with electric heat. Circuit breaker disconnect access is through lockable access panel.

B. The internal control circuit shall consist of a current limiting 24VAC type transformer with resettable circuit. Auto reset high pressure switch and auto reset low pressure switch shall standard, compressor control module with adjustable voltage protection and adjustable delay on make and break shall be standard. To prevent rapid compressor short cycling, a five minute time delay circuit shall be factory installed. A low-pressure bypass shall be factory installed to prevent nuisance tripping during low temperature start-up.

3.08 ELECTRIC HEAT

A. The air conditioner shall have a factory electric resistance heater available, designed specifically for the unit. Heater shall include automatic limit safety controls.

3.09 ECONOMIZER

A. The Economizer is internally mounted and allows outside air to be used for free-cooling when temperature and humidity conditions are favorable. The amount of exhaust air varies in response to the system controls and settings defined by the user. It includes a built in exhaust air damper.

3.10 CONTROLS

A. Unit to be provided with low ambient controls.

B. Unit to be provided with programmable thermostat.

PART 3 EXECUTION

4.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Coordinate installation of units with architectural, mechanical, and electrical work.

END OF SECTION

Division 26: Electrical

SECTION 26 0010
BASIC ELECTRICAL REQUIREMENTS

PART 1GENERAL

1.01 SECTION INCLUDES:

A. Basic Electrical Requirements specifically applicable to Division 26 Sections, in addition to Division 01 - General Requirements.

1.02 SCOPE OF WORK:

A. The Electrical Contract Installation shall include a complete Electrical Installation for the project. All conduit, fixtures and equipment herein specified, mentioned or shown on Drawings, shall be furnished and installed in place, connected up and ready for normal operation except for such items as are specifically mentioned to be furnished by others.

1.03 WORK INCLUDED:

A. The Electrical Contract shall include all work under the listed Sections of the Specifications Index and all related Electrical work as shown on the Drawings for the project.

B. A Complete table of Electrical Reference Symbols is shown on the plans.

C. Under this Contract the Electrical Contractor shall furnish the Owner with a USB flash drive and PDF set of all pertinent systems related documents. The documents shall contain the following items:
   1. Shop drawings on all major equipment.
   2. Operating Instructions for all major equipment.
   3. Maintenance Instructions for all major equipment.
   4. Wiring diagrams for all equipment.
   5. Control drawings for any systems not furnished under other contracts.

D. The Electrical Contractor is responsible for own equipment, such as cranes, lifts, etc. in order to provide a complete installation of Electrical systems.

E. The Electrical Contractor is responsible for contacting the utility company and coordinating the power connection for the building service. Include all costs in bid.

F. Coordinate utility service outages and reconnections with Utility Company and Owner.

G. Branch feeders, branch wiring, receptacles, special outlets, switches, light fixtures, dimmers, contactors, starters, timers, etc., as shown on the plans or required for operation of the electrical system.

H. Repair of all damage done to the premises as a result of the installation and removal of all debris or surplus material left by those engaged in the work.

I. All new outside building lighting and sign lighting, including wiring, timers, photocells, switches and circuit breakers.

1.04 SPECIFICATIONS COMPLIANCE

A. The requirements of these specifications shall be complied with in every respect. Therefore, it shall be absolutely mandatory that the job foreman, all lead electricians, subcontractors and their foreman have completely studied these specifications, be completely knowledgeable as to their entire contents, and maintain a copy at the job-site. Failure to comply with this requirement will be reason to presume the electrician or subcontractor is not in responsible charge of their work due to ignorance of job requirements, and will be reason for the Owner to require dismissal and replacement with approved personnel. Every foreman and lead mechanic shall be provided with a complete copy of this specification.

1.05 INCONSISTENCIES

A. If there is an inconsistency in the quality and/or quantity of Work required by the Contract Documents, either the greater quality and/or quantity of Work indicated shall be provided in accordance with the Engineer/Architect's interpretation without change in the contract sum.

1.06 CODES, FEES AND LATERAL COSTS:

A. The Electrical Installation shall meet all applicable local, state and federal codes and standards. All permits necessary for a complete electrical installation shall be paid for by this Contractor.

B. Except in those municipalities which provide state-approved electrical inspection, all installation of electrical equipment wiring shall be inspected by the State Board of Electricity. Allowance shall be made in the bid and contract for the cost of such inspection.

C. Fees for such inspection will be charged in accordance with the rules and regulations of the State Board of Electricity. Evidence of payment of fees shall be provided by the Contractor with the Request for Payment.

1.07 REGULATORY REQUIREMENTS:

A. Conform to requirements of ANSI/NFPA 70.

B. Furnish products listed by Underwriters Laboratories, Inc. or other testing firm acceptable to authority having jurisdiction.

1.08 SUBMITTALS:

A. Submit under provisions of Division 01.

B. Submit shop drawings and product data of related systems, products, and accessories.

C. Mark dimensions and values in units to match those specified.

1.09 PROJECT/SITE CONDITIONS:

A. Install Work in locations shown on Drawings, unless prevented by Project conditions.

1.10 SEQUENCING AND SCHEDULING:

A. Construct Work in sequence under provisions of Division 1.

1.11 PRE-CONSTRUCTION COORDINATION AND VERIFICATION:

A. This Contractor shall coordinate their work with other Contractors on this job. Any conflict which cannot be resolved shall be settled by the Architect/Engineer.

B. Field verification of scale dimensions on plans is directed since actual locations, distances and levels will be governed by actual field conditions.

C. The Contractors shall check architectural, structural, plumbing, heating, ventilating and electrical plans to avert possible installation conflicts. Should drastic changes from original plans be necessary to resolve such conflicts this Contractor shall notify the Architect/Engineer and secure written approval and agreement on necessary adjustments before the installation is started.

D. Discrepancies shown on different plans or between plans and actual field conditions or between plans and specifications shall promptly be brought to the attention of the Architect/Engineer for a decision.

E. The Contractor shall consider and review the complete set of documents, etc., Architectural, Structural, Mechanical, Electrical, etc., (Drawings and Specifications) as a complete set. They will be responsible for any and all electrical work shown or stated (to be by the Contractor), to include this work in their bid and install such items even though they are not specifically shown or stated on the Electrical section of the plans and specifications.

F. The drawings are indicative of the work to be installed, but do not show all bends, fittings, boxes and specialties required to complete the installation.

G. All conduits, wires, outlets boxes, switches, receptacles, devices and fixtures shall be included in the work.

H. Where it is stated that the Contractor shall “provide” a device or piece of equipment, it shall mean that such a device or equipments are finished and installed.

1.12 CUTTING, PATCHING, AND FIRESTOPPING:

A. The Electrical Contractor shall set all sleeves in construction for their Work.

B. Where cutting is required, it shall be done by the Electrical Contractor.

C. All patching shall be done by Electrical Contractor.

D. All conduit and outlet installations and cutting of any kind must be done with great care so as not to leave unsightly surfaces which may not be entirely concealed by plates, escutcheons, or their normal concealing construction, if such unsightly conditions occur, Electrical Contractor will be required, at their own expense, to replace the damaged construction.

E. This Electrical Contractor shall provide and install firestopping materials per Section 07 8400 - Firestopping.

1.13 SCAFFOLDING:

A. Furnish and erect all scaffolding, ladders, etc., required in the installation of wiring, equipment and fixtures.

1.14 ADDITIONAL ELECTRICAL COSTS:

A. If the Mechanical Contractor substitutes equipment for specified units, the mechanical contractor shall be responsible for any additional electrical installation costs for this substitution whether the other equipment was listed as equal in the specification or was approved equal after the project was in the bidding process.

1.15 GUARANTEE:

A. This Contractor shall be responsible for the proper installation and working of everything in this contract and shall guarantee to remedy free of charge any defects in workmanship and materials that may appear to give or gives rise to trouble of any kind for a period of one year from date of final substantial completion.

PART 2 NOT USED

PART 3 EXECUTION

3.01 EQUIPMENT CONNECTIONS:

A. Provide necessary power wiring for equipment furnished by others. Verify requirements with the Contractors responsible to supply each piece of equipment. Provide heavy duty disconnect switches as indicated.

3.02 AS-BUILT DRAWINGS:

A. Contractor shall keep an accurate record of all deviations from contract drawings and specifications. Edits shall neatly and correctly enter in colored crayon any deviations on drawings affected, and shall keep drawings available for inspection. Extra set of drawings will be furnished for this purpose.

B. At the completion of the job, and before final acceptance, the Contractor shall provide a complete set of as-built drawings. The Contractor shall show locations for all major electrical devices, including panelboards and all major runs of conduit, the circuiting of each fixture, outlet, etc., shall be shown. Certify to the accuracy of each print, by signature thereon, and deliver same to Architect.

END OF SECTION

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SECTION 26 0505
SELECTIVE DEMOLITION FOR ELECTRICAL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical demolition.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify field measurements and circuiting arrangements are as indicated.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Demolition drawings are based on casual field observation and existing record documents.

D. Report discrepancies to Engineer before disturbing existing installation.

E. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

A. Disconnect electrical systems in walls, floors, and ceilings to be removed.

B. Coordinate utility service outages with utility company.

C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
   1. Obtain permission from Owner at least 24 hours before partially or completely disabling system.
   2. Make temporary connections to maintain service in areas adjacent to work area.

E. Existing Well Process Electrical and Controls System: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
   1. Obtain permission from Owner at least 24 hours before partially or completely disabling system.
   2. Make temporary connections to maintain service in areas adjacent to work area.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Remove, relocate, and extend existing installations to accommodate new construction.

B. Remove abandoned wiring to source of supply.

C. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces. Use materials to match fire rating of wall.

D. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.

E. Disconnect and remove abandoned panelboards and distribution equipment.

F. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

G. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.

H. Repair adjacent construction and finishes damaged during demolition and extension work.

I. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.

3.04 CLEANING AND REPAIR

A. See Section 01 7419 - Construction Waste Management and Disposal for additional requirements.

B. Clean and repair existing materials and equipment that remain or that are to be reused.

C. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

END OF SECTION

SECTION 26 0519
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Single conductor building wire.

B. Power and control tray cable.

C. Variable-frequency drive cable.

D. Wiring connectors.

E. Electrical tape.

F. Heat shrink tubing.

G. Wire pulling lubricant.

H. Cable ties.

1.02 RELATED REQUIREMENTS

A. Section 07 8400 - Firestopping.

B. Section 26 0526 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.

C. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire 2013 (Reapproved 2018).

B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft 2011 (Reapproved 2017).

C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes 2010, with Editorial Revision (2020).

D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation 2004 (Reapproved 2020).

E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape 2017.

F. ASTM D4388 - Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes 2020.

G. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

H. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy 2021.

I. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems 2021.

J. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

K. NFPA 79 - Electrical Standard for Industrial Machinery 2021.

L. UL 44 - Thermoset-Insulated Wires and Cables Current Edition, Including All Revisions.

M. UL 83 - Thermoplastic-Insulated Wires and Cables Current Edition, Including All Revisions.

N. UL 267 - Outline of Investigation for Wire-Pulling Compounds Current Edition, Including All Revisions.

O. UL 486A-486B - Wire Connectors Current Edition, Including All Revisions.

P. UL 486C - Splicing Wire Connectors Current Edition, Including All Revisions.

Q. UL 486D - Sealed Wire Connector Systems Current Edition, Including All Revisions.

R. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape Current Edition, Including All Revisions.

S. UL 1277 - Electrical Power and Control Tray Cables with Optional Optical-Fiber Members Current Edition, Including All Revisions.

T. UL 1569 - Metal-Clad Cables Current Edition, Including All Revisions.

U. UL 2277 - Outline of Investigation for Flexible Motor Supply Cable and Wind Turbine Tray Cable Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
   2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
   3. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F, unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Engineer and obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.

B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.

C. Nonmetallic-sheathed cable is not permitted.

D. Underground feeder and branch-circuit cable is not permitted.

E. Service entrance cable is not permitted.

F. Armored cable is not permitted.

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

A. Provide products that comply with requirements of NFPA 70.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.

D. Comply with NEMA WC 70.

E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.

F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.

G. Conductor Material:
   1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
   2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise

indicated.
3. Tinned Copper Conductors: Comply with ASTM B33.

H. Minimum Conductor Size:
1. Branch Circuits: 12 AWG.
a. Exceptions:
1) 20 A, 120 V circuits longer than 75 feet: 10 AWG, for voltage drop.
2) 20 A, 120 V circuits longer than 150 feet: 8 AWG, for voltage drop.
3) 20 A, 277 V circuits longer than 150 feet: 10 AWG, for voltage drop.
2. Control Circuits: 14 AWG.

I. Conductor Color Coding:
1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
2. Color Coding Method: Integrally colored insulation.
a. Conductors size 4 AWG and larger may have black insulation color coded using vinyl color coding electrical tape.
3. Color Code:
a. 480Y/277 V, 3 Phase, 4 Wire System:
1) Phase A: Brown.
2) Phase B: Orange.
3) Phase C: Yellow.
4) Neutral/Grounded: Gray.
b. 208Y/120 V, 3 Phase, 4 Wire System:
1) Phase A: Black.
2) Phase B: Red.
3) Phase C: Blue.
4) Neutral/Grounded: White.
c. Equipment Ground, All Systems: Green.
d. For modifications or additions to existing wiring systems, comply with existing color code when existing code complies with NFPA 70 and is approved by the authority having jurisdiction.

2.03 SINGLE CONDUCTOR BUILDING WIRE

A. Description: Single conductor insulated wire.

B. Conductor Stranding:
1. Feeders and Branch Circuits:
a. Size 10 AWG and Smaller: Stranded.
b. Size 8 AWG and Larger: Stranded.
2. Control Circuits: Stranded.

C. Insulation Voltage Rating: 600 V.

D. Insulation:
1. Copper Building Wire: Type THHN/THWN-2, except as indicated below.
a. Size 4 AWG and Larger: Type XHHW-2.
b. Installed Underground: Type XHHW-2.

2.04 POWER AND CONTROL TRAY CABLE

A. Description: NFPA 70, Type TC cable listed and labeled as complying with UL 1277.

B. Conductor Stranding: Stranded.

C. Insulation Voltage Rating: 600 V.

D. Insulation: Type XHHW or XHHW-2.

E. Jacket: PVC or Chlorinated Polyethylene (CPE).

2.05 VARIABLE-FREQUENCY DRIVE CABLE

A. Description: Flexible motor supply cable listed and labeled as complying with UL 2277 in accordance with NFPA 79; specifically designed for use with variable frequency drives and associated nonlinear power distortions.

B. Conductor Stranding: Stranded.

C. Insulation Voltage Rating: 1000 V.

D. Insulation: Use only thermoset insulation types; thermoplastic insulation types are not permitted.

E. Grounding: Full-size integral equipment grounding conductor or symmetrical arrangement of multiple conductors of equivalent size.

F. Provide metallic shielding.

G. Jacket: PVC or Chlorinated Polyethylene (CPE).

2.06 WIRING CONNECTORS

A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.

B. Wiring Connectors for Splices and Taps:
   1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
      a. Push-in wire connectors are not permitted.
   2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors.

C. Wiring Connectors for Terminations:
   1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
   2. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
   3. Provide motor pigtail connectors for connecting motor leads in order to facilitate disconnection.
   4. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors where connectors are required.

D. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.

E. Mechanical Connectors: Provide bolted type.

2.07 ACCESSORIES

A. Electrical Tape:
   1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F.
   2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.
   3. Rubber Splicing Electrical Tape: Ethylene Propylene Rubber (EPR) tape, complying with ASTM D4388; minimum thickness of 30 mil; suitable for continuous temperature environment up to 194 degrees F and short-term 266 degrees F overload service.
   4. Electrical Filler Tape: Rubber-based insulating moldable putty, minimum thickness of 125 mil; suitable for continuous temperature environment up to 176 degrees F.
   5. Moisture Sealing Electrical Tape: Insulating mastic compound laminated to flexible, all-weather vinyl backing; minimum thickness of 90 mil.

B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.

C. Wire Pulling Lubricant:
   1. Listed and labeled as complying with UL 267.
   2. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
   3. Suitable for use at installation temperature.

D. Cable Ties: Material and tensile strength rating suitable for application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that interior of building has been protected from weather.

B. Verify that work likely to damage wire and cable has been completed.

C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.

D. Verify that field measurements are as indicated.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

A. Circuiting Requirements:
   1. Unless dimensioned, circuit routing indicated is diagrammatic.
   2. When circuit destination is indicated without specific routing, determine exact routing required.
   3. Arrange circuiting to minimize splices.
   4. Include circuit lengths required to install connected devices within 10 ft of location indicated.
   5. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
   6. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is permitted, under the following conditions:
      a. Provide no more than six current-carrying conductors in a single raceway. Dedicated neutral conductors are considered current-carrying conductors.
      b. Increase size of conductors as required to account for ampacity derating.
      c. Size raceways, boxes, etc. to accommodate conductors.
   7. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.

B. Install products in accordance with manufacturer's instructions.

C. Perform work in accordance with NECA 1 (general workmanship).

D. Installation in Raceway:
   1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
   2. Pull all conductors and cables together into raceway at same time.
   3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
   4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.

E. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.

F. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.

G. Terminate cables using suitable fittings.
   1. Metal-Clad Cable (Type MC):
      a. Use listed fittings.
      b. Cut cable armor only using specialized tools to prevent damaging conductors or insulation. Do not use hacksaw or wire cutters to cut armor.

H. Variable-Frequency Drive Cable: Terminate shielding at both variable-frequency motor controller and associated motor using glands or termination kits recommended by manufacturer.

I. Install conductors with a minimum of 12 inches of slack at each outlet.

J. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.

K. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.

L. Make wiring connections using specified wiring connectors.
   1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
   2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
   3. Do not remove conductor strands to facilitate insertion into connector.
   4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.
   5. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.

M. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
   1. Dry Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
      a. For taped connections, first apply adequate amount of rubber splicing electrical tape or electrical filler tape, followed by outer covering of vinyl insulating electrical tape.
   2. Damp Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
      a. For connections with insulating covers, apply outer covering of moisture sealing electrical tape.
      b. For taped connections, follow same procedure as for dry locations but apply outer covering of moisture sealing electrical tape.
   3. Wet Locations: Use heat shrink tubing.

N. Insulate ends of spare conductors using vinyl insulating electrical tape.

O. Field-Applied Color Coding: Where vinyl color coding electrical tape is used in lieu of integrally colored insulation as permitted in Part 2 under "Color Coding", apply half overlapping turns of tape at each termination and at each location conductors are accessible.

P. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.

Q. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION

SECTION 26 0526
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Grounding and bonding requirements.

B. Conductors for grounding and bonding.

C. Connectors for grounding and bonding.

D. Ground bars.

E. Ground rod electrodes.

1.02 RELATED REQUIREMENTS

A. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.

B. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

B. NEMA GR 1 - Grounding Rod Electrodes and Grounding Rod Electrode Couplings 2022.

C. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

D. UL 467 - Grounding and Bonding Equipment Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Verify exact locations of underground metal water service pipe entrances to building.
   2. Coordinate the work with other trades to provide steel reinforcement complying with specified requirements for concrete-encased electrode.
   3. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not install ground rod electrodes until final backfill and compaction is complete.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS

A. Existing Work: Where existing grounding and bonding system components are indicated to be reused, they may be reused only where they are free from corrosion, integrity and continuity are verified, and where acceptable to the authority having jurisdiction.

B. Do not use products for applications other than as permitted by NFPA 70 and product listing.

C. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.

D. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

E. Grounding Electrode System:
   1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
      a. Provide continuous grounding electrode conductors without splice or joint.

b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.

2. Metal Underground Water Pipe(s):
   a. Provide connection to underground metal domestic and fire protection (where present) water service pipe(s) that are in direct contact with earth for at least 10 feet at an accessible location not more than 5 feet from the point of entrance to the building.
   b. Provide bonding jumper(s) around insulating joints/pipes as required to make pipe electrically continuous.
   c. Provide bonding jumper around water meter of sufficient length to permit removal of meter without disconnecting jumper.
3. Metal In-Ground Support Structure:
   a. Provide connection to metal in-ground support structure that is in direct contact with earth in accordance with NFPA 70.
4. Concrete-Encased Electrode:
   a. Provide connection to concrete-encased electrode consisting of not less than 20 feet of either steel reinforcing bars or bare copper conductor not smaller than 4 AWG embedded within concrete foundation or footing that is in direct contact with earth in accordance with NFPA 70.
5. Ground Rod Electrode(s):
   a. Provide two electrodes unless otherwise indicated or required.
   b. Space electrodes not less than 10 feet from each other and any other ground electrode.
   c. Where location is not indicated, locate electrode(s) at least 5 feet outside building perimeter foundation as near as possible to electrical service entrance; where possible, locate in softscape (uncovered) area.
6. Provide additional ground electrode(s) as required to achieve specified grounding electrode system resistance.
7. Ground Bar: Provide ground bar, separate from service equipment enclosure, for common connection point of grounding electrode system bonding jumpers as permitted in NFPA 70. Connect grounding electrode conductor provided for service-supplied system grounding to this ground bar.
   a. Ground Bar Size: 1/4 by 2 by 12 inches unless otherwise indicated or required.
   b. Where ground bar location is not indicated, locate in accessible location as near as possible to service disconnect enclosure.
   c. Ground Bar Mounting Height: 18 inches above finished floor unless otherwise indicated.
8. Ground Riser: Provide common grounding electrode conductor not less than 3/0 AWG for tap connections to multiple separately derived systems as permitted in NFPA 70.

F. Service-Supplied System Grounding:
1. For each service disconnect, provide grounding electrode conductor to connect neutral (grounded) service conductor to grounding electrode system. Unless otherwise indicated, make connection at neutral (grounded) bus in service disconnect enclosure.
2. For each service disconnect, provide main bonding jumper to connect neutral (grounded) bus to equipment ground bus where not factory-installed. Do not make any other connections between neutral (grounded) conductors and ground on load side of service disconnect.

G. Grounding for Separate Building or Structure Supplied by Feeder(s) or Branch Circuits:
1. Provide grounding electrode system for each separate building or structure.
2. Provide equipment grounding conductor routed with supply conductors.
3. For each disconnecting means, provide grounding electrode conductor to connect equipment ground bus to grounding electrode system.
4. Do not make any connections and remove any factory-installed jumpers between neutral (grounded) conductors and ground.

H. Bonding and Equipment Grounding:
1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and

other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.
7. Provide bonding for interior metal piping systems in accordance with NFPA 70. This includes, but is not limited to:
   a. Metal water piping where not already effectively bonded to metal underground water pipe used as grounding electrode.
   b. Metal gas piping.

I. Communications Systems Grounding and Bonding:
1. Provide bonding jumper in raceway from intersystem bonding termination to each communications room or backboard and provide ground bar for termination.
   a. Bonding Jumper Size: 6 AWG, unless otherwise indicated or required.
   b. Raceway Size: 3/4 inch trade size unless otherwise indicated or required.
   c. Ground Bar Size: 1/4 by 2 by 12 inches unless otherwise indicated or required.

2.02 GROUNDING AND BONDING COMPONENTS

A. General Requirements:
1. Provide products listed, classified, and labeled as suitable for the purpose intended.
2. Provide products listed and labeled as complying with UL 467 where applicable.

B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 0526:
1. Use insulated copper conductors unless otherwise indicated.
   a. Exceptions:
      1) Use bare copper conductors where installed underground in direct contact with earth.
      2) Use bare copper conductors where directly encased in concrete (not in raceway).

C. Connectors for Grounding and Bonding:
1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.

D. Ground Bars:
1. Description: Copper rectangular ground bars with mounting brackets and insulators.
2. Holes for Connections: As indicated or as required for connections to be made.

E. Ground Rod Electrodes:
1. Comply with NEMA GR 1.
2. Material: Copper-bonded (copper-clad) steel.
3. Size: 3/4 inch diameter by 10 feet length, unless otherwise indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that work likely to damage grounding and bonding system components has been completed.

B. Verify that field measurements are as indicated.

C. Verify that conditions are satisfactory for installation prior to starting work.

D. Verify that final backfill and compaction has been completed before driving rod electrodes.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Ground Rod Electrodes: Unless otherwise indicated, install ground rod electrodes vertically. Where encountered rock prohibits vertical installation, install at 45 degree angle or bury horizontally in trench at least 30 inches (750 mm) deep in accordance with NFPA 70 or install at 45 degree angle or bury horizontally in trench at least 30 inches (750 mm) deep in accordance with NFPA 70.
   1. Outdoor Installations: Unless otherwise indicated, install with top of rod 6 inches below finished grade.

D. Make grounding and bonding connections using specified connectors.
   1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
   2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
   3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
   4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
   5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.

E. Identify grounding and bonding system components in accordance with Section 26 0553.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.

C. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.

END OF SECTION

SECTION 26 0529
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete equipment pads.

B. Section 26 0533.13 - Conduit for Electrical Systems: Additional support and attachment requirements for conduits.

C. Section 26 0533.16 - Boxes for Electrical Systems: Additional support and attachment requirements for boxes.

1.03 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2023.

C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel 2023.

D. MFMA-4 - Metal Framing Standards Publication 2004.

E. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate sizes and arrangement of supports and bases with actual equipment and components to be installed.
   2. Coordinate work to provide additional framing and materials required for installation.
   3. Coordinate compatibility of support and attachment components with mounting surfaces at installed locations.
   4. Coordinate arrangement of supports with ductwork, piping, equipment and other potential conflicts.
   5. Notify Engineer of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not install products on or provide attachment to concrete surfaces until concrete has cured; see Section 03 3000.

1.05 QUALITY ASSURANCE

A. Product Listing Organization Qualifications: Organization recognized by OSHA as Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:
   1. Provide required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for complete installation of electrical work.
   2. Provide products listed, classified, and labeled as suitable for purpose intended, where applicable.
   3. Do not use products for applications other than as permitted by NFPA 70 and product listing.
   4. Steel Components: Use corrosion-resistant materials suitable for environment where installed.

a. Indoor Dry Locations: Use zinc-plated steel or approved equivalent unless otherwise indicated.
b. Outdoor and Damp or Wet Indoor Locations: Use stainless steel unless otherwise indicated.
c. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
d. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

B. Conduit and Cable Supports: Straps and clamps suitable for conduit or cable to be supported.
1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
2. Conduit Clamps: Bolted type unless otherwise indicated.

C. Outlet Box Supports: Hangers and brackets suitable for boxes to be supported.

D. Metal Channel/Strut Framing Systems:
1. Description: Factory-fabricated, continuous-slot, metal channel/strut and associated fittings, accessories, and hardware required for field assembly of supports.
2. Comply with MFMA-4.
3. Channel Material:
a. Indoor Dry Locations: Use painted steel, zinc-plated steel, or galvanized steel.
b. Outdoor and Damp or Wet Indoor Locations: Use stainless steel.

E. Hanger Rods: Threaded, zinc-plated steel unless otherwise indicated.

F. Anchors and Fasteners:
1. Unless otherwise indicated and where not otherwise restricted, use anchor and fastener types indicated for specified applications.
2. Concrete: Use preset concrete inserts, expansion anchors, or screw anchors.
3. Solid or Grout-Filled Masonry: Use expansion anchors or screw anchors.
4. Hollow Masonry: Use toggle bolts.
5. Hollow Stud Walls: Use toggle bolts.
6. Steel: Use beam clamps, machine bolts, or welded threaded studs.
7. Sheet Metal: Use sheet metal screws.
8. Wood: Use wood screws.
9. Plastic and lead anchors are not permitted.
10. Preset Concrete Inserts: Continuous metal channel/strut and spot inserts specifically designed to be cast in concrete ceilings, walls, and floors.
a. Manufacturer: Same as manufacturer of metal channel/strut framing system.
b. Comply with MFMA-4.
c. Channel Material: Use galvanized steel.
11. Post-Installed Concrete and Masonry Anchors: Evaluated and recognized by ICC Evaluation Service, LLC (ICC-ES) for compliance with applicable building code.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that mounting surfaces are ready to receive support and attachment components.

B. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install hangers and supports in accordance with NECA 1.

C. Install anchors and fasteners in accordance with ICC Evaluation Services, LLC (ICC-ES) evaluation report conditions of use where applicable.

D. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

E. Unless specifically indicated or approved by Engineer, do not provide support from suspended ceiling support system or ceiling grid.

F. Unless specifically indicated or approved by Engineer, do not provide support from roof deck.

G. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.

H. Equipment Support and Attachment:
   1. Use metal, fabricated supports or supports assembled from metal channel/strut to support equipment as required.
   2. Use metal channel/strut secured to studs to support equipment surface mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
   3. Use metal channel/strut to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
   4. Unless otherwise indicated, mount floor-mounted equipment on properly sized concrete pad 4 inches in height; see Section 03 3000.
   5. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

I. Preset Concrete Inserts: Use manufacturer provided closure strips to inhibit concrete seepage during concrete pour.

J. Secure fasteners in accordance with manufacturer's recommended torque settings.

K. Remove temporary supports.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements for additional requirements.

B. Inspect support and attachment components for damage and defects.

C. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

D. Correct deficiencies and replace damaged or defective support and attachment components.

E. Install hangers and supports as required to adequately and securely support electrical system components, in a neat and workmanlike manner, as specified in NECA 1.
   1. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
   2. Obtain permission from Engineer before drilling or cutting structural members.

F. Rigidly weld support members or use hexagon-head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.

G. Install surface-mounted cabinets and panelboards with minimum of four anchors.

H. In wet and damp locations use steel channel supports to stand cabinets and panelboards 1 inch off wall.

I. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.

END OF SECTION

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SECTION 26 0533.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Galvanized steel rigid metal conduit (RMC).

B. Aluminum rigid metal conduit (RMC).

C. Galvanized steel intermediate metal conduit (IMC).

D. Flexible metal conduit (FMC).

E. Liquidtight flexible metal conduit (LFMC).

F. Galvanized steel electrical metallic tubing (EMT).

G. Aluminum electrical metallic tubing (EMT).

H. Rigid polyvinyl chloride (PVC) conduit.

I. High-density polyethylene (HDPE) conduit.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete encasement of conduits.

B. Section 07 8400 - Firestopping.

C. Section 26 0526 - Grounding and Bonding for Electrical Systems.
   1. Includes additional requirements for fittings for grounding and bonding.

D. Section 26 0529 - Hangers and Supports for Electrical Systems.

E. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC) 2020.

B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S) 2020.

C. ANSI C80.5 - American National Standard for Electrical Rigid Metal Conduit -- Aluminum (ERMC-A) 2020.

D. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit 2018.

E. ASTM F2160 - Standard Specification for Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD) 2016.

F. ASTM F2176 - Standard Specification for Mechanical Couplings Used on Polyethylene Conduit, Duct and Innerduct 2017.

G. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

H. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT) 2020.

I. NECA 102 - Standard for Installing Aluminum Rigid Metal Conduit 2004.

J. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC) 2017.

K. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.

L. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Metal Conduit and Intermediate Metal Conduit 2018.

M. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit 2020.

N. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing 2021.

O. NEMA TC 7 - Solid-Wall Coilable and Straight Electrical Polyethylene Conduit 2021.

P. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

Q. UL 1 - Flexible Metal Conduit Current Edition, Including All Revisions.

R. UL 6 - Electrical Rigid Metal Conduit-Steel Current Edition, Including All Revisions.

S. UL 6A - Electrical Rigid Metal Conduit-Aluminum, Red Brass, and Stainless Steel Current Edition, Including All Revisions.

T. UL 360 - Liquid-Tight Flexible Metal Conduit Current Edition, Including All Revisions.

U. UL 514B - Conduit, Tubing, and Cable Fittings Current Edition, Including All Revisions.

V. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings Current Edition, Including All Revisions.

W. UL 651A - Schedule 40 and 80 High Density Polyethylene (HDPE) Conduit Current Edition, Including All Revisions.

X. UL 797 - Electrical Metallic Tubing-Steel Current Edition, Including All Revisions.

Y. UL 797A - Electrical Metallic Tubing - Aluminum and Stainless Steel Current Edition, Including All Revisions.

Z. UL 1242 - Electrical Intermediate Metal Conduit-Steel Current Edition, Including All Revisions.

AA. UL 2419 - Outline of Investigation for Electrically Conductive Corrosion Resistant Compounds Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate minimum sizes of conduits with actual type and quantity of conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
   2. Coordinate arrangement of conduits with structural members, ductwork, piping, equipment, and other potential conflicts.
   3. Verify exact conduit termination locations required for boxes, enclosures, and equipment.
   4. Coordinate work to provide roof penetrations that preserve integrity of roofing system and do not void roof warranty.
   5. Notify Engineer of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not begin installation of conductors and cables until installation of conduit between termination points is complete.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittals procedures.

B. Project Record Documents: Record actual routing for conduits installed underground, conduits embedded within concrete slabs, and conduits 2-inch (53 mm) trade size and larger.

1.06 QUALITY ASSURANCE

A. Product Listing Organization Qualifications: Organization recognized by OSHA as Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70, manufacturer's instructions, and product listing.

B. Unless otherwise indicated and where not otherwise restricted, use conduit types indicated for specified applications. Where more than one listed application applies, comply with most restrictive requirements. Where conduit type for particular application is not specified, use galvanized steel rigid metal conduit.

C. Underground:
   1. Under Slab on Grade: Use galvanized steel rigid metal conduit or rigid PVC conduit.
   2. Exterior, Direct-Buried: Use galvanized steel rigid metal conduit, rigid PVC conduit, or HDPE conduit.

3. Where rigid polyvinyl chloride (PVC) conduit or high-density polyethylene (HDPE) conduit is provided, transition to galvanized steel rigid metal conduit (RMC) or galvanized steel intermediate metal conduit (IMC) where emerging from underground.
4. Where rigid polyvinyl (PVC) conduit larger than 2-inch (53 mm) trade size is provided, use galvanized steel rigid metal conduit (RMC) elbows, galvanized steel intermediate metal conduit (IMC) elbows, or concrete-encased PVC elbows for bends.

D. Embedded Within Concrete:
1. Within Slab on Grade: Not permitted.
2. Within Slab Above Ground: Not permitted.
3. Where rigid polyvinyl (PVC) conduit is provided, transition to galvanized steel rigid metal conduit (RMC) or galvanized steel intermediate metal conduit (IMC) where emerging from concrete.

E. Concealed Within Hollow Stud Walls: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).

F. Concealed Above Accessible Ceilings: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).

G. Interior, Damp Locations: Use aluminum rigid metal conduit or galvanized or aluminum electrical metallic tubing (EMT).

H. Exposed, Interior, Not Subject to Physical Damage: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).

I. Exposed, Exterior, Not Subject to Severe Physical Damage: Use galvanized steel rigid metal conduit (RMC), aluminum rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).

J. Flexible Connections to Vibrating Equipment:
1. Dry Locations: Use flexible metal conduit (FMC).
2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit (LFMC).
3. Maximum Length: 6 feet unless otherwise indicated.
4. Vibrating equipment includes, but is not limited to:
a. Motors.
b. Generator.

2.02 CONDUIT - GENERAL REQUIREMENTS

A. Comply with NFPA 70.

B. Provide conduit, fittings, supports, and accessories required for complete raceway system.

C. Provide products listed, classified, and labeled as suitable for purpose intended.

D. Minimum Conduit Size, Unless Otherwise Indicated:
1. Branch Circuits: 3/4 inch (21 mm) trade size.
2. Branch Circuit Homeruns: 3/4 inch (21 mm) trade size.
3. Control Circuits: 3/4 inch (21 mm) trade size.
4. Flexible Connections to Luminaires: 1/2 inch (16 mm) trade size.
5. Underground, Interior: 1 inch (27 mm) trade size.
6. Underground, Exterior: 1 inch (27 mm) trade size.

E. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

A. Manufacturers:
1. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.com/#sle.
2. Nucor Tubular Products: www.nucortubular.com/#sle.
3. Wheatland Tube, a division of Zekelman Industries: www.wheatland.com/#sle.

B. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.

C. Fittings:
1. Manufacturers:
a. Bridgeport Fittings Inc: www.bptfittings.com/#sle.
b. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.
2. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6.
3. Material: Use steel or malleable iron.
4. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.04 ALUMINUM RIGID METAL CONDUIT (RMC)

A. Manufacturers:
1. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.com/#sle.
2. Nucor Tubular Products: www.nucortubular.com/#sle.
3. Wheatland Tube, a division of Zekelman Industries: www.wheatland.com/#sle.

B. Description: NFPA 70, Type RMC aluminum rigid metal conduit complying with ANSI C80.5 and listed and labeled as complying with UL 6A.

C. Fittings:
1. Manufacturers:
a. Bridgeport Fittings, LLC: www.bptfittings.com/#sle.
b. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.
2. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6A.
3. Material: Use aluminum.
4. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.05 GALVANIZED STEEL INTERMEDIATE METAL CONDUIT (IMC)

A. Manufacturers:
1. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.com/#sle.
2. Nucor Tubular Products: www.nucortubular.com/#sle.
3. Wheatland Tube, a division of Zekelman Industries: www.wheatland.com/#sle.

B. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.

C. Fittings:
1. Manufacturers:
a. Bridgeport Fittings, LLC: www.bptfittings.com/#sle.
b. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.
2. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 1242.
3. Material: Use steel or malleable iron.
4. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.06 FLEXIBLE METAL CONDUIT (FMC)

A. Manufacturers:
1. AFC Cable Systems, a division of Atkore International: www.afcweb.com/#sle.
2. Electri-Flex Company: www.electriflex.com/#sle.
3. International Metal Hose: www.metalhose.com/#sle.
4. Substitutions: See Section 01 6000 - Product Requirements.

B. Description: NFPA 70, Type FMC standard-wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems.

C. Fittings:
1. Manufacturers:
a. Bridgeport Fittings, LLC: www.bptfittings.com/#sle.
b. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.

2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
3. Material: Use steel or malleable iron.

2.07 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

A. Manufacturers:
1. AFC Cable Systems, a division of Atkore International: www.afcweb.com/#sle.
2. Electri-Flex Company: www.electriflex.com/#sle.
3. International Metal Hose: www.metalhose.com/#sle.
4. Substitutions: See Section 01 6000 - Product Requirements.

B. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.

C. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
2. Material: Use steel or malleable iron.

2.08 GALVANIZED STEEL ELECTRICAL METALLIC TUBING (EMT)

A. Manufacturers:
1. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.com/#sle.
2. Wheatland Tube, a Division of Zekelman Industries: www.wheatland.com/#sle.

B. Description: NFPA 70, Type EMT galvanized steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.

C. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
2. Material: Use steel or malleable iron.
3. Connectors and Couplings: Use compression/gland or set-screw type.
a. Do not use indenter type connectors and couplings.

2.09 ALUMINUM ELECTRICAL METALLIC TUBING (EMT)

A. Description: NFPA 70, Type EMT aluminum electrical metallic tubing listed and labeled as complying with UL 797A.

B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B; listed for use with aluminum EMT.
2. Material: Use aluminum.
3. Connectors and Couplings: Use compression/gland or set-screw type.
a. Do not use indenter type connectors and couplings.

2.10 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.

B. Fittings:
1. Manufacturer: Same as manufacturer of conduit to be connected.
2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

2.11 HIGH-DENSITY POLYETHYLENE (HDPE) CONDUIT

A. Description: NFPA 70, Type HDPE high-density polyethylene solid-wall conduit complying with ASTM F2160 and NEMA TC 7; list and label as complying with UL 651A; Schedule 40 unless otherwise indicated.

B. Joining Methods: Approved by HDPE conduit manufacturer.

C. Mechanical Fittings: Comply with ASTM F2176; list and label as complying with UL 651A.

2.12 ACCESSORIES

A. Conduit Joint Compound: Corrosion-resistant, electrically conductive compound listed as complying with UL 2419; suitable for use with conduit to be installed.

B. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.

C. Sealing Compound for Hazardous/Classified Location Sealing Fittings: Listed for use with particular fittings to be installed.

D. Sealing Systems for Concrete Penetrations:
   1. Sleeves: Provide water stop ring or cement coating that bonds to concrete to prevent water infiltration.
   2. Rate for minimum of 40 psig; suitable for sealing around conduits to be installed.

E. Sealing Systems for Roof Penetrations: Premanufactured components and accessories as required to preserve integrity of roofing system and maintain roof warranty; suitable for conduits and roofing system to be installed; designed to accommodate existing penetrations where applicable.

F. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive conduits.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install conduit in accordance with NECA 1.

C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.

D. Install aluminum rigid metal conduit (RMC) in accordance with NECA 102.

E. Install intermediate metal conduit (IMC) in accordance with NECA 101.

F. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.

G. Conduit Routing:
   1. Unless dimensioned, conduit routing indicated is diagrammatic.
   2. When conduit destination is indicated without specific routing, determine exact routing required.
   3. Conceal conduits unless specifically indicated to be exposed.
   4. Conduits in the following areas may be exposed, unless otherwise indicated:
      a. Electrical rooms.
      b. Mechanical equipment rooms.
      c. Within joists in areas with no ceiling.
   5. Conduits installed underground or embedded in concrete may be routed in shortest possible manner unless otherwise indicated. Route other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.
   6. Arrange conduit to maintain adequate headroom, clearances, and access.
   7. Arrange conduit to provide no more than equivalent of four 90-degree bends between pull points.
   8. Route conduits above water and drain piping where possible.
   9. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
   10. Maintain minimum clearance of 6 inches between conduits and piping for other systems.
   11. Maintain minimum clearance of 12 inches between conduits and hot surfaces. This includes, but is not limited to:
      a. Heaters.
      b. Hot water piping.

c. Flues.
12. Group parallel conduits in same area on common rack.

H. Conduit Support:
1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by authorities having jurisdiction; see Section 26 0529.
2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
4. Use conduit strap to support single surface-mounted conduit.
   a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.
5. Use metal channel/strut with accessory conduit clamps to support multiple parallel surface-mounted conduits.
6. Use conduit clamp to support single conduit from beam clamp or threaded rod.
7. Use trapeze hangers assembled from threaded rods and metal channel/strut with accessory conduit clamps to support multiple parallel suspended conduits.
8. Use of wire for support of conduits is not permitted.

I. Connections and Terminations:
1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
3. Use suitable adapters where required to transition from one type of conduit to another.
4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
6. Provide insulating bushings, insulated throats, or listed metal fittings with smooth, rounded edges at conduit terminations to protect conductors.
7. Secure joints and connections to provide mechanical strength and electrical continuity.

J. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
2. Make penetrations perpendicular to surfaces unless otherwise indicated.
3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
4. Conceal bends for conduit risers emerging above ground.
5. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
6. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty.
7. Install firestopping to preserve fire resistance rating of partitions and other elements; see Section 07 8400.

K. Underground Installation:
1. Minimum Cover, Unless Otherwise Indicated or Required:
   a. Underground, Exterior: 24 inches.
   b. Under Slab on Grade: 12 inches to bottom of slab.
2. Provide underground warning tape along entire conduit length for service entrance where not concrete-encased; see Section 26 0553.

L. Telecommunications Conduit:
1. Provide 3/4" empty conduit with proper mud ring or box stubbed up into corridor ceiling space for all voice, data, and television locations.

M. Concrete Encasement: Where conduits not otherwise embedded within concrete are indicated to be concrete-encased, provide minimum concrete cover of 3 inches on all sides unless otherwise indicated; see Section 03 3000.

N. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
   1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
   2. Where calculated in accordance with NFPA 70 for rigid polyvinyl chloride (PVC) conduit installed above ground to compensate for thermal expansion and contraction.
   3. Where conduits are subject to earth movement by settlement or frost.

O. Conduit Sealing:
   1. Use foam conduit sealant to prevent entry of moisture and gases. This includes, but is not limited to:
      a. Where conduits enter building from outside.
      b. Where service conduits enter building from underground distribution system.
      c. Where conduits enter building from underground.
      d. Where conduits may transport moisture to contact live parts.
   2. Where conduits cross barriers between areas of potential substantial temperature differential, use foam conduit sealant at accessible point near penetration to prevent condensation. This includes, but is not limited to:
      a. Where conduits pass from outdoors into conditioned interior spaces.
      b. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
   3. Where conduits cross boundaries of hazardous/classified locations, provide identified/listed sealing fittings or conduit mechanical seals as approved by authorities having jurisdiction; locate as indicated or in accordance with NFPA 70.

P. Provide grounding and bonding; see Section 26 0526.

3.03 CLEANING

A. Clean interior of conduits to remove moisture and foreign matter.

END OF SECTION

SECTION 26 0533.16
BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.

B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.

C. Underground boxes/enclosures.

1.02 RELATED REQUIREMENTS

A. Section 07 8400 - Firestopping.

B. Section 08 3100 - Access Doors and Panels: Panels for maintaining access to concealed boxes.

C. Section 26 0529 - Hangers and Supports for Electrical Systems.

D. Section 26 2726 - Wiring Devices:
   1. Wall plates.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

B. NECA 130 - Standard for Installing and Maintaining Wiring Devices 2016.

C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.

D. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.

E. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports 2013 (Reaffirmed 2020).

F. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports 2013 (Reaffirmed 2020).

G. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. SCTE 77 - Specifications for Underground Enclosure Integrity 2017.

I. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.

J. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.

K. UL 508A - Industrial Control Panels Current Edition, Including All Revisions.

L. UL 514A - Metallic Outlet Boxes Current Edition, Including All Revisions.

M. UL 514C - Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
   2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.
   4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
   5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
   6. Coordinate the work with other trades to preserve insulation integrity.

7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
8. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

B. Products: Provide products listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 BOXES

A. General Requirements:
1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
3. Provide products listed, classified, and labeled as suitable for the purpose intended.
4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
5. Provide grounding terminals within boxes where equipment grounding conductors terminate.

B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
3. Use nonmetallic boxes where exposed rigid PVC conduit is used.
4. Use suitable concrete type boxes where flush-mounted in concrete.
5. Use suitable masonry type boxes where flush-mounted in masonry walls.
6. Use raised covers suitable for the type of wall construction and device configuration where required.
7. Use shallow boxes where required by the type of wall construction.
8. Do not use "through-wall" boxes designed for access from both sides of wall.
9. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
10. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
11. Nonmetallic Boxes: Comply with NEMA OS 2, and list and label as complying with UL 514C.
12. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
13. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
14. Wall Plates: Comply with Section 26 2726.

C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches:
1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
2. NEMA 250 Environment Type, Unless Otherwise Indicated:
3. Junction and Pull Boxes Larger Than 100 cubic inches:
   a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.

4. Finish for Painted Steel Enclosures: Manufacturer's standard grey unless otherwise indicated.

D. Underground Boxes/Enclosures:
1. Description: In-ground, open bottom boxes furnished with flush, non-skid covers with legend indicating type of service and stainless steel tamper resistant cover bolts.
2. Size: As indicated on drawings.
3. Depth: As required to extend below frost line to prevent frost upheaval, but not less than 12 inches.
4. Applications:
a. Sidewalks and Landscaped Areas Subject Only to Occasional Nondeliberate Vehicular Traffic: Use polymer concrete enclosures, with minimum SCTE 77 Tier 8 load rating.
b. Do not use polymer concrete enclosures in areas subject to deliberate vehicular traffic.
5. Polymer Concrete Underground Boxes/Enclosures: Comply with SCTE 77.
a. Combination fiberglass/polymer concrete boxes/enclosures are acceptable.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive boxes.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Unless otherwise indicated, provide separate boxes for line voltage and low voltage systems.

E. Flush-mount boxes in finished areas unless specifically indicated to be surface-mounted.

F. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.

G. Box Locations:
1. Locate boxes to be accessible. Provide access panels in accordance with Section 08 3100 as required where approved by the Architect.
2. Unless dimensioned, box locations indicated are approximate.
3. Locate boxes so that wall plates do not span different building finishes.
4. Locate boxes so that wall plates do not cross masonry joints.
5. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
6. Do not install flush-mounted boxes on opposite sides of walls back-to-back. Provide minimum 6 inches horizontal separation unless otherwise indicated.

H. Box Supports:
1. Secure and support boxes in accordance with NFPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.
2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.

I. Install boxes plumb and level.

J. Flush-Mounted Boxes:

1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch or does not project beyond finished surface.
2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.

K. Install boxes as required to preserve insulation integrity.

L. Underground Boxes/Enclosures:
1. Install enclosure on gravel base, minimum 6 inches deep.
2. Install additional bracing inside enclosures in accordance with manufacturer's instructions to minimize box sidewall deflections during backfilling. Backfill with cover bolted in place.

M. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

N. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.

O. Close unused box openings.

P. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.

Q. Provide grounding and bonding in accordance with Section 26 0526.

R. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.

3.03 CLEANING

A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

END OF SECTION

SECTION 26 0553
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical identification requirements.

B. Identification nameplates and labels.

C. Wire and cable markers.

D. Underground warning tape.

E. Warning signs and labels.

1.02 RELATED REQUIREMENTS

A. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.

B. Section 26 0573 - Power System Studies: Arc flash hazard warning labels.

1.03 REFERENCE STANDARDS

A. ANSI Z535.2 - American National Standard for Environmental and Facility Safety Signs 2011 (Reaffirmed 2017).

B. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels 2011 (Reaffirmed 2017).

C. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

D. UL 969 - Marking and Labeling Systems Current Edition, Including All Revisions.

1.04 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

PART 2 PRODUCTS

2.01 IDENTIFICATION REQUIREMENTS

A. Existing Work: Unless specifically excluded, identify existing elements to remain that are not already identified in accordance with specified requirements.

B. Identification for Equipment:
   1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
      a. Motor Control Centers:
         1) Use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.
      b. Panelboards:
         1) Use typewritten circuit directory to identify load(s) served for panelboards with a door. Identify spares and spaces using pencil.
         2) For power panelboards without a door, use identification nameplate to identify load(s) served for each branch device. Identify spares and spaces.
      c. Transformers:
      d. Enclosed switches, circuit breakers, and motor controllers:
         1) Identify voltage power source and circuit number. Include location when not within sight of equipment.
         2) Identify load(s) served. Include location.
      e. Transfer Switches:
         1) Identify short circuit current rating based on the specific overcurrent protective device type and settings protecting the transfer switch.
   2. Service Equipment:
      a. Use identification nameplate to identify each service disconnecting means.
   3. Use identification nameplate to identify equipment utilizing series ratings, where permitted, in accordance with NFPA 70.

4. Use identification label or handwritten text using indelible marker on inside of door at each fused switch to identify required NEMA fuse class and size.
5. Use identification label to identify overcurrent protective devices for branch circuits serving fire alarm circuits. Identify with text "FIRE ALARM CIRCUIT".
6. Available Fault Current Documentation: Use identification label to identify the available fault current and date calculations were performed at locations requiring documentation by NFPA 70 including but not limited to the following.
    a. Service equipment.
    b. Industrial control panels.
    c. Motor control centers.
    d. Elevator control panels.
    e. Industrial machinery.
7. Arc Flash Hazard Warning Labels: Comply with Section 26 0573.
8. Use warning signs to identify electrical hazards for entrances to all rooms and other guarded locations that contain exposed live parts operating at 600 V nominal or less with the word message "DANGER; Electrical hazard; Authorized personnel only" or approved equivalent.

C. Identification for Conductors and Cables:
1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26 0519.
2. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.

D. Identification for Devices:
1. Use identification label to identify fire alarm system devices.
2. Use identification label or engraved wallplate to identify serving branch circuit for all receptacles.
3. Use identification label to identify receptacles protected by upstream GFI protection, where permitted.

2.02 IDENTIFICATION NAMEPLATES AND LABELS

A. Identification Nameplates:
1. Materials:
    a. Indoor Clean, Dry Locations: Use plastic nameplates.
    b. Outdoor Locations: Use plastic, stainless steel, or aluminum nameplates suitable for exterior use.
2. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch; engraved text.
3. Stainless Steel Nameplates: Minimum thickness of 1/32 inch; engraved or laser-etched text.
4. Aluminum Nameplates: Anodized; minimum thickness of 1/32 inch; engraved or laser-etched text.
5. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch high; Four, located at corners for larger sizes.

B. Identification Labels:
1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.

C. Format for Equipment Identification:
1. Minimum Size: 1 inch by 2.5 inches.
2. Legend:
    a. Equipment designation or other approved description.
3. Text: All capitalized unless otherwise indicated.
4. Minimum Text Height:
    a. Equipment Designation: 1/2 inch.
5. Color:

a. Normal Power System: White text on black background.

2.03 WIRE AND CABLE MARKERS

A. Markers for Conductors and Cables: Use wrap-around self-adhesive vinyl cloth, wrap-around self-adhesive vinyl self-laminating, heat-shrink sleeve, plastic sleeve, plastic clip-on, or vinyl split sleeve type markers suitable for the conductor or cable to be identified.

B. Markers for Conductor and Cable Bundles: Use plastic marker tags secured by nylon cable ties.

C. Legend: Power source and circuit number or other designation indicated.

D. Text: Use factory pre-printed or machine-printed text, all capitalized unless otherwise indicated.

E. Minimum Text Height: 1/8 inch.

F. Color: Black text on white background unless otherwise indicated.

2.04 UNDERGROUND WARNING TAPE

A. Materials: Use non-detectable type polyethylene tape suitable for direct burial, unless otherwise indicated.

B. Non-detectable Type Tape: 6 inches wide, with minimum thickness of 4 mil.

C. Legend: Type of service, continuously repeated over full length of tape.

D. Color:
1. Tape for Buried Power Lines: Black text on red background.

2.05 WARNING SIGNS AND LABELS

A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.

B. Warning Signs:
1. Materials:
   a. Indoor Dry, Clean Locations: Use factory pre-printed rigid plastic or self-adhesive vinyl signs.
2. Rigid Signs: Provide four mounting holes at corners for mechanical fasteners.
3. Minimum Size: 7 by 10 inches unless otherwise indicated.

C. Warning Labels:
1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
3. Minimum Size: 2 by 4 inches unless otherwise indicated.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
1. Surface-Mounted Equipment: Enclosure front.
2. Flush-Mounted Equipment: Inside of equipment door.
3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
4. Elevated Equipment: Legible from the floor or working platform.
5. Branch Devices: Adjacent to device.
6. Interior Components: Legible from the point of access.
7. Conductors and Cables: Legible from the point of access.
8. Devices: Outside face of cover.

C. Install identification products centered, level, and parallel with lines of item being identified.

D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.

E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.

F. Install underground warning tape above buried lines with one tape per trench at 3 inches below finished grade.

G. Secure rigid signs using stainless steel screws.

H. Mark all handwritten text, where permitted, to be neat and legible.

END OF SECTION

SECTION 26 0573
POWER SYSTEM STUDIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Short-circuit study.

B. Protective device coordination study.

C. Arc flash and shock risk assessment.
   1. Includes arc flash hazard warning labels.

D. Criteria for the selection and adjustment of equipment and associated protective devices not specified in this section, as determined by studies to be performed.

1.02 RELATED REQUIREMENTS

A. Section 26 0553 - Identification for Electrical Systems: Additional requirements for arc flash hazard warning labels.

B. Section 26 2100 - Low-Voltage Electrical Service Entrance.

C. Section 26 2416 - Panelboards.

D. Section 26 2419 - Motor-Control Centers.

E. Section 26 2816.13 - Enclosed Circuit Breakers.

1.03 REFERENCE STANDARDS

A. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels 2011 (Reaffirmed 2017).

B. IEEE 141 - IEEE Recommended Practice for Electric Power Distribution for Industrial Plants 1993 (Reaffirmed 1999).

C. IEEE 242 - IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems 2001, with Errata (2003).

D. IEEE 399 - IEEE Recommended Practice for Industrial and Commercial Power Systems Analysis 1997.

E. IEEE 551 - IEEE Recommended Practice for Calculating Short-Circuit Currents in Industrial and Commercial Power Systems 2006.

F. IEEE 1584 - IEEE Guide for Performing Arc-Flash Hazard Calculations 2018, with Errata (2019).

G. NEMA MG 1 - Motors and Generators 2021.

H. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems 2021.

I. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

J. NFPA 70E - Standard for Electrical Safety in the Workplace 2024.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the work to provide equipment and associated protective devices complying with criteria for selection and adjustment, as determined by studies to be performed.
   2. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Submit study reports prior to or concurrent with product submittals.
   2. Do not order equipment until matching study reports and product submittals have both been evaluated by Engineer.
   3. Verify naming convention for equipment identification prior to creation of final drawings, reports, and arc flash hazard warning labels (where applicable).

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Study reports, stamped or sealed and signed by study preparer.

C. Certification that field adjustable protective devices have been set in accordance with requirements of studies.

D. Project Record Documents: Revise studies as required to reflect as-built conditions.
   1. Include hard copies with operation and maintenance data submittals.
   2. Include computer software files used to prepare studies with file name(s) cross-referenced to specific pieces of equipment and systems.

1.06 POWER SYSTEM STUDIES

A. Scope of Studies:
   1. Except where study descriptions below indicate exclusions, analyze system at each bus from primary protective devices of utility source down to each piece of equipment involved, including parts of system affecting calculations being performed (e.g. fault current contribution from motors).
   2. Include in analysis alternate sources and operating modes (including known future configurations) to determine worst case conditions.
      a. Known Operating Modes:
         1) Utility as source.
         2) Generator as source.

B. General Study Requirements:
   1. Comply with NFPA 70.
   2. Perform studies utilizing computer software complying with specified requirements; manual calculations are not permitted.

C. Data Collection:
   1. Compile information on project-specific characteristics of actual installed equipment, protective devices, feeders, etc. as necessary to develop single-line diagram of electrical distribution system and associated input data for use in system modeling.
      a. Utility Source Data: Include primary voltage, maximum and minimum three-phase and line-to-ground fault currents, impedance, X/R ratio, and primary protective device information.
         1) Obtain up-to-date information from Utility Company.
      b. Generators: Include manufacturer/model, kW and voltage ratings, and impedance.
      c. Motors: Include manufacturer/model, type (e.g. induction, synchronous), horsepower rating, voltage rating, full load amps, and locked rotor current or NEMA MG 1 code letter designation.
      d. Transformers: Include primary and secondary voltage ratings, kVA rating, winding configuration, percent impedance, and X/R ratio.
      e. Protective Devices:
         1) Circuit Breakers: Include manufacturer/model, type (e.g. thermal magnetic, electronic trip), frame size, trip rating, voltage rating, interrupting rating, available field-adjustable trip response settings, and features (e.g. zone selective interlocking).
         2) Fuses: Include manufacturer/model, type/class (e.g. Class J), size/rating, and speed (e.g. time delay, fast acting).
      f. Protective Relays: Include manufacturer/model, type, settings, current/potential transformer ratio, and associated protective device.
      g. Conductors: Include feeder size, material (e.g. copper, aluminum), insulation type, voltage rating, number per phase, raceway type, and actual length.

D. Short-Circuit Study:
   1. Comply with IEEE 551 and applicable portions of IEEE 141, IEEE 242, and IEEE 399.
   2. For purposes of determining equipment short circuit current ratings, consider conditions that may result in maximum available fault current, including but not limited to:
      a. Maximum utility fault currents.
      b. Maximum motor contribution.
      c. Known operating modes (e.g. utility as source, generator as source, utility/generator in parallel, bus tie breaker open/close positions).

3. For each bus location, calculate the maximum available three-phase bolted symmetrical and asymmetrical fault currents. For grounded systems, also calculate the maximum available line-to-ground bolted fault currents.

E. Protective Device Coordination Study:
   1. Comply with applicable portions of IEEE 242 and IEEE 399.
   2. Analyze alternate scenarios considering known operating modes (e.g. utility as source, generator as source, utility/generator in parallel, bus tie breaker open/close positions).
   3. Analyze protective devices and associated settings for suitable margins between time-current curves to achieve full selective coordination while providing adequate protection for equipment and conductors.

F. Arc Flash and Shock Risk Assessment:
   1. Comply with NFPA 70E.
   2. Perform incident energy and arc flash boundary calculations in accordance with IEEE 1584 (as referenced in NFPA 70E Annex D), where applicable.
   3. Analyze alternate scenarios considering conditions that may result in maximum incident energy, including but not limited to:
      a. Maximum and minimum utility fault currents.
      b. Maximum and minimum motor contribution.
      c. Known operating modes (e.g. utility as source, generator as source, utility/generator in parallel, bus tie breaker open/close positions).

G. Study Reports:
   1. General Requirements:
      a. Identify date of study and study preparer.
      b. Identify study methodology and software product(s) used.
      c. Identify scope of studies, assumptions made, implications of possible alternate scenarios, and any exclusions from studies.
      d. Identify base used for per unit values.
      e. Include single-line diagram and associated input data used for studies; identify buses on single-line diagram as referenced in reports, and indicate bus voltage.
      f. Include conclusions and recommendations.
   2. Short-Circuit Study:
      a. For each scenario, identify at each bus location:
         1) Calculated maximum available symmetrical and asymmetrical fault currents (both three-phase and line-to-ground where applicable).
         2) Fault point X/R ratio.
         3) Associated equipment short circuit current ratings.
      b. Identify locations where the available fault current exceeds the equipment short circuit current rating, along with recommendations.
   3. Protective Device Coordination Study:
      a. For each scenario, include time-current coordination curves plotted on log-log scale graphs.
      b. For each graph include (where applicable):
         1) Partial single-line diagram identifying the portion of the system illustrated.
         2) Protective Devices: Time-current curves with applicable tolerance bands for each protective device in series back to the source, plotted up to the maximum available fault current at the associated bus.
         3) Conductors: Damage curves.
         4) Transformers: Inrush points and damage curves.
         5) Generators: Full load current, overload curves, decrement curves, and short circuit withstand points.
         6) Motors: Full load current, starting curves, and damage curves.
         7) Capacitors: Full load current and damage curves.
      c. For each protective device, identify fixed and adjustable characteristics with available ranges and recommended settings.
         1) Circuit Breakers: Include long time pickup and delay, short time pickup and delay, and instantaneous pickup.
         2) Include ground fault pickup and delay.

3) Include fuse ratings.
4) Protective Relays: Include current/potential transformer ratios, tap, time dial, and instantaneous pickup.

d. Identify cases where either full selective coordination or adequate protection is not achieved, along with recommendations.

4. Arc Flash and Shock Risk Assessment:
   a. For the worst case for each scenario, identify at each bus location:
      1) Calculated incident energy and associated working distance.
      2) Calculated arc flash boundary.
      3) Bolted fault current.
      4) Arcing fault current.
      5) Clearing time.
      6) Arc gap distance.
   b. For purposes of producing arc flash hazard warning labels, summarize the maximum incident energy and associated data reflecting the worst case condition of all scenarios at each bus location.

1.07 QUALITY ASSURANCE

A. Study Preparer Qualifications: Professional electrical engineer licensed in the State in which the Project is located and with minimum five years experience in the preparation of studies of similar type and complexity using specified computer software.

B. Computer Software for Study Preparation: Use the latest edition of commercially available software utilizing specified methodologies.

PART 2 PRODUCTS

2.01 ARC FLASH HAZARD WARNING LABELS

A. Provide warning labels complying with ANSI Z535.4 to identify arc flash hazards for each work location analyzed by the arc flash and shock risk assessment.
   1. Materials: Comply with Section 26 0553.
   2. Minimum Size: 3 by 4 inches.
   3. Legend: Provide custom legend in accordance with NFPA 70E based on equipment-specific data as determined by arc flash and shock risk assessment.
      a. Include orange header that reads "WARNING" unless otherwise indicated.
      b. Include the text "Arc Flash and Shock Hazard; Appropriate PPE Required" or approved equivalent.
      c. Include the following information:
         1) Arc flash boundary.
         2) Available incident energy and corresponding working distance.
         3) Nominal system voltage.
         4) Limited approach boundary.
         5) Restricted approach boundary.
         6) Equipment identification.
         7) Date calculations were performed.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install arc flash warning labels in accordance with Section 26 0553.

3.02 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Adjust equipment and protective devices for compliance with studies and recommended settings.

D. Notify Engineer of any conflicts with or deviations from studies. Obtain direction before proceeding.

3.03 CLOSEOUT ACTIVITIES

A. Training: Include as an alternate to the base bid training for Owner's personnel on electrical safety pertaining to arc flash and shock hazards.
   1. Use site-specific arc flash and shock risk assessment report as training reference, supplemented with additional training materials as required.
   2. Provide minimum of four hours of training.
   3. Instructor: Representative of entity performing study.
   4. Location: At project site.

END OF SECTION

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SECTION 26 0583
WIRING CONNECTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical connections to equipment.

1.02 RELATED REQUIREMENTS

A. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables.

B. Section 26 0533.13 - Conduit for Electrical Systems.

C. Section 26 0533.16 - Boxes for Electrical Systems.

D. Section 26 2726 - Wiring Devices.

1.03 REFERENCE STANDARDS

A. NEMA WD 1 - General Color Requirements for Wiring Devices 1999 (Reaffirmed 2020).

B. NEMA WD 6 - Wiring Devices - Dimensional Specifications 2021.

C. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Products: Listed, classified, and labeled as suitable for the purpose intended.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.01 MATERIALS

A. Cords and Caps: NEMA WD 6; match receptacle configuration at outlet provided for equipment.
   1. Colors: Comply with NEMA WD 1.
   2. Cord Construction: NFPA 70, Type SO, multiconductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.
   3. Size: Suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.
   4. Substitutions: See Section 01 6000 - Product Requirements.

B. Wiring Devices: As specified in Section 26 2726.

C. Flexible Conduit: As specified in Section 26 0533.13.

D. Wire and Cable: As specified in Section 26 0519.

E. Boxes: As specified in Section 26 0533.16.

2.02 EQUIPMENT CONNECTIONS

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.02 ELECTRICAL CONNECTIONS

A. Make electrical connections in accordance with equipment manufacturer's instructions.

B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.

C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.

D. Provide receptacle outlet to accommodate connection with attachment plug.

E. Provide cord and cap where field-supplied attachment plug is required.

F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.

G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.

H. Install terminal block jumpers to complete equipment wiring requirements.

I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

J. Coolers and Freezers: Cut and seal conduit openings in freezer and cooler walls, floor, and ceilings.

END OF SECTION

SECTION 26 0915
SUPERVISORY AND PROCESS CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General Requirement.

B. Control Panel Enclosures.

C. Programmable Logic Controller (PLC).

D. Operator Interface.

1.02 RELATED REQUIREMENTS

A. The requirements within this section apply to all components of the controls system unless indicated otherwise.

1.03 REFERENCE STANDARDS

A. NEMA ICS 1 - Industrial Control and Systems General Requirements; 2000 (Reaffirmed 2015).

B. NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts; 2000 (R2005), with errata, 2008.

C. NEMA ICS 6 - Industrial Control and Systems: Enclosures; 1993 (Reaffirmed 2016).

D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. Underwriters Laboratories (UL). UL 508 Industrial Control Panel Equipment.

F. IEC 61131-3 - Programmable Controllers - Part 3: Programming Languages.

G. IEEE C37.90 - Standard for Relays and Relay Systems Associated With Electric Power Apparatus.

H. IEEE C62.41.1 - Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits.

I. IEEE C62.41.2 - Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits.

1.04 ADMINISTRATION REQUIREMENTS

A. Coordination:
   1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
   2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:
   1. Catalog cut sheets for all components and devices.
   2. Dimension drawings, wiring and/or hydraulic drawings for field and pipeline mounted equipment.
   3. System schematic drawings illustrating all components being supplied including elevations, legend, bill of material, construction details, and layout with complete pneumatic and electrical connections. Actual system schematic drawings shall be provided. Manufacturers catalog cuts or standard drawings merely showing "typical" circuitry are not acceptable.
   4. As-built drawings shall be provided upon project completion in CAD and PDF format.
   5. Communications and network diagrams.
   6. Fabrication and nameplate legend drawings.

C. Operation and Maintenance Manuals.
   1. Manufacturers O&M manuals for all equipment supplied.
   2. Recommended maintenance intervals and procedures.

3. Operational manual for operator interface displays, including but not limited to; screen shots, explanation of graphics, navigation, step by step procedures, security, passwords, and alarms.
4. As-built drawings of entire system in CAD and PDF format.
5. Recommended spare parts list.
6. Project Records: Provide Parameter Schedule containing all setpoints and specific parameters for all equipment including but not limited to:
    a. Variable frequency drives (VFD's).
    b. Operator adjustable setpoints.
    c. PID loop parameters.
    d. Instrument list with make, model, and calibrated range.
7. Final copy of PLC program subroutines with comments in PDF format.
8. USB drive containing final PLC and operator interface programs.
9. PLC I/O point list; identify point tag, description, type, range, location, and point address.
10. All documentation to be provided electronically and two copies in 3-ring binders with labeled tabs separating sections.

1.06 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. The Controls System Integrator (CSI) shall be in full conformance with Specifications:
    1. Thompson Knows.
        a. Sioux City, IA.
        b. Dustin Wenger
        c. Office: 712-224-3800
        d. Mobile: 712-635-1326

C. The control panel shall be built by a registered UL 508 Industrial Control Panel builder. Each control panel shall bear a serialized "Enclosed Industrial Control Panel Label." Panels that utilize intrinsically safe barriers shall be upgraded from standard 508A to standard 698 and bear serialized label to that effect. The control panel submittal shall contain a copy of the front page of the control panel builders UL508A and 698 (if applicable) standard that shows their UL file number. The name on the front page of the UL Standard shall match the name in the title block of the control panel submittal.

D. Products: Furnish products listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and indicated.

E. All equipment shall be furnished by a single supplier. The supplier shall be responsible for the correct operation of the equipment as specified.

F. Contractor shall guarantee system operation and workmanship for a period of one year from date the system was accepted by the owner.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store components in a clean, dry area; maintain temperature to NEMA ICS 1.

1.08 FIELD CONDITIONS

A. Maintain temperature above 32 degrees F and below 104 degrees F during and after installation of products.

B. Maintain area free of dirt and dust during and after installation of products.

1.09 SEQUENCING AND SCHEDULING

A. Prerequisite activities: Do not start key project activities until prerequisite activities have been completed and satisfied.
    1. Shop drawing reviews by engineer.

1.10 GENERAL REQUIREMENTS

A. Contractor shall use a Controls System Integrator (CSI) to furnish, install, calibrate, start-up, test, and adjust all required equipment for a complete process control system. Equipment shall be furnished as required to meet the requirements shown on the Plans and include within the Specifications and also include any incidental items necessary for a complete system even

though it is not detailed.

B. It is the intent of the Construction Documents that all control equipment specified be supplied by a single-source supplier. The supplier shall assume full responsibility along with the Contractor for furnishing, installing, and start-up procedures so as to make the system operate per the intent of the Construction Documents.

C. It is the responsibility of the CSI to examine all new and existing equipment that will be powered from or will receive or send signals from equipment within in the Specifications and Plans. The CSI shall provide all necessary devices to interface with existing and new equipment including but not limited to signal converters, amplifiers, and isolation devices.

D. Process Control System: Provide a system that monitors and automatically controls operation of process equipment and instrumentation using programmable controllers.
   1. Provide a control system in which control sequence logic resides in the local controllers and which is not dependent on any supervisory control software or centralized functionality.
   2. Provide end-to-end process control loop accuracy from sensor to display and final control element.
   3. Use sequences of operation, setpoints, settings and alarm limits as indicated.
   4. Provide for operator interaction, set-points, settings, and alarm limits as indicated.
   5. Include all necessary sensors, field preamplifiers, signal conditioners, offset and span adjustments, amplifiers, transducers, transmitters, control devices, and engineering unit conversions and algorithms for applications.
   6. Provide network and control hardware that can be replaced by similar control equipment from other equipment manufacturers without loss of system functionality.
   7. Provide all software, programming, and configuration required for a complete operating Supervisory Control and Data Acquisition (SCADA) system.

E. Process Control Network
   1. Network Design: Ethernet; as required to connect all process control devices and points.
   2. Provide all network drivers, components, and configuration to make a fully functional control network.
   3. All network devices shall be powered by uninterruptible power supply. This includes any network devices used for motor control (locally or remotely mounted).
   4. Security measures shall be provided to protect control system from Cyber attacks.
   5. Network Access Jacks and Connections:
      a. Provide wall mounted jacks when required outside control panel enclosures.
      b. Provide DIN-rail mounted modules for field termination inside control panel enclosures.
      c. Factory molded patch cables shall be provided for connection between devices within the same enclosure.
      d. Field installed RJ45 connectors are not allowed.

F. Remote access
   1. Utilize existing Owner Control Network connected to Water Plant
   2. System shall be configured for remote support.
      a. Connection to all PLCs, operator interface units, and all other networked devices for remote programming and monitoring.
   3. System shall be configured for remote monitoring/control of operator interface screens.

G. Inputs and Outputs (I/O)
   1. Monitor I/O shown on plans.
   2. Each control panel with an electronic controller or PLC shall monitor presence of incoming control power.
   3. Each uninterruptible power supply alarm state shall be monitored.
   4. Each control panel surge protection device shall be monitored.
   5. Monitor Control Power failure.
   6. Monitor 3 Phase Power monitor.
   7. Provide panel mounted alarm strobe light.

H. Major work items include but are not limited to:
   1. Provide control panel to operate well 22.

a. Primary control signals to come from existing water treatment plant control system via existing Owner network.
b. Coordinate network requirements with Rebnord Technologies. Include all associated costs.
    1) Tim Rebnord or Jason Knapton.
    2) 1044 W. Milwaukee, Storm Lake, IA 50588.
    3) 712-732-6449.
c. SPCP1 well 22 control panel.
    1) PLC processor and I/O.
    2) Operator interface.

2. Modify existing water plant SCADA system.
    a. Remove abondoned well.
    b. Encorporate well 22.
    c. Encorporate alarms for well 22 including but not limited to:
        1) Pump failure.
        2) Power failure.
        3) Space temperature low/high.
        4) Generator Alarm.
        5) Generator Running.
        6) ATS position.
    d. Encorporate Well 22 flow rate, flow totals, and building space temperature.
    e. Maintain existing PLC programming standards.
    f. Maintain existing Operator interface standards.
    g. Modify exsiting PLC and HMI/SCADA programs as required to make a complete working system.

PART 2 PRODUCTS

2.01 GENERAL

A. Devices supplied shall be of the latest field proven models, unless otherwise specified to match existing equipment.

B. Instruments and devices performing similar operations shall be of the same type and model, and shall be from a single manufacturer.

C. Analog measurements and control signals shall be 4 to 20 mA DC except as indicated. Signals where required by special devices may be 0 to 5 volts or 0 to 10 volts DC. Standard pneumatic signals shall be 3 to 15 psig.

D. Surge Protection:
1. Equipment Connected to AC Circuits: Provide equipment that is internally protected against power-line surges or provide separate protection against power-line surges; provide protection meeting requirements of IEEE C62.41.2; do not use fuses.
2. Equipment Connected to Transmitter and Control Wiring That is Installed Outdoors: Provide equipment that is internally protected against induced waveform surges or provide separate protection against waveform surges as follows:
    a. A waveform with 8-microsecond rise time, 20-microsecond decay time and peak current of 500 amps.
3. Equipment Connected to Network Media or Communications Cables Installed Outdoors: Provide surge and lightning protection; provide protection meeting requirements of IEC 61643-21.

E. Pump/Equipment Protection:
1. Where seal leakage, motor over temperature, or other protective features are available at new or existing equipment; Provide and install relay(s) to monitor equipment as recommended by the manufacturer.
    a. Provide a minimum of one normally open and one normally closed contact for each condition being monitored.
    b. Status indication by LEDs.

F. Unless otherwise specified, provide products rated for continuous operation under following conditions:
1. Products Installed Indoors: Ambient temperatures in range of 32 to 122 degrees F.

2. Products Installed Outdoors or in Unconditioned Indoor Spaces: Ambient temperatures in range of minus 35 to plus 151 degrees F.
3. Air Pressure: Conditions normally encountered in installed locations.
4. Vibration: Conditions normally encountered in the installed locations.
5. Humidity: 10 to 95 percent relative humidity, non-condensing.

2.02 CONTROL PANEL ENCLOSURES

A. General.
1. Control Station Enclosures: NEMA ICS 6.
2. Relay Enclosures: NEMA ICS 6.
3. Fabrication: Shop fabricate control panels to NEMA ICS 1, using cabinets and terminal blocks furnished in accordance with Section 26 0533.16.
4. All components shall be mounted to the enclosure back panel. Components shall not be mounted to the enclosure sides.
5. 25% free space shall be maintained within enclosure back panels for future components.
6. Shall have engraved label identifying panel name on panel door.
7. Panel mounted components shall have matching style and appearance.
8. Panel mounted components with digital displays installed outdoors shall be protected from direct sunlight.
9. Panel mounted devices shall be a minimum of 4 feet above finished floor elevation.
10. Penetrations through the top of control enclosures is not permissible.
11. Interior Light: Inside panel, provide linear LED light automatically operated when panel door is open, on same circuit as convenience receptacle if available.

B. Terminal blocks
1. Shall be furnished, installed, and wired to each I/O point of a chassis or rack mounted I/O module.
2. Shall be provided and connected to each unused I/O point.
3. Shall be provided for all field connections terminating inside enclosure.
4. Enclosures shall have 25% spare terminal blocks for future connection.
5. Terminal blocks shall not be required for connection of distributed I/O modules. Field wires shall directly terminated to distributed I/O terminal bases.
6. Terminal blocks shall not be installed when factory wired I/O interface modules (IFM's) are used. Field wires shall directly terminate to the IFM.
7. All terminal blocks shall be labeled, and labels shall be by terminal manufacturer with electronic print.

C. Enclosure environment:
1. Panels shall be rated for environment of installed location.
   a. Indoor, dry or damp location: Type 12 painted steel.
   b. Indoor, wet, or corrosive location: Type 4X, 316 stainless steel.
   c. Outdoor location:
      1) Type 4X, 316 stainless steel.
2. All equipment installed in hazardous or classified areas shall be suitable for use in the area.
3. Indoor and outdoor control panel and instrument enclosures shall be suitable for operation in the ambient conditions at the installed location. Ventilation, heating, cooling, and dehumidifying equipment shall be provided in enclosures to maintain electronic components within manufacturers recommended ambient temperature and humidity operating ranges.
   a. Ventilation System: Provide one or more ventilation fans inside panel, each with line voltage thermostat.
      1) Air Flow: 100 cfm, minimum.
      2) Thermostat Setpoints: Adjustable in minimum range of 70 to 140 degrees F.
      3) Fan Power: 120 volt AC, single phase.
      4) Filters: At each supply and exhaust grille provide filter that is easily removed for cleaning or replacement.
   b. Heating System: Provide thermostatically controlled electric heater inside panel, capable of maintaining enclosure inside temperature at minimum 35 degrees F.

c. Air Conditioning System: Provide mechanical refrigeration air conditioning system for panel, capable of maintaining enclosure inside temperature at maximum of 100 degrees F.
    1) Locate compressor and condenser outside panel enclosure.
    2) Make provisions to remove condensate from panel and to protect devices within enclosure from condensate.

D. Control panel wiring
1. Single conductors shall be flexible stranded copper type MTW, and shall be rated for 600 volts.
2. Signal cables shall be #18 AWG shielded twisted pair or triad cables with copper conductors.
3. Wire numbers shall be marked using plastic coated cloth type labels with black text printed on white background.
4. Incoming power source shall accept 120 VAC minimum 20 amp circuit.
5. Circuit breaker shall be provided in control panel for incoming power source overcurrent protection and disconnecting means.
6. Individual fuse protection with disconnecting means shall be provided for each I/O module, and each electrical component that consumes power.
7. Individual fuse protection with disconnecting means shall be provided for each field installed device that consumes power.
8. Primary and secondary fuse protection with disconnecting means shall be provided on all power supplies.
9. Fuse blocks and disconnecting means shall be labeled.

E. Control panel components.
1. Manufacturers.
    a. Allen-Bradley/Rockwell Automation; www.ab.rockwellautomation.com.
    b. Eaton Corporation; www.eaton.com/#sle.
    c. Schneider Electric; Square D Products; www.schneider-electric.us/#sle.
    d. Phoenix Contact; Phoenixcontact.com
    e. Substitutions: See Section 01 6000 - Product Requirements.
2. Circuit breakers.
    a. Allen Bradley 1492-SP.
    b. Phoenix Contact TMC 8 Series.
    c. Approved Equal.
3. Fuse holders.
    a. Shall be Allen Bradley 1492-H series with blown fuse indicator or approved equal.
4. Push buttons, operators, & signaling devices.
    a. General
        1) Style: Round with lens color as indicated.
        2) Size: To fit 0.875 inch mounting hole.
        3) Identification: Legend plate labeled to reflect function being indicated.
    b. Manufacturers
        1) Allen-Bradley Bulletin 800T or approved equal in dry areas.
        2) Allen-Bradley Bulletin 800H or approved equal in damp/wet areas.
    c. Indicator Lights: Heavy-duty long-life LED type complying with NEMA ICS1, NEMA ICS2, and UL 508; push to test (lamp) type.
        1) Lens color as indicated.
    d. Selector Switches: Heavy-duty, complying with NEMA ICS1, NEMA ICS2, and UL 508, with switch positions as indicated or required by sequence of operation.
        1) Illuminated.
        2) Rating: 600 volts, 10 amperes continuous.
        3) Auxiliary Contacts: Where indicated or required, provide dual auxiliary contacts for the automatic position to provide position sensing by SCADA system; rated for 120 volt AC, 1A minimum.
        4) Key Operation: Where indicated, provide key-operated switches; keyed alike.
    e. Push Buttons: Heavy-duty, complying with NEMA ICS1, NEMA ICS2, and UL 508, with number and type of contacts as indicated or required by sequence of operation.

1) Rating: 600 volts, 10 amperes continuous.
f. Emergency stop switches shall be trigger action, two position maintained, twist release, & red.

5. Control relays.
   a. Manufacturer: Allen-Bradley Bulletin 700, Phoenix Contact PCR-RSC series, or approved equal.
   b. General purpose control relays shall be provided with dust covers and with plug-in configuration. Sockets to be DIN rail mounted.
   c. Minimum rating of 10 amps at 150 volts and DPDT. If more poles are required, relays shall be paralleled.
   d. Mechanical flag indicator to show status of contacts.
6. Three phase power monitor relay.
   a. Control power to the phase failure relay circuit shall be separate from other control power.
   b. Shall detect phase reversal, phase loss, undervoltage, and overvoltage conditions.
   c. Relay shall be of plug-in type utilizing DIN rail mounted socket.
   d. Shall provide one NO and one NC 3 amp relay contact.
   e. Shall be installed in MCC bucket.

F. Programmable Logic Controller (PLC) Panel Requirements
1. Panels: Factory assembled PLCs and their accessories in enclosed panels, delivered as complete unit with panel fabrication and device mounting as indicated or otherwise required.
   a. Power and Control Connection Points: Bottom Entry.
   b. Power Circuits: Each panel powered by dedicated 120 volts AC circuit, with minimum size 10 amp fuse, and disconnect switch located inside panel.
   c. Terminate wiring inside panel on terminal blocks.
2. Uninterruptible Power Supply (UPS): Self-contained UPS sized to provide a minimum of 10 minutes of PLC operation, with surge suppression, noise filtering (normal and common mode), short circuit protection and voltage regulation (brownout and overvoltage protection), complete with all necessary power supplies, transformers, batteries, and accessories.
   a. Visual indication of normal power operation, UPS operation, abnormal operation and visual and audible indication of low battery power.
   b. Relay contact for indication of alarm condition.
   c. Comply with 47 CFR 15, Part A for radio noise emissions.
   d. Shall provide power to all electronic controllers, and network devices.
3. Convenient Outlet: Inside panel, provide 120 volt AC, 20 amp, ground fault interruption (GFI) type duplex convenience outlet. Energize from dedicated control panel circuit breaker with a minimum rating of 10 amps.

2.03 PROGRAMMABLE LOGIC CONTROLLER (PLC)

A. Manufacturer
1. Rockwell Automation, Allen-Bradley; CompactLogix series.

B. General
1. Minimum Number of PLCs: As indicated on drawings.
2. Power Supply: 120 volts AC, single phase, 60 Hz or 24 volt power source; provide local transformers as needed for signal transmission and subsystem operation.
3. Furnish and install complete PLC system with all necessary components to make a fully functional system as specified within the Plans and Specifications.
4. PLC shall be configured to perform the specified operations.

C. Functionality
1. PLC shall be capable of receiving discrete and analog inputs and, through programming, able to control discrete and analog output functions, perform data handling operations and communicate with external devices; complete with all hardware and software required to perform functions indicated.
   a. Programmability: Support the full complement of process control functions as described in IEC 61131-3; allow for use of any combination of function blocks, ladder logic diagrams, sequential function charts, and text programming within a single

controller.
   b. Provide a scheme of priority levels that prevents interference with a command of high priority by a command of lower priority; make override commands entered by operator have higher priority than those of resident programs.
   c. Provide for operation of PLC in stand-alone mode.
2. Communications Interfaces: Provide peer-to-peer communication with other controllers, devices, and operator stations; acceptable communication protocols:
   a. Ethernet architecture and protocol.
3. Basic Operation: Continuously 1) scan inputs and record status, 2) execute resident programs and record outputs, and 3) update outputs; 4) periodically perform self-diagnostics.
   a. Maintain point database in memory containing parameters, constraints, and latest value or status of points connected.
   b. Use data in memory for execution of resident program.
4. Resident Programs: Program each PLC to achieve the sequences of operation, parameters, constraints, and interlocks necessary to provide indicated process control.
   a. Ensure that resident programs do not conflict with each other.
   b. Default Values: To accommodate conditions where specific program inputs are not available, define appropriate "default" values or virtual points that allow the program to operate.
   c. Failure Mode: In the event of PLC failure, make the controlled equipment continue to function in its indicated failure mode.
5. Point Definitions:
   a. AO: Analog output.
   b. AI: Analog input.
   c. DO: Digital output.
   d. DI: Digital input.
   e. PA: pulse accumulator input.
6. Startup: Automatic commencement of operation upon power-up without human intervention, including startup of all connected I/O functions; restart upon detection of power failure at the PLC, with start time delays between successive commands to prevent demand surges or overload trips.
7. Failure Mode: Upon failure for any reason, perform an orderly shutdown and update all PLC outputs to their predetermined failure mode state.
8. Logic (Virtual) Points: Provide for software points that are not directly associated with a physical I/O function to be entered and recorded in point database.
   a. Allow for analog and discrete points created either by calculation from physical points or by entering other data having properties of real points, including alarms, without associated hardware.
   b. Use point identification that is consistent with physical point identification.
9. State Variables: Where an analog point represents more than two (up to 8) specific states, allow for each state to be named with names usable in programs and for display; e.g. "high", "low", alarm states.
10. Constraints: Provide constraints checking function requiring constraints values to "pass" before execution of relevant program.
    a. Allow for unique constraints to be assigned to each point.
    b. For analog inputs, allow for high and low "reasonableness" values or one differential "rate-of-change" value.
    c. Allow constraints checking to be disabled for any individual point from central station.
    d. Equipment constraint types, for example:
       1) Maximum starts (cycles) per hour.
       2) Minimum off time.
       3) Minimum on time.
       4) High limit (value in engineering units).
       5) Low limit (value in engineering units).
11. Analog Totalization: Provide analog totalization function as required in description of operation.

12. Data Storage: Provide data storage function that allows analog or calculated points to be temporarily stored in PLC memory.
    a. Provide data storage as required in description of operation.
    b. Data to be viewed from operator terminal unit.
13. Alarm Processing: Provide alarm processing function for analog input, discrete input, and pulse accumulation input for all real and virtual points connected to that PLC.
    a. Automatically suppress alarm reporting for a particular point when the alarm point is turned off.
    b. Discrete alarms are those abnormal conditions indicated for the discrete input point.
    c. Analog alarms are those conditions higher or lower than the defined value for the analog input point.

D. Hardware
1. Programmable Logic Controllers (PLCs): Modular or Fixed type; microprocessor based.
    a. Comply with requirements of Class A computing devices, labeled as set forth in 47 CFR 15.
    b. Conducted Susceptibility: Able to withstand test as specified in NEMA ICS 1, NEMA ICS 2, and NEMA ICS 3.
    c. Surge Withstand Capability: Able to withstand test as specified in IEEE C37.90.1.
    d. Central Processing Units: Provide time of day, scanning, application program execution, storage of application programs, storage of numerical values related to application process and logic, I/O bus traffic control, peripheral and external device communications, and self-diagnostics.
    e. Service Temperature Range: Function properly at temperatures between 32 and122 degrees F at 5 to 95 percent relative humidity non-condensing.
    f. Storage Temperature Range: Tolerate storage temperatures between minus 40 and plus 140 degrees F at 5 to 95 percent relative humidity non-condensing.
    g. Analog inputs and outputs shall be 4-20 mA DC, unless otherwise required.
    h. Digital outputs shall be relay type, or shall be protected by buffer relays. 120 VAC or 24 VDC as required.
2. Modular PLCs: Modular, field expandable design allowing system to be tailored to process control application.
    a. Expandable through use of additional hardware and/or user software.
    b. As minimum, include mounting backplane, power supply module, self-contained central processing unit module, communications module, and input/output modules grouped together in a single mounting rack or cabinet for each PLC.
    c. Communications between modules accomplished through mounting backplane, with all modules plugging directly into backplane; no wire connectors permitted between modules.
    d. Rack size: As needed.
    e. Hot Plugging and Hot Swapping: Allow for installation, removal, and replacement of modules under power and without restarting.
    f. Power Supply Module: Provide power supply modules as required to power other modules installed in same cabinet and to remote cabinets or modules as indicated.
        1) Power Characteristics: 120 volts AC nominal, plus or minus 5 percent.
        2) Protection: Monitor incoming line voltage level and provide over current and over voltage protection.
        3) Voltage Out Of Range: Continue to provide power for adequate amount of time to allow for safe and orderly shutdown.
        4) Uninterruptibility: Capable of withstanding power loss for minimum of 20 milliseconds while still remaining in operation and providing adequate power to all connected modules.
        5) On-Off-Switch: Integral to power supply module: If not standard equipment, provide a miniature toggle type switch located near PLC and clearly label as to its function.
        6) Indicating Light: Show proper operation of module by lighted indicator.
    g. Input/Output Modules: Self-contained microprocessor based units that provide interface to field devices; visual indication of on-off status of individual inputs or outputs.

3. Fixed Type PLCs: Fixed I/O design with possibility of expansion; micro-processor based.
    a. Include at minimum, central processing unit, program memory, power supply, input/output capability, network communications capability, display, and keyboard.
    b. Control display and keypad:
        1) Display I/O status.
        2) Change Mode.
        3) Configure communications ports.
        4) View system information and fault codes.
    c. Power Supply to Controller: 120 volts AC, or 24 volts DC as required.
    d. Power Consumption: 25 watts, maximum.
    e. Noise Isolation: Provide electrical noise isolation between AC power line and process variable inputs, remote setpoint inputs, and output signals not less than 100 dB at 60 Hz common mode rejection ratio and not less than 60 dB at 60 Hz normal-mode rejection ratio.
4. Program Storage/Memory Requirements: Memory capacity based on system control requirements and such that, when system is completely programmed and functional, no more than 50 percent of memory allocated for these purposes is used.
    a. Operating System: Manufacturer's standard nonvolatile memory.
    b. Application Memory: Battery backed random access memory (RAM).
    c. Storage of User Programs: Electronically erasable, programmable, read only memory (EEPROM), loaded operator interface panel, central station, or portable computer plugged into controller.
5. Input/Output Characteristics: Allow for analog input, analog output, discrete input, and discrete output in number and type as indicated.
    a. Accuracy: Plus or minus 0.25 percent of input span.
    b. Spare Capacity: Minimum of 20 percent spare input and output points (no less than two points) for each point type provided in each PLC.
    c. Malfunction Tolerance: During normal operation, prevent malfunction in any input/output channel from affecting operation of CPU and other channels.
    d. Input and Output Circuits: Minimum optical isolation of 1500 VRMS and filtered to guard against high voltage transients from externally connected devices.
    e. Analog Input Circuits: Plus/minus 10V
    f. Discrete Input Circuits: 5 volt TTL.
    g. Analog Output Circuits: Plus/minus 10V.
    h. Discrete Output Circuits: 5 volt TTL.
6. Wiring Connections: Heavy duty, self-lifting, pressure type screw terminals with easy wire insertion and secure connections; capable of accepting two #14 AWG wires; hinged protective cover, with write-on areas for identification of the external circuits.
7. On-Off Switch: Provide integral ON-OFF power switch for each PLC; if not standard equipment, provide miniature toggle type switch located in panel near PLC, clearly labeled as to its function.
8. Self-Diagnostics: Diagnostic routines implemented in firmware that provide information on configuration and status of CPU, memory, communications, and input/output; continuously executed along with normal operations.
    a. At Power Up and Normal Shutdown: Provide more extensive diagnostics.
    b. Fault Logging: Store input/output and system faults in fault tables accessible for display.
    c. Shutdown on Fault: When a fault affects input/output or communications modules, shut down only affected hardware and continue operation using unaffected components.
    d. Fault Annunciation: At PLC operator interface.
    e. Provide access to diagnostic software via all specified operator interfaces.

2.04 OPERATOR INTERFACE

A. General
1. Furnish and install complete Operator Interface system with all necessary components to make a fully functional system including software, hardware, and programming.
2. Operator interface shall be configured to perform the specified operations.
3. Shall use Ethernet as means of communication to PLC.

4. Shall be panel mounted in door of control panel.
5. Contractor is responsible for ensuring compatibility between specified operator interface and all functions required. If compatibility is an issue an alternate device must be submitted for approval.

B. Graphic Display Terminal
1. Manufacturer
a. Rockwell Automation, Allen-Bradley; PanelView Plus 7 Performance Series.
b. Substitutions: See Section 01 6000 - Product Requirements.
2. Color touchpad display.
3. 10 inch minimum display size.

PART 3 EXECUTION

3.01 FIELD INSTALLATION AND TESTING REPORTS

A. Complete adjustment, test, calibration, and status reports for all work.

B. Test electrical grounding in panels.

3.02 INSTALLATION

A. Install products in accordance with manufacturer’s instructions.

B. Furnish a complete working system by a competent manufacturer's representative and include instruction to the Owner on proper operation and maintenance.

C. Follow manufacturers’ installation instructions for all materials and equipment, unless otherwise indicated or directed by Engineer.

D. Wiring connected to components and assemblies, including power wiring in accordance with requirements of Section 26.

E. Electrical raceways as specified in Section 26.

F. Identification as specified in Section 26.

G. Process Control Network.
1. Install network wiring without splices between control devices and in accordance with NFPA 70.
2. Install grounding as recommended by device manufacturers and as necessary to prevent ground loops, noise, and surges from adversely affecting operation of the system; test ground rods as specified in IEEE 142.
3. Install wiring that is outside of enclosures in raceways.
4. Tag wiring at both ends with identifier shown on shop drawings.

3.03 FIELD QUALITY CONTROL - PRIOR TO STARTUP

A. Adjust, calibrate, measure, program, configure, and otherwise perform all necessary actions to ensure that process control system will function as required by Contract Documents.

B. Physical Inspection:
1. Verify that each component of the process control system has been installed and is correctly connected to its power source and to the process control network.
2. Verify that instruments without built-in transceivers are correctly connected to their transceiver.
3. Verify that instruments are correctly installed in the manner necessary to sense the variables they are intended for.
4. Verify that software has been installed and programmed.
5. Verify that controller configuration settings and/or programs are correct.

C. Shutdown Condition Demonstration: Set all controller Hand-Off-Auto switches to OFF.
1. Verify that power and air, where required, are available.
2. Verify that output devices are in their OFF positions.
3. Verify that all display panels indicate shutdown conditions.

D. Field testing may not be done contiguously, and may require multiple trips to the site. The Contractor shall determine the number of testing periods requiring separate trips to the site in order to complete functional and performance testing requirements.

E. Functional Testing:

1. Prior to facility startup and performance evaluation period, inspect, test, and document that all equipment is ready for operation.
2. Test all control related network media, devices, configuration, and operation.

F. Correct deficiencies and replace damaged or defective equipment.

G. Owner reserves the right to reject installed equipment if performance appears to be unachievable with installed equipment.

3.04 FIELD QUALITY CONTROL - AFTER STARTUP

A. Controller Tuning: Tune controllers initially at whatever flow conditions exist; verify adequate tuning and re-tune if necessary until tuning is satisfactory for peak flow, average daily flow, and minimum flow conditions.
   1. Adjust proportional, integral, and derivative settings to provide stable closed-loop control.
      a. Make controlled variables settle out at a new setpoint with no more than two oscillations above and below setpoint with steady output.
      b. With the exception of naturally slow processes, make controllers settle out at new setpoints within five minutes.
   2. Set controllers to correct setpoints and record final PID configuration setting on project record Parameter Schedule and submit with O&M data.

B. Performance Evaluation: Demonstrate compliance of process control system with Contract Documents, using approved test plans.
   1. Coordinate functional testing with Owner and Engineer. Notify Owner and Engineer two weeks prior to the start of performance testing.
   2. Engineer and Owner may actively participate in tests, and reserve the right to test or retest specified functions and hold final decision-making rights as to whether testing is acceptable and complete.
   3. Demonstrate all physical and functional requirements of system.
   4. Show, step-by-step, the actions and results for each sequence of operation.
   5. Demonstrate that all alarms work correctly.

C. If test results are unsatisfactory or equipment cannot be adjusted to perform properly, modify, repair, or replace, and retest.
   1. When new units are installed, restart testing from beginning.
   2. Owner reserves the right to reject installed equipment if performance appears to be unachievable with installed equipment.
   3. Prior to retesting, obtain Owner's approval of retesting schedule.

3.05 CLOSEOUT ACTIVITIES

A. Functional Tests must be completed and approved as described in specification.

B. Provide As-Built drawings of all systems.

C. Provide Operation and Maintenance manuals of all systems.

D. Training: Train Owner’s personnel on operation, adjustment, and maintenance of all systems.
   1. Provide an integrated training program for Owner’s personnel to meet the specific needs of the Owner’s personnel.
   2. Including training sessions in a classroom setting and in the field. Train managers, engineers, operators, and maintenance personnel.
   3. The Owner reserves the right to record and reuse training sessions.
   4. Location: At project site.

3.06 WARRANTY PERIOD WORK

A. During the warranty period defined in the Conditions of the Contract, correct all deficiencies in process control system upon notification by Owner.

SECTION 26 2100
LOW-VOLTAGE ELECTRICAL SERVICE ENTRANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical service requirements.

1.02 RELATED REQUIREMENTS

1.03 DEFINITIONS

A. Service Point: The point of connection between the facilities of the serving utility and the premises wiring as defined in NFPA 70, and as designated by the Utility Company.

1.04 REFERENCE STANDARDS

A. IEEE C2 - National Electrical Safety Code(R) (NESC(R)) 2023.

B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

C. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.05 ADMINISTRATIVE REQUIREMENTS

A. No later than two weeks following date of the Agreement, notify Utility Company of anticipated date of service.

B. Coordination:
   1. Verify the following with Utility Company representative:
      a. Utility Company requirements, including division of responsibility.
      b. Exact location and details of utility point of connection.
      c. Utility easement requirements.
      d. Utility Company charges associated with providing service.
   2. Coordinate the work with other trades to avoid placement of other utilities or obstructions within the spaces dedicated for electrical service and associated equipment.
   3. Coordinate arrangement of service entrance equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   4. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

C. Arrange for Utility Company to provide permanent electrical service. Prepare and submit documentation required by Utility Company.

D. Utility Company charges associated with providing permanent service to be paid by Contractor..

E. Preinstallation Meeting: Convene one week prior to commencing work of this section to review service requirements and details with Utility Company representative.

F. Scheduling:
   1. Where work of this section involves interruption of existing electrical service, arrange service interruption with Owner.
   2. Arrange for inspections necessary to obtain Utility Company approval of installation.

1.06 QUALITY ASSURANCE

A. Comply with the following:
   1. IEEE C2 (National Electrical Safety Code).
   2. NFPA 70 (National Electrical Code).
   3. The requirements of the Utility Company.

B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

B. Store products indoors in a clean, dry space having a uniform temperature to prevent condensation (including outdoor rated products which are not weatherproof until completely and properly installed). Maintain factory wrapping or provide an additional heavy canvas or

heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle products carefully to avoid damage to internal components, enclosure, and finish.

PART 2 PRODUCTS

2.01 ELECTRICAL SERVICE REQUIREMENTS

A. Provide new electrical service consisting of all required conduits, conductors, equipment, metering provisions, supports, accessories, etc. as necessary for connection between Utility Company point of supply and service entrance equipment.

B. Electrical Service Characteristics: As indicated on drawings.

C. Utility Company: MidAmerican Energy.
   1. Point of Contact: Steve Heckert.
   2. Phone: 712-749-7126.
   3. Email: steven.heckert@midamerican.com.

D. Division of Responsibility:
   1. Pole-Mounted Utility Transformers:
      a. Utility Poles: Furnished and installed by Utility Company.
      b. Transformers: Furnished and installed by Utility Company.
      c. Transformer Grounding Provisions: Furnished and installed by Utility Company.
      d. Primary: Furnished and installed by Utility Company.
      e. Secondary - Underground Service:
         1) Conduits: Furnished and installed by Contractor.
         2) Conductors: Furnished and installed by Contractor (Service Point at utility pole).
   2. Metering Provisions:
      a. Meter Bases: Furnished and installed by Contractor per Utility Company requirements.
      b. Metering Transformer Cabinets: Furnished and installed by Contractor per Utility Company requirements.

E. Products Furnished by Contractor: Comply with Utility Company requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that ratings and configurations of service entrance equipment are consistent with the indicated requirements.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Verify and mark locations of existing underground utilities.

3.03 INSTALLATION

A. Install products in accordance with manufacturer's instructions and Utility Company requirements.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Arrange equipment to provide minimum clearances and required maintenance access.

D. Provide required support and attachment components in accordance with Section 26 0529.

E. Provide grounding and bonding for service entrance equipment in accordance with Section 26 0526.

F. Identify service entrance equipment, including main service disconnect(s) in accordance with Section 26 0553.

END OF SECTION

SECTION 26 2200
LOW-VOLTAGE TRANSFORMERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General purpose transformers.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete equipment pads.

B. Section 26 0526 - Grounding and Bonding for Electrical Systems.

C. Section 26 0529 - Hangers and Supports for Electrical Systems.

D. Section 26 0533.13 - Conduit for Electrical Systems: Flexible conduit connections.

1.03 REFERENCE STANDARDS

A. 10 CFR 431, Subpart K - Energy Efficiency Program for Certain Commercial and Industrial Equipment - Distribution Transformers Current Edition.

B. IEEE C57.94 - IEEE Recommended Practice for Installation, Application, Operation, and Maintenance of Dry-Type Distribution and Power Transformers 2015.

C. IEEE C57.96 - IEEE Standard Guide for Loading Dry-Type Distribution and Power Transformers 2013.

D. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

E. NECA 409 - Standard for Installing and Maintaining Dry-Type Transformers 2015.

F. NEMA ST 20 - Dry Type Transformers for General Applications 2021.

G. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.

H. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. UL 506 - Standard for Specialty Transformers Current Edition, Including All Revisions.

J. UL 1561 - Standard for Dry-Type General Purpose and Power Transformers Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Include voltage, kVA, impedance, tap configurations, insulation system class and rated temperature rise, efficiency, sound level, enclosure ratings, outline and support point dimensions, weight, required clearances, service condition requirements, and installed features.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

B. Handle in accordance with manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to transformer internal components, enclosure, and finish.

1.07 FIELD CONDITIONS

A. Ambient Temperature: Do not exceed the following maximum temperatures during and after installation of transformers.
   1. Greater than 10 kVA: 104 degrees F maximum.
   2. Less than 10 kVA: 77 degrees F maximum.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Furnish transformers produced by the same manufacturer as the other electrical distribution equipment used for this project and obtained from a single supplier.

2.02 TRANSFORMERS - GENERAL REQUIREMENTS

A. Description: Factory-assembled, dry type transformers for 60 Hz operation designed and manufactured in accordance with NEMA ST 20 and listed, classified, and labeled as suitable for the purpose intended.

B. Unless noted otherwise, transformer ratings indicated are for continuous loading according to IEEE C57.96 under the following service conditions:
   1. Altitude: Less than 3,300 feet.
   2. Ambient Temperature:
      a. Greater than 10 kVA: Not exceeding 104 degrees F.
      b. Less than 10 kVA: Not exceeding 77 degrees F.

C. Core: High grade, non-aging silicon steel with high magnetic permeability and low hysteresis and eddy current losses. Keep magnetic flux densities substantially below saturation point, even at 10 percent primary overvoltage. Tightly clamp core laminations to prevent plate movement and maintain consistent pressure throughout core length.

D. Impregnate core and coil assembly with non-hydroscopic thermo-setting varnish to effectively seal out moisture and other contaminants.

E. Basic Impulse Level: 10 kV.

F. Ground core and coil assembly to enclosure by means of a visible flexible copper grounding strap.

G. Isolate core and coil from enclosure using vibration-absorbing mounts.

H. Nameplate: Include transformer connection data, ratings, wiring diagrams, and overload capacity based on rated winding temperature rise.

2.03 GENERAL PURPOSE TRANSFORMERS

A. Description: Self-cooled, two winding transformers listed and labeled as complying with UL 506 or UL 1561; ratings as indicated on the drawings.

B. Insulation System and Allowable Average Winding Temperature Rise:
   1. Less than 15 kVA: Class 180 degrees C insulation system with 115 degrees C average winding temperature rise.
   2. 15 kVA and Larger: Class 220 degrees C insulation system with 150 degrees C average winding temperature rise.

C. Coil Conductors: Continuous aluminum windings with terminations brazed or welded.

D. Winding Taps:
   1. Less than 3 kVA: None.
   2. 3 kVA through 15 kVA: Two 5 percent full capacity primary taps below rated voltage.
   3. 15 kVA through 300 kVA: Two 2.5 percent full capacity primary taps above and four 2.5 percent full capacity primary taps below rated voltage.
   4. 500 kVA and Larger: Two 2.5 percent full capacity primary taps above and two 2.5 percent full capacity primary taps below rated voltage.

E. Energy Efficiency: Comply with 10 CFR 431, Subpart K.

F. Sound Levels: Standard sound levels complying with NEMA ST 20

G. Mounting Provisions:
   1. Less than 15 kVA: Suitable for wall mounting.
   2. 15 kVA through 75 kVA: Suitable for wall, floor, or trapeze mounting.
   3. Larger than 75 kVA: Suitable for floor mounting.

H. Transformer Enclosure: Comply with NEMA ST 20.
   1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
      a. Indoor clean, dry locations: Type 2.
      b. Outdoor locations: Type 3R.
   2. Construction: Steel.

a. Less than 15 kVA: Totally enclosed, non-ventilated.
b. 15 kVA and Larger: Ventilated.

3. Finish: Manufacturer's standard grey, suitable for outdoor installations.
4. Provide lifting eyes or brackets.

I. Accessories:
1. Mounting Brackets: Provide manufacturer's standard brackets.
2. Weathershield Kits: Provide for ventilated transformers installed outdoors to provide a listed NEMA 250, type 3R assembly.
3. Lug Kits: Sized as required for termination of conductors as indicated on the drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that suitable support frames and anchors are installed where required and that mounting surfaces are ready to receive transformers.

C. Perform pre-installation tests and inspections on transformers per manufacturer's instructions and as specified in NECA 409. Correct deficiencies prior to installation.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Install transformers in accordance with NECA 409 and IEEE C57.94.

D. Use flexible conduit, under the provisions of Section 26 0533.13, 2 feet minimum length, for connections to transformer case. Make conduit connections to side panel of enclosure.

E. Arrange equipment to provide minimum clearances as specified on transformer nameplate and in accordance with manufacturer's instructions and NFPA 70.

F. Install transformers plumb and level.

G. Transformer Support:
1. Provide required support and attachment in accordance with Section 26 0529, where not furnished by transformer manufacturer.
2. Use integral transformer flanges, accessory brackets furnished by manufacturer, or field-fabricated supports to support wall-mounted transformers.
3. Unless otherwise indicated, mount floor-mounted transformers on properly sized 3 inch high concrete pad constructed in accordance with Section 03 3000.
4. Use trapeze hangers assembled from threaded rods and metal channel (strut) to support suspended transformers. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

H. Provide grounding and bonding in accordance with Section 26 0526.

I. Remove shipping braces and adjust bolts that attach the core and coil mounting bracket to the enclosure according to manufacturer's recommendations in order to reduce audible noise transmission.

J. Where not factory-installed, install lugs sized as required for termination of conductors as indicated.

K. Where furnished as a separate accessory, install transformer weathershield per manufacturer's instructions.

3.03 ADJUSTING

A. Measure primary and secondary voltages and make appropriate tap adjustments.

B. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

3.04 CLEANING

A. Clean dirt and debris from transformer components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

SECTION 26 2416
PANELBOARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Power distribution panelboards.

B. Lighting and appliance panelboards.

C. Overcurrent protective devices for panelboards.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding for Electrical Systems.

B. Section 26 0529 - Hangers and Supports for Electrical Systems.

C. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

D. Section 26 0573 - Power System Studies: Additional criteria for the selection and adjustment of equipment and associated protective devices specified in this section.

1.03 REFERENCE STANDARDS

A. FS W-C-375 - Circuit Breakers, Molded Case; Branch Circuit and Service 2013e, with Amendment (2017).

B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

C. NECA 407 - Standard for Installing and Maintaining Panelboards 2015.

D. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.

E. NEMA PB 1 - Panelboards 2011.

F. NEMA PB 1.1 - General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less 2013.

G. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems 2021.

H. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.

J. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.

K. UL 67 - Panelboards Current Edition, Including All Revisions.

L. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures Current Edition, Including All Revisions.

M. UL 869A - Reference Standard for Service Equipment Current Edition, Including All Revisions.

N. UL 943 - Ground-Fault Circuit-Interrupters Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
   2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   3. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted panelboards where indicated.
   4. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
   5. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for panelboards, enclosures, overcurrent protective devices, and other installed components and accessories.
   1. Include characteristic trip curves for each type and rating of overcurrent protective device upon request.

C. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, overcurrent protective device arrangement and sizes, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.
   1. Include dimensioned plan and elevation views of panelboards and adjacent equipment with all required clearances indicated.
   2. Include wiring diagrams showing all factory and field connections.

D. Project Record Documents: Record actual installed locations of panelboards and actual installed circuiting arrangements.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Panelboard Keys: Two of each different key.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store panelboards in accordance with manufacturer's instructions and NECA 407.

B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle carefully in accordance with manufacturer's written instructions to avoid damage to panelboard internal components, enclosure, and finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. ABB/GE: www.geindustrial.com/#sle.

B. Eaton Corporation: www.eaton.com/#sle.

C. Schneider Electric; Square D Products: www.schneider-electric.us/#sle.

D. Siemens Industry, Inc: www.usa.siemens.com.

E. Source Limitations: Furnish panelboards and associated components produced by the same manufacturer as the other electrical distribution equipment used for this project and obtained from a single supplier.

2.02 PANELBOARDS - GENERAL REQUIREMENTS

A. Provide products listed, classified, and labeled as suitable for the purpose intended.

B. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
   1. Altitude: Less than 6,600 feet.
   2. Ambient Temperature:
      a. Panelboards Containing Circuit Breakers: Between 23 degrees F and 104 degrees F.

C. Short Circuit Current Rating:

1. Provide panelboards with listed short circuit current rating not less than the available fault current at the installed location as indicated on the drawings.
2. Listed series ratings are not acceptable.

D. Panelboards Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.

E. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.

F. Branch Overcurrent Protective Devices: Replaceable without disturbing adjacent devices.

G. Bussing: Sized in accordance with UL 67 temperature rise requirements.
1. Provide fully rated neutral bus unless otherwise indicated, with a suitable lug for each feeder or branch circuit requiring a neutral connection.
2. Provide solidly bonded equipment ground bus in each panelboard, with a suitable lug for each feeder and branch circuit equipment grounding conductor.

H. Conductor Terminations: Suitable for use with the conductors to be installed.

I. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
a. Outdoor Locations: Type 3R.
b. Indoor Damp Locations: Type 12.
2. Boxes: Galvanized steel unless otherwise indicated.
a. Provide wiring gutters sized to accommodate the conductors to be installed.
3. Fronts:
a. Fronts for Surface-Mounted Enclosures: Same dimensions as boxes.
b. Fronts for Flush-Mounted Enclosures: Overlap boxes on all sides to conceal rough opening.
4. Lockable Doors: All locks keyed alike unless otherwise indicated.

J. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.

K. Selectivity: Where the requirement for selectivity is indicated, furnish products as required to achieve selective coordination.

L. Load centers are not acceptable.

2.03 POWER DISTRIBUTION PANELBOARDS

A. Description: Panelboards complying with NEMA PB 1, power and feeder distribution type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.

B. Conductor Terminations:
1. Main and Neutral Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
2. Main and Neutral Lug Type: Mechanical.

C. Bussing:
1. Phase and Neutral Bus Material: Aluminum.
2. Ground Bus Material: Aluminum.

D. Circuit Breakers:
1. Provide bolt-on type or plug-in type secured with locking mechanical restraints.

E. Enclosures:
1. Provide surface-mounted enclosures unless otherwise indicated.

2.04 LIGHTING AND APPLIANCE PANELBOARDS

A. Description: Panelboards complying with NEMA PB 1, lighting and appliance branch circuit type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.

B. Conductor Terminations:
1. Main and Neutral Lug Material: Copper suitable for terminating copper conductors only.

2. Main and Neutral Lug Type: Mechanical.

C. Bussing:
1. Phase Bus Connections: Arranged for sequential phasing of overcurrent protective devices.
2. Phase and Neutral Bus Material: Copper.
3. Ground Bus Material: Copper.

D. Circuit Breakers: Thermal magnetic bolt-on type unless otherwise indicated.

E. Enclosures:
1. Provide surface-mounted or flush-mounted enclosures as indicated.
2. Fronts: Provide door-in-door trim with hinged cover for access to load terminals and wiring gutters, and separate lockable hinged door with concealed hinges for access to overcurrent protective device handles without exposing live parts.
3. Provide clear plastic circuit directory holder mounted on inside of door.

2.05 OVERCURRENT PROTECTIVE DEVICES

A. Molded Case Circuit Breakers:
1. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489, and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.
2. Interrupting Capacity:
a. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated, but not less than:
1) 10,000 rms symmetrical amperes at 240 VAC or 208 VAC.
2) 14,000 rms symmetrical amperes at 480 VAC.
b. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.
3. Conductor Terminations:
a. Lug Material: Copper suitable for terminating copper conductors only.
4. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
5. Electronic Trip Circuit Breakers: Furnish solid state, microprocessor-based, true rms sensing trip units.
a. Provide the following field-adjustable trip response settings:
1) Long time pickup, adjustable by setting dial.
2) Long time delay.
3) Short time pickup and delay.
4) Instantaneous pickup.
6. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.
7. Provide the following circuit breaker types where indicated:
a. Ground Fault Circuit Interrupter (GFCI) Circuit Breakers: Listed as complying with UL 943, class A for protection of personnel.
8. Do not use tandem circuit breakers.
9. Do not use handle ties in lieu of multi-pole circuit breakers.

2.06 SOURCE QUALITY CONTROL

A. Factory test panelboards according to NEMA PB 1.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the ratings and configurations of the panelboards and associated components are consistent with the indicated requirements.

C. Verify that mounting surfaces are ready to receive panelboards.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Install panelboards in accordance with NECA 407 and NEMA PB 1.1.

D. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

E. Provide required support and attachment in accordance with Section 26 0529.

F. Install panelboards plumb.

G. Install flush-mounted panelboards so that trims fit completely flush to wall with no gaps and rough opening completely covered.

H. Mount panelboards such that the highest position of any operating handle for circuit breakers or switches does not exceed 79 inches above the floor or working platform.

I. Provide minimum of three spare 1 inch trade size conduits out of each flush-mounted panelboard stubbed into accessible space above ceiling and below floor.

J. Provide grounding and bonding in accordance with Section 26 0526.

K. Install all field-installed branch devices, components, and accessories.

L. Set field-adjustable circuit breaker tripping function settings as determined by overcurrent protective device coordination study performed according to Section 26 0573.

M. Provide filler plates to cover unused spaces in panelboards.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Molded Case Circuit Breakers: Perform inspections and tests listed in NETA ATS, Section 7.6.1.1for all main circuit breakers. Tests listed as optional are not required.

D. Test GFCI circuit breakers to verify proper operation.

E. Test AFCI circuit breakers to verify proper operation.

F. Correct deficiencies and replace damaged or defective panelboards or associated components.

3.04 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

B. Adjust alignment of panelboard fronts.

C. Load Balancing: For each panelboard, rearrange circuits such that the difference between each measured steady state phase load does not exceed 20 percent and adjust circuit directories accordingly. Maintain proper phasing for multi-wire branch circuits.

3.05 CLEANING

A. Clean dirt and debris from panelboard enclosures and components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

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SECTION 26 2726
WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall switches.

B. Receptacles.

C. Wall plates.

1.02 RELATED REQUIREMENTS

A. Section 26 0533.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. FS W-C-596 - Connector, Electrical, Power, General Specification for 2014h, with Amendments (2017).

B. FS W-S-896 - Switches, Toggle (Toggle and Lock), Flush Mounted (General Specification) 2014g, with Amendment (2017).

C. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

D. NECA 130 - Standard for Installing and Maintaining Wiring Devices 2016.

E. NEMA WD 1 - General Color Requirements for Wiring Devices 1999 (Reaffirmed 2020).

F. NEMA WD 6 - Wiring Devices - Dimensional Specifications 2021.

G. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. UL 20 - General-Use Snap Switches Current Edition, Including All Revisions.

I. UL 498 - Attachment Plugs and Receptacles Current Edition, Including All Revisions.

J. UL 514D - Cover Plates for Flush-Mounted Wiring Devices Current Edition, Including All Revisions.

K. UL 943 - Ground-Fault Circuit-Interrupters Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
   2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
   3. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
   4. Notify Engineer of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

B. Sequencing:
   1. Do not install wiring devices until final surface finishes and painting are complete.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Products: Listed, classified, and labeled as suitable for the purpose intended.

D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.06 DELIVERY, STORAGE, AND PROTECTION

A. Store in a clean, dry space in original manufacturer's packaging until ready for installation.

PART 2 PRODUCTS

2.01 WIRING DEVICE APPLICATIONS

A. Provide wiring devices suitable for intended use and with ratings adequate for load served.

B. For single receptacles installed on an individual branch circuit, provide receptacle with ampere rating not less than that of the branch circuit.

C. Provide weather resistant GFCI receptacles with specified weatherproof covers for receptacles installed outdoors or in damp or wet locations.

D. Unless noted otherwise, do not use combination switch/receptacle devices.

2.02 WIRING DEVICE FINISHES

A. Provide wiring device finishes as described below unless otherwise indicated.

B. Wiring Devices, Unless Otherwise Indicated: Gray with galvanized steel wall plate.

C. Wiring Devices Installed in Wet or Damp Locations: Gray with specified weatherproof cover.

2.03 WALL SWITCHES

A. Manufacturers:
   1. Leviton Manufacturing Company, Inc: www.leviton.com/#sle.
   2. Pass & Seymour, a brand of Legrand North America, Inc: www.legrand.us/#sle.

B. Wall Switches - General Requirements: AC only, quiet operating, general-use snap switches with silver alloy contacts, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 20and where applicable FS W-S-896; types as indicated on the drawings.
   1. Wiring Provisions: Terminal screws for side wiring and screw actuated binding clamp for back wiring with separate ground terminal screw.

2.04 RECEPTACLES

A. Manufacturers:
   1. Leviton Manufacturing Company, Inc: www.leviton.com/#sle.
   2. Pass & Seymour, a brand of Legrand North America, Inc: www.legrand.us/#sle.

B. Receptacles - General Requirements: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498and where applicable FS W-C-596; types as indicated on the drawings.
   1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp for back wiring with separate ground terminal screw.
   2. NEMA configurations specified are according to NEMA WD 6.

C. Convenience Receptacles:
   1. Standard Convenience Receptacles: Commercial specification grade, 20A, 125V, NEMA 5-20R; single or duplex as indicated on the drawings.

D. GFCI Receptacles:
   1. GFCI Receptacles - General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with UL 943, class A.
      a. Provide test and reset buttons of same color as device.
   2. Standard GFCI Receptacles: Commercial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style.
   3. Weather Resistant GFCI Receptacles: Commercial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style, listed and labeled as weather resistant type complying with UL 498 Supplement SE suitable for installation in damp or wet locations.

2.05 WALL PLATES

A. Manufacturers:
   1. Hubbell Incorporated: www.hubbell-wiring.com/#sle.
   2. Leviton Manufacturing Company, Inc: www.leviton.com/#sle.
   3. Lutron Electronics Company, Inc: www.lutron.com.
   4. Pass & Seymour, a brand of Legrand North America, Inc: www.legrand.us/#sle.

B. Wall Plates: Comply with UL 514D.

1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
2. Size: Standard.
3. Screws: Metal with slotted heads finished to match wall plate finish.

C. Galvanized Steel Wall Plates: Rounded corners and edges, with corrosion resistant screws.

D. Weatherproof Covers for Damp Locations: Gasketed, cast aluminum, with self-closing hinged cover and corrosion-resistant screws; listed as suitable for use in wet locations with cover closed.

E. Weatherproof Covers for Wet Locations: Gasketed, cast aluminum, with hinged lockable cover and corrosion-resistant screws; listed as suitable for use in wet locations while in use with attachment plugs connected and identified as extra-duty type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.

C. Verify that wall openings are neatly cut and will be completely covered by wall plates.

D. Verify that final surface finishes are complete, including painting.

E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

F. Verify that openings in access floor are in proper locations.

G. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.

B. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of wiring devices provided under this section.
1. Mounting Heights: Unless otherwise indicated, as follows:
   a. Wall Switches: 48 inches above finished floor to top of box.
   b. Receptacles: 20 inches above finished floor to top of box or 6 inches above counter.
2. Orient outlet boxes for vertical installation of wiring devices unless otherwise indicated.
3. Where multiple receptacles or wall switches are installed at the same location and at the same mounting height, gang devices together under a common wall plate.
4. Locate wall switches on strike side of door with edge of wall plate 3 inches from edge of door frame. Where locations are indicated otherwise, notify Engineer to obtain direction prior to proceeding with work.
5. Locate receptacles for electric drinking fountains concealed behind drinking fountain according to manufacturer's instructions.

C. Install wiring devices in accordance with manufacturer's instructions.

D. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

E. Where required, connect wiring devices using pigtails not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.

F. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.

G. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.

H. Unless otherwise indicated, GFCI receptacles may be connected to provide feed-through protection to downstream devices. Label such devices to indicate they are protected by upstream GFCI protection.

I. Install wiring devices plumb and level with mounting yoke held rigidly in place.

J. Install wall switches with OFF position down.

K. Do not share neutral conductor on branch circuits utilizing wall dimmers.

L. Install vertically mounted receptacles with grounding pole on bottom and horizontally mounted receptacles with grounding pole on left.

M. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.

N. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

3.04 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Inspect each wiring device for damage and defects.

C. Operate each wall switch with circuit energized to verify proper operation.

D. Test each receptacle to verify operation and proper polarity.

E. Test each GFCI receptacle for proper tripping operation according to manufacturer's instructions.

F. Correct wiring deficiencies and replace damaged or defective wiring devices.

3.05 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

3.06 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

END OF SECTION

SECTION 26 2816.13
ENCLOSED CIRCUIT BREAKERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Enclosed circuit breakers.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding for Electrical Systems.

B. Section 26 0529 - Hangers and Supports for Electrical Systems.

C. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

D. Section 26 0573 - Power System Studies: Additional criteria for the selection and adjustment of equipment and associated protective devices specified in this section.

1.03 REFERENCE STANDARDS

A. FS W-C-375 - Circuit Breakers, Molded Case; Branch Circuit and Service 2013e, with Amendment (2017).

B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.

D. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems 2021.

E. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.

G. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.

H. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures Current Edition, Including All Revisions.

I. UL 869A - Reference Standard for Service Equipment Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for circuit breakers, enclosures, and other installed components and accessories.

C. Shop Drawings: Indicate outline and support point dimensions, voltage and current ratings, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Maintain one copy of each document on site.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

B. Handle carefully in accordance with manufacturer's written instructions to avoid damage to enclosed circuit breaker internal components, enclosure, and finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Furnish enclosed circuit breakers and associated components produced by the same manufacturer as the other electrical distribution equipment used for this project and obtained from a single supplier.

2.02 ENCLOSED CIRCUIT BREAKERS

A. Description: Units consisting of molded case circuit breakers individually mounted in enclosures.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
   1. Altitude: Less than 6,600 feet.
   2. Ambient Temperature: Between 23 degrees F and 104 degrees F.

D. Short Circuit Current Rating:
   1. Provide enclosed circuit breakers with listed short circuit current rating not less than the available fault current at the installed location indicated on the drawings.

E. Enclosed Circuit Breakers Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.

F. Conductor Terminations: Suitable for use with the conductors to be installed.

G. Provide electronic trip circuit breakers where indicated.

H. Provide insulated, groundable fully rated solid neutral assembly where a neutral connection is required, with a suitable lug for terminating each neutral conductor.

I. Provide solidly bonded equipment ground bus in each enclosed circuit breaker, with a suitable lug for terminating each equipment grounding conductor.

J. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
   1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
      a. Outdoor Locations: Type 3R.
      b. Indoor Damp Locations: Type 12.
   2. Finish for Painted Steel Enclosures: Manufacturer's standard, factory applied grey unless otherwise indicated.
   3. Provide surface-mounted enclosures unless otherwise indicated.

K. Provide externally operable handle with means for locking in the OFF and ONposition.

L. Selectivity: Where the requirement for selectivity is indicated, furnish products as required to achieve selective coordination.

2.03 MOLDED CASE CIRCUIT BREAKERS

A. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.

B. Interrupting Capacity:
   1. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated, but not less than:
      a. 14,000 rms symmetrical amperes at 480 VAC.
   2. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.

C. Conductor Terminations:
   1. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.

D. Electronic Trip Circuit Breakers: Furnish solid state, microprocessor-based, true rms sensing trip units.
   1. Provide the following field-adjustable trip response settings:
      a. Long time pickup, adjustable by setting dial.
      b. Long time delay.
      c. Short time pickup and delay.
      d. Instantaneous pickup.

E. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.

F. Provide the following features and accessories where indicated or where required to complete installation:
   1. Shunt Trip: Provide coil voltage as required for connection to indicated trip actuator.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Provide required support and attachment in accordance with Section 26 0529.

E. Install enclosed circuit breakers plumb.

F. Except where indicated to be mounted adjacent to the equipment they supply, mount enclosed circuit breakers such that the highest position of the operating handle does not exceed 79 inches above the floor or working platform.

G. Provide grounding and bonding in accordance with Section 26 0526.

H. Set field-adjustable circuit breaker tripping function settings as determined by overcurrent protective device coordination study performed according to Section 26 0573.

3.02 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Inspect and test in accordance with manufacturer's instructions and NETA ATS, except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.6.1.1 for circuit breakers used for service entrance and for circuit breakers larger than _____ amperes. Tests listed as optional are not required.

D. Test shunt trips to verify proper operation.

E. Correct deficiencies and replace damaged or defective enclosed circuit breakers.

END OF SECTION

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SECTION 26 2816.16
ENCLOSED SWITCHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Enclosed safety switches.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding for Electrical Systems.

B. Section 26 0529 - Hangers and Supports for Electrical Systems.

C. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

D. Section 26 2813 - Fuses.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.

C. NEMA KS 1 - Heavy Duty Enclosed and Dead-Front Switches (600 Volts Maximum) 2013.

D. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.

F. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.

G. UL 98 - Enclosed and Dead-Front Switches Current Edition, Including All Revisions.

H. UL 869A - Reference Standard for Service Equipment Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the work with other trades. Avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and within working clearances for electrical equipment required by NFPA 70.
   2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   3. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
   4. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for enclosed switches and other installed components and accessories.

C. Shop Drawings: Indicate outline and support point dimensions, voltage and current ratings, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.

D. Project Record Documents: Record actual locations of enclosed switches.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

D. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

B. Handle carefully in accordance with manufacturer's written instructions to avoid damage to enclosed switch internal components, enclosure, and finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Furnish enclosed switches and associated components produced by the same manufacturer as the other electrical distribution equipment used for this project and obtained from a single supplier.

2.02 ENCLOSED SAFETY SWITCHES

A. Description: Quick-make, quick-break enclosed safety switches listed and labeled as complying with UL 98; heavy duty; ratings, configurations, and features as indicated on the drawings.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
   1. Altitude: Less than 6,600 feet.
   2. Ambient Temperature: Between -22 degrees F and 104 degrees F.

D. Horsepower Rating: Suitable for connected load.

E. Voltage Rating: Suitable for circuit voltage.

F. Short Circuit Current Rating:
   1. Provide enclosed safety switches, when protected by the fuses or supply side overcurrent protective devices to be installed, with listed short circuit current rating not less than the available fault current at the installed location as indicated on the drawings.

G. Enclosed Safety Switches Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.

H. Provide with switch blade contact position that is visible when the cover is open.

I. Fuse Clips for Fusible Switches: As required to accept fuses indicated.
   1. Where NEMA Class R fuses are installed, provide rejection feature to prevent installation of fuses other than Class R.

J. Conductor Terminations: Suitable for use with the conductors to be installed.

K. Provide solidly bonded equipment ground bus in each enclosed safety switch, with a suitable lug for terminating each equipment grounding conductor.

L. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
   1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
      a. Outdoor Locations: Type 3R.
      b. Indoor Damp Locations: Type 12.
   2. Finish for Painted Steel Enclosures: Manufacturer's standard, factory applied grey unless otherwise indicated.

M. Provide safety interlock to prevent opening the cover with the switch in the ON position with capability of overriding interlock for testing purposes.

N. Heavy Duty Switches:
   1. Comply with NEMA KS 1.
   2. Conductor Terminations:
      a. Lug Material: Copper suitable for terminating copper conductors only.

3. Provide externally operable handle with means for locking in the OFF position, capable of accepting three padlocks.
    a. Provide means for locking handle in the ON position.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the ratings of the enclosed switches are consistent with the indicated requirements.

C. Verify that mounting surfaces are ready to receive enclosed safety switches.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Provide required support and attachment in accordance with Section 26 0529.

E. Install enclosed switches plumb.

F. Except where indicated to be mounted adjacent to the equipment they supply, mount enclosed switches such that the highest position of the operating handle does not exceed 79 inches above the floor or working platform.

G. Provide grounding and bonding in accordance with Section 26 0526.

H. Provide fuses complying with Section 26 2813 for fusible switches as indicated or as required by equipment manufacturer's recommendations.

3.03 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

3.04 CLEANING

A. Clean dirt and debris from switch enclosures and components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

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SECTION 26 2923
VARIABLE-FREQUENCY MOTOR CONTROLLERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Variable frequency controllers.

B. Overcurrent protective devices for motor controllers, including overload relays.

1.02 RELATED REQUIREMENTS

A. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. IEC 60529 - Degrees of Protection Provided by Enclosures (IP Code) 1989 (Corrigendum 2019).

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.

C. NEMA ICS 5 - Industrial Control and Systems: Control Circuit and Pilot Devices 2017.

D. NEMA ICS 6 - Industrial Control and Systems: Enclosures 1993 (Reaffirmed 2016).

E. NEMA ICS 7 - Industrial Control and Systems: Adjustable-Speed Drives 2020.

F. NEMA ICS 7.1 - Safety Standards for Construction and Guide for Selection, Installation, and Operation of Adjustable-Speed Drive Systems 2022.

G. NEMA ICS 7.2 - Application Guide for AC Adjustable Speed Drive Systems 2021.

H. NEMA ICS 61800-2 - Adjustable Speed Electrical Power Drive Systems, Part 2: General Requirements-Rating Specifications for Low Voltage Adjustable Frequency AC Power Drive Systems 2005.

I. NEMA MG 1 - Motors and Generators 2021.

J. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems 2021.

K. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

L. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures Current Edition, Including All Revisions.

M. UL 508A - Industrial Control Panels Current Edition, Including All Revisions.

N. UL 61800-5-1 - Standard for Adjustable Speed Electrical Power Drive Systems - Part 5-1: Safety Requirements – Electrical, Thermal, and Energy (Ed. 2) Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within dedicated equipment spaces and working clearances required by NFPA 70.
   2. Coordinate work to provide motor controllers suitable for use with actual motors to be installed.
   3. Coordinate work to provide controllers and associated wiring suitable for interface with control devices to be installed.
   4. Coordinate arrangement of electrical equipment with dimensions and clearance requirements of actual equipment to be installed.
   5. Verify with manufacturer that conductor terminations are suitable for use with conductors to be installed.
   6. Notify Engineer of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide catalog sheets showing voltage, controller size, ratings and size of switching and overcurrent protective devices, short circuit ratings, dimensions, and enclosure details.

C. Shop Drawings: Indicate front and side views of enclosures with overall dimensions and weights shown; conduit entrance locations and requirements; and nameplate legends.
   1. Include dimensioned plan and elevation views of controllers and adjacent equipment with required clearances indicated.
   2. Include wiring diagrams showing factory and field connections.
   3. Identify mounting conditions required for equipment seismic qualification.

D. Operation and Maintenance Data: Include detailed information on system operation, equipment programming and setup, replacement parts, and recommended maintenance procedures and intervals.

E. Executed Warranty: Submit documentation of final executed warranty completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
   1. Authorized service facilities located within 200 miles of project site.

C. Products: Listed, classified, and labeled as suitable for the purpose intended.

D. The VFD and all associated optional equipment shall be UL listed or recognized.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store in a clean, dry space, and ambient temperature recommended by the manufacturer. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

B. Handle in accordance with manufacturer's written instructions.

1.08 FIELD CONDITIONS

A. Maintain field conditions within required service conditions during and after installation.

1.09 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Provide minimum 18-month manufacturer warranty covering repair or replacement due to defective materials or workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Variable Frequency Motor Controllers:
   1. Danfoss: www.danfoss.com/#sle.
   2. Rockwell Automation, Inc.; Allen-Bradley Products: ab.rockwellautomation.com/#sle.
   3. Schneider Electric; Square D Products: www.schneider-electric.us/#sle.

B. Source Limitations: Furnish variable frequency motor controllers and associated components produced by a single manufacturer and obtained from a single supplier.

2.02 VARIABLE-FREQUENCY MOTOR CONTROLLERS

A. Provide variable-frequency motor control system consisting of required controller assemblies, operator interfaces, control power transformers, instrumentation and control wiring, sensors, accessories, system programming, etc. as necessary for complete operating system.

B. Provide products listed, classified, and labeled as suitable for purpose intended.

C. Variable-Frequency Motor Controller:
   1. Configuration: Packaged controller with soft-starter bypass.
   2. Rectifier/Converter: Diode-based, 6-pulse type.
   3. Control Method: Vector; open-loop, without feedback.

D. Controller Assemblies: Comply with NEMA ICS 7, NEMA ICS 7.1, and NEMA ICS 61800-2; list and label as complying with UL 61800-5-1 or UL 508A as applicable.

E. Provide controllers selected for actual installed motors and coupled mechanical loads in accordance with NEMA ICS 7.2, NEMA MG 1 Part 30, and recommendations of manufacturers of both controller and load, where not in conflict with specified requirements; considerations include, but are not limited to:
   1. Motor type (e.g., induction, reluctance, and permanent magnet); consider NEMA MG 1 design letter or inverter duty rating for induction motors.
   2. Motor load type (e.g., constant torque, variable torque, and constant horsepower); consider duty cycle, impact loads, and high inertia loads.
   3. Motor nameplate data.
   4. Requirements for speed control range, speed regulation, and braking.
   5. Motor suitability for bypass starting method, where applicable.
   6. Shall have continuous ampacity output rating not less than motor name plate Full Load Amps operating at a minimum 1.15 service factor.

F. Devices on Load Side of Controller: Suitable for application across full controller output frequency range.

G. Operating Requirements:
   1. Input Voltage Tolerance: Plus/minus 10 percent of nominal.
   2. Input Frequency Tolerance: Plus/minus 5 percent of nominal.
   3. Efficiency: Minimum of 96 percent at full speed and load.
   4. Input Displacement Power Factor: Minimum of 0.96 throughout speed and load range.
   5. Overload Rating:
      a. Variable Torque Loads: Minimum of 110 percent of nominal for 60 seconds.
      b. Constant Torque Loads: Minimum of 150 percent of nominal for 60 seconds.

H. Control System:
   1. Provide microprocessor-based control system for automatic control, monitoring, and protection of motors. Include sensors, wiring, and connections necessary for functions and status/alarm indications specified.
   2. Provide integral operator interface for controller programming, display of status/alarm indications, fault reset, and local control functions including motor run/stop, motor forward/reverse selection, motor speed increase/decrease, and local/remote control selection.
   3. Control Functions:
      a. Control Method: Selectable vector and scalar/volts per hertz unless otherwise indicated.
         1) Scalar/Volts per Hertz Control: Provide IR compensation for improved low-speed torque.
         2) Vector Control: Provide selectable autotuning function.
      b. Adjustable acceleration and deceleration time; linear and S-curve ramps; selectable coast to stop.
      c. Adjustable minimum/maximum speed limits.
      d. Adjustable pulse width modulation switching carrier frequency.
      e. Adjustable motor slip compensation.
      f. Selectable autorestart after noncritical fault; programmable number of time delay between restart attempts.
   4. Status Indications:
      a. Motor run/stop status.
      b. Motor forward/reverse status.
      c. Local/remote control status.
      d. Output voltage.
      e. Output current.
      f. Output frequency.
      g. DC bus voltage.
      h. Motor speed.
      i. Speed reference.
   5. Protective Functions/Alarm Indications:

a. Overcurrent.
b. Motor overload.
c. Undervoltage.
d. Overvoltage.
e. Controller overtemperature.
f. Input/output phase loss.
g. Output short circuit protection.
h. Output ground fault protection.

6. Inputs:
   a. Digital Input(s): Three.
   b. Analog Input(s): Two.
7. Outputs:
   a. Analog Output(s): One.
   b. Relay Output(s): Two.
8. Communications: Compatible with connected systems. Provide accessories necessary for proper interface.
   a. Ethernet Communications: Support for Ethernet/IP protocol.
   b. Remote Monitoring Capabilities:
      1) Motor run/stop status.
      2) Hand-off-auto status.
      3) Fault information.
      4) Discrete input/output status.
      5) Analog input/output values.
   c. Remote Control Capabilities:
      1) Motor run/stop command.
      2) Hand-off-auto selection.
      3) Speed adjustment.
      4) Fault reset.
9. Features:
   a. Password-protected security access.
   b. Event log.

I. Power Conditioning/Filtering:
   1. Provide DC link choke or input/line reactor for each controller unless otherwise indicated or required by the manufacturer.
   2. Harmonic Mitigation:
      a. Provide input tuned passive filter.
   3. Long Motor Leads:
      a. Motor Leads 300 Feet to 650 feet: Provide output/load reactor.
      b. Motor Leads 650 Feet to 1000 feet: Provide output dV/dt filter.
      c. Motor Leads Over 1000 Feet: Provide output sine wave filter.
   4. Reactor Impedance: 3 percent, unless otherwise indicated or required.

J. Packaged Controllers: Controllers factory-mounted in separate enclosure with externally operable disconnect and specified accessories.
   1. Disconnects: Circuit breaker type.
      a. Provide externally operable handle with means for locking in OFF position. Provide safety interlock to prevent opening cover with disconnect in ON position with capability of overriding interlock for testing purposes.
      b. Provide auxiliary interlock for disconnection of external control power sources where applicable.
   2. Provide door-mounted remote operator interface.
   3. Packaged Controllers with Bypass: Provide contactors and controls to enable removal of variable-frequency controller from circuit.
      a. Bypass Method: Manual, unless otherwise indicated.
      b. Bypass Configuration: 3-contactor type, with contactors for bypass, drive output, and drive input.
      c. Bypass Motor Starting Method: Solid state reduced-voltage motor controller (soft-starter), unless otherwise indicated or required.

4. Pilot Devices Required:
    a. Furnish local pilot devices for each unit as specified below unless otherwise indicated on drawings, except where equivalent function is provided by remote operator interface.
    b. Packaged Controllers with Bypass:
        1) Bypass Mode Selector Switch: DRIVE/OFF/BYPASS.
        2) Motor Control Selector Switch: HAND/OFF/AUTO.
        3) Indicating Lights: For drive/bypass mode status, drive/bypass run status, and drive/bypass fault status.
    c. Packaged Controllers:
        1) Selector Switches: Hand-Off-Auto.
        2) Indicating Lights: Run and Fault.

K. Service Conditions:
1. Provide controllers and associated components suitable for operation under following service conditions without derating:
    a. Altitude: Less than 3,300 feet.
    b. Ambient Temperature: Between 32 degrees F and 104 degrees F.
2. Provide controllers and associated components suitable for operation at indicated ratings under service conditions at installed location.

L. Short Circuit Current Rating:
1. Provide controllers with listed short circuit current rating not less than available fault current at installed location as indicated on drawings.
2. Provide line/input reactors where specified by manufacturer for required short circuit current rating.

M. Selectivity: Where requirement for selectivity is indicated, furnish products as required to achieve selective coordination.

N. Conductor Terminations: Suitable for use with conductors to be installed.

O. Enclosures:
1. Comply with NEMA ICS 6.
2. NEMA 250 Environment Type or Equivalent IEC 60529 Rating: Unless otherwise indicated, as specified for following installation locations:
    a. Indoor Clean, Dry Locations: Type 1 or Type 12.
    b. Outdoor Locations: Type 3R or Type 4.
3. Finish: Manufacturer's standard unless otherwise indicated.
4. Cooling: Forced air or natural convection as determined by manufacturer.

2.03 OVERCURRENT PROTECTIVE DEVICES

A. Circuit Breakers:
1. Molded Case Circuit Breakers:
    a. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers; listed and labeled as complying with UL 489; ratings, configurations, and features as indicated or as required.
        1) Provide thermal magnetic circuit breakers for circuit breaker frame sizes less than 400 amperes.
        2) Provide electronic trip circuit breakers for circuit breaker frame sizes 400 amperes and above.
    b. Interrupting Capacity:
        1) Provide circuit breakers with interrupting capacity as required to provide short circuit current rating indicated, but not less than specified minimum requirements.
        2) Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than short circuit current rating indicated.
    c. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
        1) Provide field-adjustable magnetic instantaneous trip setting for circuit breaker frame sizes 225 amperes and larger.

2) Provide interchangeable trip units.

d. Electronic Trip Circuit Breakers: Furnish solid state, microprocessor-based, true rms sensing trip units.
   1) Provide field-adjustable trip response settings:
      (a) Long time pickup, adjustable by replacing interchangeable trip unit or by setting dial.
      (b) Long time delay.
      (c) Short time pickup and delay.
      (d) Instantaneous pickup.
      (e) Ground fault pickup and delay where ground fault protection is indicated.

e. Provide following features and accessories where indicated or where required to complete installation:
   1) Pad-Lock Provision: For locking circuit breaker handle in OFF position.
   2) Auxiliary Switch: SPDT switch suitable for connection to system indicated for indicating when circuit breaker has tripped or been turned off.

2.04 ACCESSORIES

A. Auxiliary Contacts:
   1. Comply with NEMA ICS 5.
   2. Provide number and type of contacts indicated or required to perform necessary functions, including holding (seal-in) circuit and interlocking, plus one normally open (NO) and one normally closed (NC) spare contact for each bypass motor starter, minimum.

B. Pilot Devices:
   1. Comply with NEMA ICS 5; heavy-duty type.
   2. Pushbuttons: Unless otherwise indicated, provide momentary, nonilluminated type with flush button operator; normally open or normally closed as indicated or as required.
   3. Selector Switches: Unless otherwise indicated, provide maintained, nonilluminated type with knob operator; number of switch positions as indicated or as required.
   4. Indicating Lights: Push-to-test type unless otherwise indicated.
   5. Provide LED lamp source for indicating lights and illuminated devices.

C. Control Power Transformers:
   1. Size to accommodate burden of contactor coil(s) and connected auxiliary devices, plus 50 VA spare capacity.
   2. Include primary and secondary fuses.

D. Control Terminal Blocks: Include 25 percent spare terminals.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that ratings of controllers are consistent with indicated requirements.

C. Verify that surface is suitable for controller installation.

D. Verify that conditions are satisfactory for installation prior to starting work.

E. Do not install controller until building environment can be maintained within the service conditions required by the manufacturer.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install in accordance with NEMA ICS 7.1 and manufacturer's instructions.

C. Install field-installed devices, components, and accessories.

D. Where accessories are not self-powered, provide control power source as indicated or as required to complete installation.

E. Set field-adjustable settings of controllers and associated components according to installed motor requirements, in accordance with recommendations of manufacturers of controller and load.

F. Set field-adjustable circuit breaker tripping function settings as directed.

G. Tighten accessible connections and mechanical fasteners after placing controller.

H. Identify variable frequency controllers in accordance with Section 26 0553.

3.03 FIELD QUALITY CONTROL

A. Inspect and test in accordance with NETA ATS, except Section 4.

B. Perform inspections and tests listed in NETA ATS, Section 7.17. The insulation-resistance test on control wiring listed as optional is not required.

C. Molded Case Circuit Breakers: Perform inspections and tests listed in NETA ATS, Section 7.6.1.1 for circuit breakers larger than _____ amperes. Tests listed as optional are not required.

D. Packaged Controllers with Bypass: Test for proper operation in both drive and bypass modes.

3.04 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

3.05 CLEANING

A. Clean dirt and debris from controller enclosures and components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

3.06 CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate proper operation of controllers to Owner, and correct deficiencies or make adjustments as directed.

B. Training: Train Owner's personnel on operation, adjustment, and maintenance of controllers and associated devices.

1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
2. Location: At project site.

3.07 PROTECTION

A. Protect installed controllers from subsequent construction operations.

END OF SECTION

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SECTION 26 3213
ENGINE GENERATORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Packaged engine generator system and associated components and accessories:
   1. Generator set enclosure.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete equipment pads.

B. Section 23 1113 - Facility Fuel-Oil Piping:
   1. Diesel fuel piping.

C. Section 26 0526 - Grounding and Bonding for Electrical Systems.

D. Section 26 0529 - Hangers and Supports for Electrical Systems.

E. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. ASTM D975 - Standard Specification for Diesel Fuel 2022a.

B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

C. NECA/EGSA 404 - Standard for Installing Generator Sets 2014.

D. NEMA MG 1 - Motors and Generators 2021.

E. NFPA 30 - Flammable and Combustible Liquids Code 2024.

F. NFPA 37 - Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines 2021.

G. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. NFPA 110 - Standard for Emergency and Standby Power Systems 2022.

I. UL 142 - Steel Aboveground Tanks for Flammable and Combustible Liquids Current Edition, Including All Revisions.

J. UL 1236 - Battery Chargers for Charging Engine-Starter Batteries Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate compatibility of generator sets to be installed with work provided under other sections or by others.
   2. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment or other potential obstructions within the spaces dedicated for engine generator system.
   3. Coordinate arrangement of equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   4. Coordinate the work to provide electrical circuits suitable for the power requirements of the actual auxiliary equipment and accessories to be installed.
   5. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Preinstallation Meeting: Convene one week before starting work of this section; require attendance of all affected installers.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product, including ratings, configurations, dimensions, finishes, weights, service condition requirements, and installed features. Include alternator starting capabilities, engine fuel consumption rates, and cooling, combustion air, and exhaust requirements.

C. Shop Drawings: Include dimensioned plan views and sections indicating locations of system components, required clearances, and field connection locations. Include system interconnection schematic diagrams showing all factory and field connections.

D. Fuel Storage Tank Calculations: Indicate maximum running time for generator set configuration provided.

E. Manufacturer's factory emissions certification.

F. Source quality control test reports.

G. Manufacturer’s detailed field testing procedures.

H. Field quality control test reports.

I. Operation and Maintenance Data: Include detailed information on system operation, equipment programming and setup, replacement parts, and recommended maintenance procedures and intervals.

J. Department of Natural Resources (DNR) construction permit for Internal Combustion Engines 400 brake horsepower or greater:
   1. Fill out Construction Permit forms with all necessary information required by DNR, or simlar regulatory agency on behalf of owner. Submit to engineer for review.
   2. Owner responsible for permit fee, and submission of forms to regulatory agency.
   3. Obtain construction permit before associated construction activities begin.

1.06 QUALITY ASSURANCE

A. Comply with the following:
   1. NFPA 70 (National Electrical Code).
   2. NFPA 37 (Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines).
   3. NFPA 30 (Flammable and Combustible Liquids Code).

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
   1. Authorized service facilities located within 200 miles of project site.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store generator sets in accordance with manufacturer's instructions and NECA/EGSA 404.

B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle carefully in accordance with manufacturer's instructions to avoid damage to generator set components, enclosure, and finish.

1.08 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Packaged Engine Generator Set - Basis of Design: Cummins.

B. Source Limitations: Furnish engine generator sets and associated components and accessories produced by a single manufacturer and obtained from a single supplier.

2.02 PACKAGED ENGINE GENERATOR SYSTEM

A. Provide new engine generator system consisting of all required equipment, sensors, conduit, boxes, wiring, piping, supports, accessories, system programming, etc. as necessary for a complete operating system that provides the functional intent indicated.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. System Description:
   1. Application: Emergency/standby.
   2. Configuration: Single packaged engine generator set operated independently (not in parallel).

D. Packaged Engine Generator Set:
   1. Type: Diesel (compression ignition).
   2. Power Rating: As indicated on drawings, standby.
   3. Voltage: As indicated on drawings.
   4. Main Line Circuit Breaker:
      a. Type: Electronic trip with long time and short time delay and instantaneous pickup.
      b. Trip Rating: As indicated on drawings.
      c. Features:
         1) Shunt trip. Provide coil voltage compatible with connected system.

E. Generator Set General Requirements:
   1. Prototype tested in accordance with NFPA 110 for Level 1 systems.
   2. Factory-assembled, with components mounted on suitable base.
   3. List and label engine generator assembly as complying with UL 2200.
   4. Power Factor: Unless otherwise indicated, specified power ratings are at 0.8 power factor for three phase voltages and 1.0 power factor for single phase voltages.
   5. Provide suitable guards to protect personnel from accidental contact with rotating parts, hot piping, and other potential sources of injury.
   6. Main Line Circuit Breakers: Provide factory-installed line side connections with suitable lugs for load side connections.

F. Service Conditions: Provide engine generator system and associated components suitable for operation under the service conditions at the installed location.

G. Starting and Load Acceptance Requirements:
   1. Cranking Method: Cycle cranking complying with NFPA 110 (15 second crank period, followed by 15 second rest period, with cranking limiter time-out after 3 cycles), unless otherwise required.
   2. Cranking Limiter Time-Out: If generator set fails to start after specified cranking period, indicate overcrank alarm condition and lock-out generator set from further cranking until manually reset.
   3. Start Time: Capable of starting and achieving conditions necessary for load acceptance within 10 seconds (NFPA 110, Type 10).
   4. Maximum Load Step: Supports 100 percent of rated load in one step.

H. Exhaust Emissions Requirements:
   1. Comply with federal (EPA), state, and local regulations applicable at the time of commissioning; include factory emissions certification with submittals.
   2. Do not make modifications affecting generator set factory emissions certification without approval of manufacturer and Engineer. Where such modifications are made, provide field emissions testing as necessary for certification.

I. Sound Level Requirements:
   1. Comply with applicable noise level regulations.

2.03 ENGINE AND ENGINE ACCESSORY EQUIPMENT

A. Provide engine with adequate horsepower to achieve specified power output at rated speed, accounting for alternator efficiency and parasitic loads.

B. Engine Fuel System - Diesel (Compression Ignition):
   1. Fuel Source: Diesel, ASTM D975 No. 2-D or approved cold weather diesel blends.
   2. Fuel Storage: Sub-base fuel tank.
   3. Engine Fuel Supply: Provide engine-driven, positive displacement fuel pump with replaceable fuel filter(s), water separator, check valve to secure prime, manual fuel priming pump, and relief-bypass valve. Provide fuel cooler where recommended by manufacturer.
   4. Engine Fuel Connections: Provide suitable, approved flexible fuel lines for coupling engine to fuel source.

5. Sub-Base Fuel Tank:
    a. Provide sub-base mounted, double-wall fuel tank with secondary containment; listed and labeled as complying with UL 142.
    b. Tank Capacity: Size for minimum of 24 hours of continuous engine generator operation at 100 percent rated load, but not larger than permissible by applicable codes.
    c. Features:
        1) Direct reading fuel level gauge.
        2) Normal atmospheric vent.
        3) Emergency pressure relief vent.
        4) Fuel fill opening with lockable cap.
        5) Dedicated electrical conduit stub-up area.

C. Engine Starting System:
1. System Type: Electric, with DC solenoid-activated starting motor(s).
2. Battery(s):
    a. Battery Type: Lead-acid.
    b. Battery Capacity: Size according to manufacturer's recommendations for achieving starting and load acceptance requirements under worst case ambient temperature; capable of providing cranking through two complete periods of cranking limiter time-outs without recharging.
    c. Provide battery rack, cables, and connectors suitable for the supplied battery(s); size battery cables according to manufacturer's recommendations for cable length to be installed.
3. Battery-Charging Alternator: Engine-driven, with integral solid-state voltage regulation.
4. Battery Charger:
    a. Provide dual rate battery charger with automatic float and equalize charging modes and minimum rating of 10 amps; suitable for maintaining the supplied battery(s) at full charge without manual intervention.
    b. Capable of returning supplied battery(s) from fully discharged to fully charged condition within 24 hours, as required by NFPA 110 for Level 1 applications while carrying normal loads.
    c. Recognized as complying with UL 1236.
    d. Furnished with integral overcurrent protection; current limited to protect charger during engine cranking; reverse polarity protection.
    e. Provide integral DC output ammeter and voltmeter with five percent accuracy.
    f. Provide alarm output contacts as necessary for alarm indications.

D. Engine Speed Control System (Governor):
1. Single Engine Generator Sets (Not Operated in Parallel): Provide electronic isochronous governor for controlling engine speed/alternator frequency.
2. Frequency Regulation, Electronic Isochronous Governors: No change in frequency from no load to full load; plus/minus 0.25 percent at steady state.

E. Engine Lubrication System:
1. System Type: Full pressure, with engine-driven, positive displacement lubrication oil pump, replaceable full-flow oil filter(s), and dip-stick for oil level indication. Provide oil cooler where recommended by manufacturer.

F. Engine Cooling System:
1. System Type: Closed-loop, liquid-cooled, with unit-mounted radiator/fan and engine-driven coolant pump; suitable for providing adequate cooling while operating at full load under worst case ambient temperature.
2. Fan Guard: Provide suitable guard to protect personnel from accidental contact with fan.
3. Ducted Radiators: Where ducted radiator air discharge is to be field-installed, provide suitable radiator duct flange/adapter.
4. Coolant Heater: Provide thermostatically controlled coolant heater to improve starting under cold ambient conditions; size according to manufacturer's recommendations for achieving starting and load acceptance requirements under worst case ambient temperature.

G. Engine Air Intake and Exhaust System:

1. Air Intake Filtration: Provide engine-mounted, replaceable, dry element filter.
2. Engine Exhaust Connection: Provide suitable, approved flexible connector for coupling engine to exhaust system.

2.04 ALTERNATOR (GENERATOR)

A. Alternator: 4-pole, 1800 rpm (60 Hz output) revolving field, synchronous generator complying with NEMA MG 1; connected to engine with flexible coupling; voltage output configuration as indicated, with reconnectable leads for 3 phase alternators.

B. Exciter:
   1. Exciter Type: Brushless; provide permanent magnet generator (PMG) excitation system; self-excited (shunt) systems are not permitted.
   2. PMG Excitation Short-Circuit Current Support: Capable of sustaining 300 percent of rated output current for 10 seconds.
   3. Voltage Regulation (with PMG excitation): Plus/minus 0.5 percent for any constant load from no load to full load.

C. Temperature Rise: Comply with UL 2200.

D. Insulation System: NEMA MG 1, Class H; suitable for alternator temperature rise.

E. Enclosure: NEMA MG 1, drip-proof.

F. Total Harmonic Distortion: Not greater than five percent.

2.05 GENERATOR SET CONTROL SYSTEM

A. Provide microprocessor-based control system for automatic control, monitoring, and protection of generator set. Include sensors, wiring, and connections necessary for functions/indications specified.

B. Control Panel:
   1. Control Panel Mounting: Unit-mounted unless otherwise indicated; vibration isolated.
   2. Generator Set Control Functions:
      a. Automatic Mode: Initiates generator set start/shutdown upon receiving corresponding signal from remote device (e.g. automatic transfer switch).
      b. Manual Mode: Initiates generator set start/shutdown upon direction from operator.
      c. Reset Mode: Clears all faults, allowing generator set restart after a shutdown.
      d. Emergency Stop: Immediately shuts down generator set (without time delay) and prevents automatic restarting until manually reset.
      e. Cycle Cranking: Programmable crank time, rest time, and number of cycles.
      f. Time Delay: Programmable for shutdown (engine cooldown) and start (engine warmup).
      g. Voltage Adjustment: Adjustable through range of plus/minus 5 percent.
   3. Generator Set Status Indications:
      a. Voltage (Volts AC): Line-to-line, line-to-neutral for each phase.
      b. Current (Amps): For each phase.
      c. Frequency (Hz).
      d. Real power (W/kW).
      e. Reactive power (VAR/kVAR).
      f. Apparent power (VA/kVA).
      g. Power factor.
      h. Duty Level: Actual load as percentage of rated power.
      i. Engine speed (RPM).
      j. Battery voltage (Volts DC).
      k. Engine oil pressure.
      l. Engine coolant temperature.
      m. Engine run time.
      n. Generator powering load (position signal from transfer switch).
   4. Generator Set Protection and Warning/Shutdown Indications:
      a. Comply with NFPA 110; configurable for NFPA 110 Level 1 or Level 2, or NFPA 99 systems including but not limited to the following protections/indications:
         1) Overcrank (shutdown).
         2) Low coolant temperature (warning).

3) High coolant temperature (warning).
4) High coolant temperature (shutdown).
5) Low oil pressure (shutdown).
6) Overspeed (shutdown).
7) Low fuel level (warning).
8) Low coolant level (warning/shutdown).
9) Generator control not in automatic mode (warning).
10) High battery voltage (warning).
11) Low cranking voltage (warning).
12) Low battery voltage (warning).
13) Battery charger failure (warning).

b. In addition to NFPA 110 requirements, provide the following protections/indications:
1) High AC voltage (shutdown).
2) Low AC voltage (shutdown).
3) High frequency (shutdown).
4) Low frequency (shutdown).
5) Overcurrent (shutdown).

c. Provide contacts for local and remote common alarm.
d. Provide lamp test function that illuminates all indicator lamps.

5. Other Control Panel Features:
a. Event log.

C. Remote Annunciator:
1. Remote Annunciator Mounting: Wall-mounted; Provide flush-mounted annunciator for finished areas and surface-mounted annunciator for non-finished areas unless otherwise indicated.
2. Generator Set Status Indications:
a. Generator powering load (via position signal from transfer switch).
b. Communication functional.
3. Generator Set Warning/Shutdown Indications:
a. Comply with NFPA 110; configurable for NFPA 110 Level 1 or Level 2, or NFPA 99 systems including but not limited to the following indications:
1) Overcrank (shutdown).
2) Low coolant temperature (warning).
3) High coolant temperature (warning).
4) High coolant temperature (shutdown).
5) Low oil pressure (shutdown).
6) Overspeed (shutdown).
7) Low fuel level (warning).
8) Low coolant level (warning/shutdown).
9) Generator control not in automatic mode (warning).
10) High battery voltage (warning).
11) Low cranking voltage (warning).
12) Low battery voltage (warning).
13) Battery charger failure (warning).

b. Provide audible alarm with silence function.
c. Provide lamp test function that illuminates all indicator lamps.

D. Remote Emergency Stop: Provide approved red, mushroom style remote emergency stop button where indicated or required by authorities having jurisdiction.

2.06 GENERATOR SET ENCLOSURE

A. Enclosure Type: Sound attenuating, weather protective.

B. Enclosure Material: Steel or aluminum.

C. Hardware Material: Stainless steel.

D. Color: Manufacturer's standard.

E. Access Doors: Lockable, with all locks keyed alike.

F. Openings: Designed to prevent bird/rodent entry.

G. External Drains: Extend oil and coolant drain lines to exterior of enclosure for maintenance service.

H. Sound Attenuating Enclosures: Line enclosure with non-hydroscopic, self-extinguishing sound-attenuating material.

I. Powered Intake Louvers.

J. Enclosure Space Heater: Provide thermostatically controlled enclosure space heater to prevent condensation and improve starting under cold ambient conditions; size according to manufacturer's recommendations for achieving starting and load acceptance requirements under worst case ambient temperature.

K. Service weatherproof GFI duplex receptacle - 20 amp.

L. 120/208 volt single phase panelboard to support all generator devices requiring power.
   1. Minimum size 100 amp rating: Size to support all connected loads operating simultaneously.
   2. Type 3R enclosure.
   3. Input power supply from others.
   4. Shall have overcurrent protection devices for each generator device/accessory.
   5. Pre-wire circuits where possible.
   6. Refer to Section 26 2416 Panelboards.

2.07 SOURCE QUALITY CONTROL

A. Perform production tests on generator sets at factory to verify operation and performance characteristics prior to shipment. Include certified test report with submittals.

B. Generator Set production testing to include, at a minimum:
   1. Operation at rated load and rated power factor.
   2. Single step load pick-up.
   3. Transient and steady state voltage and frequency performance.
   4. Operation of safety shutdowns.

C. Diesel Fuel Storage Tanks: Perform pressurized leak test prior to shipment.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the ratings and configurations of generator sets and auxiliary equipment are consistent with the indicated requirements.

C. Verify that rough-ins for field connections are in the proper locations.

D. Verify that mounting surfaces are ready to receive equipment.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Install generator sets and associated accessories in accordance with NECA/EGSA 404.

D. Arrange equipment to provide minimum clearances and required maintenance access.

E. Unless otherwise indicated, mount generator set on properly sized, minimum 6 inch high concrete pad constructed in accordance with Section 03 3000.

F. Provide required support and attachment in accordance with Section 26 0529.

G. Provide required vibration isolation and/or seismic controls.

H. Use manufacturer's recommended oil and coolant, suitable for the worst case ambient temperatures.

I. Provide diesel fuel piping and venting in accordance with Section 23 1113, where not factory installed.

J. Provide engine exhaust piping in accordance with Section 23 5100, where not factory installed.

1. Include piping expansion joints, piping insulation, thimble, condensation trap/drain, rain cap, hangers/supports, etc. as indicated or as required.
2. Do not exceed manufacturer's maximum back pressure requirements.

K. Provide grounding and bonding in accordance with Section 26 0526.

L. Identify system wiring and components in accordance with Section 26 0553.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Provide services of a manufacturer's authorized representative to prepare and start systems and perform inspection and testing. Include manufacturer's detailed testing procedures and field reports with submittals.

C. Notify Owner and Engineer at least two weeks prior to scheduled inspections and tests.

D. Notify authorities having jurisdiction and comply with their requirements for scheduling inspections and tests and for observation by their personnel.

E. Provide all equipment, tools, and supplies required to accomplish inspection and testing, including load bank and fuel.

F. Preliminary inspection and testing to include, at a minimum:
1. Inspect each system component for damage and defects.
2. Verify tightness of mechanical and electrical connections are according to manufacturer's recommended torque settings.
3. Check for proper oil and coolant levels.

G. Prepare and start system in accordance with manufacturer's instructions.

H. Perform acceptance test in accordance with NFPA 110.

I. Inspection and testing to include, at a minimum:
1. Verify compliance with starting and load acceptance requirements.
2. Verify voltage and frequency; make required adjustments as necessary.
3. Verify phase sequence.
4. Verify control system operation, including safety shutdowns.
5. Verify operation of auxiliary equipment and accessories (e.g. battery charger, heaters, etc.).
6. Perform load tests in accordance with NFPA 110 (1.5 hour building load test followed by 2 hour full load test).

J. Provide field emissions testing where necessary for certification.

K. Correct defective work, adjust for proper operation, and retest until entire system complies with Contract Documents.

L. Submit detailed reports indicating inspection and testing results and corrective actions taken.

3.04 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.05 CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate proper operation of system to Owner, and correct deficiencies or make adjustments as directed.

B. Training: Train Owner's personnel on operation, adjustment, and maintenance of system.
1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
2. Provide minimum of four hours of training.
3. Instructor: Manufacturer's authorized representative.
4. Location: At project site.

C. After successful acceptance test and just prior to Substantial Completion, replace air, oil, and fuel filters and fill fuel storage tank.

3.06 PROTECTION

A. Protect installed engine generator system from subsequent construction operations.

END OF SECTION

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SECTION 26 3600
TRANSFER SWITCHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Transfer switches for low-voltage (600 V and less) applications and associated accessories:
   1. Automatic transfer switches.

1.02 RELATED REQUIREMENTS

A. Section 26 3213 - Engine Generators: For interface with transfer switches.
   1. Includes related demonstration and training requirements.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.

C. NEMA ICS 10 Part 1 - Industrial Control and Systems Part 1: Electromechanical AC Transfer Switch Equipment 2020.

D. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems 2021.

E. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. UL 1008 - Transfer Switch Equipment Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate compatibility of transfer switches to be installed with work provided under other sections or by others.
   2. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances required by NFPA 70.
   3. Coordinate arrangement of equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   4. Coordinate the work with placement of supports, anchors, etc. required for mounting.
   5. Closed Transition Transfer Switches:
      a. Coordinate source interconnection requirements with Utility Company.
      b. Where applicable, coordinate the work to provide engine generators with isochronous governors suitable for closed transition transfer.
      c. Coordinate the work to provide shunt trip breakers necessary for protection from source interconnection for longer than specified maximum interconnection time.
      d. Arrange for inspections necessary to obtain Utility Company approval of installation.
   6. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product, including ratings, configurations, dimensions, finishes, weights, service condition requirements, and installed features.

C. Shop Drawings: Include dimensioned plan views and sections indicating locations of system components, required clearances, and field connection locations. Include system interconnection schematic diagrams showing all factory and field connections.

1.06 QUALITY ASSURANCE

A. Comply with the following:
   1. NFPA 70 (National Electrical Code).

B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having

jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store transfer switches in accordance with manufacturer's instructions.

B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle carefully in accordance with manufacturer's instructions to avoid damage to transfer switch components, enclosure, and finish.

1.08 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Transfer Switches:
   1. ABB/GE: www.geindustrial.com/#sle.
   2. ASCO Power Technologies: www.ascopower.com.
   3. Same as manufacturer of engine generator(s) used for this project.

B. Products other than basis of design are subject to compliance with specified requirements and prior approval of Engineer. By using products other than basis of design, Contractor accepts responsibility for costs associated with any necessary modifications to related work, including any design fees.

C. Source Limitations: Furnish transfer switches and accessories produced by a single manufacturer and obtained from a single supplier.

2.02 TRANSFER SWITCHES

A. Provide complete power transfer system consisting of all required equipment, conduit, boxes, wiring, supports, accessories, system programming, etc. as necessary for a complete operating system that provides the functional intent indicated.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Construction Type: Only "contactor type" (open contact) transfer switches are acceptable. Do not use "breaker type" (enclosed contact) transfer switches.

D. Automatic Transfer Switch:
   1. Transfer Switch Type: Automatic transfer switch.
   2. Transition Configuration: Closed-transition.
   3. Voltage: As indicated on the drawings.
   4. Ampere Rating: As indicated on the drawings.
   5. Neutral Configuration: Solid neutral (unswitched), except as indicated.

E. Comply with NEMA ICS 10 Part 1, and list and label as complying with UL 1008 for the classification of the intended application (e.g. emergency, optional standby).

F. Do not use double throw safety switches or other equipment not specifically designed for power transfer applications and listed as transfer switch equipment.

G. Load Classification: Classified for total system load (any combination of motor, electric discharge lamp, resistive, and tungsten lamp loads with tungsten lamp loads not exceeding 30 percent of the continuous current rating) unless otherwise indicated or required.

H. Switching Methods:
   1. Closed Transition:
      a. When both sources are available and synchronized, provide make-before-break transfer without interruption of power to the load and with momentary interconnection of both sources for not more than 100 ms, unless otherwise approved by Utility Company.
      b. Provide synchronization/in-phase monitor to initiate transfer when voltage and phase angle difference between sources are within predetermined requirements for synchronization.

c. Source Synchronization Requirements: Phase angle differential within five degrees; voltage differential within five volts.
d. When sources fail to synchronize within a predetermined time period, remain connected to current source and initiate an alarm.
e. When sources remain interconnected for longer than specified maximum interconnection time, provide contact closure signal to shunt trip designated circuit breaker and initiate an alarm.
f. Provide additional protective relaying where required by Utility Company.
g. When only one source is available, automatically utilizes open transition (break-before-make) transfer.

2. Obtain control power for transfer operation from line side of source to which the load is to be transferred.

I. Service Conditions: Provide transfer switches suitable for continuous operation at indicated ratings under the service conditions at the installed location.

J. Enclosures:
1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
a. Indoor Clean, Dry or Damp Locations: Type 12.
2. Finish: Manufacturer's standard unless otherwise indicated.

K. Short Circuit Current Rating:
1. Withstand and Closing Rating: Provide transfer switches, when protected by the supply side overcurrent protective devices to be installed, with listed withstand and closing rating not less than 35,000 rms symmetrical amperes.
2. Short Time Rating: Where the requirement for selectivity is indicated, provide transfer switches with short time ratings suitable for the maximum short time delay setting of the supply side overcurrent protective device.

L. Automatic Transfer Switches:
1. Description: Transfer switches with automatically initiated transfer between sources; electrically operated and mechanically held.
2. Control Functions:
a. Automatic mode.
b. Test Mode: Simulates failure of primary/normal source.
c. Voltage and Frequency Sensing:
1) Undervoltage sensing for each phase of primary/normal source; adjustable dropout/pickup settings.
2) Undervoltage sensing for alternate/emergency source; adjustable dropout/pickup settings.
3) Underfrequency sensing for alternate/emergency source; adjustable dropout/pickup settings.
d. Outputs:
1) Contacts for engine start/shutdown (except where direct generator communication interface is provided).
2) Auxiliary contacts; one set(s) for each switch position.
e. Adjustable Time Delays:
1) Engine generator start time delay; delays engine start signal to override momentary primary/normal source failures.
2) Transfer to alternate/emergency source time delay.
3) Retransfer to primary/normal source time delay.
4) Engine generator cooldown time delay; delays engine shutdown following retransfer to primary/normal source to permit generator to run unloaded for cooldown period.
f. Synchronization/In-Phase Monitor (Closed Transition Transfer Switches): Monitors voltage and phase angle difference between sources for initiating synchronized transfer.
g. Engine Exerciser: Provides programmable scheduled exercising of engine generator selectable with or without transfer to load; provides memory retention during power outage.

h. Retransfer to Normal Switch: Bypasses time delays for retransfer to primary/normal source.

3. Status Indications:
   a. Connected to alternate/emergency source.
   b. Connected to primary/normal source.
   c. Alternate/emergency source available.
   d. Primary/normal source available.
4. Alarm Indications for Closed Transition Transfer Switches:
   a. Failure to synchronize.
   b. Extended source interconnection/transfer switch locked out.
5. Automatic Sequence of Operations:
   a. Upon failure of primary/normal source for a programmable time period (engine generator start time delay), initiate starting of engine generator where applicable.
   b. When alternate/emergency source is available, transfer load to alternate/emergency source after programmable time delay.
   c. When primary/normal source has been restored, retransfer to primary/normal source after a programmable time delay. Bypass time delay if alternate/emergency source fails and primary/normal source is available.
   d. Where applicable, initiate shutdown of engine generator after programmable engine cooldown time delay.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that the ratings and configurations of transfer switches are consistent with the indicated requirements.

B. Verify that rough-ins for field connections are in the proper locations.

C. Verify that mounting surfaces are ready to receive transfer switches.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Arrange equipment to provide minimum clearances and required maintenance access.

D. Install transfer switches plumb and level.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Prepare and start system in accordance with manufacturer's instructions.

C. Automatic Transfer Switches:
   1. Inspect and test in accordance with NETA ATS, except Section 4.
   2. Perform inspections and tests listed in NETA ATS, Section 7.22.3. The insulation-resistance tests listed as optional are not required.

D. Correct defective work, adjust for proper operation, and retest until entire system complies with Contract Documents.

3.04 CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate proper operation of transfer switches to Owner, and correct deficiencies or make adjustments as directed.

B. Training: Train Owner's personnel on operation, adjustment, and maintenance of transfer switches.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Provide minimum of four hours of training.
   3. Instructor: Manufacturer's authorized representative.
   4. Location: At project site.

C. Coordinate with related generator demonstration and training as specified in Section 26 3213.

END OF SECTION

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SECTION 26 4300
SURGE PROTECTIVE DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surge protective devices - general requirements.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding for Electrical Systems.

1.03 ABBREVIATIONS AND ACRONYMS

A. SPD: Surge Protective Device.

1.04 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.

C. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

D. UL 1449 - Standard for Surge Protective Devices Current Edition, Including All Revisions.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate size and location of overcurrent device compatible with the actual surge protective device and location to be installed. Notify Engineer of any conflicts or deviations from Contract Documents to obtain direction prior to ordering equipment.

1.06 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Include detailed component information, voltage, surge current ratings, repetitive surge current capacity, voltage protection rating (VPR) for all protection modes, maximum continuous operating voltage (MCOV), nominal discharge current (I-n), short circuit current rating (SCCR), connection means including any required external overcurrent protection, enclosure ratings, outline and support point dimensions, weight, service condition requirements, and installed features.

C. Shop Drawings: Include wiring diagrams showing all factory and field connections with wire and circuit breaker/fuse sizes.

1.07 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.08 DELIVERY, STORAGE, AND PROTECTION

A. Store in a clean, dry space in accordance with manufacturer's written instructions.

1.09 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.10 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Manufacturer's Warranty: Provide minimum five year warranty covering repair or replacement of surge protective devices showing evidence of failure due to defective materials or workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Field-installed, Externally Mounted - Current Technology; a company of ABB; Model #SL3-080-480-3Y-MNX-M3-F; www.tnbpowersolutions.com.

B. Products other than basis of design are subject to compliance with specified requirements and prior approval of Engineer. By using products other than basis of design, Contractor accepts responsibility for costs associated with any necessary modifications to related work, including any design fees.

2.02 SURGE PROTECTIVE DEVICES - GENERAL REQUIREMENTS

A. Description: Factory-assembled surge protective devices (SPDs) for 60 Hz service; listed, classified, and labeled as suitable for the purpose intended; system voltage as indicated on the drawings.

B. Unless otherwise indicated, provide field-installed, externally-mounted SPDs.

C. List and label as complying with UL 1449, Type 1 when connected on line side of service disconnect overcurrent device and Type 1 or 2 when connected on load side of service disconnect overcurrent device.

D. Protected Modes:
   1. Wye Systems: L-N, L-G, N-G, L-L.

E. UL 1449 Voltage Protection Ratings (VPRs):
   1. Equivalent to basis of design.

F. UL 1449 Maximum Continuous Operating Voltage (MCOV): Not less than 115% of nominal system voltage.

G. Enclosure Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
   1. Indoor clean, dry locations: Type 12.
   2. Outdoor locations: Type 3R.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the service voltage and configuration marked on the SPD are consistent with the service voltage and configuration at the location to be installed.

C. Verify system grounding and bonding is in accordance with Section 26 0526, including bonding of neutral and ground for service entrance and separately derived systems where applicable. Do not energize SPD until deficiencies have been corrected.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

C. Install conductors between SPD and equipment terminations as short and straight as possible, not exceeding manufacturer's recommended maximum conductor length. Breaker locations may be reasonably rearranged in order to provide leads as short and straight as possible. Twist conductors together to reduce inductance.

D. Do not energize SPD until bonding of neutral and ground for service entrance and separately derived systems is complete in accordance with Section 26 0526 where applicable. Replace SPDs damaged by improper or missing neutral-ground bond.

3.03 CLEANING

A. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

SECTION 26 5100
INTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior luminaires.

B. Emergency lighting units.

C. Ballasts and drivers.

D. Lamps.

1.02 RELATED REQUIREMENTS

A. Section 26 0529 - Hangers and Supports for Electrical Systems.

B. Section 26 0533.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. ANSI C82.11 - American National Standard for Lamp Ballasts - High Frequency Fluorescent Lamp Ballasts 2023.

B. IES LM-63 - Approved Method: IES Standard File Format for the Electronic Transfer of Photometric Data and Related Information 2019.

C. IES LM-79 - Approved Method: Optical and Electrical Measurements of Solid-State Lighting Products 2019.

D. IES LM-80 - Approved Method: Measuring Maintenance of Light Output Characteristics of Solid-State Light Sources 2021.

E. NECA/IESNA 500 - Standard for Installing Indoor Lighting Systems 2006.

F. NECA/IESNA 502 - Standard for Installing Industrial Lighting Systems 2006.

G. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility 2012 (Reaffirmed 2018).

H. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. NFPA 101 - Life Safety Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

J. UL 924 - Emergency Lighting and Power Equipment Current Edition, Including All Revisions.

K. UL 1598 - Luminaires Current Edition, Including All Revisions.

L. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc. required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.
2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
3. Notify Engineer of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate dimensions and components for each fixture that is not a standard product of the manufacturer.

C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and

ceiling compatibility; include model number nomenclature clearly marked with all proposed features.

1. LED Luminaires:
   a. Include estimated useful life, calculated based on IES LM-80 test data.
2. Provide electronic files of photometric data certified by a National Voluntary Laboratory Accreditation Program (NVLAP) lab or independent testing agency in IES LM-63 standard format upon request.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

A. Furnish products as indicated in luminaire schedule included on the drawings. Alternate light fixture data sheet shall be submitted to the Engineer for approval prior to bid. No exceptions.

2.02 LUMINAIRES

A. Provide products that comply with requirements of NFPA 70.

B. Provide products that are listed and labeled as complying with UL 1598, where applicable.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.

E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.

F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

G. Recessed Luminaires:
   1. Ceiling Compatibility: Comply with NEMA LE 4.
   2. Luminaires Recessed in Insulated Ceilings: Listed and labeled as IC-rated, suitable for direct contact with insulation and combustible materials.
   3. Luminaires Recessed in Sloped Ceilings: Provide suitable sloped ceiling adapters.

H. LED Luminaires:
   1. Components: UL 8750 recognized or listed as applicable.
   2. Tested in accordance with IES LM-79 and IES LM-80.
   3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

2.03 EMERGENCY LIGHTING UNITS

A. Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.

B. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.

C. Battery:
   1. Size battery to supply all connected lamps, including emergency remote heads where indicated.

D. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.

E. Provide low-voltage disconnect to prevent battery damage from deep discharge.

2.04 BALLASTS AND DRIVERS

A. Ballasts/Drivers - General Requirements:
   1. Provide ballasts containing no polychlorinated biphenyls (PCBs).
   2. Minimum Efficiency/Efficacy: Provide ballasts complying with all current applicable federal and state ballast efficiency/efficacy standards.

B. Dimmable LED Drivers:
   1. Dimming Range: Continuous dimming from 100 percent to five percent relative light output unless dimming capability to lower level is indicated, without flicker.
   2. Control Compatibility: Fully compatible with the dimming controls to be installed.

2.05 LAMPS

A. Manufacturers:
   1. GE Lighting: www.gelighting.com.
   2. Philips Lighting Co of NA: www.lighting.philips.com.
   3. Sylvania: www.sylvania.com
   4. Manufacturer Limitations: Where possible, provide lamps produced by a single manufacturer.

B. Lamps - General Requirements:
   1. Unless explicitly excluded, provide new, compatible, operable lamps in each luminaire.
   2. Verify compatibility of specified lamps with luminaires to be installed. Where lamps are not specified, provide lamps per luminaire manufacturer's recommendations.
   3. Minimum Efficiency: Provide lamps complying with all current applicable federal and state lamp efficiency standards.
   4. Color Temperature Consistency: Unless otherwise indicated, for each type of lamp furnish products which are consistent in perceived color temperature. Replace lamps that are determined by the Engineer to be inconsistent in perceived color temperature.

C. Lamp Types: As specified for each fixture.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.

C. Verify that suitable support frames are installed where required.

D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of luminaires provided under this section.

B. Install products in accordance with manufacturer's instructions.

C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting) and NECA 502 (industrial lighting).

D. Provide required support and attachment in accordance with Section 26 0529.

E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

F. Suspended Ceiling Mounted Luminaires:
   1. Do not use ceiling tiles to bear weight of luminaires.
   2. Do not use ceiling support system to bear weight of luminaires unless ceiling support system is certified as suitable to do so.
   3. Secure lay-in luminaires to ceiling support channels using listed safety clips at four corners.

4. See appropriate Division 9 section where suspended grid ceiling is specified for additional requirements.

G. Install accessories furnished with each luminaire.

H. Bond products and metal accessories to branch circuit equipment grounding conductor.

I. Install lamps in each luminaire.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Inspect each product for damage and defects.

C. Operate each luminaire after installation and connection to verify proper operation.

D. Test self-powered exit signs, emergency lighting units, and fluorescent emergency power supply units to verify proper operation upon loss of normal power supply.

E. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Engineer.

3.04 ADJUSTING

A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Engineer. Secure locking fittings in place.

B. Aim and position adjustable emergency lighting unit lamps to achieve optimum illumination of egress path as required or as directed by Engineer or authority having jurisdiction.

3.05 CLEANING

A. Clean surfaces according to NECA 500 (commercial lighting), NECA 502 (industrial lighting), and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.06 CLOSEOUT ACTIVITIES

A. Just prior to Substantial Completion, replace all lamps that have failed.

3.07 SCHEDULE - SEE DRAWINGS

END OF SECTION

SECTION 26 5600
EXTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exterior luminaires.

B. Ballasts.

1.02 RELATED REQUIREMENTS

A. Section 26 0529 - Hangers and Supports for Electrical Systems.

B. Section 26 0533.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. AASHTO LTS - Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 2013, with Editorial Revision (2022).

B. ANSI C78.379 - American National Standard for Electric Lamps -- Reflector Lamps -- Classification of Beam Patterns; 2006.

C. ANSI C82.1 - American National Standard for Lamp Ballast - Line Frequency Fluorescent Lamp Ballast; 2004.

D. ANSI C82.4 - American National Standard for Lamp Ballasts - Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps 2017, with Editorial Revision (2022).

E. ANSI C82.11 - American National Standard for Lamp Ballasts - High Frequency Fluorescent Lamp Ballasts 2023.

F. IES LM-79 - Approved Method: Optical and Electrical Measurements of Solid-State Lighting Products 2019.

G. IES LM-80 - Approved Method: Measuring Maintenance of Light Output Characteristics of Solid-State Light Sources 2021.

H. IES RP-8 - Recommended Practice: Lighting Roadway and Parking Facilities 2022.

I. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

J. NECA/IESNA 501 - Standard for Installing Exterior Lighting Systems 2000 (Reaffirmed 2006).

K. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

L. UL 1598 - Luminaires Current Edition, Including All Revisions.

M. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Notify Engineer of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

B. Coordination: Furnish bolt templates and pole mounting accessories to installer of pole foundations.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.

C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, weight, effective projected area (EPA), and installed accessories; include model number nomenclature clearly marked with all proposed features.
   1. LED Luminaires:
      a. Include estimated useful life, calculated based on IES LM-80 test data.

D. Operation and Maintenance Data: Instructions for each product including information on replacement parts.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Electrical Components: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, handle, and store products according to NECA/IESNA 501 and manufacturer's written instructions.

B. Keep products in original manufacturer's packaging and protect from damage until ready for installation.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

A. Furnish products as indicated in luminaire schedule included on the drawings.

B. Any deviation from what is called out in the Light Fixture Schedule requires prior approval from the Engineer.
   1. Provide Cut Sheets and Photometrics.

C. Substitutions: See Section 01 6000 - Product Requirements.

2.02 LUMINAIRES

A. Provide products that comply with requirements of NFPA 70.

B. Provide products that are listed and labeled as complying with UL 1598, where applicable.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.

E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, poles, foundations, supports, trims, accessories, etc. as necessary for a complete operating system.

F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

G. LED Luminaires:
   1. Components: UL 8750 recognized or listed as applicable.
   2. Tested in accordance with IES LM-79 and IES LM-80.
   3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

2.03 BALLASTS AND DRIVERS

A. Ballasts/Drivers - General Requirements:
   1. Provide ballasts containing no polychlorinated biphenyls (PCBs).
   2. Minimum Efficiency/Efficacy: Provide ballasts complying with all current applicable federal and state ballast efficiency/efficacy standards.

B. Dimmable LED Drivers:
   1. Dimming Range: Continuous dimming from 100 percent to five percent relative light output unless dimming capability to lower level is indicated, without flicker.
   2. Control Compatibility: Fully compatible with the dimming controls to be installed.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.

C. Verify that suitable support frames are installed where required.

D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of luminaires provided under this section.

B. Install products in accordance with manufacturer's instructions.

C. Install luminaires in accordance with NECA/IESNA 501.

D. Provide required support and attachment in accordance with Section 26 0529.

E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

F. Wall-Mounted Luminaires: Unless otherwise indicated, specified mounting heights are to center of luminaire.

G. Install accessories furnished with each luminaire.

H. Bond products and metal accessories to branch circuit equipment grounding conductor.

I. Provide concrete bases for lighting poles at locations indicated, in accordance with Section 03 3000.

J. Install lamps in each luminaire.

K. Bond luminaires, metal accessories, and metal poles to branch circuit equipment grounding conductor. Provide supplementary grounding electrode at each pole.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Inspect each product for damage and defects.

C. Perform field inspection, testing, and adjusting in accordance with Section 01 4000.

D. Operate each luminaire after installation and connection to verify proper operation.

E. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Engineer.

F. Measure illumination levels to verify conformance with performance requirements. Take measurements during night sky, without moon or with heavy overcast clouds effectively obscuring moon.

3.04 ADJUSTING

A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Engineer. Secure locking fittings in place.

B. Aim and adjust luminaires to provide illumination levels and distribution indicated on Drawings.

3.05 CLEANING

A. Clean surfaces according to NECA/IESNA 501 and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

B. Clean electrical parts to remove conductive and deleterious materials.

C. Remove dirt and debris from enclosure.

D. Clean photometric control surfaces as recommended by manufacturer.

E. Clean finishes and touch up damage.

3.06 CLOSEOUT ACTIVITIES

3.07 PROTECTION

A. Protect installed luminaires from subsequent construction operations.

3.08 SCHEDULE - SEE DRAWINGS

END OF SECTION

Division 33: Utilities

SECTION 33 1113
WATER SUPPLY WELLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water Supply Well

B. Well Pump

C. Pitless Well Unit

1.02 REFERENCE STANDARDS

A. ASTM A312/A312M - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes 2021.

B. ASTM A778/A778M - IEEE Standard for Metal-Enclosed Low-Voltage (1000 Vac and below, 3200 Vdc and below) Power Circuit Breaker Switchgear 2015.

C. ASTM C150/C150M - Standard Specification for Portland Cement 2022.

D. AWWA A100 - Water Wells 2020.

E. AWWA C200 - Steel Water Pipe, 6 In. (150 mm) and Larger 2017.

F. AWWA C220 - Stainless-Steel Pipe, 1/2 in. (13 MM) and Larger 2017.

G. AWWA C231 - Field Welding of Stainless-Steel Water Pipe 2017.

H. AWWA E102 - Submersible Vertical Turbine Pumps 2017.

I. NEMA MG 1 - Motors and Generators 2021.

J. NSF 61 - Drinking Water System Components - Health Effects 2022, with Errata.

K. Ten States Standards - Recommended Standards for Waterworks: Great Lakes - Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers; 2012

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Provide all permits, certificates, and licenses required by law for execution of work.
   1. Upon request, provide proof of state certification.

C. Shop Drawings: Include data indicating well screen, gravel pack, pump, motor, column pipe, casing pipe, grout, check valve, and all special construction items.

D. Well Design
   1. Proposed diameter, length and depths of casing
   2. grouting mixture and placement details

E. Well pump: dimensional data, descriptive data, performance data, pump curve data, electrical schematic diagrams, and manufacturer's installation instructions.
   1. Pump curve data:
      a. Capacity in gallons per minute
      b. Net positive suction head (NPSH)
      c. Total Dynamic Head in feet.
      d. Efficiency.
      e. Pumping horsepower

F. Record and submit well log and sieve analysis of water bearing formation.

G. Submit the following results to the Iowa Department of Natural Resources (Iowa DNR) and Engineer:
   1. Test Pump Data
      a. Test Pump capacity-head characteristics
      b. Depth of test pump setting
      c. Start and end times of each test cycle
      d. Zone of influence for well
   2. A report including recordings and graphic evaluation of the following performed according to the 'Testing' section in Part 3:

a. Pumping rate
b. Water levels
c. Drawndown
d. Water recovery rate and levels

H. Record all well formation data and samples in accordance with state geological agency requirements and standard procedures.

I. Record production well information during construction:
1. Record the lengths and depths of all casing and submit to the Engineer record drawings.
2. Submit daily reports showing the work done during each day, the nature of the material encountered, and such other pertinent data as requested by the Engineer.

J. Chemical Analysis
1. Submit certified analysis to the Owner and Engineer.
2. Information to include with the samples:
a. PWSID #: 1178097
b. Facility ID #: Request from Engineer at time of submittal
c. Sample Point: "New"
d. Sample Type: Request from Engineer at time of submittal
e. Local Well Name: 22
3. Obtain one (1) water sample at each well site at conclusion of test pumping and provide complete chemical and radiological analysis in conformance with 567 – Chapter 43 and for Chemicals and Radionuclides listed in 567 – Chapter 41 of the Iowa Administrative Code including:
a. Inorganic Chemicals 567 - Chapter 41.3
b. Organic Chemicals (Synthetic and Volatile) 567 - Chapter 41.5
c. Radionuclides 567 Chapter 41.8
4. In addition, the chemical analysis shall include the following parameters.

Ammonia	Total Organic Carbon (TOC)
Chloride	Temperature
Copper	Total Dissolved Solids (TDS)
Manganese	Total Alkalinity
Magnesium	Total Hardness
Nickel	Specific Conductance
Iron	Silica as SiO2
Zinc	Sulfate
Potassium	Sodium
pH	

K. Submit executed certification of well pump after performance testing.

L. Manufacturer's Installation Instructions: Indicate rigging, assembly, and installation instructions.

M. Operation and Maintenance Data: per Section 01 7800.

1.04 WELL DESIGN

A. Scope of Work
1. Furnish all labor, materials, transportation, tools, supplies, equipment, and appurtenances to construct, develop, disinfect, and test water supply well as indicated in the Drawings.
2. New water wells shall comply with AWWA A100.
3. Perform aquifer pumping test per AWWA A100.
4. Materials coming into contact with potable water supply shall meet the requirements of NSF 61.
5. New well shall conform to Iowa Administrative Code and Ten State Standards.
6. Submersible well pumps shall comply with AWWA E102.
7. All materials provided shall be new and unused.

B. Design Parameters
1. Well Capacity: 1200 gpm
2. Casing Diameter: Indicated on Drawings
3. Total Depth: Indicated on Drawings

4. Screen Length: Indicated on Drawings
5. Target Aquifer: Dakota Aquifer

1.05 QUALITY ASSURANCE

A. Contractor shall notify the Engineer a minimum of 24 hours in advance of performing the following work.
   1. Stringing Casing
   2. Grouting
   3. Development

B. Work shall not be performed without notifying the Engineer prior to the commencement of that work.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 CASING PIPE

A. Stainless Steel
   1. Stainless steel casing pipe shall conform toASTM A778/A778M and AWWA C220.
   2. Wall thickness and Weights: Per Table 1 of Ten State Standards, or as indicated in the Drawings.
   3. Joints: welded or threaded and coupled per AWWA C231
      a. Welded Joints: welds shall be full-depth, full penetration, full circumferential welds

2.02 COLUMN PIPE

A. Pipe
   1. Size: Indicated on Drawings
   2. Material: Stainless steel, ASTM A312/A312M
   3. Joints: coupled

B. Install check valve on column piping within 25 feet of the pump below the draw down level of the water supply.

C. Check valves shall be installed at a maximum separation of 200 feet of column pipe.

2.03 WELL CONSTRUCTION

A. General
   1. Well construction shall consist of a commercial well screen and gravel pack design.
   2. Detailed design shall be completed by the Contractor and approved by the Engineer. Drawings provide general design parameters.
   3. Drilling Method: Dual-rotary, direct "mud" rotary , air rotary, and reverse-circulation rotary
   4. Circulating drilling fluid shall meet the requirements of AWWA A100 and be only clear water or drilling mud as approved by the Engineer.

B. Well Screen
   1. Design: Size screen length and slot opening size required to permit the entrance of the design flow of water at a velocity of 0.1 foot per second or less through the screen. Screen designed to produce the minimum drawdown between water bearing strata and well.
   2. Type, diameter, and size of screen opening, spacing, location of screens with respect to the water bearing formations shall be designed by the Contractor and submitted to the Engineer prior to well construction.
   3. Combinations of different screen slot sizes may be used as required by the well conditions and Contractor design.
   4. Weld all sections and connections.
   5. Bottom of well screen shall be sealed with a minimum 0.5 inch stainless steel plate.
   6. Material: Stainless steel
   7. Type: Continuous slot wire wound screen
   8. Manufacturer: Johnson Screens, or Engineer approved equal.

C. Gravel Pack
   1. Gravel pack design shall be submitted to the Engineer prior to installation.
   2. Gravel pack shall follow Ten State Standards 3.2.6.2.

3. Gravel pack gradation design shall be based on sieve analysis of the water bearing formation.
4. Size of gravel pack shall be carefully selected with reference to the character and effective size of the water bearing formation to ensure the free flow of water into the well at a non-sand carrying velocity.
5. Material shall be washed, well rounded particle, granitic gravel free of foreign materials.
6. Gravel pack shall be disinfected per AWWA A100.
7. Uniformity coefficient: Less than 1.7.

D. Sealing Mixture
1. Mix design shall be submitted to the Engineer.
2. Design: ASTM C150/C150M, Type 1, Portland Cement and water with maximum water-cement ratio of 0.533.
3. A clay slurry using native or commercial clay mixed with a minimum of 30% bentonite may be used in the upper portion of the well upon approval by the Engineer.

2.04 SUBMERSIBLE WELL PUMP

A. General requirements
1. All pumps shall be NSF 61 certified
2. Complete pumping systems, including motor and drive, manual operator, automatic actuators (where indicated), piping, valves, conduit and wiring, supporting structures, electrical and process controls, overload protection, and alarms; capable of continuous operation without overheating and without excessive vibration, noise, or power consumption.
3. Pumps shall be provided for the application indicated. Alternative pump selections are allowed. Increases in power requirements shall be coordinated with the Engineer. Contractor responsible for work associated with increasing power requirements including but not limited to VFD sizing, wiring, all appurtenant electrical work and piping.
4. Each pump shall have a nameplate including manufacturer's name, address, catalog or model number, design head, and design flow rate permanently marked and readily visible.
5. Pumps shall include lifting eyebolts or lugs for ease of removal and handling.

B. Pump Design Conditions
1. Pump Type: Vertical multistage, close coupled submersible motor
2. Design Conditions:
   a. Design Flow: 1200 gallons per minute
   b. Total Dynamic Head: 417 feet
   c. Static Head: 373 feet
   d. Minimum hydraulic efficiency: 75%
   e. BEP: Design point shall be within 25% of best efficiency point
3. Pump Setting
   a. Pump Setting Depth: Indicated on Drawings
   b. Discharge Size: Indicated on Drawings
   c. Column Pipe Size: Indicated on Drawings
   d. Electrical cable shall be firmly attached according to Ten State Standard 3.2.7.2b.
4. Impeller Type: one-piece, enclosed type, statically and dynamically balanced.
5. Pump Control: control based on water plant calling for water.

C. Pump Materials: Minimum acceptable requirements. Pump materials shall meet or exceed materials indicated.
1. Bowl Assembly: 316 Stainless Steel.
2. Impeller: 316 Stainless Steel
3. Strainer: 316 Stainless Steel
4. Pump Shaft: Single piece, 316 stainless steel
5. Pump motor coupling: 416 Stainless steel
6. Design water passages with smooth surfaces.

D. Motor
1. Design: Motor shall be an integral part of the complete pumping unit. Designed to operate continuously without exceeding its horsepower rating, exclusive of its service factor for the entire range of the pump curve.

2. Motor Type: Totally enclosed submersible .
3. Electrical Characteristics: 460 volts ac, 3 phase, 60 Hz.
4. Service Factor: 1.15
5. NEMA Design B with normal starting torque. per NEMA MG 1
6. Motor insulation Class F for Class B heat rise.
7. Inverter duty operation to match anticipated flow ranges.
8. Premium efficient for use with variable speed drives.
9. Thrust bearing with ample capacity to carry weight of all rotating parts plus hydraulic thrust.
10. Capable of continuous operation under water.

E. Acceptable manufacturers:
1. Goulds
2. Grundfos
3. Flowserve
4. Engineer approved equal

F. Basis of Design:
1. Manufacturer: Flowserve
2. Style/Model: 12ETMH
3. Impeller Size: 8.5
4. Rated Motor Horsepower: 200

2.05 PITLESS WELL UNIT

A. Unit shall be shop shop fabricated from point of connection to unit cover.

B. Materials shall be compatible with well casing material.

C. Casing vent shall be covered with #24 mesh corrosion resistant screen with a minimum 1-1/2 inch minimum diameter.

D. Casing Vent shall discharge 2 feet above ground level.

E. Unit shall be equipped with a contamination proof cover and electrical entrance connection.

F. Unit shall be equipped with a capped passageway for inserting temporary level measurement or sampling tubes and lines.

G. Minimum pressure rating: 100 psi

H. Discharge connection size: Indicated on Drawings

I. Discharge connection:
1. according to Ten State Standards 3.2.7.4.
2. lateral discharge shall be mechanical joint.

J. Water level measuring equipment
1. Polyethylene drawdown line attached securely every 20 feet
2. Lower end at pump intake
3. Altitude gage with 3-1/2 inch dial
4. Calibration range: 0 feet to 380 feet of water
5. Install with air pump connection

K. Manufacturer: Monitor by Baker Manufacturing Company or Engineer approved equal.

PART 3 EXECUTION

3.01 SAMPLING AND RECORD KEEPING

A. A qualitative record of approximate rate of penetration, taking into account wear on the bit, shall be kept by the driller.

B. Provide and maintain a suitable area where samples will be stored in an orderly arrangement.

C. Provide suitable containers for packing and shipping of all samples.

D. Obtain cutting samples continuously in each five feet of water supply test holes.
1. The lithologic sampling interval may be changed at the discretion of the Engineer.
2. Lithologic sampling shall be as follows:

a. As each five-foot interval of formation is penetrated, collect samples from the pipe discharging to the mud pit and not from the pit itself.
b. Bit may be stopped and the hole circulated clean of cuttings at the discretion of the Engineer.
c. Place cuttings in sample containers and label with hole number, depth of sample, job name
d. One set of samples for each well shall be sent to the Iowa Geological Survey.
e. Deliver lithologic samples designated by the Engineer to a laboratory for sieve analysis.

3.02 WELL DRILLING AND DEVELOPMENT

A. Installation
1. Install well per the approved method and final detailed plan by Contractor.
2. Provide temporary surface or conductor casing as required to maintain the surface of the bore hole. At the completion of well construction fill the annulus between the well casing and conductor casing with grout or concrete.
3. Below surface casing, drill the well and ream throughout the entire thickness of water bearing material to the depths indicated in the detailed well design.
4. Install screen concentrically in bottom of drill hole.
5. Fit casing with proper centering brackets at a maximum spacing of 50 feet.

B. Grouting and Sealing
1. Grout placement method: Tremie Method
2. Fill annular space from bottom of casing and ground surface with neat cement grout.
3. Install in one continuous operation.
4. Introduce grout at bottom of space to be grouted.
5. The circulation of water or any method equivalent to shall be used for the protection from the heat of hydration. Rise in temperature shall be monitored so that no damage to the casing due to the heat of hydration occurs. Contractor is completely responsible for proper placement and grouting of casing, considering temperature effects, grout pressure, grouting rate, and grout temperature.
6. No work which may damage the grout will be permitted in the well within 72 hours after grouting the casing.
7. Before the grout sets, check the casing for plumbness and correct if necessary.
8. Grout shall meet Ten State Standards Section 3.2.4.9.

C. Well Development
1. Develop using approved methods necessary to give the maximum yield of water per foot of drawdown and extract from the water-bearing formation the maximum practical quantity of such sands as may, during the life of the well, be drawn when the well is pumped under maximum conditions of drawdown.
2. Submit proposed methods of development to the Engineer for approval before they are used in the development of the well.
3. Furnish all chemical additives, such as polyphosphates, required at no additional cost to Owner.
4. Final stages of the development of the well shall consist of pumping from a level determined by the Engineer. The development of the well will not be accepted if the water discharged contains more than 5 ppm of sand by volume.

3.03 WELL PUMP INSTALLATION

A. Install pump in well per manufacturer's instructions.

B. Dust control with calcium hypochlorite is required.

C. Attach to designated drop pipe.

D. Provide services of a competent manufacturer's representative to check equipment, place it into operation, and instruct Owner in operation and maintenance.

E. Run equipment, check for and correct any shaft misalignment and excessive vibrations.

F. Test and adjust control system and auxiliary equipment under actual operating conditions.

3.04 PROTECTION

A. Disinfection
   1. Disinfect well per AWWA A100, AWWA C654, and Specification Section 33 0110.58.

B. Top Well Seal
   1. After all well construction and testing is completed, seal well casing with a 1/4 inch steel cover
   2. The top of the completed well casing and top seal shall be a minimum of 18 inches above ground level.
   3. Pitless unit with 18 inches above ground design may be used in place of this temporary welded plate.

C. Water Quality Protection
   1. Perform necessary work to eliminate contamination. Re-disinfect due to neglect after well completion.
   2. Protect well from tampering or entrance of foreign material during progress of work.
   3. Provide welded cap until pitless unit is installed.

3.05 TESTING

A. Plumbness and Alignment
   1. Test plumbness and alignment of the water supply well by lowering into the well a section of pipe or dummy 40 feet long which shall have an outside diameter 1/2 inch smaller than the inside diameter of the casing.
   2. Should the pipe or dummy fail to move freely throughout the length of the casing, or should the well vary from vertical in excess of one (1) degree, or 0.0067 x smallest diameter of casing per foot whichever is less, correct the plumbness or alignment.

B. Pump Testing General
   1. Notify Engineer of readiness for pumping tests.
   2. Furnish necessary equipment to include but not limited to following:
      a. Pump capable of 24 hour operation at uniform rate.
      b. Pump capable of discharging 1.5 times design pumping rate with throttling devices to reduce discharge to 10% of test pump rate.
      c. Discharge pipe of sufficient size and length to conduct water to specified discharge point.
      d. Equipment to accurately measure flow of water.
      e. Necessary devices to measure water levels during pumping test including a water level sounding pipe extending from the surface to near the pump bowls.
      f. During the pumping tests and recovery time specified, monitor the water level in the pumping well and at nearby wells (Well #15 and Well #14 or Well #20, as available, coordinate with Owner). Record when surrounding Dakota aquifer wells are pumping. Measurements shall be by approved methods consisting of electric tapes.
   3. Calibrate test pump and flow meter prior to initiation of test.
   4. Aquifer tests shall consist of a step-drawdown test and a constant-rate test. Tests shall be conducted after water has been allowed to stabilize after development of the well.
      a. The constant-rate test shall be performed at a rate of 150% of the design flow required from the well. Contractor may use other rates upon approval by engineer.
      b. The step-drawdown test shall be performed at the following rates:
         1) 50% of design flow
         2) 75% of design flow
         3) 100% of design flow
         4) 125% of design flow
         5) 150% of design flow
         6) If 125% and 150% are not feasible, discuss with engineer and go to maximum sustainable well yield.
      c. Water samples shall be collected at one (1) hour into the continuous test, at intervals of 1/4, 1/2, and 3/4 of the total test time, and at the end of the test.

C. Step-Drawdown Test
   1. Before commencing the tests, monitor the water level until it is essentially stable.
   2. Each step shall be for a period of 30 minutes, providing the pumping rate is properly adjusted in the first five minutes of the test. Tests in which the pumping rate is not

properly adjusted in the first five minutes shall be discontinued and shall commence again after the water level in the well has stabilized.

3. At the end of each 30-minute pumping period, shut off pump and monitor water levels. Monitoring shall be for a minimum time as approved by engineer after each step and may be extended at the direction of the Engineer. In each step test, take and record water level measurements at the following time intervals after the pump is started and stopped: one minute, two minutes, three minutes, five minutes, seven minutes, ten minutes, twenty minutes, thirty minutes, and at ten minutes thereafter during recovery.

D. Constant-Rate Pumping Test
   1. Before commencing the constant rate pumping test, monitor water level until it is essentially stable.
   2. Pumping rate shall be approved by Engineer.
   3. Measure water levels in the pumping wells.
   4. After monitoring water levels in the well to be pumped for a minimum of two hours, start the pump, measure, and record water levels in the pumped well at the following time intervals: one minute, two minutes, three minutes, five minutes, seven minutes, ten minutes, twenty minutes, fifty minutes, seventy minutes, 100 minutes, and at one-hour intervals thereafter.
   5. Take water level measurements at the same time intervals for two hours after the pump is stopped.
   6. Do not remove test pump until two hours after the pump is stopped.
   7. Engineer reserves the right to continue monitoring water levels in the pumped well for up to 48 hours after the test.
   8. Remove by bailing, sand pumping, or other methods, any sand, stones, or other foreign material that may have been deposited in the well during the test.
   9. The Engineer reserves the right to perform other tests simultaneously with the pumping tests which aid in the design of other wells, such as flow meter tests. The Contractor will assist the Engineer in preparation and performance of the tests.

3.06 CHEMICAL TREATMENT

A. It may be determined that chemical treatment is an acceptable and necessary method of development. The procedure for chemical treatment of the well shall be the responsibility of the Contractor. The following are suggested methods. Method and proposed chemicals shall be approved by the Engineer.
   1. Liquid Polymers
      a. Chemicals suitable for the formation may include:
         1) NuWell 220 polymer dispersant
         2) Aqu-Clear PFD polymer dispersant
         3) Engineer Approved Equal
      b. Any sediment that has accumulated in the bottom of the well shall be removed per approved methods.

3.07 WELL ABANDONMENT

A. Comply with AWWA A100, A1-13, 567 IAC Chapter 39, and State of Iowa Regulations.

B. Abandon well for the following reasons:
   1. Not constructed plumb and true.
   2. Lost drilling tools or apparatus in well bore.
   3. Improper drilling methods and/or development procedures.

C. Drill new well at no additional cost to the Owner.

3.08 SITE RESTORATION

A. Clean up site to acceptable condition.

B. Replace all damaged site structures, plantings, etc. as determined by Engineer.

C. Place fill material around Pitless Unit to form 2% minimum slope away from well in all directions.

END OF SECTION

Division 40: Process Integration

SECTION 40 0506
COUPLINGS, ADAPTERS, AND SPECIALS FOR POTABLE PROCESS PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Check valves.

B. Air release devices.

C. Vacuum breakers.

D. Sample ports.

E. Valved drains.

1.02 RELATED REQUIREMENTS

A. Section 40 0552 - Process Valves - Potable Water : Valves for process control

B. Section 40 2324 - Potable Water Process Piping : Requirements for connections to piping.

1.03 REFERENCE STANDARDS

A. ASME B1.20.1 - Pipe Threads, General Purpose, Inch 2013 (Reaffirmed 2018).

B. ASME B1.20.2M - Pipe Threads, 60 Deg, General Purpose 2006 (Reaffirmed 2011).

C. ASSE 1001 - Performance Requirements for Atmospheric Type Vacuum Breakers 2021.

D. AWWA C508 - Swing-Check Valves for Waterworks Service, 2-In. Through 48-In. (50-mm Through 1,200-mm) NPS 2017.

E. AWWA C550 - Protective Interior Coatings for Valves and Hydrants 2017.

F. AWWA C800 - Underground Service Line Valves and Fittings 2021.

G. NSF 61 - Drinking Water System Components - Health Effects 2022, with Errata.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets for each item of equipment and material provided, showing compliance with requirements; include materials, pressure ratings, seats and seals, clearances for operation and maintenance, and other characteristics.

C. Operating and Maintenance Data: See Section 01 7800 - Closeout Submittals.

D. Maintenance Materials:
   1. For Each Type and Size of Valve:
      a. Lubricator, lubricant of appropriate temperature rating, lubricator/isolating valve.
      b. Gaskets; 2 each.
      c. O-ring seals; 2 each.
      d. Diaphragms (molded); 2 each.
      e. All other parts made of elastomeric materials; 2 each.
      f. Stem packing; 2 each.
      g. Seat rings; 2 each and seat ring pulling tool.
   2. One set of special tools necessary for adjustment, operation, maintenance and disassembly.

E. American Iron and Steel (AIS) compliance certificates.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Valve and Equipment Inlet, Outlet, and End Connections: To suit pipe jointing method specified for pipe in which item is to be installed.

B. All piping and appurtenances in contact with potable water shall be NSF 61 certified.

2.02 CHECK VALVES

A. Manufacturers:
   1. Val-Matic
   2. DeZurik APCO

3. Cla-Val
4. Or equal

B. Check Valves - General Requirements: These requirements apply to all check valves unless otherwise indicated.
   1. Design: Permit free flow forward and provide positive check against backflow. Shall conform to AWWA C508. Check vlaves shall close and prevent reverse flow while minimizing the effect of surge and water hammer.
   2. Rating: 150 psig.
   3. Body: In metallic pipelines, iron body; in thermoplastic pipelines, thermoplastic body of same material as pipe.
   4. Swing Check Valves: Bronze mounted; flanged ends.
   5. Identification: Directly cast on body; manufacturer's name, initials, or trademark; size of valve, working pressure; direction of flow.
   6. Valves shall open when inlet pressure exceeds downstream pressure by no more than 1 psi . Valve shall maintain positive drop tight shutoff until inlet pressure exceeds downstream pressure.
   7. Shall provide visible indicator if check valve is open or closed
   8. Valve seat and plug: Shall be replaceable in the field for ease of maintenance. Resilient seated valves shall be drip tight. All components shall be field replaceable without the need for special tools.
   9. Flow area through body shall be equal to or greater than the cross-sectional area of the equivalent pipe size.
   10. Valve shall be capable of operating in the horizontal or vertical position.

C. Swing Check Valves - Sizes 2 inch through 36 inch:
   1. Rating: 250 psi
   2. Body: ASTM A536 ductile iron
   3. Body Seat: Stainless Steel
   4. Disc: ASTM A536 ductile iron
   5. Disc Seat: Buna-N (NBR)
   6. Closure Type: Lever and Spring
   7. Coating: interior and exterior NSF 61 rated fusion bonded epoxy meeting AWWA C550
   8. Equip valve with open/closed position limit switches.

2.03 VENTING DEVICES

A. Manufacturers:
   1. Val-Matic
   2. DeZurik APCO
   3. Cla-Val
   4. Engineer approved equal

B. Air Release Vents:
   1. Locate and vent in manner that upon operation a hazardous atmosphere will not be created.
   2. Provide air release vents at all piping high points and as indicated on drawings.

C. Vacuum Breakers:
   1. For piping applications, comply with ASSE 1001.
   2. Sizes 2 inches and Smaller: Angle type with all bronze body and bonnet.
   3. Locate at least 6 inches above flood line of associated equipment.
   4. Provide vacuum breakers on all tanks and process equipment.
   5. Provide vacuum breakers at all piping high points.

D. Combination Air Valve Suitable for Corrosive Service: Combined air and vacuum valve and air release valve.
   1. Function: Automatically exhaust air during filling of a piping system and allow air to re-enter during draining or when vacuum occurs; automatically exhaust entrained air that accumulates in piping system.
   2. Rating: 150 psig working pressure.
   3. Body: Cast iron standard elongated body and cover.
   4. Trim and Float: Stainless steel.

5. End Connections:
    a. Sizes 1/2 through 3 inches: Threaded inlet and outlet, ASME B1.20.1 (ASME B1.20.2M) threading.
6. Provide blow off valve, isolation valquick disconnect couplings, and minimum 6 feet of hose to permit back flushing after installation without dismantling valve.
7. Coating: interior and exterior NSF 61 rated fusion bonded epoxy meeting AWWA C550

2.04 SAMPLE PORTS

A. Sample Ports: Valves, pipe, and pipe fittings in configuration as indicated on drawings.
1. Provide sample ports as indicated; some may be shown only on process and instrumentation diagrams.
2. Each sample tap shall be installed at a readily accessible location and shall be a ½ inch brass sill cock of the smooth-nosed type without interior or exterior threads.
3. Pipe, Fittings, and Jointing: Same rating, material, and jointing as piping in which sample port is installed, unless otherwise indicated.

B. General Service Sample Ports: Ball valves.

2.05 SPECIALTIES

A. Valved Drains: Pipe tap with ball valve draining by gravity.
1. Pipe Sizes 2-1/2 inches and Larger: 3/4 inch diameter drain.
2. Pipe Sizes 2 inches and Smaller: 1/2 inch diameter drain.
3. Provide valved drains at all piping low points, except for buried and embedded piping, as indicated on process and instrumentation diagrams, and as indicated on drawings.

B. Service Saddles
1. Service saddle shall be compatible and specifcally designed for the pipe material being installed.
2. Meets requirements of AWWA C800 and NSF 61.
3. Minimum pressure rating: 300 psi
4. Model/Manufacturer:
    a. ROMAC
    b. Smith-Blair
    c. Engineer Approved Equal

C. Dielectric Fittings: Material, shape, and design as required to prevent metal-to-metal contact of dissimilar metallic piping elements; suitable for required working pressure, temperature, and corrosion environment.

D. Flange Isolation Gaskets: Dielectric isolation gasket, isolation washers and full-length isolation sleeves for flange bolts; size and type to fit piping flanges.
1. Shape and design as required to prevent metal-to-metal contact of dissimilar metallic piping elements.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Sample Ports: Locate where easily accessible; avoid potential stagnant points and other areas where sample taken might not be typical.

3.02 FIELD QUALITY CONTROL - PRIOR TO STARTUP

A. Demonstrate proper operation of each equipment item.

B. Valves: Demonstration may occur while testing pipelines or as a separate step.
1. Exception: Demonstrate operation of air and vacuum relief valves as the pipe is being filled to verify venting and seating.
2. Show that valves open and close smoothly with operating pressure on one side and atmospheric pressure on the other, and in both directions for two-way valve applications.
3. Count and record the number of turns required to open and close each valve, and account for any discrepancies with manufacturer's data.

C. Relief and Regulating Valves: Set, verify, and record pressure settings.

D. Self-Actuating Valves: Demonstrate at both maximum and minimum operating ranges and reset upon completion to design value.

END OF SECTION

SECTION 40 0552
PROCESS VALVES - POTABLE WATER

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Butterfly valves - metal body.

B. Plug valves.

1.02 RELATED REQUIREMENTS

A. Section 40 0506 - Couplings, Adapters, and Specials for Process Piping: Self-actuating valves including check valves, backflow preventers, pressure reducing, pressure relief; and manual drain valves.

B. Section 40 2324 - Potable Water Process Piping

C. Section 46 0500 - Common Work Results For Water and Wastewater Equipment: Valve finish colors.

1.03 REFERENCE STANDARDS

A. ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard 2020.

B. AWWA C550 - Protective Interior Coatings for Valves and Hydrants 2017.

C. MSS SP-25 - Standard Marking System for Valves, Fittings, Flanges and Unions 2018, with Errata (2023).

D. NSF 61 - Drinking Water System Components - Health Effects 2022, with Errata.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's data sheets for each valve and accessory, showing compliance with requirements; include materials, pressure ratings, valve operators, seats and seals, clearances for operation and maintenance, and other characteristics.
   1. Identify data sheets using the valve identification scheme used on drawings.

C. Shop Drawings: Custom-prepared piping diagrams showing location of each valve and drain, whether or not indicated in Contract Documents; this shop drawing may be combined with other piping shop drawings.

D. Project Record Documents: Approved shop drawings and schedules modified to show actual as-constructed conditions.

E. Operating and Maintenance Data: See Section 01 7800 - Closeout Submittals

F. Maintenance Materials:
   1. For Each Type and Size of Valve:
      a. Lubricator, lubricant of appropriate temperature rating, lubricator/isolating valve.
      b. Gaskets; 2 each.
      c. O-ring seals; 2 each.
      d. Diaphragms (molded); 2 each.
      e. All other parts made of elastomeric materials; 2 each.
      f. Stem packing; 2 each.
      g. Seat rings; 2 each.
   2. Operating Key for Cross Handled Valves: Galvanized.
   3. One set of any other special tools necessary for adjustment, operation, maintenance and disassembly, for each valve type and appurtenance.

G. American Iron and Steel (AIS) compliance certificates.

1.05 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 VALVE APPLICATIONS

A. Valve Applications: Provide valves as follows whether shown on drawings or not.

B. Do not direct-bury flanged valves; provide valve pit or manhole.

C. In-Line Electrical Devices: Provide a line size ball valve and union upstream of each solenoid valve, in-line flow switch, or other in-line electrical device, excluding magnetic flowmeters, for isolation during maintenance.

2.02 REQUIREMENTS APPLICABLE TO ALL VALVES

A. See drawings for valve sizes and piping types and sizes.

B. Provide valves suitable for the service indicated and coordinated to piping system.
   1. Provide valves that will withstand working pressure indicated or working pressure of pipe to which valve is connected, whichever is greater.
   2. Provide valves of sizes indicated or of port diameter/area equal to that of pipe to which valve is connected, whichever is larger.
   3. Provide valves that open by turning counterclockwise, with direction of opening integrally marked on operating nut or operator.
   4. Valve End Connections: As indicated; if not indicated, provide end connections of the same type as indicated for joints in pipe to which valve is connected.
   5. Factory install operators and accessories.

C. Identification and Tagging: Mark valves in accordance with MSS SP-25 using identification tags securely attached; on tags show the service, valve identification number from drawings, manufacturer's name and model number.
   1. Identification Tags: 1.375 inches diameter, minimum; engraved laminated plastic with black lettering.
   2. Attachment: No. 12 AWG copper wire.

D. All piping, fittings, and appurtenances for use with treated water shall be in compliance with NSF 61.

E. Dielectric Fittings: Material, shape, and design as required to prevent metal-to-metal contact of dissimilar metallic piping elements; suitable for required working pressure, temperature, and corrosion environment.

F. Flange Isolation Gaskets: Dielectric isolation gasket, isolation washers and full-length isolation sleeves for flange bolts; size and type to fit piping flanges.
   1. Gaskets: Full faced with outside diameter equal to flange outside diameter.
   2. Shape and design as required to prevent metal-to-metal contact of dissimilar metallic piping elements.

2.03 REQUIREMENTS APPLICABLE TO METAL-BODY VALVES

A. Valve End Connections:
   1. Flanged Ends: In accordance with ASME B16.5; Class 125 pound unless otherwise indicated.

B. Valve Exterior Finish: Factory-applied epoxy coating complying with AWWA C550; either two-part liquid material or heat-activated material.
   1. Where valve is indicated to have fusion bonded epoxy finish, provide only heat-activated material.
   2. Coating Thickness: 7 mils, minimum, dry film thickness.

C. Valve Lining: Factory-applied; use epoxy lining unless other material is indicated.
   1. Epoxy Lining: AWWA C550; either two-part liquid material or heat-activated material except provide only heat-activated material when lining is indicated as fusion bonded.
   2. Epoxy Lining Thickness: 7 mils, minimum, dry film thickness, except where thickness is limited by valve operating tolerances.

2.04 BUTTERFLY VALVES - METAL BODY

A. Manufacturers:
   1. Dezurik
   2. Bray
   3. Keystone
   4. Or equal.

B. Butterfly Valves: Lugged style.

1. AWWA Class: 125 in accordance with AWWA C504.
2. Body: ASTM A126 cast iron.
3. Disc: Contoured stainless steel.
4. Valve Shafts: Stainless steel with self-lubricating, corrosion-resistant sleeve type bearings.
5. Seats for Valves 24 inch and Smaller: Attached to either valve body or disc; 316 stainless steel.
6. Seats for Valves Larger Than 30 inch: Field replaceable.
7. Manual Operator: Hand wheel.

2.05 PLUG VALVES

A. Manufacturers:
1. Dezurik APCO
2. Dezurik APCO
3. Or equal

B. Plug Valves - Sizes 3 inches through 54 inch: Eccentric type.
1. Rating: 175 psig at 140 degrees F.
2. Body: Nonlubricated type; ductile iron; drip-tight shutoff with pressure from either direction.
3. Plugs: ductile iron, with rectangular ports.
4. Ports: Full bore.
5. Seats: Stainless steel.
6. Stem Bearings: Self-lubricating stainless steel.
7. Manual Operator for Valves 6 inches and Smaller: Wrench lever.
8. Manual Operator for Valves 8 inches and Larger: Totally enclosed, geared; with hand wheel, 2-inch nut, or chain wheel.

2.06 VALVE OPERATORS

A. Operator Types:
1. For each valve controlled by process control system, provide remote-controlled automatic operator, electric type.
2. For each valve not controlled by process control system, provide a manual operator, except for self-actuated valves.

B. Operators: Sized to operate valve for full range of pressures and velocities and of the type specified for application:
1. Maximum Force to Operate: Not more than 39.3 pounds-force under any operating condition including initial breakaway; provide gear reduction where necessary to reduce force to operate.
2. Locking: Self-locking or equipped with self-locking device; padlock eyes on valve handles; wheels lockable with chain and padlock.
3. Quarter Turn Valves: Provide position indicator.

C. Manual Operators:
1. Direct-Buried Valves Larger Than 2-1/2 inches: 2 inch operating nut.
2. Direct-Buried Valves 2 inches and Smaller: Cross handle for operation by forked key.
3. Exposed Valves: Hand wheel type operator except where other type is permitted or required.
4. Hand Wheels: Galvanized and painted.
5. Lever handles are allowed on quarter-turn valves 8 inches and smaller.
6. Chain Wheel Operators: Hand wheel direct mount type, with galvanized or cadmium-plated steel chain.
   a. Provide for manually operated valves located over 81 inches above finished floor elevation.

2.07 VALVE ACCESSORIES

A. Extension Bonnets: Provide as necessary, with stem and accessories applicable to specific valve and operator.

PART 3 EXECUTION

3.01 PREPARATION

A. Prior to installation, clean debris and foreign material out of valve openings and seats, check operating mechanisms for ease of operation and proper functioning, and check nuts and bolts for tightness.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide the services of a qualified technician experienced in installation and operation of type of equipment provided, to supervise installation, adjustment, demonstration, testing, and startup.

C. For automatic valve systems, provide the services of equipment manufacturer's technician to supervise installation, adjustment, demonstration, testing, and startup.

D. Install valves as nearly as possible in position indicated on drawings, located and oriented to provide easy access to valve operator and to avoid interference with other equipment.

E. Install valves without exerting distortion or strain on appurtenances.

F. Flanged Connections:
   1. Install flanged valve bolt holes so as to straddle vertical centerline of pipe.
   2. Clean flanged faces prior to inserting gasket and bolts.
   3. Tighten nuts progressively and uniformly.

G. Threaded Connections: Clean threads by wire brushing or swabbing prior to installation.

H. Manual Valve Orientation in Horizontal Runs of Pipe:
   1. Where pipe centerline elevation is 54 inches or less above finished floor, install valve with operating stem of in vertical position, unless otherwise indicated.
   2. Where pipe centerline elevation is between 54 inches and 81 inches above finish floor, install valve with stem in horizontal position, unless otherwise indicated.

I. Automatic Valves: Install in accordance with manufacturer's instructions.

J. Butterfly Valves: Orient valve shafts so that unbalanced flows caused by pipe direction changes or other disturbances are equally divided to each half of disc.

K. Plug Valves: If seat position is not indicated, locate seat position as follows:
   1. For horizontal flow, orient seat so that flow produces an "unseating" pressure, with plug opening into top half of valve.
   2. For vertical flow, locate seat in highest portion of valve.

3.03 FIELD QUALITY CONTROL - PRIOR TO STARTUP

A. Demonstrate proper valve operation while testing pipelines or as a separate step.
   1. Show that valves open and close smoothly with operating pressure on one side and atmospheric pressure on the other, and in both directions for two-way valve applications.
   2. Count and record the number of turns required to open and close each valve, and account for any discrepancies from manufacturer's data.

B. Automatic Valves That Are Not Self-Contained: Demonstrate in conjunction with process control system testing.

C. Isolation Valve Leak Check:
   1. With full pressure in the system, command valve closed.
   2. Use an ultra-sonic flow meter to detect flow or leakage.

D. Actuator Range Check: Verify proper operation of actuators and positioners.
   1. Verify that actuator extreme positions are correct.
   2. Apply a signal to actuator through its controller.
   3. Record the signal levels for the extreme positions.
   4. Vary the signal over its full range and verify that actuators travel in the correct direction and from one extreme position to the other.

E. Valve Stroke Setup and Check:
   1. Verify the actual positions against the control system readout.
   2. Set pump to normal operating mode.
   3. Command valve closed; visually verify that valve is closed and adjust output zero signal as required.

4. Command valve to open; verify position is full open and adjust output signal as required.
5. Command valve to a few intermediate positions.
6. If actual valve position does not reasonably correspond, replace actuator or add pilot positioner (for pneumatics).

3.04 OWNER PERSONNEL TRAINING

A. Content: For each valve include actuator and transmitter, cover control sequences, actuating sensors, manual operation, maintenance, and testing.

END OF SECTION

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SECTION 40 2324
POTABLE WATER PROCESS PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flanged ductile iron pipe and fittings.

B. Plastic (PVC/CPVC) pipe and fittings.

C. Pipe expansion joints.

1.02 RELATED REQUIREMENTS

A. See drawings for pipe sizes.

B. Section 40 0506 - Couplings, Adapters, and Specials for Process Piping: Sample ports, strainers, air release devices, vacuum breakers, valved drains, underground marking tape, heat tracing.

1.03 REFERENCE STANDARDS

A. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250 2020.

B. ASME B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard 2020.

C. ASME B16.9 - Factory-Made Wrought Buttwelding Fittings 2018.

D. ASME B16.11 - Forged Fittings, Socket-Welding and Threaded 2021.

E. ASME B31.3 - Process Piping 2022.

F. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings 2004 (Reapproved 2019).

G. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications 2023.

H. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength 2021.

I. ASTM D1784 - Standard Classification System and Basis for Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds 2020.

J. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120 2021a.

K. ASTM D2464 - Standard Specification for Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80 2015.

L. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40 2023.

M. ASTM D2467 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80 2020.

N. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems 2020.

O. ASTM D2855 - Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets 2020.

P. ASTM F402 - Standard Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings 2018.

Q. ASTM F656 - Standard Specification for Primers for Use in Solvent Cement Joints of Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings 2021.

R. AWWA C104/A21.4 - Cement-Mortar Lining for Ductile Iron Pipe and Fittings 2022.

S. AWWA C110/A21.10 - Ductile-Iron and Gray-Iron Fittings 2021.

T. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings 2023.

U. AWWA C115/A21.15 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges 2020.

V. AWWA C153/A21.53 - Ductile-Iron Compact Fittings 2019.

W. AWWA C651 - Disinfecting Water Mains 2014, with Addendum (2020).

X. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation 2018, with Amendment (2019).

Y. MSS SP-69 - Pipe Hangers and Supports Selection and Application 2019.

Z. NSF 61 - Drinking Water System Components - Health Effects 2022, with Errata.

AA. PPI (PE) - Handbook of Polyethylene Pipe Second Edition 2008.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's descriptive and technical literature for each material and component, showing compliance with requirements and installation instructions.

C. Shop Drawings:
   1. List of piping systems, indicating application, material, size, and pressure rating.
   2. Detailed drawings of piping systems, showing locations of valves, expansion joints, specialties, and instrument connections.

D. Waste Water Disposal: Before starting operations that require a temporary water supply submit the method proposed for disposal of waste water; for information; where regulatory permits are required, submit evidence that permits have been obtained.

E. Pipe Testing Plan.

F. Field Quality Control Reports.

G. Operation and Maintenance Data: See Section 01 7000 - Execution and Closeout Requirements and 01 7800 - Closeout Submittals.

H. Project Record Documents: Record actual locations of pipe anchors and guides and layout of piping systems relative to other parts of the work including clearances for maintenance and operation.

I. American Iron and Steel (AIS) compliance certificates.

PART 2 PRODUCTS

2.01 PIPING APPLICATIONS

A. All Pipe Applications, Unless Otherwise Indicated:
   1. Above Grade, All Sizes: Cement-lined ductile iron, flanged.

B. Buried Site Piping:
   1. Per SUDAS specifications

2.02 PERFORMANCE REQUIREMENTS

A. Provide piping systems suitable for the design conditions and applications intended, coordinated to function as a system, and considering the piping both with and without internal pressure, installation factors, and supports.

B. The pressure ratings and materials specified represent minimum acceptable performance; provide fittings, flanges, valves, and appurtenances with pressure ratings no less than that required for the system in which they are installed.

C. Provide all work and equipment required to accommodate expansion and contraction of piping under varying temperature conditions; verify that anchors, guides, and expansion joints provided, adequately protect the piping systems.

2.03 PIPE AND FITTINGS - GENERAL REQUIREMENTS

A. Piping and Fittings: New and unused material.
   1. Nominal Sizes: As indicated on drawings.
   2. Fittings: Same pressure rating as pipe, or greater, unless higher rating is specified; same material as pipe unless otherwise indicated.
   3. Sizes: Use standardized nominal sizes for compatibility with future work.
   4. Material Identification: Permanently mark each piece of pipe and fitting with its AWWA or ASTM designation and other markings required for that designation.

B. Joints: Completed joints are to have working pressure rating for liquids equal to pressure rating of the pipe.

C. Flanged Joints and Fittings (Metal and Plastic): Internal diameter bores of flanges and flanged fittings same as that of pipe.

D. Bolts and Nuts:
   1. Non-Submerged: Zinc-plated; on cast iron and ductile iron couplings high-strength, low-alloy steel complying with AWWA C111/A21.11.
   2. Buried and Submerged: Stainless steel, TP304.

E. Isolation Devices for Dissimilar Metals: Where dissimilar metallic piping, fittings, or valves must be connected, use isolation devices as indicated and as required to separate the different materials to avoid galvanic action.
   1. For flanged connections use flange isolation gaskets; gas-tight where underground.
   2. For threaded and welded connections, use dielectric fittings.
   3. For mechanical joints, use joint devices that accomplish separation.

F. Pipe Closure Pieces: ASME B16.9 or ASME B16.11; provide wherever pipe runs end.
   1. Pressure Piping: Use blind flanges, as appropriate to pipe and jointing method, unless otherwise indicated.

G. External Coatings: Unless otherwise indicated; finish fittings with same coating as pipe.

H. All piping, fittings, and appurtenances for use with treated water shall be in compliance with NSF 61.

2.04 FLANGED DUCTILE IRON PIPE FOR PRESSURE SERVICE

A. Ductile-Iron Pipe: AWWA C115/A21.15, all pipe sizes, with ASME B16.1, Class 125 flanges.
   1. Cement-Mortar-Lining: AWWA C104/A21.4 standard thickness cement lining with tolerance of plus 1/8 inch permitted.
   2. External Coating: Coated on outside with manufacturer's standard asphaltic coating, approximately one mil thick.
   3. Nominal Size: As indicated on drawings.
   4. Joints: Comply with AWWA C110/A21.10.
      a. Provide gaskets, glands, bolts and nuts as required to completely assemble joints.
      b. Gaskets: Vulcanized synthetic rubber; reclaimed rubber is not acceptable.

B. Fittings: Ductile iron or gray iron, cement mortar lined same as pipe.
   1. 250 psi Service: AWWA C110/A21.10.
   2. 350 psi Service: AWWA C153/A21.53.
   3. For Mating to ASME B16.1 or ASME B16.5 Flanges: Provide pipe flanges and flanged fittings to match.
   4. Bolts and Nuts: Carbon steel complying with ASTM A307, Grade B, with washers of same material.
   5. Gaskets: Ring.

2.05 JOINING DEVICES FOR METAL PIPE

A. Dielectric Fittings: Material, shape, and design as required to prevent metal-to-metal contact of dissimilar metallic piping elements; suitable for required working pressure, temperature and corrosion environment.

B. Flange Isolation Gaskets: Dielectric isolation gasket, isolation washers and full length isolation sleeves for flange bolts; size and type to fit piping flanges.
   1. Gaskets: Full faced with outside diameter equal to flange outside diameter.
   2. Shape and design as required to prevent metal-to-metal contact of dissimilar metallic piping elements.

C. Flange Coupling Adapters for Joining Flange to Plain End: Gasketed assembly for connecting flanged pipe or fitting to plain end pipe; sized to match piping.
   1. Flange Material: Cast iron, ASTM A126 Class B.
   2. Flange Sizes: To mate accurately with specified flanged fittings.
   3. External Finish: Same as for pipe.
   4. Gaskets: Wedge type; natural rubber.
   5. Provide lock pins to prevent pipe movement out of adaptor.

2.06 PLASTIC PIPE, FITTINGS, AND JOINING DEVICES

A. Plastic Pipe: Polyvinyl chloride (PVC).

B. PVC Pipe: Schedule-based; ASTM D1784, minimum cell classification 12545-C.
   1. Nominal Size: As indicated on drawings.
   2. Wall Thickness: In accordance with ASTM D1785.
      a. Threaded: Schedule 80.
      b. Not Threaded: Schedule 80.

C. Joints and Fittings: Fittings of same composition as pipe.
   1. Joints Requiring Future Disassembly: Use flanged joints; such joints include but are not limited to unions, valves, and equipment.
   2. Other Joints: Socket-welded, flanged, or mechanical joints, unless a specific joint type is indicated.

D. Threaded Fittings: ASTM D2464 Schedule 80; thread lubricant not required.

E. Socket-Welding Fittings: ASTM D2467 for Schedule 80; ASTM D2466 for Schedule 40; joined with PVC solvent cement complying with ASTM D2564 and of manufacture and viscosity as recommended by pipe and fitting manufacturer; primed prior to assembly with ASTM F656 primer.

F. Flanged Fittings: One piece molded hub type, flat faced, with molded stub ends; dimensions as specified in ASME B16.1.
   1. Pressure Rating: Class 125.
   2. Backing Flanges: Stainless steel, ASTM A240/A240M Type 304 with ASME B16.1 drilling.
   3. Gaskets: Non-metallic, full-faced.
   4. Where mating flange has raised face, use flat ring gasket and a filler gasket between outer edge of raised face and flange outer edge.

G. Pipe Closures: Provide wherever pipe runs end; use butt-welded caps or blind flanges, as appropriate to pipe and jointing method, unless otherwise indicated.

2.07 WALL SLEEVES AND WALL PIPES

A. Wall sleeves and wall pipes shall conform to the requirements of the piping as indicated on the Drawings and as specified as follows:
   1. Cast Iron: ASTM A48/A48M, Class 30B.
   2. Ductile Iron: ASTM A536, Grade 60-40-18.
   3. Mechanical Joint: AWWA C111/A21.11.
   4. Integral cast or welded intermediate wall collar.

B. Full circle continuous welded or cast water stop plate shall provide positive water sealing on the sleeve outside diameter and shall anchor the sleeve to prevent thrust movement.

C. Contractor shall utilize the manufacturer's recommendations to determine the required sleeve dimensions and size and number of modular seals required at each location.

D. Coordinate wall and floor sleeves with materials as indicated on the Drawings.

2.08 MODULAR RUBBER WALL SEALS

A. Use mechanical-type modular rubber wall seal, consisting of interlocking synthetic rubber links. The elastomeric element shall be sized and selected per manufacturer's recommendations and have the following properties as designed:
   1. Standard service application (-40°F to 250°F) EPDM: ASTM D2000 M3BA510.
   2. Hydrocarbon service application (-40°F to 210°F) Nitrile: ASTM D2000 M1BF510.
   3. High temperature or fire seal application (-67°F to 400°F) Silicone: ASTM D2000 M1GE505.

B. Assembly of synthetic rubber link to be connected with stainless steel bolts. When bolts are tightened, pressure plates shall compress rubber links to fill annular space between pipe and wall to form a watertight seal.

C. Use modular rubber wall seals where pipes penetrate existing concrete wall and as otherwise indicated on the Drawings. Written approval of Owner required for use of modular rubber seals in other locations.

D. Manufacturer: Modular rubber wall seals as manufactured by Thunderline Corporation, or approved equal.

2.09 PIPE SUPPORTS AND HANGERS

A. Horizontal Piping Hangers and Supports:
   1. Except as otherwise indicated, provide factory fabricated horizontal piping hangers and supports complying with MSS SP-58 of one of the following MSS types listed, selected by Contractor to suit horizontal piping systems in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size of hangers and supports to exactly fit pipe size for bare piping, and to exactly fit around piping insulation with saddle or shield for insulated piping. Provide copper-plated hangers and supports for copper piping systems.
   2. Adjustable Steel Clevis Hangers: MSS Type 1.
   3. Steel Pipe Clamps: MSS Type 4.

B. Vertical Piping Clamps:
   1. Except as otherwise indicated, provide factory fabricated vertical piping clamps complying with MSS SP-58 of one of the following types listed, selected by Contractor to suit vertical piping systems in accordance with MSS SP-69 and manufacturer's published product information. Select size of vertical piping clamps to exactly fit pipe size of bare pipe. Provide copper-plated clamps for copper piping systems.
   2. Two-Bolt Riser Clamps: MSS Type 8.

C. Saddles and Shields:
   1. Except as otherwise indicated, provide saddles and shields under piping hangers and supports, factory-fabricated for all piping. Size saddles and shields for exact fit to mate with pipe.
   2. Protection shields shall be MSS Type 40 of length recommended by manufacturer.
   3. Subject to compliance with requirements, provide thermal hanger shields of one of the following:
      a. Elcen Metal Products Co.
      b. Pipe Shields, Inc.
      c. Or equal

D. Manufacturers of Hangers and Supports:
   1. Subject to compliance with requirements, provide hangers and supports of one of the following:
      a. B-Line Systems, Inc.
      b. Carpenter and Patterson, Inc.
      c. Corner & Lada Co., Inc.
      d. Elcen Metal Products Co.
      e. Fee & Mason Mfg. Co.; Div. Figge International.
      f. ITT Grinnell Corp.
      g. Or equal

E. Provide lateral bracing where needed for all vertically hung pipe.

F. Additional bracing may be required at Owner's discretion.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that size and location of piping, sleeves, and appurtenances embedded in concrete are correct.

B. Before installing, examine piping having factory-applied linings for damage to linings; replace pipe with damaged lining.

3.02 PREPARATION

A. Keep Interior of Pipes Clean:
   1. Prevent accumulation of weld rod, weld spatter, pipe cuttings and filings, gravel, cleaning rags, and other foreign material inside piping sections during fabrication.
   2. Close pipe openings with caps or plugs before, during, and after installation.
   3. Remove foreign objects and dirt prior to assembly and installation.

B. Protect pipe coatings from chemical and mechanical damage; do not install damaged products.

C. Repair damaged zinc, organic, and paint coatings with material equal to original coating.

3.03 INSTALLATION - GENERAL

A. Install piping and appurtenances in compliance with ASME B31.3, reviewed shop drawings, if any, and manufacturer's instructions, with all joints tight and no undue marring of finishes.
   1. Install piping to accurate lines and grades.
   2. Run piping as straight as practical in alignment shown with minimum of joints.
   3. Maintain required upstream and downstream clearances.
   4. At flow measuring devices, provide straight runs of piping upstream and downstream in accordance with device manufacturer's recommendations.
   5. Install piping without springing or forcing pipe to fit.
   6. Pitch piping toward low points and provide a valved drain at each low point.
   7. Provide a sufficient number of unions or flanges to allow for dismantling of pipe, valves, and equipment.
   8. Where temporary supports are used, make them sufficiently rigid to prevent shifting or distortion of pipe.
   9. Make installed piping, valves, and fittings free from strain and excessive stresses caused by weight or misalignment.

B. Provide isolation valves and miscellaneous devices as required for an operable installation.

C. Pipe Jointing: Clean the ends of pipes thoroughly, remove foreign matter and dirt from inside of pipes, and keep piping clean during and after installation.

D. Thermal Expansion and Contraction: Install piping to allow for thermal expansion and contraction resulting from difference between temperature during installation and during operation.
   1. Anchors: Locate as indicated on drawings and reviewed shop drawings, if any, to withstand expansion thrust loads and to direct and control thermal expansion.
   2. Intermediate Pipe Alignment Guides:
      a. Install adjacent to pipe expansion joints and within four pipe diameters each side.
      b. At pipe mounted on metal channel framing, install intermediate pipe guide at each metal channel framing support not carrying an anchor or alignment guide.

E. Flexible Couplings and Expansion Joints: Install in accordance with manufacturer's instructions, at connections to equipment and where shown on drawings and reviewed shop drawings, if any.

F. Couplings, Adapters and Service Saddles: Install in accordance with manufacturer's instructions.
   1. Gaskets: Thoroughly clean pipe ends of oil, scale, rust, and dirt to provide clean seat for gaskets.
      a. Wipe gaskets clean.
      b. Lubricate flexible couplings and flanged coupling adapter gaskets with manufacturer's standard lubricant before installation.
   2. Tighten bolts progressively, drawing up bolts on opposite sides a little at a time until all bolts have uniform tightness.
   3. Use torque-limiting wrenches to tighten bolts.

G. Pipe Tap Connections: Taps direct to pipe barrels are prohibited; make taps as follows:
   1. Ductile Iron Piping: Use service saddle or tapping boss of a fitting, valve body, or equipment casting.
   2. Plastic Piping: Use service saddle or tapping boss of a fitting, valve body, or equipment casting.

H. Joints at Rigid Structures:
   1. Provide flexible joints at face of rigid structures, whether or not shown on drawings.
   2. Flexible jointing methods include, but are not limited to, rubber ring joints, mechanical joints, flexible couplings, and proprietary restrained ductile iron pipe joints; welded joints are not considered flexible.
   3. Joint Location: Flush with structure face or up to one (1) pipe diameter from face; maximum distance from face:

a. Pipe Diameter Over 18 inches: First joint within one (1) pipe diameter from face.
b. Smaller Diameters: 18 inches from face.

I. Provide and install supports, hangers, and guides as specified in Section 400507.

3.04 METALLIC PIPE JOINTING

A. Connecting Dissimilar Metallic Pipe and Appurtenances: Use isolation devices as specified and as required to separate different materials to avoid galvanic action; install in accordance with manufacturer's instructions.

B. Flanged Joints: Make flanged joints up tight, taking care to avoid undue strain on flanges.
1. Install flanged fittings true and perpendicular to axis of pipe.
2. Install so that adjoining flange faces are not out of parallel to such degree that joint cannot be made watertight without overstraining flanges.
3. Align bolt holes in both flanges; use full size bolts; use of undersized bolts to make up for misalignment of bolt holes or for any other purpose is not permitted.
4. Where instrumentation device is indicated to be installed in the vertical centerline of pipe, install flanges with bolt holes straddling vertical centerline of pipe.
5. Tighten bolts uniformly to prevent overstressing flanges and misalignment.
6. Replace flanged pipe and fittings whose dimensions do not allow making flanged joint as specified.

3.05 PLASTIC PIPE INSTALLATION

A. Cut, fabricate, and install plastic pipe in accordance with pipe manufacturer's instructions and recommendations.

B. Install pipe only when ambient temperature is above 40 degrees F and below 90 degrees F and not exposed to direct sunlight.

C. Plastic Pipe Jointing: Follow manufacturer's instructions.
1. Solvent-Cemented Jointing: Comply with ASTM D2855.
2. Use strap wrenches for tightening threaded plastic joints, taking care not to over-tighten fittings.
3. Shield pipe ends from direct sunlight prior to and during installation.
4. Provide adequate ventilation when working with pipe joint solvent cement; comply with ASTM F402 for handling of solvent cements, primers and cleaners.

D. Use expansion joints and offset piping arrangements to accommodate thermal expansion and contraction.
1. Make offset loops from pipe centerline as recommended by manufacturer based on maximum temperature difference between pipe temperature at time of jointing and operating temperature.
2. For pipe exposed to outside air or in which the temperature variation of the contents is substantial, make provisions for movement due to thermal expansion and contraction in accordance with PPI (PE); Material Properties; Coefficient of Expansion/Contraction.

3.06 FIELD QUALITY CONTROL - GENERAL

A. Test all parts of piping systems using clean water and hydrostatic pressure and leakage tests, unless otherwise indicated.

B. Above Ground Pressure Piping: Test after piping has been completely installed, including all supports, hangers, and anchors, and inspected for proper installation but prior to installation of insulation.

C. Leakage Testing: Perform after pressure tests have been satisfactorily completed, unless otherwise approved by Owner.

D. Water: Provide clean test water of such quality to avoid corrosion of piping system materials.

3.07 FIELD QUALITY CONTROL - HYDROSTATIC PRESSURE TESTING

A. Perform hydrostatic testing in accordance with ASME B31.3 under normal service conditions.

B. Test Pressure:
1. Rigid Piping: Calculated according to not be less than 1.5 times design pressure and not exceeding yield strength of piping system.

2. Non-Rigid, Non-Metallic Piping and Metallic Piping with Non-Metallic Liner: Calculated according to ASME B31.3 but not exceeding 1.5 times maximum pressure rating of lowest rated component in piping system.

C. Maximum Velocity During Filling: 0.25 fps applied over full area of pipe or as recommended by pipe manufacturer, whichever is lesser.

D. Venting Air While Filling: Purge all air in system; open air release vents to purge air pockets; venting may also be provided by loosening minimum of four bolts of flanges or by use of equipment vents.

E. Valves: Include each valve in at least one piping section tested; open and close valves several times during test.

F. Rigid Piping Test Procedure:
1. Maintain test pressure continuously for minimum of 30 minutes and during examinations for leakage.
2. Leave piping system full of water after leaks are repaired, unless otherwise directed by Owner.

G. Non-Rigid, Non-Metallic Piping and Metallic Piping With Non-Metallic Liner Test Procedure:
1. Raise pressure to 50 percent of normal service pressure.
2. Inspect pipe, fittings, joints and connections, and valves for visible leakage; correct leaks and continue test.
3. Raise pressure to test pressure and add small amounts of test liquid as required hourly for maximum of 3 hours as required to maintain test pressure.
4. After 4 hours, lower test pressure by 10.2 psi.
5. If pressure remains steady for one (1) hour, no leakage is indicated.
6. Before retesting, allow piping system to relax for 8 hours.

H. Inspect pipe, fittings, joints and connections, and valves for visible leakage; correct leaks and re-test until results are satisfactory.

3.08 FIELD QUALITY CONTROL - PIPE LEAKAGE TESTING

A. Test piping for leakage by filling with water, or other appropriate test liquid, applying specified test pressure, and measuring amount of additional liquid is necessary to maintain the specified pressure for the specified duration.

B. Maximum Allowable Leakage: As determined by following formula, whichever is greater:
1. L (allowable leakage) = Cf x N x D x P0.5, in gallons per hour.
2. Cf = conversion factor = 0.0001351
3. N = number of joints in the length of piping tested.
4. D = nominal pipe diameter, inch
5. P = average test pressure during the test, psig.

C. Duration of Leakage Test: At least 2 hours after piping has been filled and air has been expelled.

D. Test Pressure: 200 psig plus/minus 5 psig.

E. Locate leaks, repair, and re-test until leakage is within specified limits.

3.09 CLEANING PIPING - PRIOR TO STARTUP

A. After testing, flush piping with water to remove accumulated construction debris and other foreign matter; continue flushing until no foreign matter exits the pipe.

B. Install cone strainers in connections of attached equipment and leave in place until flushing is completed. Remove accumulated debris through drains or by removing spools or valves.

C. Minimum Flushing Velocity: 2.5 feet per second.

D. For large diameter pipe impractical to flush at minimum flushing velocity, clean pipe in place from inside by brushing and sweeping, then flush at a lower velocity.

3.10 DISINFECTION - PRIOR TO STARTUP

A. After testing and cleaning, disinfect all piping.

B. Bacteriological Testing: Arrange and pay for testing of water samples.

1. Testing Agency Qualifications: Certified by regulatory agency having jurisdiction over potable water testing.
2. When piping is divided into sections for testing, take samples from at least one point in each piping section being tested.
3. Where entire piping system is being tested, take samples from at least three (3) well-distributed points in the system.

C. Disinfect in accordance with AWWA C651.
1. Disinfecting Chemical: One of the following at dosage of not less than 50 ppm of free chlorine residual.
   a. Liquid chlorine.
   b. Calcium hypochlorite in water solution.
   c. Sodium hypochlorite in water solution.
2. Introduce disinfecting chemical into piping in a liquid solution; NEVER put dry, solid chemicals directly into piping.
3. Retain treated water in pipe long enough to destroy all non-spore-forming bacteria; not less than 24 hours unless otherwise approved.
4. Open and close valves on piping being disinfected several times during retention period.
5. Use enough disinfecting chemical to produce not less than 25 ppm of free chlorine residual throughout pipe at end of the retention period.

D. After disinfection, flush piping with clean water until residual chlorine is reduced to less than 1.0 ppm.
1. During flushing period, open and close each outlet several times.
2. After flushing to remove residual chlorine, fill piping with clean water and let stand for sampling.

E. Repeat disinfection and flushing until successful bacterial tests have been obtained for 2 consecutive days.

END OF SECTION

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Division 44: Water and Wastewater Equipment

SECTION 46 0923
MONITORING AND CONTROL INSTRUMENTATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sensors, analyzers, transmitters, and accessory components.

1.02 REFERENCE STANDARDS

A. ASME B40.100 - Pressure Gauges and Gauge Attachments 2022.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's data sheets on each item of equipment, showing compliance with specified requirements and detailed technical characteristics; where multiple components are shown on the same data sheet, mark the specific component referred to.

PART 2 PRODUCTS

2.01 INSTRUMENTATION - GENERAL

A. In addition to devices indicated, provide all transformers, field preamplifiers, signal conditioners, offset and span adjustments, amplifiers, transducers, transmitters, control devices, signal transmission, and control and power wiring suitable for the application, as necessary to provide complete end-to-end process control loop accuracy from sensor to display and final control element.

B. Where necessary provide devices that make engineering units conversions and have specific algorithms for applications.

C. Transmitters: Provide a transmitter for each sensor unless otherwise indicated; transmitter selected to match sensor, with following characteristics unless otherwise indicated:
   1. Display: Four digit or analog visual display of measured parameter.
   2. Output Signal: 4 to 20 mA DC, proportional to level of measured parameter.
   3. Accuracy: Plus/minus 0.5 percent of full scale reading with output error not exceeding Plus/minus 0.25 percent of the calibrated measurement.
   4. Mounting: Integral with sensor, pipe mounted, wall mounted or installed in control panel.
   5. Location, if Not Integral with Sensor: Where indicated; if not indicated, not more than the distance from the sensor recommended by manufacturer.

D. Liquid Service Devices: Rated for continuous duty service at specified fluid approach velocities with correspondingly higher constriction velocities over the specified fluid temperature range at specified pressures.

2.02 FLOW INSTRUMENTATION

A. Manufacturers:
   1. Sensus flow meters.
   2. No equals allowed.

B. Flow Instrumentation - General:
   1. Liquid Indication: In gallons per minute.
   2. Flow Rate Control: Plus/minus 5 percent of design flow.
   3. Mounting: Easily removed for periodic maintenance.
      a. Provide appropriate snubbers for pressure taps.
      b. For Liquids: Mount sensors in horizontal piping, unless otherwise indicated or otherwise recommended by manufacturer.

C. Flow Transmitters:
   1. Readout: Digital readout of volumetric flow rate to 3 significant figures.
   2. Signal: Proportional to volumetric flow rate and compensated for fluid temperature, unless otherwise indicated.
   3. Accuracy: Plus/minus one percent of full flow.
   4. Location: Within 15 feet of flow element.

D. Flowmeters, Magnetic: Non-intrusive type, measuring fluid flow through use of self-generated magnetic field.

1. Flow Velocity: Capable of measuring clean or dirty flow up to 10 feet per second.
2. Pressure Drop: 5 psi, across meter and appurtenances, at maximum flow rate.
3. Mounting in Vertical Piping: So that flow tube remains full of process fluid under all operating conditions.
4. Straight Run Piping Requirements: Minimum of five pipe diameters upstream and two pipe diameters downstream.

2.03 PRESSURE INSTRUMENTATION

A. Pressure Instrumentation - General:
1. Operating Pressure: As indicated.
2. Control pressures within plus/minus 5 percent of design pressures.
3. Select switch contact ratings and duty for suitability to application.
4. Adjust pressure switches to proper setpoint and verify by calibration.
5. Verify pressure sensors and pressure transducers by calibration.
6. Provide appropriate snubbers on pressure taps.
7. For pressure sensors and switches, provide valves for isolation, venting, and taps for calibration.
8. For pressure switches and transducers installed on liquid or steam lines, provide drains.
9. For pressure transducers, differential pressure sensors and differential pressure switches, provide nulling valves.

B. Pressure and Vacuum Gauges:
1. Mounting: Stem mounted, unless otherwise indicated.
2. Case: Stainless steel cases, with safety pressure blowout back.
3. Dial: Dry; 4.5 inch diameter; slotted adjustable pointer.
4. Scale: From -20 to approximately twice anticipated process operating or equipment pressure; readings in psig/inches of mercury and MPa/mm of mercury.
   a. Anticpated pressure: 180 psi
5. Accuracy: Comply with ASME B40.100 Grade A.
6. Sensors: Diaphragm actuated; phosphor bronze.
7. Connections: Threaded; TP316L stainless steel; 5/16 inch diameter, male.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions and as indicated on drawings.

B. Install devices with adequate clearance for maintenance.

C. Do not obstruct access to or clearances required for maintenance of other equipment and systems.

D. Local Indicators: Install direct-reading indicator devices, thermometers, and pressure gauges so that they can be easily read from floor level and are readily accessible for maintenance and service.

E. Adjust or replace devices not complying with specified requirements; except factory sealed devices must be replaced, rather than adjusted.

END OF SECTION

Attachments

#31664

Well Information—Drift Wells

Layne-Western Company, Inc.

WATER SUPPLY CONTRACTORS

705 SO. DUFF AVE. AMES, IOWA 50010

Phone 515 232-3563

Name of Job City of Storm Lake Date May, 1990

City or Village State

Well No.: 15 Drillers: C. Thomas

Well Location: ft. ( ) and ft. ( ) of the NE corner of

Section 32, Twp. 91 (N), Range 37 (W) Cerro Gordo County.

Otherwise located as 2,000 ft. N. of well 14

Work Began: Work Completed: Well Depth: 488

All measurements made from existing ground level at time well was drilled.

Casing Record:

Amount	Dia.	Wt. or Thickness	Material					
140	32	0.250	steel	with	weld	joints from 140	to	0
341	24	0.375	steel		weld	341		0
388	16	0.375	steel	with	weld	joints from 385	to	+3

Screen Record: Type wire wrap 304 s.s.

Amount	Dia.	Opening	Material					
100	16	0.040	304 s.s.	with	weld	joints from 485	to	385
3	16	Blank	304 s.s.	with	weld	joints from 488	to	485

Type of Seal at Bottom

Hole Record:

36 0 140

29 inch from 140 to 340

23 inch from 340 to 498

Gravel Pack Record:

Amount	Size	Source	From	To
46.39	No. 1 (11.45 ton No. 2 above screen)	Northern Gravel	488	243

Cementing Record: 26.77 tons cement pumped between 24" & 29"

Backfill Record:

812

LW-33

SEE OTHER SIDE

WELL LOG

Feet		Feet	Description
0	to	2	Black top soil
2	to	38	Light brown till
38	to	42	Brown gray till
42	to	73	Blue gray till, pebbly - cobbles & boulders 43' to 53'
73	to	80	Sand & gravel streaks & till
80	to	114	Blue gray till
114	to	127	Sand & gravel, coarse - cobbles & boulders
127	to	128	Limestone
128	to	136	Sand & gravel, cobbles
136	to	143	Green brown till
143	to	175	Hard brown till
175	to	183	Grayish brown till
183	to	220	Brown till, hard - cobbles & boulders
220	to	235	Brown till, very hard - boulders - large 12" diameter
235	to	300	Very hard blue till
300	to	310	Brown till
310	to	330	Blue gray till
330	to	378	Brown sandstone, light blue clay streaks
378	to	398	Hard dark brown sandstone
398	to	418	White hard sandstone, streak of white clay
418	to	435	Dark brown & light brown sandstone
435	to	478	Light brown & whilte good sandstone
478	to	490	Brown sandstone
490		498	Blue gray till

Well Test Data: Static Level 282 : pumping level 345 after 20 hours pumping at 12 g.p.m.

Length of test 20 hrs. See Well Test Data Sheet Dated 8/24/90

REMARKS:

CITY OF STORM LAKE

STORM LAKE, IOWA

WELL No.15

#31664

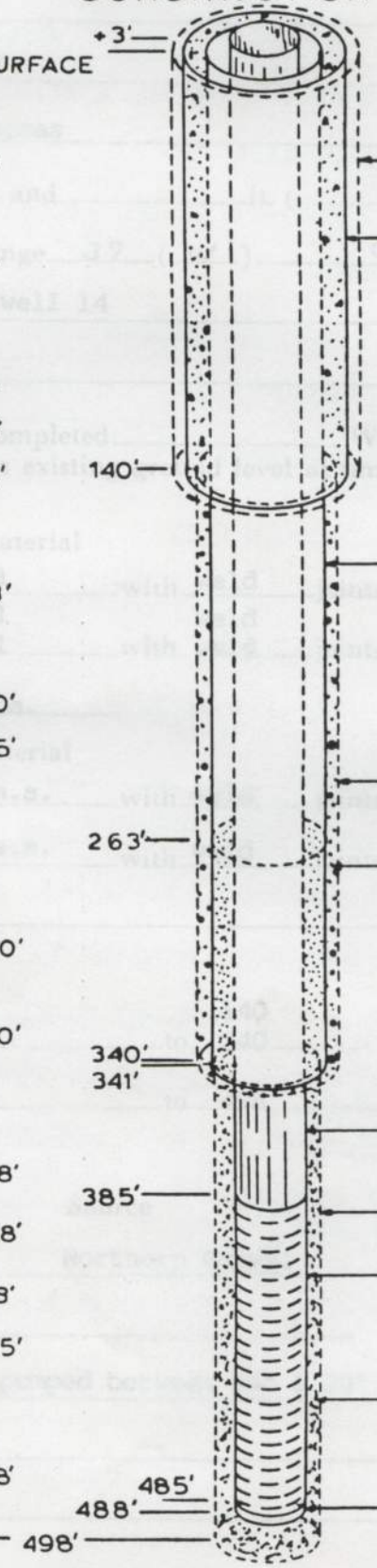
LW Co. Ames, IA

6/90

GEOLOGICAL LOG

BLACK TOP SOIL	SURFACE
LIGHT BROWN TILL	38'
BROWN GRAY TILL	
BLUE GRAY TILL	73'
SAND, GRAVEL STREAKS, TILL	
BLUE GRAY TILL	114'
SAND, GRAVEL, LIMESTONE	128'
SAND, GRVL, GRN BRWN. TILL	143'
HARD BROWN TILL	
GRAYISH BROWN TILL	183'
BROWN TILL, HARD-	
COBBLES & BOULDERS	220'
BROWN TILL - VERY HARD	235'
VERY HARD BLUE TILL	300'
BROWN TILL	
BLUE GRAY TILL	330'
BROWN SANDSTONE,	
LIGHT BLUE CLAY STREAK	378'
HARD DARK BROWN SANDST.	398'
WHITE HARD SANDSTONE	418'
DARK, LIGHT BRN. SANDST.	435'
LIGHT BROWN, WHITE	
GOOD SANDSTONE	478'
BRN. SANDST., BLUEGRAY TILL	498'

CONSTRUCTION DETAIL



CITY OF STORM LAKE
PRODUCTION WELL NO. 22
CONSTRUCTION PLANS

STORM LAKE, IA

ISG PROJECT # 22-27926

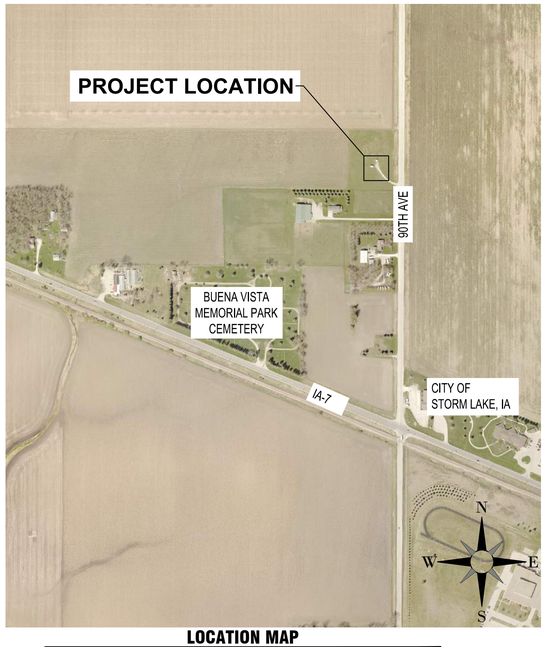
LEGEND

EXISTING

- CITY LIMITS
- SECTION LINE
- QUARTER SECTION LINE
- RIGHT OF WAY LINE
- PROPERTY / LOTLINE
- EASEMENT LINE
- ACCESS CONTROL
- WATER EDGE
- WETLAND BOUNDARY
- WETLAND / MARSH
- FENCE LINE
- CULVERT
- STORM SEWER
- SANITARY SEWER
- SANITARY SEWER FORCEMAIN
- WATER
- GAS
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- UNDERGROUND FIBER OPTIC
- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- MANHOLE/STRUCTURE
- CATCH BASIN
- HYDRANT
- VALVE
- CURB STOP
- POWER POLE
- UTILITY PEDESTAL / CABINET

PROPOSED

- LOT LINE
- RIGHT OF WAY
- EASEMENT
- CULVERT
- STORM SEWER
- STORM SEWER (PIPE WIDTH)
- SANITARY SEWER
- SANITARY SEWER (PIPE WIDTH)
- WATER
- GAS
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TV
- CONTOUR
- MANHOLE (STORM, SANITARY)
- CATCH BASIN
- HYDRANT
- VALVE



LOCATION MAP

SCALE IN FEET

0 500 1000

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C1-20	WPPP NOTES
C2-10	EXISTING SITE & REMOVLAS
C3-10	WELL SITE PLAN
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S1-00	STRUCTURAL NOTES
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SEAL

LICENSED PROFESSIONAL ENGINEER
MATTHEW LARSEN 24003
IOWA

I hereby certify that this engineering document was prepared by me or under direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

(signature) 09/29/2023 (date)

Printed or typed name MATTHEW LARSEN

License number 24003

My license renewal date is December 31, 2024

Pages or sheets covered by this seal:
M AND P SHEETS

SEAL

LICENSED PROFESSIONAL ENGINEER
AMANDA GOODENOW 25734
IOWA

I hereby certify that this engineering document was prepared by me or under direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

(signature) 09/29/2023 (date)

Printed or typed name AMANDA GOODENOW

License number 25734

My license renewal date is December 31, 2024

Pages or sheets covered by this seal:
ALL SHEETS EXCEPT S, M, P, AND E SHEETS

SEAL

LICENSED PROFESSIONAL ENGINEER
JASON BURNS 26658
IOWA

I hereby certify that this engineering document was prepared by me or under direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

(signature) 09/29/2023 (date)

Printed or typed name JASON BURNS

License number 26658

My license renewal date is December 31, 2024

Pages or sheets covered by this seal:
S SHEETS

SEAL

LICENSED PROFESSIONAL ENGINEER
ROYAL STREED 26593
IOWA

I hereby certify that this engineering document was prepared by me or under direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

(signature) 09/29/2023 (date)

Printed or typed name ROYAL STREED

License number 26593

My license renewal date is December 31, 2024

Pages or sheets covered by this seal:
E SHEETS

ABBREVIATIONS:

AC	ACRE	CMP	CORRUGATED METAL PIPE	FDC	FIRE DEPARTMENT CONNECTION	HH	HANDHOLE	LSO	LOWEST STRUCTURAL OPENING	PP	POLYPROPYLENE	STA	STATION
ADA	AMERICANS WITH DISABILITIES ACT	CO	CLEANOUT	FDN	FOUNDATION	HORIZ	HORIZONTAL	MAX	MAXIMUM	PSI	POUNDS PER SQUARE INCH	SY	SQUARE YARD
ADD	ADDENDUM	CONC	CONCRETE	FES	FLARED END SECTION	HR	HOUR	MB	MAIL BOX	PVC	POLYVINYL CHLORIDE	T/C	TOP OF CURB
AFF	ABOVE FINISHED FLOOR	CONST	CONSTRUCTION	FFE	FINISHED FLOOR ELEVATION	HWL	HIGH WATER LEVEL	MECH	MECHANICAL	PVMT	PAVEMENT	TEL	TELEPHONE
AGG	AGGREGATE	CONT	CONTINUOUS	FPM	FEET PER MINUTE	HWY	HIGHWAY	MH	MANHOLE	QTY	QUANTITY	TEMP	TEMPORARY
APPROX	APPROXIMATE	CY	CUBIC YARD	FPS	FEET PER SECOND	HYD	HYDRANT	MIN	MINIMUM	R	RIM	THRU	THROUGH
ARCH	ARCHITECT, ARCHITECTURAL	C&G	CURB AND GUTTER	FT	FOOT, FEET	I	INVERT	MISC	MISCELLANEOUS	RAD	RADIUS	TNFH	TOP NUT OF FIRE HYDRANT
BFE	BASEMENT FLOOR ELEVATION	DEMO	DEMOLITION	FTG	FOOTING	ID	INSIDE DIAMETER	NO	NUMBER	RCP	REINFORCED CONCRETE PIPE	TRANS	TRANSFORMER
BIT	BITUMINOUS	DIA	DIAMETER	GA	GAUGE	IN	INCH	NTS	NOT TO SCALE	RD	ROOF DRAIN	TV	TELEVISION
CAD	COMPUTER-AIDED DESIGN	DIM	DIMENSION	GAL	GALLON	INV	INVERT	NWL	NORMAL WATER LEVEL	REBAR	REINFORCING BAR	T/W	TOP OF WALL
CB	CATCH BASIN	DS	DOWNSPOUT	GALV	GALVANIZED	IP	IRON PIPE	OC	ON CENTER	REM	REMOVE	TYP	TYPICAL
CFS	CUBIC FEET PER SECOND	EA	EACH	GC	GENERAL CONTRACTOR	IPS	IRON PIPE SIZE	OCEW	ON CENTER EACH WAY	ROW	RIGHT OF WAY	UT	UTILITY, UNDERGROUND TELEPHONE
CF	CUBIC FOOT	ELEC	ELECTRICAL	GFE	GARAGE FLOOR ELEVATION	J-BOX	JUNCTION BOX	OH	OVERHEAD	R/W	RIGHT OF WAY		
CI	CAST IRON	ELEV	ELEVATION	GL	GUTTER LINE	JT	JOINT	OHD	OVERHEAD DOOR	SAN	SANITARY	VCP	VITRIFIED CLAY PIPE
CIP	CAST IRON PIPE	EOF	EMERGENCY OVERFLOW	GPM	GALLONS PER MINUTE	LF	LINEAR FEET	OZ	OUNCE	SCH	SCHEDULE	W/O	WITHOUT
CIPC	CAST IN PLACE CONCRETE	EQ	EQUAL	GV	GATE VALVE	LIN	LINEAR	PED	PEDESTAL, PEDESTRIAN	SF	SQUARE FOOT	W/	WITH
CJ	CONTROL JOINT	EX	EXISTING	HDPE	HIGH DENSITY POLYETHYLENE	LPS	LOW PRESSURE STEAM	PERF	PERFORATED	SPEC	SPECIFICATION	YD	YARD
CL	CENTERLINE	F/G	FORM GRADE	HD	HEAVY DUTY	LS	LUMP SUM	PL	PROPERTY LINE	SQ	SQUARE	YR	YEAR

PROJECT INDEX:

OWNER:

CITY OF STORM LAKE
620 ERIE STREET, P.O. BOX 1086
STORM LAKE, IA 50588
PH: 712-732-8000

PROJECT ADDRESS / LOCATION:

SECTION 32/TOWNSHIP 91 NORTH/RANGE 37 WEST

593 90TH AVE STORM LAKE, IA

MANAGING OFFICE:

STORM LAKE OFFICE
1725 LAKE AVE. NORTH
STORM LAKE, IA 50588
PHONE: 712.732.7745

PROJECT MANAGER: AMANDA GOODENOW
EMAIL: AMANDA.GOODENOW@ISGINC.COM

SPECIFICATIONS REFERENCE

ALL CONSTRUCTION SHALL COMPLY WITH THE CITY OF STORM LAKE REQUIREMENTS AND WITH THE 2023 EDITION OF THE STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) FOR PUBLIC IMPROVEMENTS, UNLESS DIRECTED OTHERWISE.

PROJECT DATUM

HORIZONTAL COORDINATES HAVE BEEN REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83), 2011 ADJUSTMENT (NAD83(2011)), ON THE IOWA STATE PLANE (NORTH) COORDINATE SYSTEM ZONE 4, IN U.S. SURVEY FEET.
ELEVATIONS HAVE BEEN REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
RTK GPS METHODS WERE USED TO ESTABLISH HORIZONTAL AND VERTICAL COORDINATES FOR THIS PROJECT.

B.M. ELEVATION=1451.81
TOP OF OPERATING NUT OF FIRE HYDRANT STRIAGHT EAST OF EXISTING WELLHOUSE WEST OF 90TH AVE AT SITE

TOPOGRAPHIC SURVEY

THIS PROJECT'S TOPOGRAPHIC SURVEY CONSISTS OF DATA COLLECTED IN DECEMBER 2022 BY ISG INC.

Storm Lake Proud

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Iowa One Call System. Call before you dig.

NOTE:
THE CLARITY OF THESE PLANS DEPEND UPON COLOR COPIES. IF THIS TEXT DOES NOT APPEAR IN COLOR, THIS IS NOT AN ORIGINAL PLAN SET AND MAY RESULT IN MISINTERPRETATION.

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	22-27926
FILE NAME	27926 TITLE
DRAWN BY	CBH
DESIGNED BY	EJB/ALG
REVIEWED BY	EJB/ALG
ORIGINAL ISSUE DATE	09/29/2023
CLIENT PROJECT NO.	-

TITLE

TITLE SHEET

SHEET

G1-10

PROJECT GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH OSHA CODES AND STANDARDS. NOTHING INDICATED ON THE DRAWINGS SHALL RELIEVE THE CONTRACTOR FROM COMPLYING WITH ANY APPROPRIATE SAFETY REGULATIONS.
2. ALL WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS WHICH INCLUDE, BUT ARE NOT LIMITED TO, THE OWNER – CONTRACTOR AGREEMENT, THE PROJECT MANUAL (WHICH INCLUDES GENERAL SUPPLEMENTARY CONDITIONS AND SPECIFICATIONS), DRAWINGS AND ALL ADDENDA, AND MODIFICATIONS AND CLARIFICATIONS ISSUED BY THE ENGINEER.
3. CONTRACT DOCUMENTS SHALL BE ISSUED TO ALL SUBCONTRACTORS BY THE GENERAL CONTRACTOR IN COMPLETE SETS IN ORDER TO ACHIEVE THE FULL EXTENT AND COMPLETE COORDINATION OF ALL WORK.
4. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
5. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH WORK.
6. ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, CLEANED, AND CONDITIONED ACCORDING TO MANUFACTURERS' INSTRUCTIONS. IN CASE OF DISREPANCIES BETWEEN MANUFACTURERS' INSTRUCTIONS AND THE CONTRACT DOCUMENTS, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
7. DETAILS SHOWN ARE INTENDED TO BE INDICATIVE OF THE PROFILES AND TYPE OF DETAILING REQUIED THROUGHOUT THE WORK. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO DETAILS SHOWN. WHERE SPECIFIC DIMENSIONS, DETAILS, OR DESING INTENT CANNOT BE DETERMINED, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEDEEDING WITH THE WORK.
8. THE CONTRACTOR IS OT CONTACT "IOWA ONE CALL" FOR UTILITY LOCATIONS A MINIMUM OF 2 BUSINESS DAYS PRIOR TO ANY EXCAVATION/CONSTRUCTION (1-800-292-8989)
9. ALL PROPERTY PINS SHALL BE PROTECTED FROM GRADING OR OTHER OPERATIONS. ANY PINS DISTURBED SHALL BE RESET AT THE CONTRACTOR'S EXPENSE.
10. THE 2023 EDITION OF THE STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) AND THE RECOMMENDED STANDARDS FOR WATER WORKS (10 STATE STANDARDS), 2012 EDITION, SHALL APPLY TO THE CONSTRUCTION WORK ON THE PROJECT, PLUS THE BIDDING INFORMATION, CONTRACT PROVISIONS, AND SPECIAL PROVISIONS OF ISG (I+S GROUP, INC.). A FULL IOWA SUDAS SPECIFICATIONS MANUAL CAN BE FOUND ONLINE FOR FREE AT WWW.IOWASUDAS.ORG.
11. THE WORK TO BE ACCOMPLISHED FOR THE CONSTRUCTION OF THIS PROJECT WILL OCCUR ON OWNER'S PROPERTY. THE CONTRACTOR SHOULD CONFINE OPERATION, PEOPLE, AND EQUIPMENT TO THE OWNER'S PROPERTY.
12. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIALS NOT TO BE INCORPORATED IN THE WORK INVOLVED IN THE PROJECT (UNSUITABLE EXCAVATION, WASTE PIPE, ETC.).
13. THE LOCATION AND TYPE OF ALL INPLACE UTILITIES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY AND ARE ACCURATE AND COMPLETE TO THE BEST OF THE KNOWLEDGE OF ISG (I+S GROUP, INC.). NO WARRANTY OR GUARANTEE IS IMPLIED. THE CONTRACTOR SHALL VERIFY THE SIZES, LOCATIONS AND ELEVATIONS OF ALL INPLACE UTILITIES PRIOR TO CONSTRUCTION AND AVOID DAMAGE THERETO. NO CLAIM FOR ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM PLAN. ANY NECESSARY FIXTURE ADJUSTMENTS SHALL BE INCIDENTAL.
14. PUBLIC UTILITY FIXTURES ARE EXISTING WITHIN THE CONSTRUCTION AREA. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THESE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR ANY NECESSARY MODIFICATION OF SERVICES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.
15. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO SECURE ALL NECESSARY TRAFFIC CONTROL SIGNS, DEVICES, ETC., AND TO PLACE, MAINTAIN, AND REMOVE SAME AS CONSTRUCTION COMMENCES AND IS COMPLETED IN ACCORDANCE WITH THE CURRENT EDITION OF THE IOWA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS & HIGHWAYS. FAILURE TO COMPLY WITH THIS PORTION OF THE SPECIFICATIONS WILL RESULT IN SUSPENSION OF WORK UNTIL THE SITUATION IS CORRECTED. A REDUCTION IN THE LUMP SUM TO BE PAID WILL BE MADE FOR EXCESSIVE NONCOMPLIANCE WITH REQUIRED TRAFFIC CONTROL. NO WORK SHALL COMMENCE IN ANY GIVEN AREA UNTIL ALL APPROPRIATE TRAFFIC CONTROL IS IN PLACE.
16. THE CONTRACTOR SHALL NOT DISTURB GRASSED AREAS AND TREES OUTSIDE THE CONSTRUCTION LIMITS. THE CONTRACTOR WILL NOT BE PERMITTED TO PARK SERVICE VEHICLES AND EQUIPMENT OR USE THESE AREAS FOR STORAGE OF MATERIALS. STORAGE, PARKING AND SERVICE AREA(S) WILL BE SUBJECT TO APPROVAL OF THE ENGINEER.
17. ALL EXISTING TREES AND BUSHES SHALL BE MAINTAINED AND PROTECTED UNLESS NOTED OTHERWISE. AREAS OF HAND FORMING MAY BE REQUIRED TO PROTECT TREES.
18. THE CONSTRUCTION OPERATIONS ARE TO TAKE PLACE IN A RESIDENTIAL AREA. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS INCLUDED IN THE SPECIFICATIONS IN REGARD TO POSITIVE DUST CONTROL DURING ALL OPERATIONS TO INCLUDE REMOVAL, CLEAN UP, ETC.
19. EXISTING STORM SEWERS, SANITARY SEWERS, AND WATER MAINS ARE LOCATED BASED ON CITY RECORDS AND ACTUAL LOCATION MAY VARY GREATLY FROM THAT SHOWN.
20. ELEVATIONS GIVEN ON THE PLAN AND PROFILE SHEETS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING THE SERVICES OF AN INDEPENDENT TESTING LABORATORY FOR ALL MATERIAL TESTING FOR THIS PROJECT.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE TESTING AGENCY IS NOTIFIED AT APPROPRIATE INTERVALS DURING THE PROJECT.
23. PROPOSED WATER DISTRIBUTION LINE SHALL BE INSTALLED WITH A MINIMUM OF FIVE AND A HALF FEET (5.5') OF COVER. IN LOCATIONS WITH A SEPARATION DISTANCE OF LESS THAN TEN FEET (10') FROM SANITARY SEWER OR STORM SEWER, THE SANITARY SEWER OR STORM SEWER SHALL BE INSTALLED EIGHTEEN INCHES (18") BELOW THE BOTTOM OF THE WATER MAIN AND SHALL BE PLACED IN A SEPARATE TRENCH AT A MINIMUM HORIZONTAL SEPARATION OF THREE FEET PER SUDAS SPECIFICATIONS.
24. AT ALL SEWER AND WATER MAIN CROSSOVERS, MAINTAIN A MINIMUM OF 18" SEPARATION BETWEEN BOTTOM OF WATER MAIN AND TOP OF SEWER. PLACE ONE FULL LENGTH OF WATER PIPE, LOCATED SO BOTH JOINTS ARE AS FAR AS POSSIBLE FROM SEWER. USE LOW PERMEABILITY SOIL FOR BACKFILL WITHIN 10' OF CROSSOVER.
25. THRUST BLOCKS SHALL BE POURED CONCRETE, INSTALLED BEHIND ALL BENDS, TEES AND DEAD ENDS IN ACCORDANCE WITH SPECIFICATIONS.
26. FLUSH WATER FROM DISINFECTION PROCESS SHALL BE DISPOSED OF BY DIRECTING FLUSH WATER TO SANITARY SEWER SYSTEM. DECHLORINATE HIGHLY CHLORINATED WATER FROM TESTING BEFORE RELEASING INTO THE SANITARY SEWER SYSTEM.
27. ANY DEWATERING NECESSARY FOR CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO INDIVIDUAL CONSTRUCTION ITEM.
28. THE CONTRACTOR SHALL INSPECT AND VERIFY SOIL CONDITIONS AS NECESSARY IN ORDER TO DETERMINE THE TYPE OF CONSTRUCTION TO EMPLOY. NATURAL OBSTRUCTIONS TYPICAL TO THIS AREA MAY BE ENCOUNTERED IN THE SOIL. THESE CONTRACT DOCUMENTS DO NOT WARRANT THE NATURE OR CONDITIONS OF THE SOILS, AND DO NOT WARRANT THE NATURAL OBSTRUCTIONS WILL NOT BE ENCOUNTERED, NOR GUARANTEE THE EXTENT TO WHICH ROCKS, BOULDERS, OR OTHER OBSTRUCTIONS, REGARDLESS OF SIZE, MAY BE ENCOUNTERED DURING OPERATIONS. THE CONTRACTOR SHALL NOT BE ENTITLED TO ADDITIONAL COMPENSATION FOR ANY NATURAL OBSTRUCTIONS TYPICAL TO THIS AREA ENCONTERED DURING CONSTRUCTION.
29. CONCRETE AND GROUT WASHOUT AREA SHALL REMAIN WITHIN CONFINES OR PROJECT AREA AND SHALL BE PROPERLY REMOVED UPON PROJECT COMPLETION.
30. WELL CUTTINGS AND DRILLING MUD CAN BE DISPOSED OF ONSITE BUT SHALL BE EVENLY SPREAD THROUGHOUT THE OWNER'S PROPERTY, ENGINEER RESERVES THE RIGHT TO INSTRUCT CONTRACTOR FOR FURTHER SITE WORK TO INCLUDE BUT NOT LIMITED TO EXCAVATING, DISKING, AND GRADING SO THAT DISPOSAL DOES NOT INTERFERE WITH FUTURE LAND USE.
31. A WELL WATER POLLUTION PREVENTION PLAN (WWPPP) HAS BEEN DEVELOPED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING, UPDATING, INSPECTING, AND CERTIFYING THE WWPPP. CONTRACTOR SHALL SPREAD WASTEWATER FLOW AWAY FROM NEARBY BUILDINGS/OTHER PROPERTIES BUT STILL MAINTAIN PROPER FILTRATION AND INFILTRATION INTO THE GROUND. THE WWPPP AND GUIDANCE DOCUMENTS ARE PROVIDED AS A SEPARATE DOCUMENT.
32. PROJECT ITEMS TO BECOME PROPERTY OF CONTRACTOR FOR PROPER DISOSAL UNLESS OTHERWISE NOTED ON PLANS OR CITY/ENGINEER NOTIFIES CONTRACTOR OTHERWISE.
33. OWNER WILL PROVIDE CONSTRUCTION STAKING FOR PROJECT THROUGH ISG (I+S GROUP, INC.) AND CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE BEFORE STAKING IS REQUIRED.
34. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING LOCATIONS AND ELEVATIONS OF WATER CONNECTION. REPAIR AND RELOCATION OF CONFLICTING OR DAMAGED UTILITIES SHALL BE INCIDENTAL TO WATER MAIN INSTALLATION.
35. SEEDING AND MULCHING IS INCLUDED IN THIS CONTRACT. CONTRACTOR SHALL BE RESONSIBLE FOR GRADING AND PREPARING AREAS DISTURBED BY CONTRACTOR'S OPERATIONS FOR SEEDING. ALL DEBRIS GREATER THAN GOLF BALL SIZE SHALL BE REMOVED AND AREA SHALL BE RAKED SMOOTH. CONTRACTOR SHALL NOT DISTURB AREAS OUTSIDE OF THE OWNER'S PROPERTY DURING OPERATIONS AND SHALL MAKE A REASONABLE EFFORT TO NOT DISURB AREAS GREATER THAN NECESSARY DURING CONSTRUCTION. AREAS OF NONGERMINATION WILL BE RESEEDED BY THE CONTRACTOR. COST IS TO BE CONSIDERED INCIDENTAL. NO FERTILIZER SHALL BE UTILIZED WITHIN 100 FT OF WELL LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR SUPPLEMENTAL WATERING AS NEEDED TO ESTABLISH SEED. SEED MIX SHALL BE SUDAS TYPE 2.
36. TRACER WIRE SHALL BE #12 AWG COPPER CLAS STEEL, HIGH STRENGTH WITH MINIMUM 450 LB BREAK LOAD, WITH MINIMUM 30 ML HDPE INSULATION THICKNESS. CONTRACTOR SHALL DEMONSTRATE TO OWNER TRACER WIRE PERFORMANCE.
37. WATER MAIN TRENCH BEDDING SHALL BE TYPE P-1.
38. PROPOSED METHODS OF TREATING WASTEWATER DISCHARGES ASSOCIATED WITH PRODUCTION WELL CONSTRUCTION, DEVELOPMENT AND TEST PUMPING HAVE BEEN DEVELOPED AND PREPARED BY ENGINEER SHOWING THE PROPOSED MEANS AND METHODS OF PRODUCTION WELL WATER TREATMENT. ACTUAL IMPLEMENTATION AND UPDATING OF WWPPP IS CONTRACTOR'S RESPONSIBILITY. OWNER AND CONTRACTOR TO REVIEW WWPPP, AGREE UPON METHODS AND SIGN WWPPP. NOTIFICATION TO THE APPROPRIATE IOWA DNR REGIONAL FIELD SERVICES OFFICE IS ALSO THE RESPONSIBILITY OF THE CONTRACTOR. INCLUDES THE INSTALLATION, MAINTENANCE, MANAGEMENT, INSPECTION AND REMOVAL OF ALL REQUIRED BEST MANAGEMENT PRACTICES. ALSO INCLUDES ANY ADDITIONAL LABOR AND MATERIALS REQUIRED TO FOLLOW AND IMPLEMENT WWPPP.

ISG

Storm Lake Proud

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	22-27926
FILE NAME	27926 DETAILS
DRAWN BY	CBH
DESIGNED BY	EJB/ALG
REVIEWED BY	EJB/ALG
ORIGINAL ISSUE DATE	09/29/2023
CLIENT PROJECT NO.	-

TITLE

CONSTRUCTION NOTES

SHEET

C0-10

UTILITIES

(ANWI) ALLIANT ENERGY
CONTACT NAME: ALLIANT ENERGY FIELD ENGINEER
CONTACT PHONE: 800.255.4268
CONTACT EMAIL: LOCATEIPL@ALLIANTENERGY.COM

(CTLIA01) CENTURY LINK
CONTACT NAME: SADIE HULL
CONTACT PHONE: 918.547.0147
CONTACT EMAIL: SADIE.HULL@LUMEN.COM

(LBIA07) LONG LINES BROADBAND
CONTACT NAME: MILES PATTON
CONTACT PHONE: 712.2715550
CONTACT EMAIL: MILES.PATTON@LONGLINES.BIZ

(M56E) MIDAMER-ELEC
CONTACT NAME: MARK WITTROCK
CONTACT PHONE: 712.749.7116
CONTACT EMAIL: MARK.WITTROCK@MIDAMERICAN.COM

(M56G) MIDAMER-GAS
CONTACT NAME: BRIAN SEWLL
CONTACT PHONE: 515.574.5042
CONTACT EMAIL: BISEWELL@MIDAMERICAN.COM

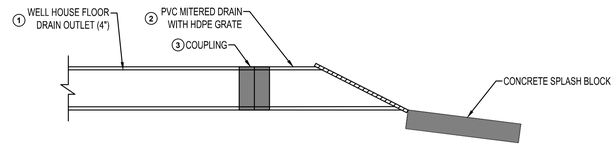
(STL) STORM LAKE, CITY OF
CONTACT NAME: KERI NAVRATIL
CONTACT PHONE: 712.732.8000
CONTACT EMAIL: NAVRATIL@STORMLAKE.ORG

(T11) MEDIACOM
CONTACT NAME: MIKE LAWLER
CONTACT PHONE: 515.571.2183
CONTACT EMAIL: MLAWLER@MEDIACOMCC.COM

SUDAS DETAILS

DETAIL NUMBER	DETAIL NAME
3010.101	TRENCH BEDDING AND BACKFILL ZONES
3010.103	FLEXIBLE GRAVITY PIPE TRENCH BEDDING
3010.104	PRESSURE PIPE TRENCH BEDDING
5010.101	THRUST BLOCKS
5010.102	TRACER SYSTEM
5020.201	FIRE HYDRANT ASSEMBLY
8030.1010	TEMPORARY TRAFFIC CONTROL GENERAL INFORMATION
9040.103	RECP INSTALLATION ON SLOPES
9040.105	WATTLE
9040.119	SILT FENCE
9040.120	STABILIZED CONSTRUCTION ENTRANCE
10010.101	DETAILS FOR PLUGGING WATER WELLS

NOTE: DETAILS LISTED IN PLAN SET ARE MEANT TO BE A GENERAL SAMPLING OF THOSE ANTICIPATED FOR THE PROJECT AND ARE NOT MEANT TO COVER ALL POSSIBLE SITUATIONS. CONTRACTOR SHALL REFERENCE SUDAS SPECIFICATIONS MANUAL FOR FULL LIST OF DETAILS.



NOTES:

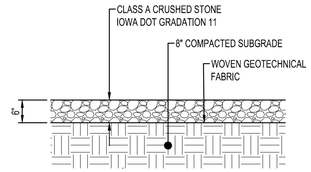
REFER TO PLANS. FOLLOW SUDAS SPECIFICATIONS FOR STORM SEWER INSTALLATION.

DRAIN AND GRATE SHALL BE APPROVED BY ENGINEER. FOLLOW MANUFACTURER INSTRUCTIONS FOR INSTALLATION.

COUPLING SHALL BE A MANUFACTURED PRODUCT APPROVED OF BY THE ENGINEER.

SPLASH BLOCK SHALL BE CONCRETE AND A MINIMUM OF 12" BY 18" BY 5". SPLASH BLOCK SHALL BE PLACED ON CLAY PLUG. AREA AROUND SPLASH BLOCK SHALL BE PROTECTED BY EROSION CONTROL BLANKET. (INCIDENTAL TO INSTALLATION)

WELL HOUSE FLOOR DRAIN OUTLET
NTS



AGGREGATE SURFACE
NTS

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IA

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CLIENT PROJECT NO.	-

TITLE

CONSTRUCTION NOTES & DETAILS

SHEET

C0-11

WWPPP LEGEND

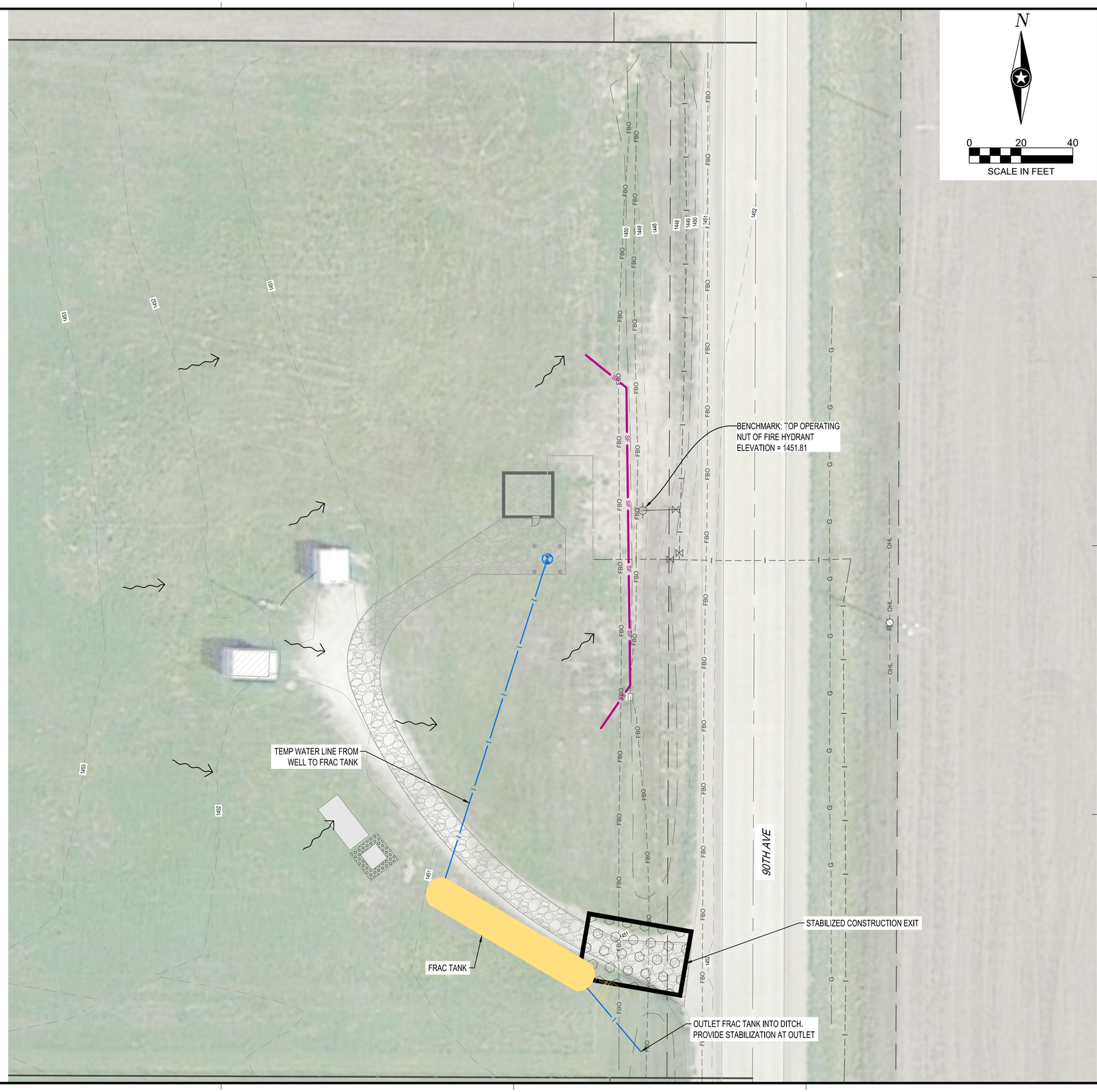
	EXISTING DRAINAGE DIRECTION
	FRAC TANK
I	TEMPORARY WATER LINE
SF	SILT FENCE

CONSTRUCTION ACTIVITIES & SCHEDULING

ACTIVITY	SCHEDULE
Install all BMP's needed and associated with the Well Construction Phase such as silt fence and etceteras.	Prior to any construction.
Implement the installation of access drive and construction staging area.	Stabilization measures must be initiated as soon as possible in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.
Proceed with construction in accordance with the well plan, while disturbing no more than necessary.	After Installing all BMP's needed and associated with the Well Construction Phase. Furthermore, INSPECTOR approval must be obtained before the start of any construction.
Proceed with removal of BMP's.	BMP's may not be removed until all construction is complete. Full development shall mean landscaping and fully established permanent seeding. Furthermore, INSPECTOR approval must be obtained before the removal of any BMP's.

BEST MANAGEMENTPRACTICES (BMPs)

CONTRACTOR IS TO VERIFY USE OF BEST MANAGEMENT PRACTICES (BMPs) FOR THE WELL WATER POLLUTION PREVENTION PLAN (WWPPP). SUGGESTED BMPs ARE FOR GUIDANCE ONLY AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE WATER IS TREATED PROPERLY BEFORE REACHING A WATER OF THE UNITED STATES. DEPENDENT ON TIME OF YEAR OF CONSTRUCTION, METHODS MAY NEED TO BE MODIFIED AND CARE SHOULD BE TAKEN TO LIMIT DISTURBANCE OF ANY CROPS IN SURROUNDING FIELDS. ALL METHODS SHALL BE REVIEWED WITH OWNER/ENGINEER PRIOR TO IMPLEMENTATION.



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TITLE

WELL WATER POLLUTION PREVENTION PLAN

SHEET

C1-10

WELL WATER POLLUTION PREVENTION PLAN NOTES:

GENERAL PROJECT INFORMATION:

PROJECT NARRATIVE:
This project consists of new well development, well house, test pumping, new water main installation, and surface replacement for the prior listed improvements, perimeter and other erosion and sediment controls.

PROJECT PHASING:
See construction notes.

RESPONSIBLE PARTIES:
Engineer has started WWPPP documents of National Pollution Discharge Elimination System (NPDES) General Permit No. 6. Contractor must verify well water pollution prevention and sediment control BMP's, sign all relevant documents, complete and submit Field Office Notification Form, routinely inspect site for WWPPP compliance, and manage overall WWPPP.

Contractor and owner shall identify a person knowledgeable and experienced in the application of well water pollution prevention and sediment control BMP's who will oversee the implementation of the WWPPP.

_____

Company: Contact Person: Phone:

_____

Company: Contact Person: Phone:

Owner shall identify the entity responsible for the long term Operation and Maintenance of the well water management system.

_____

Company: Contact Person: Phone:

PROJECT AREA:
Total project size (disturbed area) = 0.10 acres
Existing area of impervious surface = 0.06 acres
Post construction area of impervious surface = 0.09 acres

Total new impervious surface area created = 0.03 acres

WELL WATER MANAGEMENT / BMP SELECTION:
Types of well water management that are proposed are checked below. Contractor to make final determination of BMPs.

[X] Silt Fence [ ] Storm Drain Inlet Protection [X] Frac Tank
[X] Street Cleaning / Sweeping [X] Permanent Seeding

RECEIVING WATERS:
Surface waters which will receive well water from the construction site are as follows:

Name of Water Body	Type (ditch, pond, wetland, etc.)
WEST SIDE OF 90TH AVE	DITCH
CITY STORM SEWER	STORM SEWER
LITTLE STORM LAKE	WETLAND
STORM LAKE	LAKE

SOIL TYPES:

Hydrologic Soil Group – Summary by Map Unit – Buena Vista County, Iowa			
Map Unit Symbol	Map Unit Name	Rating	Percent of AOI
77B	SAC SILTY CLAY LOAM	C	42
91B	PRIMGHAR SILTY CLAY LOAM	C/D	58

CONSTRUCTION / IMPLEMENTATION:
Once all entities have agreed and signed the WWPPP, construction of the project may begin. Contractor responsible for notification to the appropriate IDNR Regional Field Services Office. Notification must be provided no earlier than 5 days before well services are started and no later than 24 hours following start. General Permit No. 6 can also be referenced for further information. The contractor must also do the following things that are indicated in the Well Water Pollution Prevention Plan:

1. Implement Controls
2. Inspect and Maintain the Controls
3. Update / change the WWPPP to keep it current based on the wastewater discharge quantity and quality.
4. Report any hazardous condition to the Iowa DNR Field Services Offices in which Field Office Notifications were submitted.

CONSTRUCTION ACTIVITY NOTES:

WELL WATER POLLUTION PREVENTION:
Construction of silt fence and all other pollution control measures shall be complete before other construction activity occurs.

Use phased construction wherever practical to minimize sediment transport.

SEDIMENT CONTROL PRACTICES:
Construction of silt fence and all other well water pollution control measures shall be complete prior to land disturbing activities occurring.

A rock construction entrance or other approved alternative may be constructed at the entry point to the well site to not stress existing ground. Contractor is responsible for replacement of any broken property.

Silt fence shall be installed and maintained until new well has been properly constructed.

The contractor shall be responsible to control erosion from leaving the construction zone. All eroded material that leaves the construction zone shall be collected by the contractor and returned to the site at the contractor's expense.

All streets must be swept within 24 hours when any tracking occurs.

Silt fence or other effective well water pollution control measures must be installed around the perimeter of any soil stockpiles, including temporary stockpiles. Stockpiles cannot be placed in surface waters, including storm water conveyances such as curb and gutter systems, or conduits and ditches.

CONSTRUCTION ACTIVITY NOTES:

SEQUENCE OF ACTIVITIES:
1. Notify Engineer and Owner of commencement of construction.
2. Install all site perimeter and sedimentation controls.
3. Drill new well and install all water main per plans. Develop and test.
4. Construct Well House.
5. When all construction is completed and site is stabilized, remove site perimeter and sedimentation controls.

WELL WASTEWATER PRODUCTION:
During drilling, only clear water or drilling mud will be used depending on approval by engineer. As such, a portable "mud pit" will be used if drilling mud is utilized. Any drilling fluid produced during this phase will be evenly spread across the site and prepared for final seeding. BMPs shall be prepared by the contractor to prevent any erosion or damage to neighboring properties.

During the development phase (bailing, surging, and air lifting), wastewater will be generated. This water will be pumped through a frac tank and to the approved drainage ditch. Wastewater shall receive a minimum of 5 minutes of retention time before being pumped to the approved ditch. Additionally, a reducing agent must be applied to any heavily chlorinated water. The amount of wastewater generated during development is dependent on the contractors chosen drilling methods.

The development wastewater will be low quality sediment laden water during the early portion of development and clearing to semi-high quality wastewater at the end of development. The development wastewater will be filtered through a frac tank before it is piped to the ditch.

After the new well is completed, test pumping will be required. Water generated during test pumping will be of semi-high quality with some suspended solids. It is anticipated that the new well will be test pumped at approximately 1800 GPM for 24 hours (or maximum sustainable yield). Test pumping may produce up to 2,592,000 gallons of water; of which, 100% is expected to reach Waters of the United States.

All test pump water will be piped to a portable frac tank where it will receive a minimum of 3 minutes of retention time. It will then leave the frac tank and be piped to the ditch.

CONSTRUCTION ACTIVITY NOTES:

POLLUTION PREVENTION:
All hazardous materials (oil, gasoline, fuel, paint, etc) must be properly stored to prevent spills, leaks or other discharge, storage areas shall provide secondary containment and a hazardous materials spill kit. Storage and disposal of hazardous waste must be in compliance with all applicable regulations.

Equipment maintenance areas must be limited to a defined area of the site. All runoff containing any hazardous material must be properly collected and disposed. No engine degreasing shall be allowed on site.

The contractor is responsible for monitoring air pollution and ensuring it does not exceed levels set by local, state, or federal regulations. This includes dust created by work being performed on the site. Air pollution and dust control correction is considered incidental to the unit bid prices for which work is being performed. Additional dust control measures may be required by the Engineer.

INSPECTION AND MAINTENANCE:
Contractor's qualified personnel (INSPECTOR) must routinely inspect the construction site once every six (6) hours following any storm event of 0.5 inches or greater and at least once per week until completion of well construction.

All inspections performed during construction must be recorded and records retained with the WWPPP.

Contractor is responsible for keeping a record of all rainfall information & erosion control maintenance until well construction procedures have commenced.

All silt fences must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches ½ of the height of the fence.

Erosion control, and other BMP's must be replaced, repaired, or supplemented when they reach 50% design load.

FINAL STABILIZATION:
The Permittees must ensure final stabilization of the site.

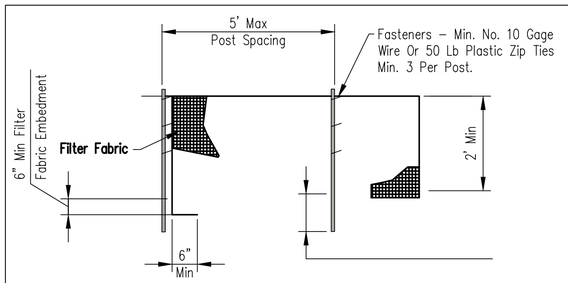
All temporary erosion control measures and BMP's must be removed as part of the final site stabilization.

NPDES General Permit No. 6 further defines final stabilization and its requirements.

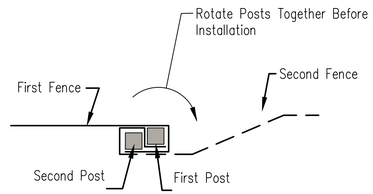
MAINTENANCE SCHEDULE

The following Maintenance Schedule has been provided. The INSPECTOR must perform the inspections. The CONTRACTOR must perform all needed maintenance. Furthermore, all erosion control features requiring maintenance may not be listed below. The CONTRACTOR and INSPECTOR must perform their respective duties on all BMP's that are not listed below as well.

1. Access Drive and Construction Staging Area – The entrance shall be maintained in a condition which will prevent tracking or flow of sediment onto public rights-of-way. This may require periodic top dressing and repair and/or cleanout of any structures used to trap sediment. All materials spilled, dropped, washed, or materials dropped, washed or tracked onto roadways will not be permitted under any circumstances. Access drive and construction staging area must protect existing site, contractor is responsible for all damage to existing site.
2. Silt Fence – The maintenance measures are as follows; (2.1) silt fences shall be inspected immediately after each rainfall and at least daily during prolonged rainfall, any required repairs shall be made immediately; (2.2) close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting; (2.3) should the fabric on a silt fence decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly; (2.4) sediment deposits must be removed when the level of deposition reaches approximately one-half the height of the barrier; and (2.5) any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform to the existing grade, prepared and seeded.
3. Permanent Seeding – The maintenance measures are as follow: (3.1) in general, a stand of vegetation cannot be determined to be fully established until it has been maintained for one full year after planning; (3.2) new seedlings shall be supplied with adequate moisture, supply water as needed, especially late in the season, in abnormally hot or dry conditions, or on adverse sites, water applications shall be controlled to prevent excessive runoff; (3.3) inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season, if possible; [3.3a] if stand is inadequate for erosion control, over seed using half of the rates originally specified; [3.3b] if stand is 60% damaged, re-establish following seedbed and seeding recommendation; [3.3c] if stand has less than 40% cover, re-evaluate choice of plant materials and quantities of lime, the soil must be tested to determine if acidity or nutrient imbalances are responsible, re-establish the stand following seedbed and seeding recommendations.
4. Street Cleaning / Sweeping – The maintenance measures are as follows: (4.1) evaluate access points daily for sediment tracking; (4.2) when tracked or spilled sediment is found on paved surfaces, it will be removed daily, during times of heavy track-out, such as during rains, cleaning may be done several times throughout the day; (4.3) unknown spills or objects will not be mixed with the sediment; and (4.4) if sediment is mixed with other pollutants, it will be disposed of properly at an authorized landfill.



SILT FENCE



SILT FENCE - SPLICE DETAIL

NOTES:
1. Temporary silt fence shall be installed prior to any construction work in the area to be protected. All protection measures shall be maintained throughout the construction period and removed in conjunction with the final grading and site stabilization.
2. Fence posts shall be either wood post with a minimum cross-sectional area of 1.5" x 1.5" or a standard steel post.
3. When silt fence splices are necessary make splice at post according to splice detail. Place the end post of the second fence inside the end post of the first fence. Rotate both posts together at least 180 degrees to create a tight seal with the fabric material. Cut the fabric near the bottom of the posts to accommodate the 6 inch flap. Then drive both posts and bury the flap. Compact backfill well.
4. All material shall be approved by engineer before installation and follow SUDAS guidelindes.

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	22-27926
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DRAWN BY	CBH
DESIGNED BY	EJB/ALG
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CLIENT PROJECT NO.	-

TITLE

WPPP NOTES

SHEET

C1-20

REMOVAL LEGEND

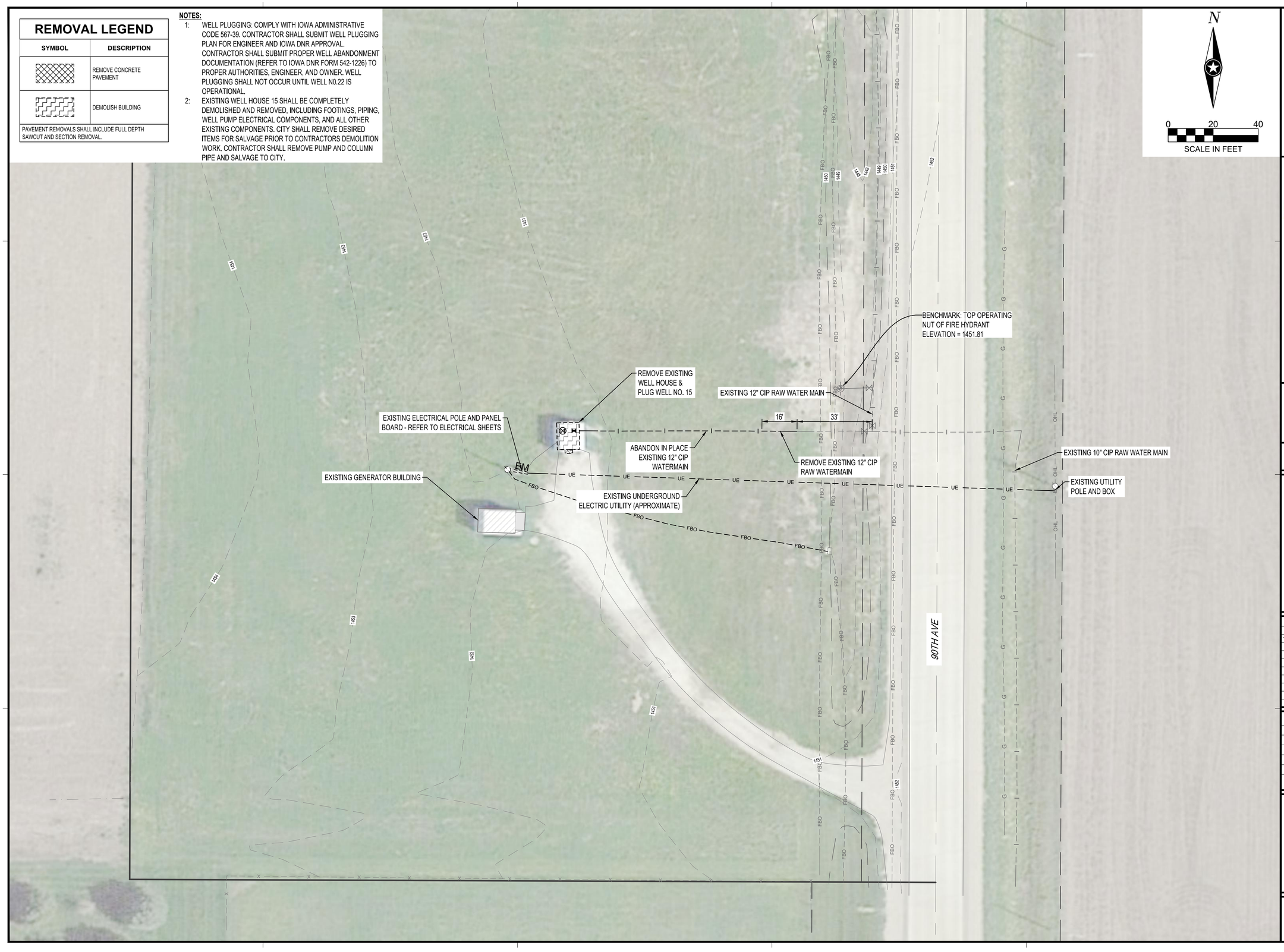
SYMBOL	DESCRIPTION
	REMOVE CONCRETE PAVEMENT
	DEMOLISH BUILDING

PAVEMENT REMOVALS SHALL INCLUDE FULL DEPTH SAWCUT AND SECTION REMOVAL.

NOTES:

1: WELL PLUGGING: COMPLY WITH IOWA ADMINISTRATIVE CODE 567-39. CONTRACTOR SHALL SUBMIT WELL PLUGGING PLAN FOR ENGINEER AND IOWA DNR APPROVAL. CONTRACTOR SHALL SUBMIT PROPER WELL ABANDONMENT DOCUMENTATION (REFER TO IOWA DNR FORM 542-1226) TO PROPER AUTHORITIES, ENGINEER, AND OWNER. WELL PLUGGING SHALL NOT OCCUR UNTIL WELL N0.22 IS OPERATIONAL.

2: EXISTING WELL HOUSE 15 SHALL BE COMPLETELY DEMOLISHED AND REMOVED, INCLUDING FOOTINGS, PIPING, WELL PUMP ELECTRICAL COMPONENTS, AND ALL OTHER EXISTING COMPONENTS. CITY SHALL REMOVE DESIRED ITEMS FOR SALVAGE PRIOR TO CONTRACTORS DEMOLITION WORK. CONTRACTOR SHALL REMOVE PUMP AND COLUMN PIPE AND SALVAGE TO CITY.



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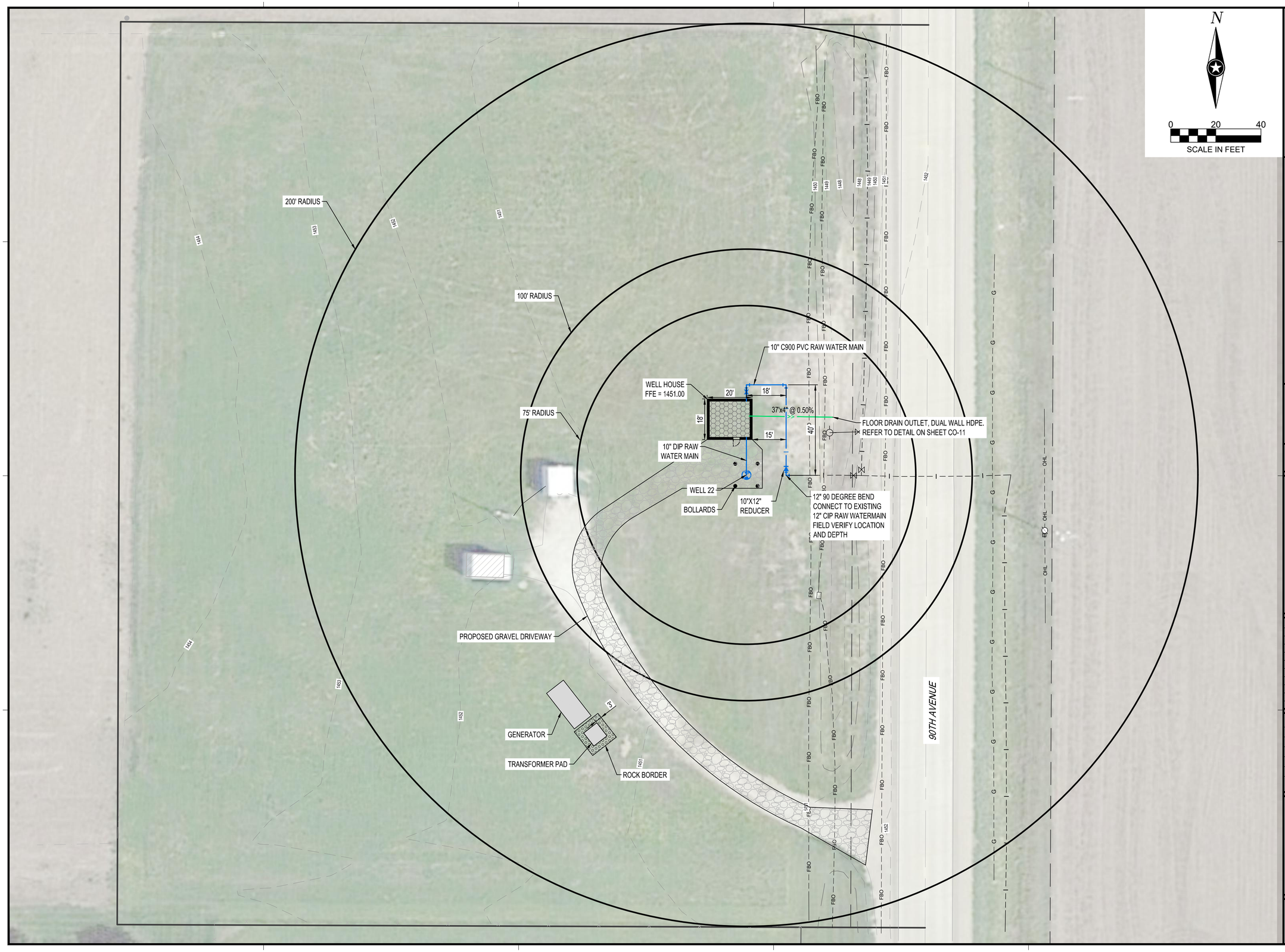
CLIENT PROJECT NO.	-

TITLE

EXISTING SITE & REMOVALS

SHEET

C2-10



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CLIENT PROJECT NO.	-

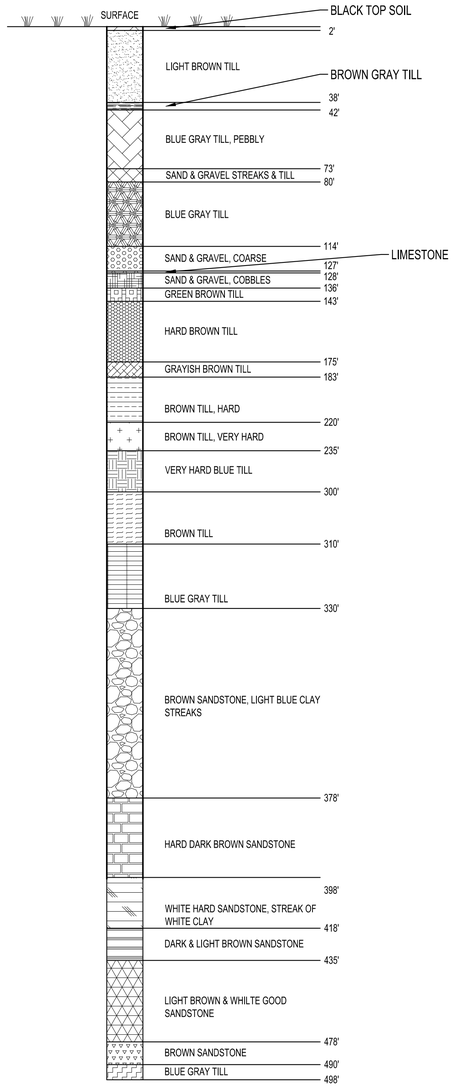
TITLE

WELL SITE PLAN

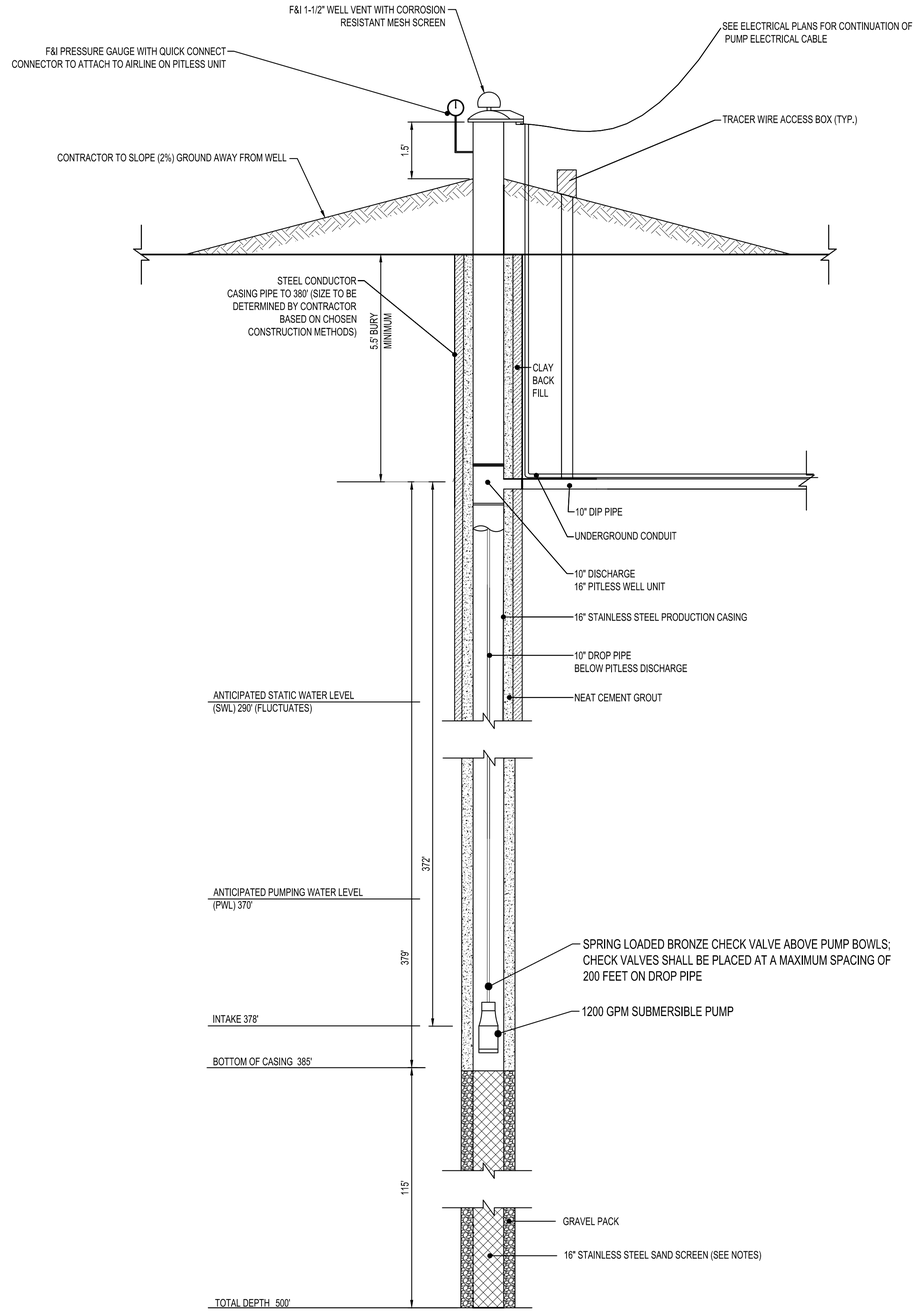
SHEET

C3-10

NOTE:
LOG IS BASED ON WELL 15 RECORD 31664. THIS WELL IS LOCATED APPROXIMATELY 50 FEET WEST FROM THE PROPOSED LOCATION OF NEW WELL.



ANTICIPATED BORING LOG
NOT TO SCALE



NEW WELL - SECTION
NOT TO SCALE

WELL NOTES

1. ALL PROPOSED MEASUREMENTS ARE ESTIMATES. CONTRACTOR IS TO VERIFY INSTALLATION DEPTHS WITH ENGINEER AND CONSTRUCT WELL TO PRODUCE REQUIRED FLOW RATE OF 1200 GPM.
2. SIEVE ANALYSIS TO BE CONDUCTED ON MATERIAL AT SCREEN DEPTH BY JOHNSON SCREENS. SCREEN SLOT SIZE AND GRAVEL PACK GRADATION TO BE RECOMMENDED BY JOHNSON SCREEN AND REVIEWED/APPROVED BY ENGINEER.
3. BORE HOLE DIAMETER SHALL BE DETERMINED BY CONTRACTOR BASED ON GEOLOGICAL FORMATION AND CHOSEN CONSTRUCTION METHODS. MINIMUM 1.5" GROUT MUST BE PLACED IN ANNULAR SPACE AROUND ALL CASING AND WELDS; ADJUST HOLE SIZE AS NEEDED BASED ON ACTUAL CASING AND WELDS.
4. CONTRACTOR TO POTHOLE TO VERIFY THE DEPTH OF EXISTING UTILITIES. RESTORATION OF THOSE POTHOLES IS CONTRACTOR'S RESPONSIBILITY.
5. CONTRACTOR TO PROTECT WELL FROM TAMPERING OR ENTRANCE OF FOREIGN MATERIAL DURING PROGRESS OF WORK WHEN NOT IN CONSTRUCTION.
6. WELL PUMP SETTING SHALL BE CONFIRMED BASED ON WELL TESTING RESULTS.

ISG

Storm Lake Proud

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	22-27926
FILE NAME	27926 SITE
DRAWN BY	CBH
DESIGNED BY	EJB/ALG
REVIEWED BY	EJB/ALG
ORIGINAL ISSUE DATE	09/29/2023
CLIENT PROJECT NO.	-

TITLE

WELL SECTION & NOTES

SHEET

C3-20

STRUCTURAL NOTES BASED ON THE 2015 INTERNATIONAL BUILDING CODE

GENERAL NOTES

A. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER THESE STANDARD STRUCTURAL NOTES. TYPICAL DETAILS SHALL BE USED WHENEVER APPLICABLE.

B. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING WORK; AND THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED, IN WRITING, OF ANY DISCREPANCIES.

C. IN NO CASE SHALL DIMENSIONS BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON THE STRUCTURAL DRAWINGS.

D. THE CONTRACTOR SHALL DETERMINE THE LOCATION OF UTILITY SERVICES IN THE AREA TO BE EXCAVATED BEFORE BEGINNING EXCAVATION.

E. NO PIPES, DUCTS, SLEEVES, CHASES, ETC., SHALL BE PLACED IN SLABS OR WALLS, NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR PIPES, DUCTS, ETC.

F. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL TEMPORARY SHORING AND BRACING OF EXISTING STRUCTURAL ELEMENTS DURING CONSTRUCTION. ALL SHORING SHALL BE ADEQUATE TO SUPPORT ALL STRUCTURAL LOADS DURING THE REMOVAL OF THE EXISTING STRUCTURE. TEMPORARY SHORING MUST REMAIN IN PLACE UNTIL ALL NEW STRUCTURAL ELEMENTS ARE SECURED INTO PLACE PER CONSTRUCTION DOCUMENTS.

G. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND MANUALS (LATEST EDITION):
1. 2015 IOWA STATE BUILDING CODE
2. INTERNATIONAL BUILDING CODE (IBC).
3. AMERICAN CONCRETE INSTITUTE (ACI).
4. CONCRETE REINFORCING STEEL INSTITUTE (CRSI) MANUAL OF STANDARD PRACTICE (FOR PLACING AND DETAILING OF ALL REINFORCING).
5. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC).
6. AMERICAN WELDING SOCIETY (AWS) STANDARDS FOR WELDING AS MODIFIED BY AISC SPECIFICATION.
7. MASONRY STANDARDS JOINT COMMITTEE (MSJC)
8. AMERICAN FOREST & PAPER ASSOCIATION NATIONAL DESIGN SPECIFICATION (AF & PA NDS)

DESIGN LOADS CRITERIA

A. CODES USED:
1. 2015 INTERNATIONAL BUILDING CODE
2. 2010 AMERICAN SOCIETY OF CIVIL ENGINEERS STANDARD 7 (ASCE 7-10)

B. WIND LOAD CRITERIA:
1. ULTIMATE WIND SPEED. V = 115 MPH (3 SECOND GUST)
2. NOMINAL WIND SPEED, V = 90 MPH (3 SECOND GUST)
3. WIND RISK CATEGORY: I
4. WIND LOAD EXPOSURE: C
5. INTERNAL PRESSURE COEFFICIENT: +/- 0.18 (ENCLOSED BUILDING)
6. WIND TOPOGRAPHIC FACTOR: K_{ZT} = 1.0
7. WIND NET UPLIFT: 15 PSF (NOMINAL)

C. SNOW LOAD CRITERIA:
1. GROUND SNOW LOAD, P_G = 50 PSF
2. FLAT-ROOF SNOW LOAD (BALANCED), P_F = 28SF
3. SNOW LOAD IMPORTANCE FACTOR, Ce = 1.0
4. SLOPE FACTOR, C_S = 1.0
5. THERMAL FACTOR, C_T = 1.0
6. SNOW EXPOSURE FACTOR, C_E = 1.0
7. UNBALANCED SNOW LOAD: ON PLAN IF APPLICABLE

D. TRUSS LOADS
1. 16 PSF - TOP CHORD DEAD LOAD
2. 5 PSF - BOTTOM CHORD DEAD LOAD

FOOTINGS AND FOUNDATIONS

A. SOIL BEARING DESIGN VALUE:
1. 1500 PSF (PRESUMED).
2. BEARING VALUE TO BE VERIFIED IN FIELD BY GEOTECHNICAL ENGINEER.

B. PROTECT FOUNDATION EXCAVATIONS FROM FROST; DO NOT PLACE CONCRETE ON FROZEN GROUND.

C. FOUNDATION EXCAVATIONS SHALL BE KEPT FREE OF LOOSE MATERIAL AND STANDING WATER AND SHALL BE CHECKED AND APPROVED BY THE ENGINEER BEFORE THE PLACEMENT OF ANY CONCRETE.

a. DESIGN FROST PENETRATION DEPTH: 42 INCHES (HEATED) OR 60 INCHES (UNHEATED)

E. MINIMUM OF 6" COMPACTED GRANULAR SUBGRADE BELOW SLABS.

MATERIAL COMPACTION CRITERIA	
LOCATION	MINIMUM RELATIVE COMPACTION PERCENTAGE (ASTM D698 STANDARD PROCTOR DENSITY (SPD))
1'-0" BELOW FOUNDATION AND SLAB SUBGRADE ELEVATIONS	98%
ABOVE BOTTOM OF FOUNDATIONS AND BELOW SLAB SUBGRADE ELEVATIONS	95%
BELOW EXTERIOR SLAB, WITHIN 1'-0" OF SUBGRADE ELEVATIONS	98%
BELOW EXTERIOR SLAB, MORE THAN 1'-0" BELOW SUBGRADE ELEVATIONS	95%

CONCRETE

A. CONCRETE SHALL BE STANDARD WEIGHT MIX UNLESS NOTED OTHERWISE AND MEET THE FOLLOWING CRITERIA:

LOCATIONS	f'c @ 28 DAYS	AIR ENTRAINMENT	MAX. WATER/CEMENT RATIO
FOOTINGS / FOUNDATIONS	4000 PSI		0.55
FLOORS ON GRADE	4000 PSI		0.55
EXTERIOR SLABS ON GRADE	4500 PSI	6% ± 1.5%	0.45
EXPOSED EXTERIOR WALLS	4500 PSI	6% ± 1.5%	0.45

B. CEMENT SHALL CONFORM TO ASTM C150, TYPE I / II.

C. READY-MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C94.

D. CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301 (LATEST EDITION) "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", EXCEPT AS MODIFIED BY THESE NOTES.

E. ADMIXTURES MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER. ADMIXTURES SHALL COMPLY WITH ASTM C494 AND BE OF A TYPE THAT INCREASES THE WORKABILITY OF THE CONCRETE, BUT SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT (CALCIUM CHLORIDE SHALL NOT BE USED).

F. CONTRACTOR SHALL SUBMIT MIX DESIGNS FOR APPROVAL 10 DAYS PRIOR TO FABRICATION AND INSTALLATION. ALL CONCRETE MIXES SHALL BE DESIGNED AND CERTIFIED BY A MATERIALS TESTING COMPANY.

G. PROJECTING CORNERS OF SLABS, BEAMS, WALLS, COLUMNS, ETC. SHALL BE FORMED WITH A 3/4" CHAMFER UNLESS DETAILED OR NOTED OTHERWISE.

H. PLACE VAPOR RETARDER DIRECTLY BELOW FLOOR SLAB.

I. CONCRETE FLOOR SHALL BE CURED IN ACCORDANCE WITH ASTM C309. CONCRETE FLOOR SHALL BE PROTECTED FROM MOISTURE LOSS FOR A MINIMUM OF 14 DAYS, USING AN APPROVED SHEET MEMBRANE IN ACCORDANCE WITH C171.

J. FLOOR FLATNESS AND LEVELNESS TOLERANCES:
1. UNLESS NOTED OTHERWISE, FLOORS SHALL CONFORM TO THE FOLLOWING SURFACE PROFILE TOLERANCES:
a. FLOOR FLATNESS NUMBER (F_F)
- SPECIFIED OVERALL VALUE = 20
- MINIMUM LOCAL VALUE = 15

b. FLOOR LEVELNESS NUMBER (F_L)
- SPECIFIED OVERALL VALUE = 20
- MINIMUM LOCAL VALUE = 15

2. FLOOR TOLERANCE (F_F AND F_L) MEASUREMENTS SHALL BE TESTED IN ACCORDANCE WITH ASTM E 1155. ACTUAL OVERALL F-NUMBERS SHALL BE CALCULATED USING THE INFERIOR / SUPERIOR AREA METHOD.
3. CORRECT DEFECTIVE SLABS BY GRINDING OR REMOVING AND REPLACING DEFECTIVE WORK. RE-MEASURE CORRECTED AREAS BY THE SAME PROCESS.

ANCHOR BOLTS

A. ALL ANCHOR RODS SHALL BE SUPPLIED AND INSTALLED BY THE CONCRETE CONTRACTOR, UNLESS NOTED OTHERWISE.

B. ALL ANCHOR RODS SHALL BE ASTM F1554 GRADE 36 HEX-HEAD, UNLESS NOTED OTHERWISE. NUTS SHALL BE ASTM A563 GRADE A HEAVY HEX. OVER-SIZED PLATE WASHERS SHALL BE ASTM A36.

C. ALL ANCHOR RODS SHALL BE SET WITH TEMPLATES.

D. POST-INSTALLED ANCHORS SHALL BE ADHESIVE ANCHORING SYSTEM PROVIDED AND INSTALLED BY FRAMING CONTRACTOR. ADHESIVE ANCHORS SHALL BE "HILTI HIT-HY 200 ADHESIVE ANCHOR SYSTEM" OR APPROVED ALTERNATE. ANCHORS SHALL BE "HILTI HAS-E" THREADED ROD CONFORMING TO ISO 898-1 CLASS 5.8 OR SHALL BE MADE FROM ALL-THREADED ROD CONFORMING TO ASTM A572 GRADE 60, OR APPROVED ALTERNATE, UNLESS NOTED OTHERWISE.

REINFORCING STEEL

A. BAR REINFORCEMENT SHALL BE ASTM A615, GRADE 60.

B. MINIMUM DEVELOPMENT LENGTH OF REINFORCING BARS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE.

MINIMUM LENGTH FOR STANDARD UN-COATED BARS IN NORMAL WEIGHT CONCRETE						
CONCRETE STRENGTH f'c IN PSI	DEVELOPMENT LENGTH (Ld) FOR STRAIGHT BARS (MIN. OF 12 INCHES)					FOR 90 DEGREE HOOKED BARS, HOOK DEVELOPMENT LENGTH
	TENSION CLASS A		TENSION CLASS B		COMPRESSION	
	#6 AND SMALLER	#7 TO #11	#6 & SMALLER	#7 TO #11	#18, #14, & #11 AND SMALLER	
3000	44 Db	55 Db	57 Db	71 Db	30 Db	22 Db
3500	41 Db	51 Db	53 Db	66 Db	30 Db	20 Db
4000	38 Db	47 Db	49 Db	62 Db	30 Db	19 Db
4500	36 Db	45 Db	47 Db	58 Db	30 Db	18 Db
5000	34 Db	42 Db	44 Db	55 Db	30 Db	17 Db
NOTE: Db = DIAMETER OF REINFORCEMENT. Ld = DEVELOPMENT LENGTH						

C. TYPICAL SPLICES: CLASS B AS DEFINED IN ACI 318, UNLESS NOTED OTHERWISE

D. ADJUSTMENT FACTORS FOR STRAIGHT BARS IN TENSION
1. LIGHTWEIGHT CONCRETE = 1.3.
2. EPOXY COATED = 1.2.
3. EPOXY COATED WITH COVER LESS THAN 3DB OR CLEAR SPACING LESS THAN 6 DB = 1.5.
4. HORIZONTAL "TOP" BARS WITH 12" OF CONCRETE CAST BELOW = 1.3
5. EPOXY COATED HORIZONTAL "TOP" BARS WITH 12" OF CONCRETE CAST BELOW = NOT GREATER THAN 1.7.

E. ADJUSTMENT FACTORS FOR STRAIGHT HOOKS IN TENSION
1. LIGHTWEIGHT CONCRETE = 1.3.
2. EPOXY COATED = 1.2.

F. REINFORCING STEEL SHALL BE PROVIDED WITH THE FOLLOWING AMOUNTS OF COVER FOR CAST-IN-PLACE CONCRETE UNLESS NOTED OTHERWISE:

MINIMUM CLEAR CONCRETE COVER FOR REINFORCING STEEL	
CONCRETE ON SOIL (DIRECT CONTACT)	3"
SLAB ON GRADE	CENTERED
WALLS, STRUCTURAL SLABS EXPOSED TO SOIL OR WEATHER #6 TO #18 REBAR #5 AND SMALLER REBAR	 2" 1 1/2"
WALLS, STRUCTURAL SLABS NOT EXPOSED TO EARTH OR WEATHER #11 AND SMALLER REBAR	 3/4"
COLUMNS AND PIERS (COVER TO STIRRUPS AND TIES)	1 1/2"

G. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND INSERTS SHALL BE SECURED IN POSITION WITH WIRE POSITIONERS, OR EQUAL, BEFORE PLACING CONCRETE OR GROUT.

H. DOWELS BETWEEN FOOTINGS AND WALLS SHALL BE THE SAME GRADE, SIZE, AND SPACING AS VERTICAL WALL REINFORCING.

I. CONTRACTOR SHALL SUBMIT REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL A MINIMUM OF 10 DAYS PRIOR TO FABRICATION AND INSTALLATION.

J. BARS TO BE WELDED SHALL BE ASTM A706, GRADE 60. WELDING OF REINFORCING BARS SHALL CONFORM TO AWS D1.4.

WOOD

A. GENERAL:
1. ALL WOOD MEMBERS SHALL BE AS FOLLOWS (UNLESS APPROVED BY THE ENGINEER):
a. STUDS - SPRUCE PINE FIR (SPF) STUD GRADE OR SOUTHERN PINE STUD GRADE.
b. HEADERS/JOISTS - DOUGLAS FIR-LARCH (DF-L) NO. 2 OR BETTER, HEM-FIR NO. 2 OR BETTER, OR SOUTHERN PINE NO. 2 OR BETTER.
2. ALL SHEATHING SHALL BE APA RATED SHEATHING.
3. CUTTING, NOTCHING, OR DRILLING OF BEAMS OR JOISTS SHALL BE PERMITTED ONLY AS DETAILED OR APPROVED BY THE ENGINEER.
4. ALL NAILING SHALL CONFORM TO NAILING SCHEDULE IBC TABLE 2304.9.1, UNLESS NOTED OTHERWISE.
5. ALL SILLS OR PLATES RESTING ON CONCRETE OR MASONRY, WHICH IS IN CONTACT WITH EARTH OR RESTING ON FOUNDATIONS, SHALL BE PRESSURE TREATED SOUTHERN PINE NO. 2.
6. ALL MEMBER SIZES GIVEN OR DRAWINGS ARE NOMINAL DIMENSIONS.
7. SPACING OF BRIDGING FOR JOISTS SHALL NOT EXCEED 8'.
8. WOOD LINTELS AND HEADERS SHALL HAVE A FULL 3" LENGTH OF BEARING AT EACH END.
9. DOUBLE ALL JOISTS UNDER PARALLEL PARTITIONS.
10. ALL BEAMS AND JOISTS NOT BEARING ON SUPPORTING MEMBERS SHALL BE FRAMED WITH JOIST HANGERS.
11. WOOD JOISTS SHALL BEAR THE FULL WIDTH OF SUPPORTING MEMBERS (STUD WALLS, BEAMS, ETC. UNLESS OTHERWISE NOTED).
12. PRE-BORE HOLES FOR ALL FASTENERS GREATER THAN 1/4" Ø PER MANUFACTURER'S RECOMMENDATIONS.

B. SILL PLATES
1. UNLESS NOTED OTHERWISE, SILL PLATES SHALL BE BOLTED TO FOUNDATION WALL WITH 1/2"Ø G185 HOT-DIPPED GALVANIZED, TYPE 304 OR TYPE 316 STAINLESS BOLTS (TYPICAL FOR ALL FASTENERS / CONNECTORS IN CONTACT WITH ACQ TREATED LUMBER) AT 4'-0" MAXIMUM O.C. BOLTS SHALL EXTEND 12" MINIMUM INTO FOUNDATION. EACH SILL PLATE TO HAVE A MINIMUM OF TWO BOLTS WITH ONE BOLT LOCATED WITHIN 12" OF EACH END OF EACH PIECE.

C. MANUFACTURED WOOD TRUSSES
1. WOOD TRUSS DESIGN SHALL BE DESIGNED IN ACCORDANCE WITH THE PROVISIONS OF IBC WOOD SECTION 2303.4.
2. LUMBER FOR WOOD TRUSSES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
3. TRUSS, BRIDGING, BRACING AND/OR BLOCKING, TO PREVENT ROTATION AND PROVIDE LATERAL STABILITY, SHALL BE SUBMITTED BY TRUSS MANUFACTURER FOR ENGINEER'S REVIEW.
4. LOCATIONS FOR LATERAL RESTRAINT SHALL BE IDENTIFIED ON THE TRUSS DESIGN DRAWINGS.
5. NO CUTTING, NOTCHING, AND/OR FIELD MODIFICATIONS OR REPAIRS OF TRUSSES WITHOUT ENGINEER OF RECORD AND TRUSS MANUFACTURER ENGINEER'S WRITTEN APPROVAL.
6. DAMAGED TRUSSES, INCLUDING DAMAGED AND/OR LOOSE TRUSS METAL-PLATE-CONNECTORS, MAY NOT BE USED.
7. GABLE END TRUSS KNEE BRACING PER MANUFACTURER'S RECOMMENDATIONS.
8. PROVIDE BALLOON-FRAMED GABLE END WALL FOR DIAPHRAGM FORCE TRANSFER AND TRUSS STABILITY.
9. TOTAL LOAD DEFLECTION LIMITATIONS:
a. ROOF TRUSSES LESS THAN L/360.
b. VERTICAL SCISSOR TRUSSES LESS THAN 3/4".
10. SUBMIT COMPLETE SHOP DRAWINGS FOR APPROVAL, SHOWING THE ERECTION PLAN, ALL BEARING CONDITIONS, AND CONNECTIONS. CALCULATIONS CERTIFIED BY A PROFESSIONAL ENGINEER SHALL BE REQUIRED FOR ALL WOOD TRUSSES.
11. WOOD TRUSS SUPPLIER SHALL DETAIL BEARING OF TRUSSES SO AS NOT TO EXCEED STRESS PERPENDICULAR TO GRAIN OF WOOD PLATES THAT SUPPORT THE TRUSSES.
12. DESIGN OF BOTH TEMPORARY AND PERMANENT TRUSS MEMBER RESTRAINING FOR ALL TRUSSES WHICH CLEAR SPAN 60 FEET OR GREATER SHALL BE PROVIDED BY TRUSS SUPPLIER.

D. LAMINATED VENEER LUMBER (LVL):
1. DESIGN STRESSES:
a. E = 1,900,000 PSI
b. F_b = 2,600 PSI
c. F_v = 285 PSI

E. LAMINATED STRAND LUMBER (LSL)
1. DESIGN STRESSES:
a. E = 1,300,000 PSI
b. F_b = 1,700 PSI
c. F_v = 400 PSI

F. PARALLEL STRAND LUMBER (PSL)
1. DESIGN STRESSES:
a. E = 2,000,000 PSI
b. F_b = 2,900 PSI
c. F_v = 290 PSI

G. MULTIPLE MEMBER BEAMS SHALL BE ASSEMBLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, BUT NOT LESS THAN NAILING SPECIFIED IN DIMENSIONAL LUMBER SECTION OF THESE NOTES.

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO. 22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	22-27926
FILE NAME	
DRAWN BY	KK
DESIGNED BY	KK
REVIEWED BY	JMB
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	

TITLE

STRUCTURAL NOTES

SHEET

S1-00

0 1/4" 1/2" 1" 2"

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SPECIAL INSPECTIONS

1. SPECIAL INSPECTION PROGRAM SHALL CONFORM TO CHAPTER 17 OF THE IBC.
2. THE OWNER SHALL EMPLOY A SPECIAL INSPECTOR TO PERFORM THE REQUIRED TESTS AND SPECIAL INSPECTIONS WITH QUALIFICATIONS DESCRIBED PER IBC CHAPTER 17 AND THE PROJECT SPECIFICATIONS.
3. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTIONS AND TESTS. SUFFICIENT NOTICE AND LEAD TIME MUST BE ALLOWED FOR THE INSPECTION AND TESTING TO BE PERFORMED WITHOUT IMPEDING CONSTRUCTION OPERATIONS.
4. SPECIAL INSPECTION REPORTS SHALL BE FURNISHED TO BUILDING OFFICIAL, OWNER, ARCHITECT, STRUCTURAL ENGINEER, AND CONTRACTOR.
5. WHEN DEFICIENCIES ARE IDENTIFIED, THE CONTRACTOR MUST TAKE CORRECTIVE ACTIONS TO COMPLY WITH THE CONTRACT DOCUMENTS OR REMEDY THE DEFICIENCIES AS DIRECTED BY THE REGISTERED DESIGN PROFESSIONAL.
6. THE SPECIAL INSPECTION AND QUALITY ASSURANCE PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF HIS OR HER RESPONSIBILITY TO PERFORM QUALITY CONTROL.
7. THE CONTRACTOR IS RESPONSIBLE FOR TESTING SERVICES THAT ARE REQUIRED FOR MATERIAL SUBMITTALS AND THAT ARE NOT PART OF THE SPECIAL INSPECTION PROGRAM (E.G. AGGREGATE TESTS, CONCRETE MIX DESIGNS, TESTING OF CONTROLLED FILL MATERIALS, ETC.).
8. SPECIAL INSPECTOR SHALL SUBMIT A FINAL REPORT STATING THAT THE STRUCTURAL WORK WAS, TO THE BEST OF THE SPECIAL INSPECTOR'S KNOWLEDGE, PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.

CAST-IN-PLACE CONCRETE (IBC 1705.3)

SPECIAL INSPECTION TYPE	FREQUENCY
INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	PERIODIC
REINFORCING BAR WELDING:	
VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706.	PERIODIC
INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16".	PERIODIC
INSPECT ALL OTHER WELDS.	CONTINUOUS
INSPECT ANCHORS CAST IN CONCRETE.	PERIODIC
INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.	
ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	CONTINUOUS
MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE.	PERIODIC
VERIFY USE OF REQUIRED DESIGN MIX.	PERIODIC
INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	CONTINUOUS
VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	PERIODIC
INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	PERIODIC
FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE. SAMPLE FOR STRENGTH TESTS OF EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 150 CUBIC YARDS OF CONCRETE, NOR LESS THAN ONCE FOR EACH 5,000 SQUARE FEET OF SURFACE AREA FOR SLABS OR WALLS. A MINIMUM OF FIVE STRENGTH TESTS SHOULD BE MADE FOR A GIVEN PROJECT.	CONTINUOUS AT TIME OF TESTING

WOOD (IBC 1705.5)

SPECIAL INSPECTION TYPE	FREQUENCY
HIGH LOAD DIAPHRAGMS: INSPECT THE WOOD STRUCTURAL PANEL SHEATHING TO ASCERTAIN WHETHER IT IS OF THE GRADE AND THICKNESS SHOWN ON THE APPROVED CONSTRUCTION DOCUMENTS. VERIFY THE NOMINAL SIZE OF FRAMING MEMBERS AT ADJOINING PANEL EDGES, THE NAIL OR STAPLE DIAMETER AND LENGTH, THE NUMBER OF FASTENER LINES AND THAT THE SPACING BETWEEN FASTENERS IN EACH LINE AND AT EDGE MARGINS AGREES WITH THE APPROVED CONSTRUCTION DOCUMENTS.	CONTINUOUS
METAL PLATE CONNECTED WOOD TRUSSES WITH OVERALL HEIGHTS OF 60 INCHES OR GREATER: VERIFY THAT THE INSTALLATION OF THE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE.	CONTINUOUS
METAL PLATE CONNECTED WOOD TRUSSES WITH A CLEAR SPAN OF 60 FEET OR GREATER: VERIFY DURING CONSTRUCTION THAT THE TEMPORARY INSTALLATION RESTRAINT/BRACING IS INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE.	CONTINUOUS

SOILS (IBC 1705.6)

SPECIAL INSPECTION TYPE	FREQUENCY
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	PERIODIC
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	PERIODIC
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	PERIODIC
VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	CONTINUOUS
PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	PERIODIC

ISG

Storm Lake Proud

09/29/23

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO. 22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	22-27926
FILE NAME	
DRAWN BY	KK
DESIGNED BY	KK
REVIEWED BY	JMB
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	

TITLE

SPECIAL INSPECTIONS (PER IBC 2018)

SHEET

S1-01

0 1/4" 1/2" 1" 2"

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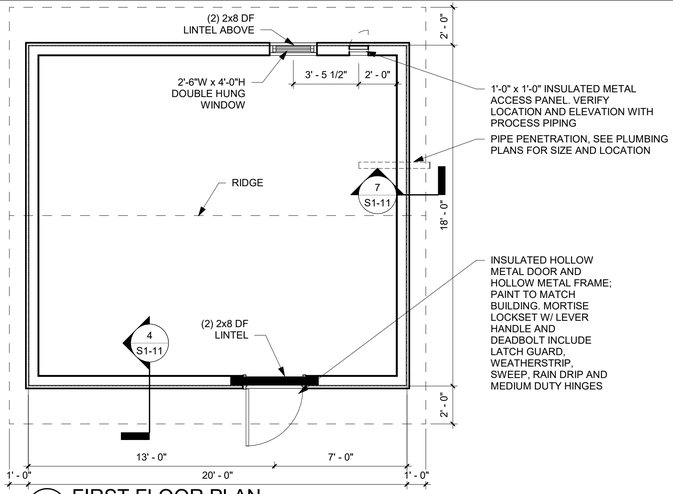
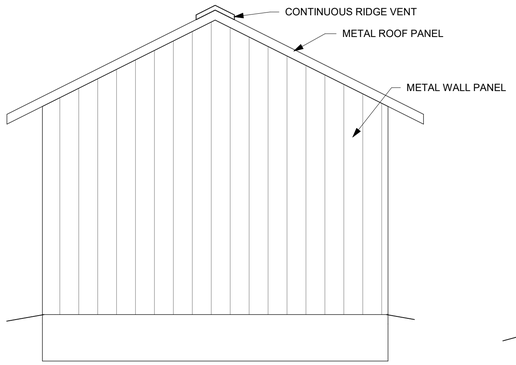
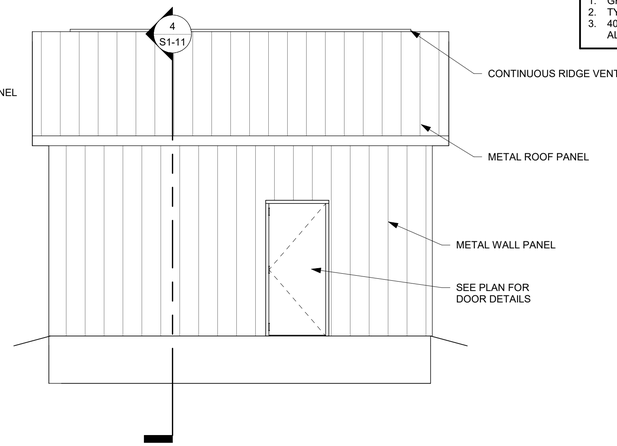


1 FIRST FLOOR PLAN
1/4" = 1'-0"



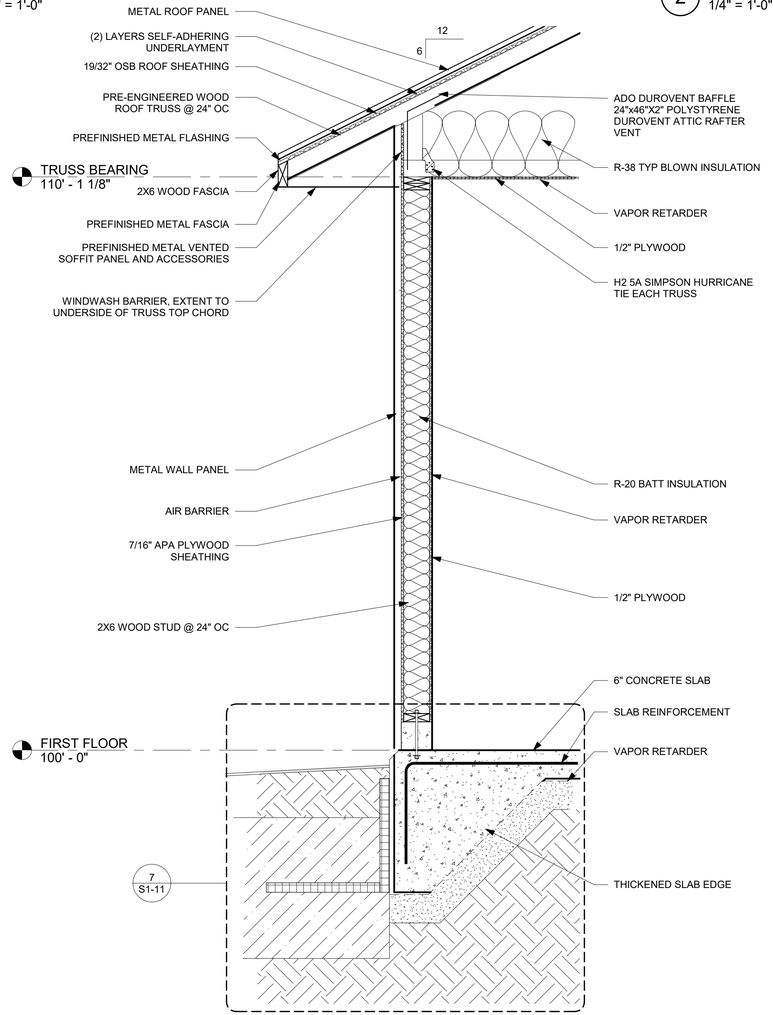
2 WEST ELEVATION
1/4" = 1'-0"



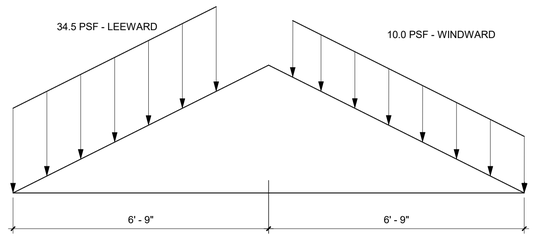
3 SOUTH ELEVATION
1/4" = 1'-0"

SHEET NOTES

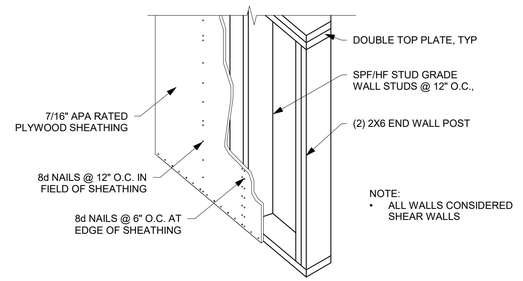
1. GROUP U OCCUPANCY
2. TYPE VB CONSTRUCTION TYPE
3. 40 FEET ALLOWABLE HEIGHT, 5,500 SQUARE FEET ALLOWABLE



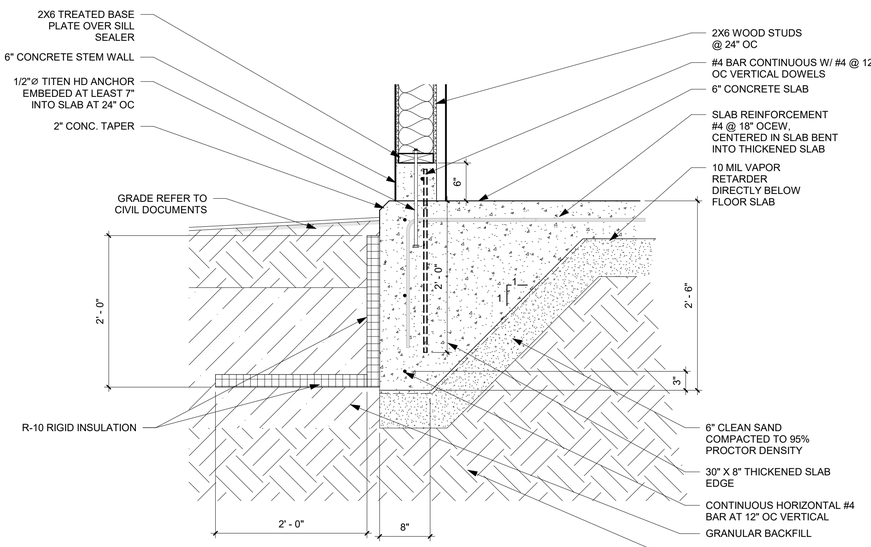
4 TYPICAL WALL SECTION
3/4" = 1'-0"



5 UNBALANCED SNOW LOAD DIAGRAM
1/2" = 1'-0"



6 TYPICAL SHEAR WALL ISOMETRIC
3/4" = 1'-0"



7 THICKENED SLAB DETAIL
1" = 1'-0"

N

0 1/4" 1/2" 1" 2"

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO. 22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	22-27926
FILE NAME	
DRAWN BY	KK
DESIGNED BY	KK
REVIEWED BY	JMB
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	

TITLE

WELL HOUSE PLAN AND DETAILS

SHEET

S1-11

KEYNOTE LEGEND

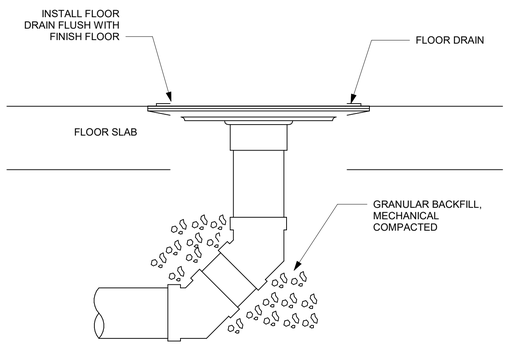
Key Value	Keynote Text
P1	SLEEVE PIPE THROUGH FOUNDATION.
P7	ROUTE 4" DRAIN TO 5' BEYOND BUILDING WALL. COORDINATE ELEVATION AND CONTINUATION WITH CIVIL DRAWINGS.

PLUMBING SYMBOL SCHEDULE

	BALL VALVE	W	SANITARY WASTE
	BUTTERFLY VALVE	A	COMPRESSED AIR PIPING
	GATE VALVE	G	GAS
	GAS COCK	V	VENT
	CHECK VALVE	DCW	COLD WATER
	IN LINE PUMP	DHW	HOT WATER
	STRAINER	DHWR	HOT WATER RECIRC
	MANUAL FLOW CONTROL VALVE	FCO-	FLOOR CLEANOUT
	UNION	WHTR-	ELECTRIC WATER HEATER
M	METER	FD-	FLOOR DRAIN
	PIPING DROP	HB-	HOSE BIBB
	INLINE PIPING DROP	LAV-	LAVATORY
	PIPING RISE	MB-	MOP BASIN
	PIPE CAP	RPBP-	REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER
	PIPE BREAK	SK-	SINK
	WALL CLEANOUT/ END FERRULE CLEANOUT	UR-	URINAL
	CONNECT TO EXISTING	VTR-	VENT THROUGH ROOF
T	THERMOMETER	WSB-	WATER SUPPLY BOX
	CLEAN OUT	WC-	WATER CLOSET
	FLOOR DRAIN	NFWH-	FIRE CONNECTION / WALL HYDRANT
	FLOOR SINK	WCO-	WALL CLEANOUT
	WALL HYDRANT/ HOSE BIBB	A.F.F.	ABOVE FINISHED FLOOR
	REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER		

1 FOUNDATION SANITARY PLAN

1/2" = 1'-0"



2 FLOOR DRAIN DETAIL

1/4" = 1'-0"

N

0 1/4" 1/2" 1" 2"

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO. 22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

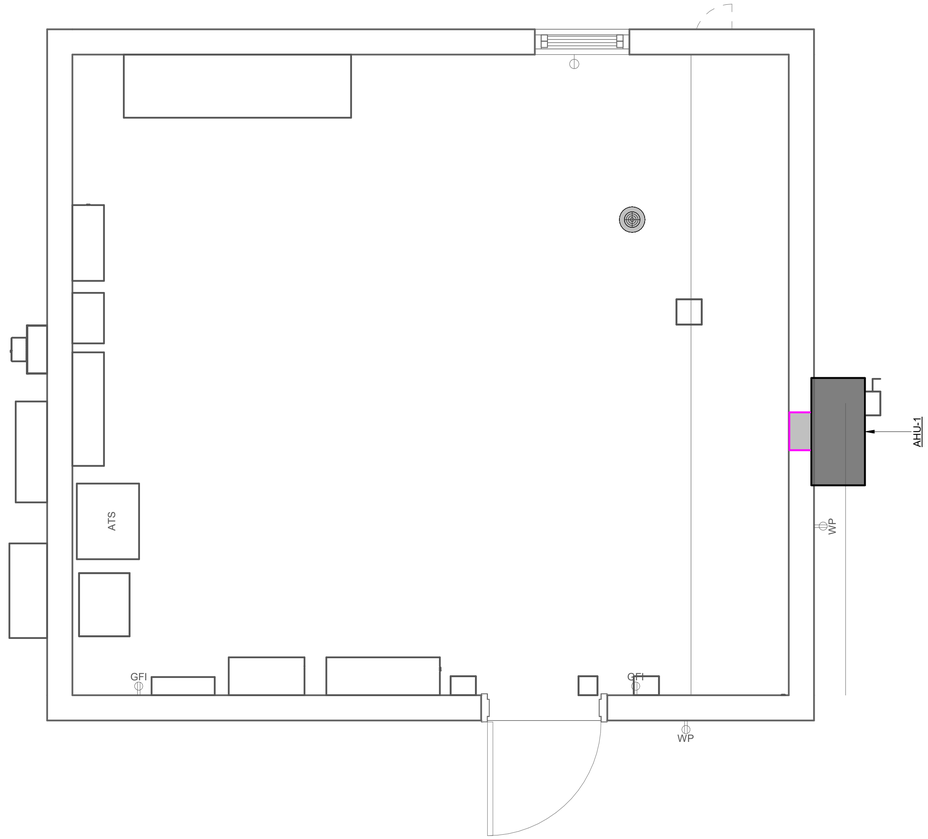
PROJECT NO.	22-27926
FILE NAME	
DRAWN BY	MJL
DESIGNED BY	MJL
REVIEWED BY	MJL
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	

TITLE

PLUMBING PLAN

SHEET

P2-10



1 FIRST FLOOR HVAC PLAN
1/2" = 1'-0"

AIR HANDLING UNIT SCHEDULE

MARK	MFG	MODEL	WEIGHT (LBS)	EER	SUPPLY AIR		HEATING		COOLING		ELECTRICAL			COMMENTS
					CFM	ESP	TYPE	LOAD (KW)	TYPE	LOAD (Btuh)	VOLT/PH	FLA	BLOWER HP	
AHU-1	BARD	W12AB-A05EPXXXE	500	11	425	1	ELECTRIC	5	DX	13,000	208/1	28	1/8	1,2,3,4,5,6

NOTES:
1 INSTALL UNIT AS SHOWN AND AS PER MANUFACTURER'S INSTRUCTIONS
2 PROVIDE UNIT WITH FACTORY-MOUNTED DISCONNECT AND SINGLE ELECTRICAL CONNECTION
3 DIMENSIONS ARE APPROXIMATE, CHECK SUBMITTAL DRAWINGS FOR EXACT DIMENSIONS
4 SUPPLY UNIT WITH SUPPLY AND RETURN DIFFUSERS AND DUCTWORK AS NECESSARY
5 UNIT SHALL BE EQUIPPED WITH ENTHALPY ECONOMIZER
6 PROVIDE WITH PROGRAMMABLE THERMOSTAT

N

0 1/4" 1/2" 1" 2"

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO. 22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

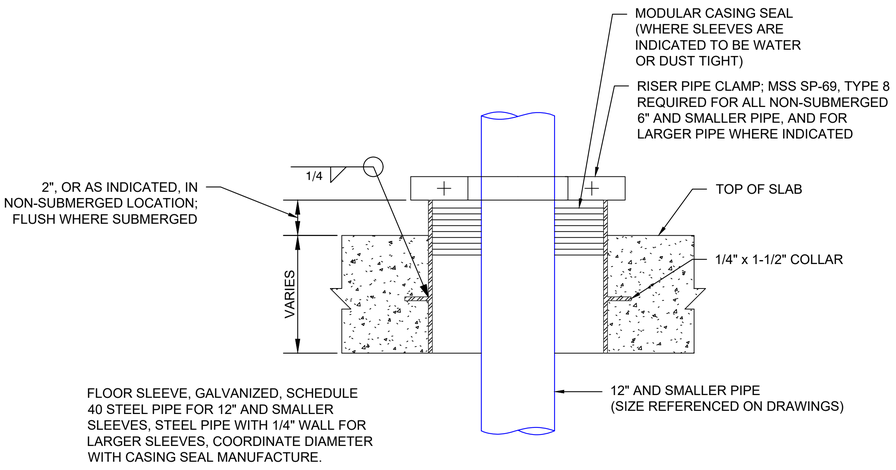
PROJECT NO.	22-27926
FILE NAME	
DRAWN BY	MJL
DESIGNED BY	MJL
REVIEWED BY	MJL
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	

TITLE

FIRST FLOOR HVAC PLAN

SHEET

M2-11



1 FLOOR SLEEVE PENETRATION WITH SEAL
SCALE: NTS

S:\PROJECTS\27000 PROJ\27900-27999\27926 CITY OF STORM LAKE WELL NO 22-STORM LAKE IA\27926 PRODUCTION FILES\27926 PLANT PROJECT\27926 STORM LAKE WELL NO. 22\ORTHOS\DWGS\27926 DETAILS.DWG

0 1/4" 1/2" 1" 2"

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CITY OF STORM LAKE

PRODUCTION WELL NO. 22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

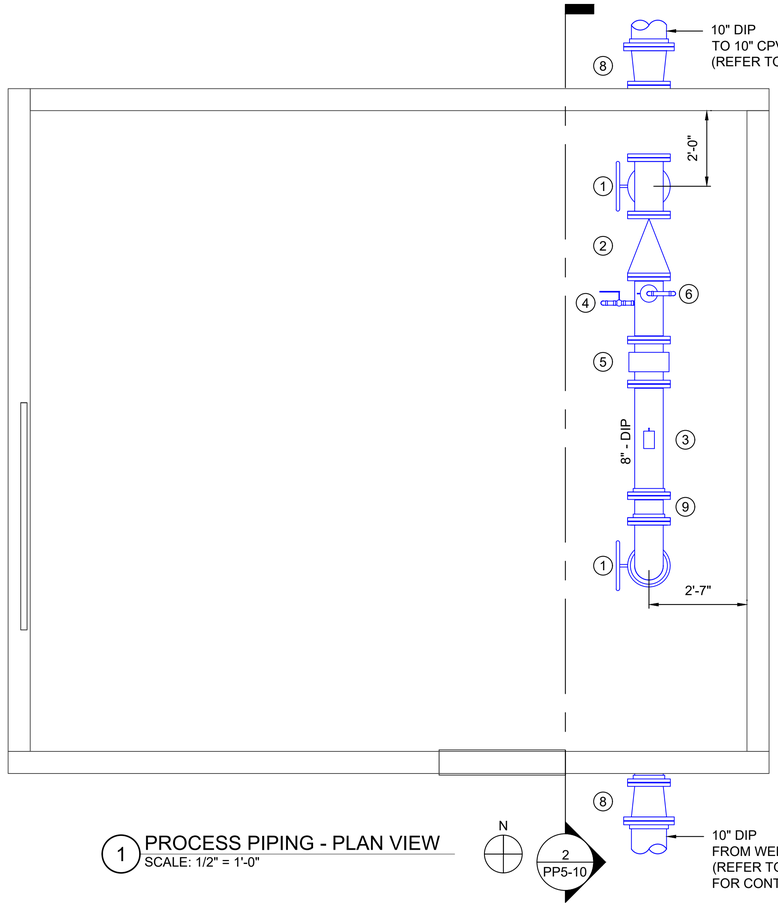
PROJECT NO.	22-27926
FILE NAME	27926 DETAILS
DRAWN BY	BLF
DESIGNED BY	ALG
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	09/29/2023
CLIENT PROJECT NO.	----

TITLE

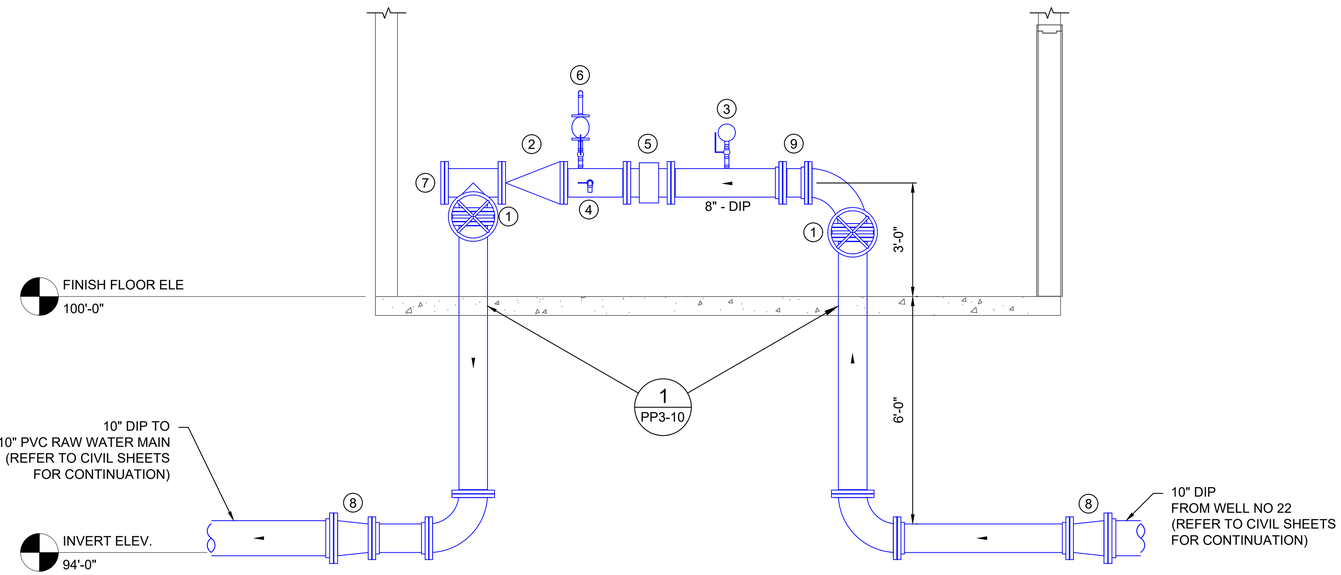
PROCESS PIPING DETAILS

SHEET

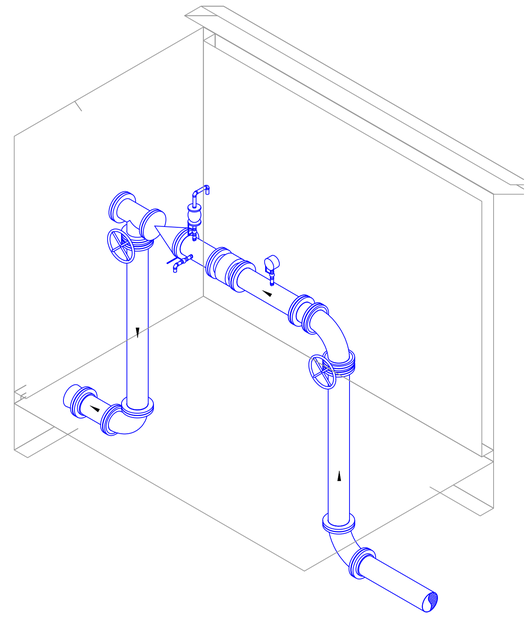
PP3-10



1 PROCESS PIPING - PLAN VIEW
SCALE: 1/2" = 1'-0"



2 PROCESS PIPING - SECTION VIEW
SCALE: 1/2" = 1'-0"



3 PROCESS PIPING - ISO VIEW
SCALE: 3/8" = 1'-0"

KEYNOTE LEGEND

1.	8" BUTTERFLY VALVE
2.	8" CHECK VALVE
3.	PRESSURE INDICATOR
4.	SAMPLE TAP
5.	8" MAGNETIC FLOW METER
6.	COMBINATION AIR RELIEF VALVE, 1"
7.	8" BLIND FLANGE
8.	CONCENTRIC 10"x8" REDUCER
9.	8" FLANGE COUPLING ADAPTER

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO. 22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	22-27926
FILE NAME	27926 PROCESS PIPING
DRAWN BY	BLF
DESIGNED BY	EJB
REVIEWED BY	EJB
ORIGINAL ISSUE DATE	09/29/2023
CLIENT PROJECT NO.	----

TITLE

PROCESS PIPING VIEWS & SECTIONS

SHEET

PP5-10

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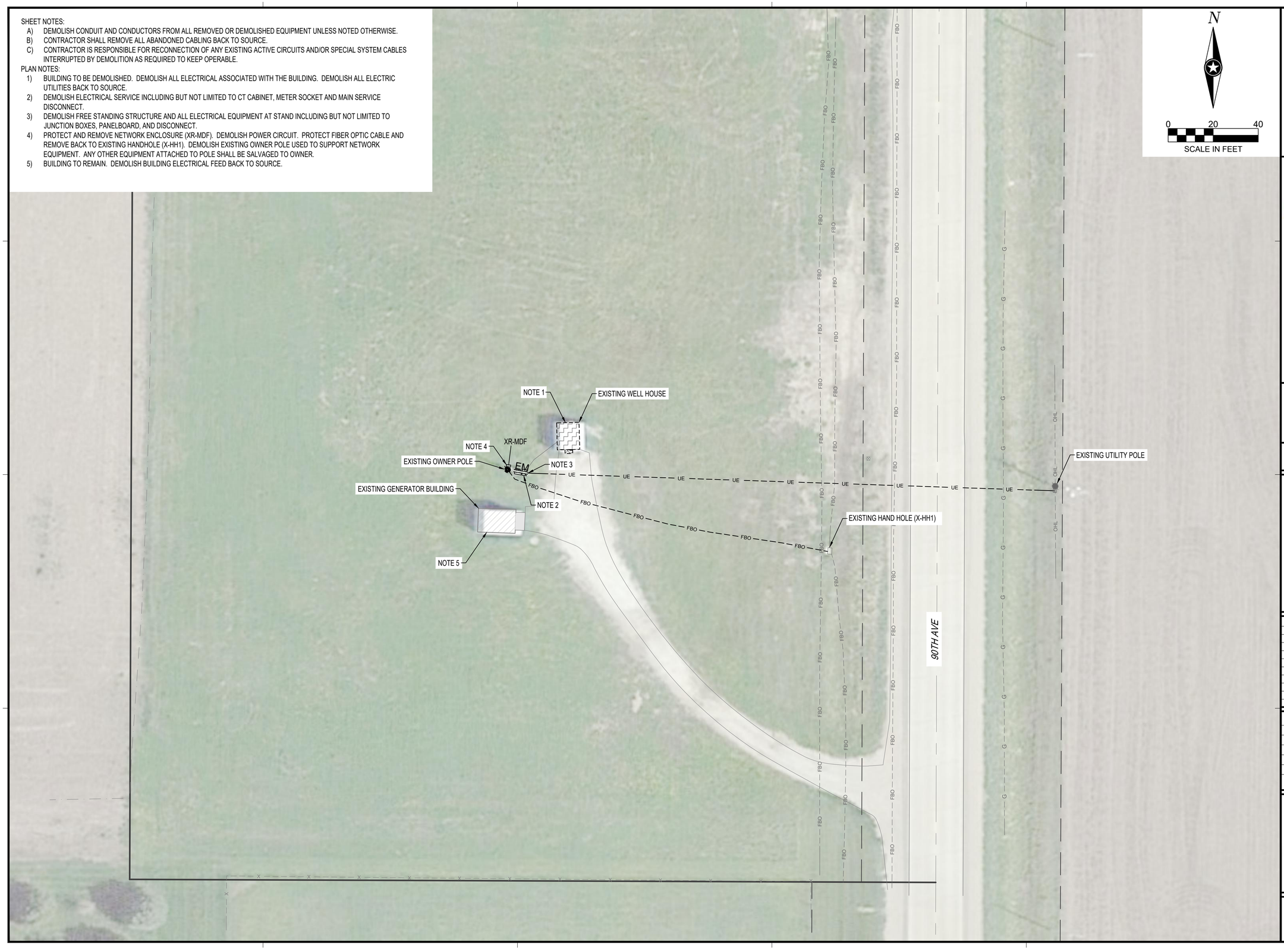
0 1/4"1/2" 1" 2"

SHEET NOTES:

A) DEMOLISH CONDUIT AND CONDUCTORS FROM ALL REMOVED OR DEMOLISHED EQUIPMENT UNLESS NOTED OTHERWISE.
B) CONTRACTOR SHALL REMOVE ALL ABANDONED CABLING BACK TO SOURCE.
C) CONTRACTOR IS RESPONSIBLE FOR RECONNECTION OF ANY EXISTING ACTIVE CIRCUITS AND/OR SPECIAL SYSTEM CABLES INTERRUPTED BY DEMOLITION AS REQUIRED TO KEEP OPERABLE.

PLAN NOTES:

1) BUILDING TO BE DEMOLISHED. DEMOLISH ALL ELECTRICAL ASSOCIATED WITH THE BUILDING. DEMOLISH ALL ELECTRIC UTILITIES BACK TO SOURCE.
2) DEMOLISH ELECTRICAL SERVICE INCLUDING BUT NOT LIMITED TO CT CABINET, METER SOCKET AND MAIN SERVICE DISCONNECT.
3) DEMOLISH FREE STANDING STRUCTURE AND ALL ELECTRICAL EQUIPMENT AT STAND INCLUDING BUT NOT LIMITED TO JUNCTION BOXES, PANELBOARD, AND DISCONNECT.
4) PROTECT AND REMOVE NETWORK ENCLOSURE (XR-MDF). DEMOLISH POWER CIRCUIT. PROTECT FIBER OPTIC CABLE AND REMOVE BACK TO EXISTING HANDHOLE (X-HH1). DEMOLISH EXISTING OWNER POLE USED TO SUPPORT NETWORK EQUIPMENT. ANY OTHER EQUIPMENT ATTACHED TO POLE SHALL BE SALVAGED TO OWNER.
5) BUILDING TO REMAIN. DEMOLISH BUILDING ELECTRICAL FEED BACK TO SOURCE.



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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	22-27926
FILE NAME	27926 SITE ELEC DEMO
DRAWN BY	CBH
DESIGNED BY	CRI
REVIEWED BY	RDS
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	-

TITLE

SITE ELECTRICAL DEMOLITION PLAN

SHEET

E1-00

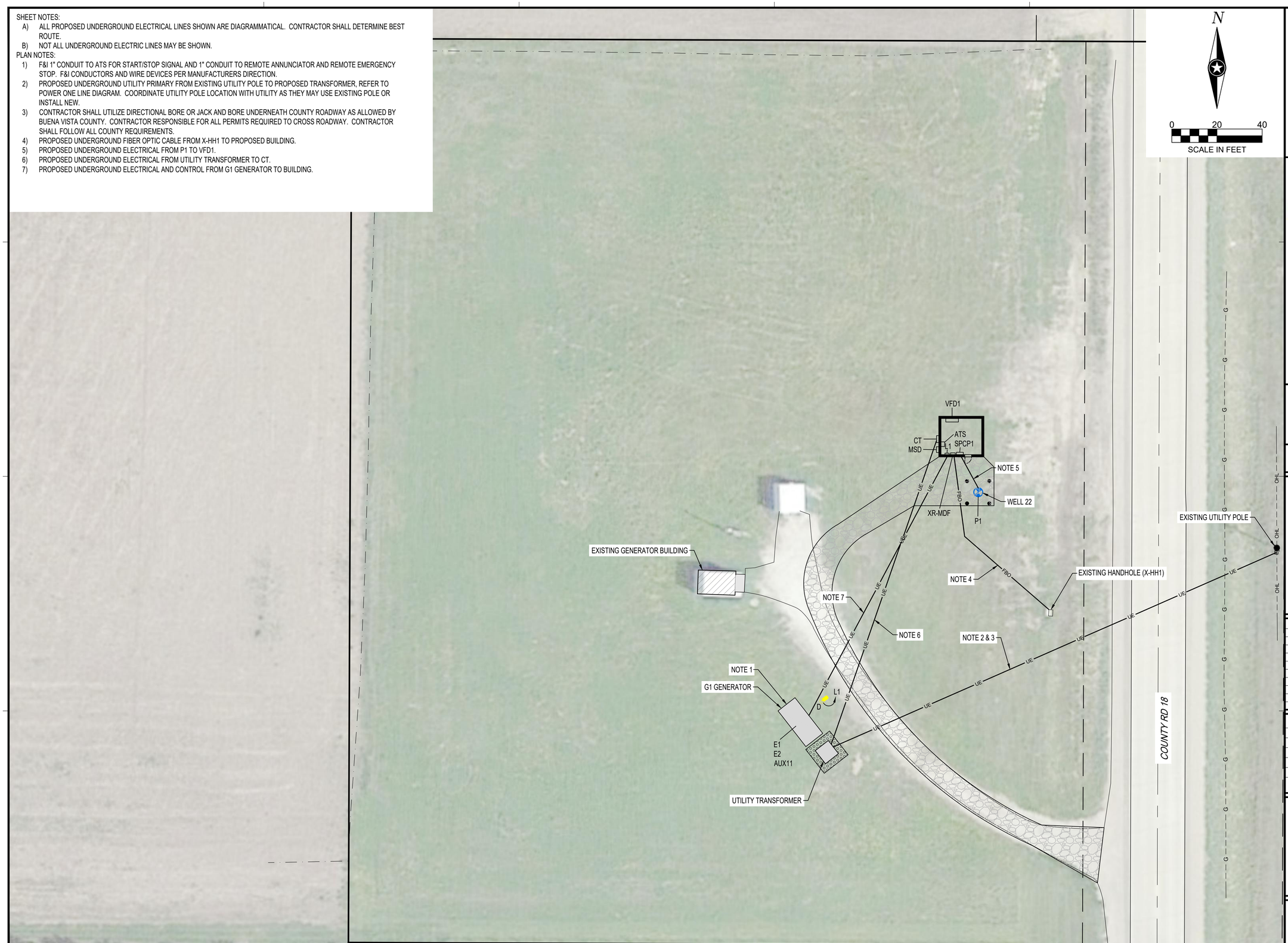
SHEET NOTES:

A) ALL PROPOSED UNDERGROUND ELECTRICAL LINES SHOWN ARE DIAGRAMMATICAL. CONTRACTOR SHALL DETERMINE BEST ROUTE.

B) NOT ALL UNDERGROUND ELECTRIC LINES MAY BE SHOWN.

PLAN NOTES:

1) F&I 1" CONDUIT TO ATS FOR START/STOP SIGNAL AND 1" CONDUIT TO REMOTE ANNUNCIATOR AND REMOTE EMERGENCY STOP. F&I CONDUCTORS AND WIRE DEVICES PER MANUFACTURERS DIRECTION.
2) PROPOSED UNDERGROUND UTILITY PRIMARY FROM EXISTING UTILITY POLE TO PROPOSED TRANSFORMER, REFER TO POWER ONE LINE DIAGRAM. COORDINATE UTILITY POLE LOCATION WITH UTILITY AS THEY MAY USE EXISTING POLE OR INSTALL NEW.
3) CONTRACTOR SHALL UTILIZE DIRECTIONAL BORE OR JACK AND BORE UNDERNEATH COUNTY ROADWAY AS ALLOWED BY BUENA VISTA COUNTY. CONTRACTOR RESPONSIBLE FOR ALL PERMITS REQUIRED TO CROSS ROADWAY. CONTRACTOR SHALL FOLLOW ALL COUNTY REQUIREMENTS.
4) PROPOSED UNDERGROUND FIBER OPTIC CABLE FROM X-HH1 TO PROPOSED BUILDING.
5) PROPOSED UNDERGROUND ELECTRICAL FROM P1 TO VFD1.
6) PROPOSED UNDERGROUND ELECTRICAL FROM UTILITY TRANSFORMER TO CT.
7) PROPOSED UNDERGROUND ELECTRICAL AND CONTROL FROM G1 GENERATOR TO BUILDING.



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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

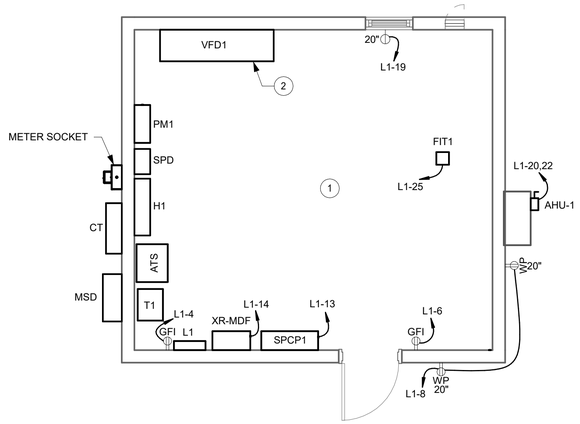
PROJECT NO.	22-27926
FILE NAME	27926 SITE ELEC
DRAWN BY	CBH
DESIGNED BY	CRI
REVIEWED BY	RDS
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	-

TITLE

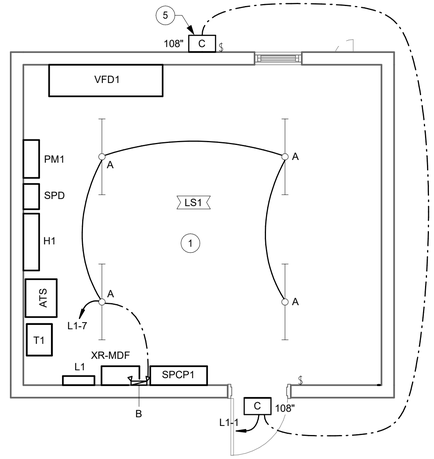
SITE ELECTRICAL AND CONTROL PLAN

SHEET

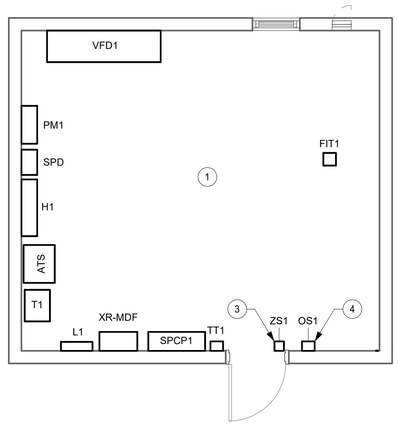
E2-00



1 WELL BUILDING POWER PLAN
1/4" = 1'-0"



2 WELL BUILDING LIGHTING PLAN
1/4" = 1'-0"



3 WELL BUILDING CONTROL PLAN
1/4" = 1'-0"

SHEET NOTES

1. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE COMPATIBLE LIGHTING CONTROL DEVICES ARE SUPPLIED WITH LIGHTING PACKAGE.
2. REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS PRIOR TO INSTALLATION.
3. ALL LIGHTING SHALL COMPLY WITH LOCAL AND STATE ENERGY CODES.
4. PROVIDE UNSWITCHED HOT TO ALL EXIT AND EMERGENCY LIGHT FIXTURES.
5. INSTALL RECEPTACLES 46" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE.

ELECTRICAL KEYNOTE LEGEND

KEY	KEYNOTE TEXT
1	SPACE IS CONSIDERED A DAMP LOCATION.
2	F&I VARIABLE FREQUENCY DRIVE AND ALL INPUT AND OUTPUT FILTERS REQUIRED. CONTRACTORS CHOICE TO PROVIDE FILTERS INSIDE VFD ENCLOSURE OR OUTSIDE THE VFD ENCLOSURE. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF FILTERS OUTSIDE VFD ENCLOSURE AND ALL NECESSARY WIRING TO MAKE A COMPLETE WORKING SYSTEM.
3	F&I INTRUSION ALARM PROXIMITY SENSOR ABOVE DOOR AND F&I PROXIMITY SENSING PLATE TO DOOR. F&I ALL NECESSARY MOUNTING HARDWARE. PROXIMITY SENSOR TO OPEN CONTACT WHEN DOOR IS IN THE OPEN POSITION.
4	F&I OPERATOR STATION BESIDE LIGHT SWITCH.
5	CONNECT TO LIGHT SWITCH INSTALLED BELOW FIXTURE.

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	23-27926
FILE NAME	27926 Elec R22.rvt
DRAWN BY	CRI
DESIGNED BY	CRI
REVIEWED BY	RDS
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	

TITLE

POWER, LIGHTING, AND CONTROL PLANS

SHEET

E2-11

N

0 1/4" 1/2" 1" 2"

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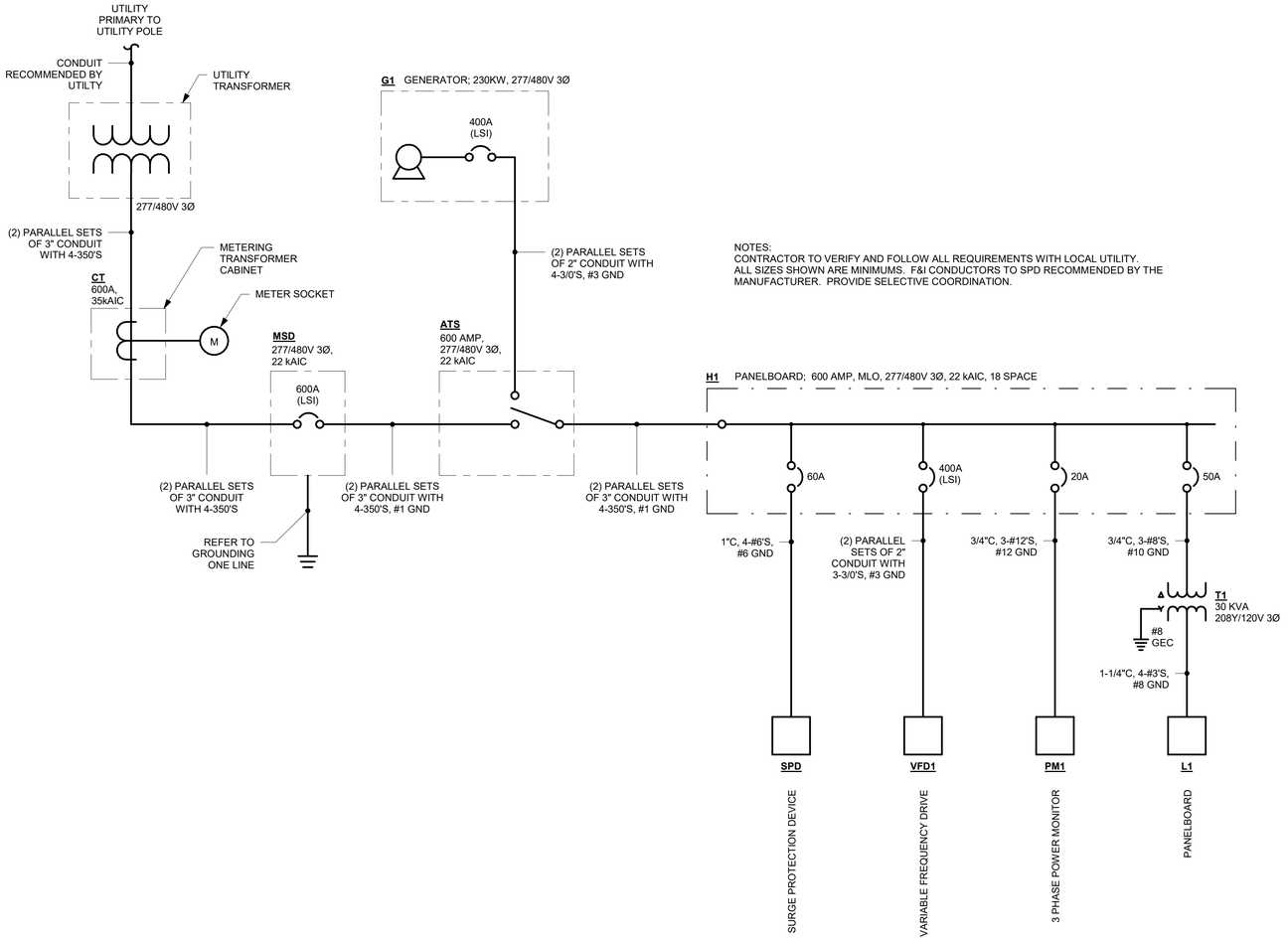
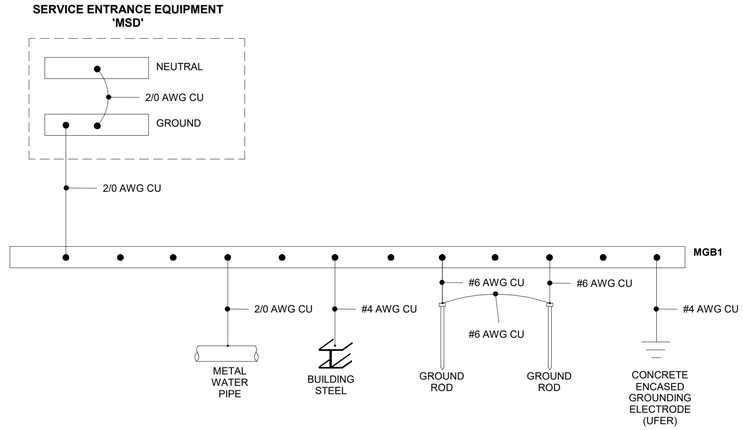


NOTES:
CONTRACTOR TO VERIFY AND FOLLOW ALL REQUIREMENTS WITH LOCAL UTILITY.
ALL SIZES SHOWN ARE MINIMUMS. F&I CONDUCTORS TO SPD RECOMMENDED BY THE MANUFACTURER. PROVIDE SELECTIVE COORDINATION.

1 POWER ONE LINE DIAGRAM
NOT TO SCALE

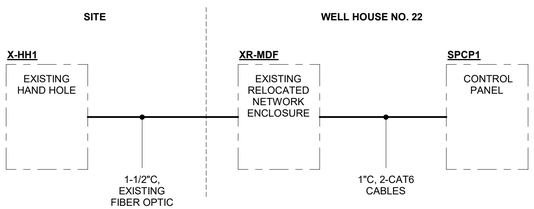


2 GROUNDING ONE LINE DIAGRAM
NOT TO SCALE

INPUT DEVICE TAG PREFIXES

PARAMETER	ELEMENT/ SENSOR	INDICATOR	TRANSMITTER BLIND	TRANSMITTER INDICATING	SWITCH SWITCH	SWITCH HIGH	SWITCH LOW
ANALYTICAL	AE	AI	AT	AIT	AS	ASH	ASL
AUXILIARY					AUX		
CHLORINE	CHE	CHI	CHT	CHIT	CHS	CHSH	CHSL
CONDUCTIVITY	CE	CI	CT	CIT	CS	CSH	CSL
CURRENT	IE	II	IT	IIT	IS	ISH	ISL
DISSOLVED OXYGEN	DOE	DOI	DOT	DOIT	DOS	DOH	DOL
FLOW RATE	FE	FI	FT	FIT	FS	FSH	FSL
LEVEL	LE	LI	LT	LIT	LS	LSH / LSHH	LSL / LSLL
POSITION	ZE	ZI	ZT	ZIT	ZS	ZSC (CLOSED)	ZSO (OPEN)
PRESSURE	PE	PI	PT	PIT	PS	PSH / PSHH	PSL / PSLL
PRESSURE DIFFERENTIAL	PDE	PDI	PDT	PDIT	PDS	PDH	PDL
RELATIVE HUMIDITY	RHE	RHI	RHT	RHIT	RHS	RHH	RHL
SUSPENDED SOLIDS	SSE	SSI	SST	SSIT	SSS	SSH	SSL
TEMPERATURE	TE	TI	TT	TIT	TS	TSH / TSHH	TSL / TSLL
WEIGHT/FORCE	WE	WI	WT	WIT	WS	WH	WL

NOTES: FIBER OPTIC CABLE; RE-INSTALL EXISTING FIBER OPTIC CABLE.
REFER TO PROJECT MANUAL FOR FURTHER REQUIREMENTS.



3 NETWORK ONE LINE DIAGRAM
NOT TO SCALE

ELECTRICAL SYMBOLS LEGEND

RECEPTACLES	SWITCHES	MISC. POWER SYMBOLS	COMMUNICATIONS	SECURITY	ELECTRICAL PANELS	TAG DESCRIPTIONS
SIMPLEX	SINGLE POLE	DISCONNECT	DATA JACK -WALL	ACCESS CONTROLLED DOOR	FLUSH MOUNT PANELBOARD	LIGHTING SCENARIO
DUPLEX	DOUBLE POLE	FUSED DISCONNECT	FLOOR DATA JACK	ADA DOOR OPERATOR	SURFACE MT PANELBOARD	KEYNOTE
IG ISOLATED GROUND	3-WAY	FAN	DATA JACK -CEILING	CAMERA	PHONE SYSTEM	
TR TAMPER RESISTANT	4-WAY	ELECT. CONTROLLED VALVE	TELEPHONE JACK- WALL	CR CARD READER - ELECTRONIC		
WP WEATHER PROOF W/GFI	EMERGENCY	FUSESTAT	DATA/VOICE JACK - WALL	DB DURESS BUTTON		WIRE TYPES
GFI GROUND FAULT INTERRUPT	FAN	HAND DRYER	TELEVISION JACK	DC DOOR CONTACT		
CR CONTROLLED RECEPTACLE	KEY OPERATED	HAIR DRYER	SPEAKER - CEILING	RX RECEIVER		STANDARD
CTR COUNTERTOP RECEPTACLE	LOW VOLTAGE	HEATER	SPEAKER - WALL/SURFACE	DAA DOOR ALARM ANNUNCIATOR		LOW-VOLTAGE
USB COMBO RECEPTACLE / USB	PILOT LIGHT	JUNCTION BOX	CLOCK	DL ELECTRIC LOCK		UN-SWITCHED HOT
HIGH VOLTAGE	TIMER	MOTOR	BELL	SEC DOOR SECURITY MONITOR		
SPLIT WIRE	CIRCUIT BREAKER	MOTOR WITH DISCONNECT	BUZZER	KP KEY CARD PAD		
DOUBLE DUPLEX	DIMMER	RELAY	INTERCOM	PB PUSH BUTTON		
220 VOLT	ILLUMINATED HANDLE	SOLENOID VALVE	MICROPHONE	AREA OF RESCUE-CALL		
SPECIAL PURPOSE	MOTOR	COMBINATION STARTER & DISC	SPEAKER/CLOCK	SECURITY ALARM HORN		
CEILING MOUNTED RECPT	SPEED CONTROLLER	MOTOR STARTER	TIME CLOCK			
CEILING MOUNTED SP RECPT	SPRING WOUND TIMER	THERMOSTAT	WIRELESS ACCESS POINT			
FLOOR BOX RECEPTACLE	MOMENTARY CONTACT	DUCT-TYPE SMOKE DETECTOR	TOUCHPAD			
	WEATHER PROOF	USB CHARGING STATION	PROJECTOR			
	OCCUPANCY SENSOR-WALL		BLUETOOTH			
	VACANCY SENSOR-WALL					
	OS OCCUPANCY SENSOR-CLG					
	VS VACANCY SENSOR-CLG					
	PC PHOTO CELL					
	3-BUTTON SWITCH					
	L? LOW VOLTAGE SWITCH / TYPE					

0 1/4" 1/2" 1" 2"

9/29/2023 8:17:11 AM

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	23-27926
FILE NAME	27926 Elec R22.rvt
DRAWN BY	CRI
DESIGNED BY	CRI
REVIEWED BY	RDS
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	

TITLE

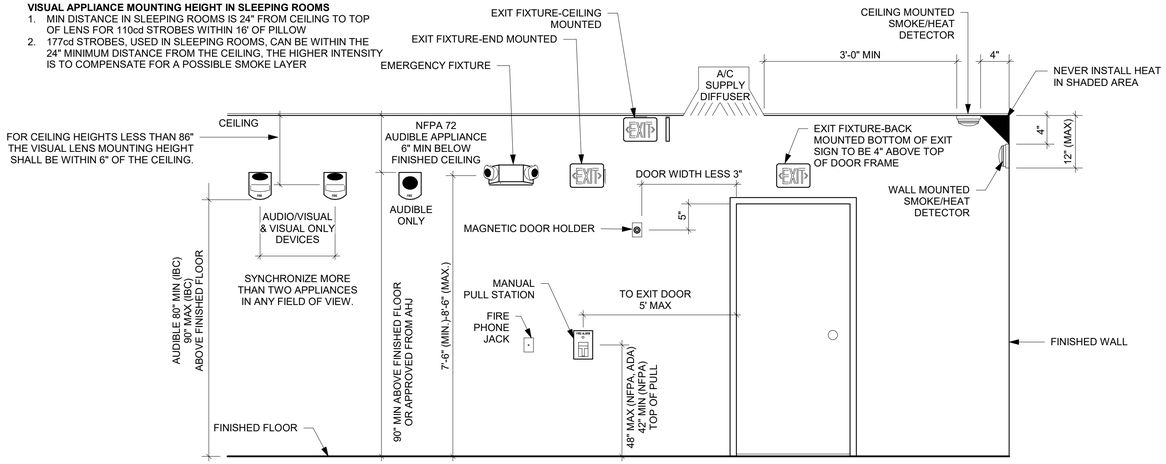
ONE LINE DIAGRAMS, SYMBOL LEGEND, AND PREFIXES

SHEET

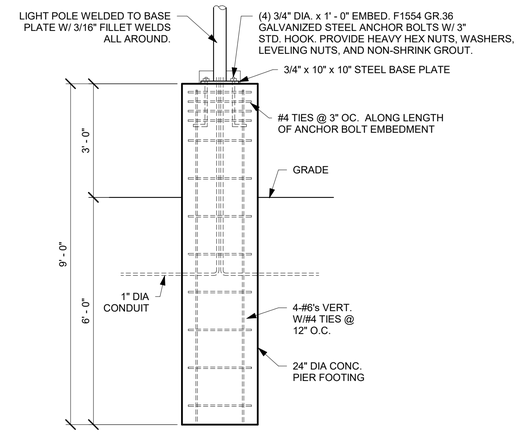
E4-11

VISUAL APPLIANCE MOUNTING HEIGHT IN SLEEPING ROOMS

1. MIN DISTANCE IN SLEEPING ROOMS IS 24" FROM CEILING TO TOP OF LENS FOR 110cd STROBES WITHIN 16' OF PILLOW
2. 177cd STROBES, USED IN SLEEPING ROOMS, CAN BE WITHIN THE 24" MINIMUM DISTANCE FROM THE CEILING, THE HIGHER INTENSITY IS TO COMPENSATE FOR A POSSIBLE SMOKE LAYER

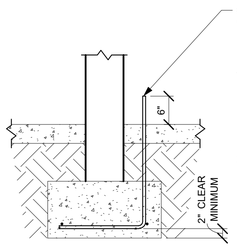


1 TYPICAL MOUNTING HEIGHTS
NOT TO SCALE



** LIGHT POLE BASE INSTALLED AND PROVIDED BY ELECTRICAL CONTRACTOR

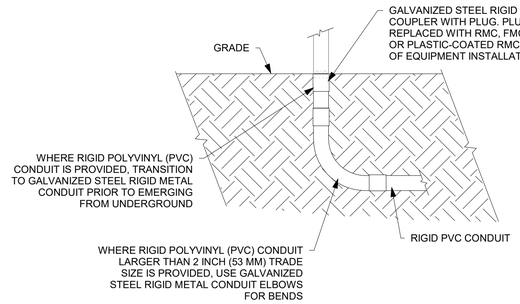
2 SITE POLE MOUNTING BASE (20-25 FT)
NOT TO SCALE



NOTES:

1. PURPOSE OF DETAIL IS TO INDICATE TYPICAL GROUNDING ELECTRODE INFORMATION ONLY AND DOES NOT REFLECT ACTUAL FOUNDATION CONSTRUCTION; REFER TO PLANS / SECTIONS / DETAILS FOR FOUNDATION CONSTRUCTION INFORMATION.
2. SUPPLY AND INSTALL GROUNDING ELECTRODE FOR GROUNDING OF ELECTRICAL SERVICE AS REQUIRED BY ELECTRICAL DOCUMENTS.

3 GROUNDING ELECTRODE DETAIL
NOT TO SCALE



4 BELOW GRADE PVC CONDUIT DETAIL
NOT TO SCALE

0 1/4" 1/2" 1" 2"

9/29/2023 8:17:11 AM

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	23-27926
FILE NAME	27926 Elec R22.rvt
DRAWN BY	CRI
DESIGNED BY	CRI
REVIEWED BY	RDS
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	

TITLE

DETAILS

SHEET

E4-12

Branch Panel: L1

Location: Space 1
Supply From: T1
Mounting: Surface
Enclosure: Type 12

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 10,000
Mains Type: MCB
Mains Rating: 100 A
MCB Rating: 100 A

Notes:
F&I GFI type circuit breaker where indicated.

CKT	Circuit Description	Trip	Pole	A		B		C		Pole	Trip	Circuit Description	CKT
1	Lighting - Building Exterior	20 A	1	20	45					1	15 A	Lighting - Site	2
3	E1 G1 Generator Acc. Power	50 A	2			4000	180			1	20 A	Recep Panelboard	4
5								4000	180	1	20 A	Receps Interior	6
7	Lighting - Interior	20 A	1	128	360					1	20 A	Recep Exterior	8
9	SPARE	20 A	1			0	0			1	20 A	SPARE	10
11	SPARE	20 A	1					0	180	1	20 A	E2 Receptacle - G1 Gen	12
13	SPCP1	20 A	1	500	500					1	20 A	XR-MDF	14
15	SPARE	20 A	1			0	0			1	20 A	SPARE	16
17	SPARE	20 A	1					0	0	1	20 A	SPARE	18
19	GFI - Recep Window	20 A	1	528	2496					2	30 A	AHU-1	20
21	BLANK	--	1			--	2496						22
23	BLANK	--	1					--	--	1	--	BLANK	24
25	FT-1	20 A	1	30	--					1	--	BLANK	26
27	BLANK	--	1			--	--			1	--	BLANK	28
29	BLANK	--	1					--	--	1	--	BLANK	30
		Total Load:		4598 VA		6676 VA		4360 VA					
		Total Amps:		39 A		56 A		36 A					

Legend:

ELECTRICAL EQUIPMENT SCHEDULE

ITEM#	DESCRIPTION	POWER REQUIREMENTS					PNL - CKT	WIRE #SIZE, GND, MINIMUM CONDUIT	STARTER		DISCONNECT		NOTES
		HP	VOLTS	POLES	FLA	VA			TYPE	BY	TYPE	BY	
AHU-1	AIR HANDLER UNIT		208 V	2	28.0 A	4992 VA	L1 - 20,22	3/4"C, 2- #10's, #10GND	(none)	(none)	NF	WU	
E1	G1 GENERATOR ACCESSORY SYSTEMS POWER		208 V	2	38.0 A	8000 VA	L1 - 3,5	1"C, 3- 6's, 8GND	(none)	(none)	(none)	(none)	CONDUCTORS UPSIZED DUE TO VOLTAGE LOSS
E2	WEATHERPOOF DUPLEX RECEPTACLE		120 V	1	1.5 A	180 VA	L1 - 12	1"C, 2- 10's, 10GND	(none)	(none)	(none)	(none)	CONDUCTORS UPSIZED DUE TO VOLTAGE LOSS
P1	WELL 22 PUMP	200	480 V	3	240.0 A	191213 VA	VFD1 - 1,3,5	3/4"C, 3- 350's, 4GND	VFD	EC	(none)	(none)	F&I VFD CABLE, UPSIZE CONDUIT AS REQUIRED. F&I 250HP VFD.
SPCP1	WELL 22 CONTROL PANEL		120 V	1	4.1 A	500 VA	L1 - 13	3/4"C, 2- 12's, 12GND	(none)	(none)	(none)	(none)	
XR-MDF	EXISTING RELOCATED NETWORK ENCLOSURE		120 V	1	4.1 A	500 VA	L1 - 14	3/4"C, 2- 12's, 12GND	(none)	(none)	(none)	(none)	

STARTER TYPE	
COMB	COMBINATION STARTER
ECM	ELECTRONICALLY CONTROLLED MOTOR
MAG	MAGNETIC STARTER
MAN	MANUAL STARTER
SS	SOFT STARTER
VFD	VARIABLE FREQUENCY DRIVE

STARTER BY	
EC	ELECTRICAL CONTRACTOR
ES	EQUIPMENT SUPPLIER
MC	MECHANICAL CONTRACTOR
WU	WITH UNIT

DISCONNECT TYPE	
BO	BY OTHERS
F	FUSED DISCONNECT
NF	NON-FUSED DISCONNECT

DISCONNECT BY	
EC	ELECTRICAL CONTRACTOR
ES	EQUIPMENT SUPPLIER
MC	MECHANICAL CONTRACTOR
WU	WITH UNIT

INPUT AND OUTPUT CONTROL SCHEDULE

ITEM#	DESCRIPTION	PANEL	MINIMUM CONDUIT, WIRE # - SIZE, GND	I/O	DEVICE BY	NOTES
AUX11	G1 GENERATOR ALARM AND RUN MONITOR	SPCP1	3/4"C, 4-#14'S	2 DI	EC	
VFD1	WELL 22 VARIABLE FREQUENCY DRIVE	SPCP1	3/4"C, 2-#20 TWISTED PAIR SHIELDED, 4-#14'S	DO, DI, AI, AO	EC	
SPD	SURGE PROTECTION DEVICE ALARM	SPCP1	3/4"C, 2-#14'S	DI	EC	
ATS	AUTO TRANSFER SWITCH POSITION	SPCP1	3/4"C, 2-#14'S	DI	EC	
TT1	TEMPERATURE TRANSMITTER	SPCP1	3/4"C, 1-#20 TWISTED PAIR SHIELDED	AI	EC	
OS1	OPERATOR STATION - INTRUSION BYPASS SELECTOR SWITCH	SPCP1	3/4"C, 3-#14'S, #14 GND	2 DI	EC	
ZS1	DOOR INTRUSION PROXIMITY SENSOR	SPCP1	3/4"C, 3-#14'S, #14 GND	DI	EC	
PM1	3 PHASE POWER MONITOR ALARM	SPCP1	3/4"C, 2-#14'S	DI	EC	
FIT1	FLOW TRANSMITTER	SPCP1	3/4"C, 1-#20 TWISTED PAIR SHIELDED, 2-#14'S	AI, DI	EC	

I/O	
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
ENET	ETHERNET/IP

SUPPLIED BY	
BC	BY CONTRACTOR
BO	BY OWNER
EC	ELECTRICAL CONTRACTOR
ES	EQUIPMENT SUPPLIER
WU	WITH UNIT

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL	LAMP	Wattage Comments	TYPE COMMENTS
A	4' LINEAR	LITHONIA LIGHTING	CLX-L48-5000LM-SEF-L/LENS-MVOLT-GZ10-40K-80CRI	5292LM	32W	
B	EMERGENCY LIGHT	LITHONIA LIGHTING	EU2CM6		0.56W	INSTALL 108" AFF
C	WALL PACK	LITHONIA LIGHTING	WDGE2LED-P1-40K-80CRI-VF-MVOLT-SRM-PBBW	1256LM	10W	
D	AREA LIGHT	LITHONIA LIGHTING	DSX0 LED-P2-40K-80CRI-T5M-MVOLT-RPA-DBLXD	6453LM	45W	PROVIDE #PER OPTION WITH PHOTOCELL. F&I LIGHT POLE, INSTALL LIGHT 20 FEET ABOVE FINISHED GRADE.

LIGHTING SCENARIO SCHEDULE

SCENARIO#	LIGHTING SCENARIO DESCRIPTION
LS1	MANUAL ON MANUAL OFF

0 1/4" 1/2" 1" 2"

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Storm Lake Proud

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PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	23-27926
FILE NAME	27926 Elec R22.rvt
DRAWN BY	CRI
DESIGNED BY	CRI
REVIEWED BY	RDS
ORIGINAL ISSUE DATE	09/29/23
CLIENT PROJECT NO.	

TITLE

SCHEDULES

SHEET

E5-11

RESOLUTION NO. 64-R-2023-2024

RESOLUTION ORDERING CONSTRUCTION OF THE STORM LAKE PRODUCTION WELL NO. 22, AND FIXING A DATE FOR HEARING THEREON AND TAKING OF BIDS THEREFOR

WHEREAS, it is deemed advisable and necessary to construct certain public improvements described in general as the Storm Lake Production Well No. 22; and

WHEREAS, the City has caused to be prepared plans, specifications and form of contract, together with estimate of cost, which are now on file in the office of the City Clerk for public inspection, for the construction of the public improvements; and

WHEREAS, the plans, specifications and form of contract are deemed suitable for the making of the public improvements; and

WHEREAS, before the plans, specifications, form of contract and estimate of cost may be adopted, and a contract for the construction of the public improvements is entered into, it is necessary, pursuant to Chapter 26, Code of Iowa, to hold a public hearing and to advertise for bids:

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, STATE OF IOWA:

Section 1. That it is hereby determined that it is necessary and advisable to construct certain public improvements described in general as the Storm Lake Production Well No. 22, in the manner set forth in the plans and specifications and form of contract, above referred to, the cost thereof to be paid in accordance with the provisions as set out in the posted Notice to Bidders and published Notice of Public Hearing; the public improvements being more generally described as follows:

Base Bid

Construction of water well with stainless steel production casing, water main, well house and associated components, minor grading and seeding and all other miscellaneous components necessary to complete the project per plans and specifications.

Section 2. That the amount of the bid security to accompany each bid shall be in an amount which shall conform to the provisions of the notice to bidders approved as a part of the specifications.

BE IT FURTHER RESOLVED, that the City Clerk be and is hereby directed to post a notice to bidders once in a relevant contractor plan room service with statewide circulation and a relevant construction lead generating service with statewide circulation and on an internet site sponsored by either the City or a statewide association that represents the City. Posting shall be not less than thirteen clear days nor more than forty-five days prior to July 30, 2024, which is hereby fixed as the date for receiving bids. The bids are to be filed prior to 10:00 A.M., on such date.

The City Council hereby delegates to the City Clerk or her designee the duty of receiving, opening and tabulating bids for construction of the Project. Bids shall be received and opened as provided in the public notice and the results of the bids shall be considered at the meeting of this Council on August 5, 2024, at 5:00 P.M.

BE IT FURTHER RESOLVED, that the City Clerk be and is hereby directed to publish notice of hearing once in a legal newspaper, printed wholly in the English language, published at least once weekly and having general circulation in this City. Publication shall be not less than four clear days nor more than twenty days prior to the date hereinafter fixed as the date for a public hearing on the plans, specifications, form of contract and estimate of costs for the project, the hearing to be at 5:00 P.M. on August 5, 2024.

PASSED AND APPROVED this 17th day of June, 2024.

_____

Michael Porsch, Mayor

ATTEST:

_____

Mayra A. Martinez, City Clerk

NOTICE OF PUBLIC HEARING

NOTICE OF PUBLIC HEARING ON PROPOSED PLANS AND SPECIFICATIONS, FORM OF CONTRACT AND ESTIMATE OF COST FOR THE CONSTRUCTION OF THE CITY OF STORM LAKE PRODUCTION WELL NO. 22 PROJECT

Notice is hereby given that the City Council of Storm Lake, Iowa, will meet at 620 Erie Street, Storm Lake, Iowa 50588 on the **5th day of August, 2024, at 5:00p.m.**, at which time and place a hearing will be held on the proposed plans and specifications, form of contract and estimate of cost for City of Storm Lake Production Well No. 22, in and for Storm Lake, Iowa. Any interested person may appear at said hearing and file objections to the proposed plans, specifications, form of contract and estimated costs for said improvements.

The project is located at 5923 90th Avenue in Storm Lake, Iowa.

The general description of types of construction and their limits for which bids will be received shall be as follows:

Base Bid

Construction of water well with stainless steel production casing, water main, well house and associated components, minor grading and seeding and all other miscellaneous components necessary to complete the project per plans and specifications.

Published upon order of the Storm Lake City Council in Storm Lake, Iowa.

City of Storm Lake

BY /s/ Mike Porsch
Mayor

ATTEST:
BY /s/ Keri Navratil
City Manager

NOTICE TO BIDDERS

FOR THE CONSTRUCTION OF CITY OF STORM LAKE PRODUCTION WELL NO. 22 FOR STORM LAKE, IOWA

Sealed bids will be received by the City of Storm Lake, Iowa at 620 Erie Street, Storm Lake, Iowa before **10:00 a.m.** on the **30th day of July, 2024**, for the construction of the City of Storm Lake Production Well No. 22 project in Storm Lake, Iowa. At the above time and place all bids received by the City will be opened and publicly read with the results being reported to the Council at their meeting on **August 5, 2024, at 5:00 p.m.**, at 620 Erie Street, Storm Lake, Iowa, at which time and place the City may take action on the proposals submitted or at such time as may then be fixed.

The general description of types of construction and their limits for which bids will be received shall be as follows:

Base Bid
Construction of water well with stainless steel production casing, water main, well house and associated components, minor grading and seeding and all other miscellaneous components necessary to complete the project per plans and specifications.

A more detailed description of the kinds and approximate quantities of materials and types of construction for which bids will be received are set forth in the Bid Form included in the specifications prepared by I+S Group, Inc. (ISG) of Storm Lake, Iowa, which, together with the proposed form of contract, have heretofore been approved by the City, and are now on file for public examination in the office of the City Clerk and are by this reference made part hereof as though fully set out and incorporated herein.

All proposals shall be made on official proposal forms furnished by the Engineer and must be enclosed in a separate sealed envelope and plainly identified and addressed to the City of Storm Lake.

Each proposal shall be accompanied by a cashier's check or certified check drawn on a state-chartered or federally chartered bank, or a certified share draft drawn on a state-chartered or federally chartered credit union, or a bidder's bond with corporate surety satisfactory to the City in an amount equal to Ten percent (10%) of the total amount of the proposal. If bid bond is submitted, it must be in the form provided in these specifications. Said check or share draft may be cashed, or the bid bond forfeited as liquidated damages in the event the successful bidder fails or refuses to enter into a contract within ten (10) days of issuance of a Notice of Award and post bond satisfactory to the City insuring the faithful fulfillment of the contract and maintenance of said improvements as required by law. The bid bond should be executed by a corporation authorized to contract as a surety in the State of Iowa, and must not contain any conditions either in the body or as an endorsement thereon.

The successful bidder will be required to furnish a corporate surety bond in an amount equal to one hundred per cent (100%) of the contract price, said bond to be issued by a responsible surety approved by the City, and shall guarantee the faithful performance of the contract and the terms and conditions therein contained, the payment for materials used in the project and the maintenance of said improvements in good repair for not less than **two (2) years** from the time of acceptance of said improvements by the City.

The City reserves the right to defer acceptance of any proposal for a period not to exceed sixty (60) calendar days from the date of receipt of bids. The City reserves the right to reject any or all bids and to waive informalities.

Payment of the cost of said project will be made from such cash funds of the City as may be legally used for said purpose at the discretion of the City, including but not limited to, net revenues of the water department, the proceeds from the sale of Revenue or General Obligation Bonds, and/or the proceeds from the sale of warrants, as authorized by Section 384.57 of the Code of Iowa, made payable from any or all of the above-mentioned sources. This project is funded through the State Revolving Fund (SRF) Program and IEDA's Community Development Block Grant Program (CDBG).

The Contractor will be paid ninety-five per cent (95%) of the Engineer's estimate of the value of acceptable work completed at the end of the preceding month. Final payment will be made not less than thirty-one (31) days after completion of the work and acceptance by the City, subject to the conditions and in accordance with the provisions of Chapter 573 of the Code of Iowa.

No such final payment will be due until the Contractor certifies to the City that the materials, labor, and services involved in the final estimate have been paid for in accordance with the requirements stated in the specifications.

The City of Storm Lake is exempt from paying Sales and Use Tax and will supply Contractor with an "Iowa Sales Tax Exemption Certificate" and an authorization letter to allow the Contractor to buy equipment and material for the project tax free.

The work on this project shall commence within ten (10) days after receipt by the contractor of a written notice to proceed. Subject to any changes in the contract period as provided for in these specifications, parts of the work must be substantially completed on or before the following milestones:

> Milestone 1: June 1, 2025 – Well completed and site setup to allow owner to run well manually. The contractor shall supply all intermediate connections necessary for running well without the remainder of the site being completed.
>
> Milestone 2: November 1, 2025 – Substantial completion of entire project. If equipment delays (such as generator or VFD) result in the contractor not being able to meet this date, the contractor shall provide all temporary equipment necessary to run well at no cost to the owner.

Work shall be completed and ready for final payment within thirty-one (31) calendar days after the completion of Milestone 2 and acceptance by the owner.

Liquidated damages in the amount of **$500** per calendar day will be assessed for each day that the work shall remain uncompleted after the **above referenced completion date** with due allowance for extensions of the contract period due to conditions beyond control of the Contractor.

By virtue of statutory authority, a preference will be given to products and provisions grown and coal produced within the State of Iowa.

In accordance with Iowa statutes, a resident bidder shall be allowed a preference as against a nonresident bidder from a state or foreign country if that state or foreign country gives or requires any preference to bidders from that state or foreign country, including but not limited to any preference to bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident. In the instance of a resident labor force preference, a nonresident bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident bidder is a resident.

Failure to submit a fully completed Bidder Status Form with the bid may result in the bid being deemed nonresponsive and rejected.

Plans and specifications governing the construction of the proposed improvements have been prepared by the Engineer. These plans and specifications, and the proceedings of the City referring to and defining said improvements, are hereby made a part of this Notice and the proposed contract by reference, and the proposed contract shall be executed to comply therewith.

Copies of said plans and specifications and form of contract are now on file in the office of City Clerk of Storm Lake, IA, for examination by bidders. Copies may be obtained from ISG, 1725 North Lake Avenue, Storm Lake, IA 50588, (712) 732-7745 upon deposit of one hundred dollars ($100.00) which shall be refunded upon return of the plans and specifications within fourteen days after award of the project. If the plans and specifications are not returned within fourteen days after award of the project and in a reusable condition, the deposit shall be forfeited. Plans and specifications may also be obtained by download from the ISG website at www.isginc.com.

Any bidder or equipment supplier whose firm or affiliate is listed in the GSA publication "List of Parties Excluded from Federal Procurement and Non-procurement Programs" will be prohibited from the bidding process. Anyone submitting a bid who is listed in this publication will be determined to be a non-responsive bidder in accordance with 40 CFR Part 31.

Published upon order of the City of Storm Lake, Iowa.

City of Storm Lake
BY /s/ Mike Porsch
Mayor

ATTEST:
BY /s/ Keri Navratil
City Manager

Staff Summary

06/17/2024
Agenda Item # F.5.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Brian Oakleaf Finance Director

SUBJECT:

Public Hearing On The Authorization Of A Loan Agreement And The Issuance Of Notes To Evidence The Obligation Of The City Thereunder

BACKGROUND: This agenda item would hold the public hearing and meeting on the matter of the authorization of a Loan and Disbursement Agreement by and between the City and the Iowa Finance Authority, and the issuance to the Iowa Finance Authority of not to exceed $8,000,000 Water Revenue Capital Loan Notes to evidence the obligations of the City under said Loan and Disbursement Agreement, in order to provide funds to pay costs of the acquisition, construction, reconstruction, extending, remodeling, improving, repairing and equipping all or part of the Municipal Water Utility, including those costs associated with the construction of elevated water tower no. 5, and that notice of the proposed action by the City Council to institute proceedings for the authorization of the Loan and Disbursement Agreement and the issuance of the Notes had been published pursuant to the provisions of Sections 384.24A and 384.83 of the City Code of Iowa, as amended.

FISCAL IMPACT: None at this time.

RECOMMENDATION: Open Public Hearing
Receive any comments or objections.
Close Public Hearing

ATTACHMENTS:

Publication.pdf
Storm Lake - Hearing Proceedings 2024 Water Revenue SRF.docx

AFFIDAVIT OF PUBLICATION

I, Jon Robinson, being duly sworn, do state an oath that I am the publisher/general manager of the Storm Lake Times Pilot, a newspaper printed in the English language and published in Storm Lake, Buena Vista County, Iowa, and that the notice, a printed copy of which is attached, was published in said newspaper on the following date(s):

June 7, 20 24

_____, 20 _____

_____, 20 _____

Publisher/General Manager

Subscribed and sworn to me this 7th day of June, 20 24.

NOTARY PUBLIC

NOTARIAL SEAL IOWA

JAMIE KNAPP
Commission Number 853821
My Commission Expires
February 8, 2027

Price $ 41.12

OFFICIAL PUBLICATION

NOTICE OF MEETING OF THE CITY COUNCIL OF THE CITY OF STORM LAKE, STATE OF IOWA, ON THE MATTER OF THE PROPOSED AUTHORIZATION OF A LOAN AND DISBURSEMENT AGREEMENT AND THE ISSUANCE OF NOT TO EXCEED $8,000,000 WATER REVENUE CAPITAL LOAN NOTES, AND THE HEARING ON THE ISSUANCE THEREOF

PUBLIC NOTICE is hereby given that the City Council of the City of Storm Lake, State of Iowa, will hold a public hearing on the 17th day of June, 2024, at 5:00 P.M., in the Council Chambers, City Hall, 620 Erie Street, Storm Lake, Iowa, at which meeting the Council proposes to take additional action for the authorization of a Loan and Disbursement Agreement by and between the City and the Iowa Finance Authority and the issuance to the Iowa Finance Authority of not to exceed $8,000,000 Water Revenue Capital Loan Notes, to evidence the obligations of the City under the said Loan and Disbursement Agreement, in order to provide funds to pay the costs of acquisition, construction, reconstruction, extending, remodeling, improving, repairing and equipping all or part of the Municipal Water Utility System, including those costs associated with the construction of elevated water tower no. 5. The Notes will not constitute general obligations or be payable in any manner by taxation, but will be payable from and secured by the Net Revenues of the Municipal Water Utility System.

At the above meeting the Council shall receive oral or written objections from any resident or property owner of the City to the above action. After all objections have been received and considered, the Council will at the meeting or at any adjournment thereof, take additional action for the authorization of a Loan and Disbursement Agreement and the issuance of the Notes to evidence the obligation of the City thereunder or will abandon the proposal to issue said Notes.

This notice is given by order of the City Council of the City of Storm Lake, State of Iowa, as provided by Sections 384.24A and 384.83 of the Code of Iowa.

Dated this 3rd day of June, 2024.

/s/ Mayra A. Martinez
City Clerk, City of Storm Lake, State of Iowa

66

June 17, 2024

The City Council of the City of Storm Lake, State of Iowa, met in _____ session, in the Council Chambers, City Hall, 620 Erie Street, Storm Lake, Iowa, at _____ o'clock _____.M., on the above date. There were present Mayor _____, in the chair, and the following named Council Members:

_____

_____

Absent: _____

* * * * * * *

The Mayor announced that this was the time and place for the public hearing and meeting on the matter of the authorization of a Loan and Disbursement Agreement by and between the City and the Iowa Finance Authority, and the issuance to the Iowa Finance Authority of not to exceed $8,000,000 Water Revenue Capital Loan Notes to evidence the obligations of the City under said Loan and Disbursement Agreement, in order to provide funds to pay costs of the acquisition, construction, reconstruction, extending, remodeling, improving, repairing and equipping all or part of the Municipal Water Utility, including those costs associated with the construction of elevated water tower no. 5, and that notice of the proposed action by the City Council to institute proceedings for the authorization of the Loan and Disbursement Agreement and the issuance of the Notes had been published pursuant to the provisions of Sections 384.24A and 384.83 of the City Code of Iowa, as amended.

The Mayor then asked the Clerk whether any written objections had been filed by any City resident or property owner to the proposal. The City Clerk advised the Mayor and the City Council that _____ written objections had been filed. The Mayor then called for oral objections to the proposal and _____ were made. Whereupon, the Mayor declared the time for receiving oral and written objections to be closed.

(Attach here a summary of objections
received or made, if any)

Staff Summary

06/17/2024
Agenda Item # F.6.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Brian Oakleaf Finance Director

SUBJECT:

Resolution No. 65-R-2023-2024 Initiating Proceedings To Take Additional Action For The Authorization Of A Loan and Disbursement Agreement And The Issuance Of Not To Exceed $8,000,000 Water Revenue Capital Loan Notes.

BACKGROUND:

Pursuant to notice published as required by law, the City Council has held a public meeting and hearing upon the proposal to institute proceedings for the authorization of a Loan Agreement and has considered the extent of objections received from residents or property owners as to the proposed issuance of Notes; and accordingly, this Resolution is now considered to be in the best interests of the City and residents thereof.

FISCAL IMPACT:

This Resolution shall serve as a declaration of official intent under Treasury Regulation 1.150-2 and shall be maintained on file as a public record of such intent. It is reasonably expected that water fund moneys may be advanced from time to time for capital expenditures which are to be paid from the proceeds of the above loan agreement. The amounts so advanced shall be reimbursed from the proceeds of the Loan Agreement not later than eighteen months after the initial payment of the capital expenditures or eighteen months after the property is placed in service. Such advancements shall not exceed the loan amount authorized in this Resolution unless the same are for preliminary expenditures or unless another declaration of intention is adopted.

RECOMMENDATION:

Approve Resolution No. 65-R-2023-2024 instituting proceedings to take additional action for the authorization of a Loan Agreement and the Issuance of CLN.

ATTACHMENTS:

Resoluion No. 65-R-2023-2024 For Authorization of A Loan And Disbursement Agreement Not To Exceed $8,000,000

Water Revenue Loan.docx

RESOLUTION NO. 65-R-2023-2024

RESOLUTION INSTITUTING PROCEEDINGS TO TAKE ADDITIONAL ACTION FOR THE AUTHORIZATION OF A LOAN AND DISBURSEMENT AGREEMENT AND THE ISSUANCE OF NOT TO EXCEED $8,000,000 WATER REVENUE CAPITAL LOAN NOTES

WHEREAS, pursuant to notice published as required by law, this Council has held a public meeting and hearing upon the proposal to institute proceedings for the authorization of a Loan and Disbursement Agreement by and between the City and the Iowa Finance Authority, and the issuance to the Iowa Finance Authority of not to exceed $8,000,000 Water Revenue Capital Loan Notes to evidence the obligations of the City under said Loan and Disbursement Agreement, for the purpose of paying costs of the acquisition, construction, reconstruction, extending, remodeling, improving, repairing and equipping all or part of the Municipal Water Utility System, including those costs associated with the construction of elevated water tower no. 5, and has considered the extent of objections received from residents or property owners as to said proposal and, accordingly the following action is now considered to be in the best interests of the City and residents thereof:

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, STATE OF IOWA:

Section 1. That this Council does hereby institute proceedings and takes additional action for the authorization of a Loan and Disbursement Agreement by and between the City and the Iowa Finance Authority, and the issuance to the Iowa Finance Authority in the manner required by law of not to exceed $8,000,000 Water Revenue Capital Loan Notes for the foregoing purpose.

Section 2. That this Council does hereby consent to the terms and conditions of the DWSRF Loan Program, which terms and conditions and the disclosures provided with respect thereto are hereby acknowledged, accepted and approved.

Section 3. That the Clerk, with the assistance of the City Attorney and bond counsel, is hereby authorized and directed to proceed with the preparation of such documents and proceedings as shall be necessary to authorize the City's participation in the DWSRF Loan Program, to select a suitable date for final Council authorization of the required Loan and Disbursement Agreement and issuance of the Note to evidence the City's obligations thereunder, and to take such other actions as the Clerk shall deem necessary to permit the completion of a loan on a basis favorable to the City and acceptable to this Council.

Section 4. This Resolution shall serve as a declaration of official intent under Treasury Regulation 1.150-2 and shall be maintained on file as a public record of such intent. It is reasonably expected that water fund moneys may be advanced from time to time for capital expenditures which are to be paid from the proceeds of the above loan agreement. The amounts so advanced shall be reimbursed from the proceeds of the Loan Agreement not later than eighteen months after the initial payment of the capital expenditures or eighteen months after the property is placed in service. Such advancements shall not exceed the loan amount authorized in

this Resolution unless the same are for preliminary expenditures or unless another declaration of intention is adopted.

PASSED AND APPROVED this 17th day of June, 2024.

_____
Michael Porsch, Mayor

ATTEST:

_____
Mayra A. Martinez, City Clerk

Staff Summary

06/17/2024
Agenda Item # F.7.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Keri Navratil City Manager

SUBJECT: **Motion to Approve Funding to Storm Lake United for Event Promotion**

BACKGROUND: On May 20, 2024, representatives from Storm Lake United presented a request to Council for additional funding for events. Noted in the presentation were six events, some of which were retail oriented. SLU requested funding from the city for 75% of the estimated cost of the events, approximately $60,000. Funding requested is in the amount of $45,000. Any funding would be on a reimbursement basis for the events.

In the approving the FY 2025 budget, Council allocated $35,000 plus an additional $15,000 for events when requested for a total up to $50,000. Additionally, Council authorized in the FY 2025 budget $50,000 for Tourism Promotion and events sponsored by the City, Kids Fest and Breakfast with Santa.

Some of the events noted by SLU are retail promotions, typically not funded with City resources. Any additional funding committed to SLU will require a reduction in currently budgeted items in the FY 2025 budget. Reductions would be in the areas funded by Hotel Motel Tax, such as the Dredge Site Recreation Project, We Go Swing, etc.

In addition to funding, the City provides in-kind services for SLU events as requested in their permit letter. The services provided vary depending on the event.

FISCAL IMPACT: N/A

RECOMMENDATION: Approve funding to Storm Lake United in the amount of $ *Council's discretion*

ATTACHMENTS:
SLU Budget Summary Page.pdf

ADVERTISING BUDGET SUMMARY

All Events		
Walking Warehouse	$	2,133
Ridiculous Days	$	2,060
Chills & Thrills	$	2,093
Holiday Open House	$	3,612
Miracle on Lake Avenue	$	2,613
Wood Wine & Blues	$	34,210
Multi-Cultural Festival	$	13,445
Final Total	$	60,166

storml
uni

Staff Summary

06/17/2024
Agenda Item # F.8.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Keri Navratil City Manager

SUBJECT: **Motion to Approve Agreement with the Lake Animal Hospital for Veterinary Services**

BACKGROUND: Recently, the Lake Animal Hospital contacted the City regarding veterinary services and associated costs, when necessary, through ordinance required actions.

Through work sessions, Council provided input as to the desired services and associated costs.

This agreement will memorialize each party's understanding and expectations of veterinary services and associated costs.

FISCAL IMPACT: N/A

RECOMMENDATION: Approve agreement with Lake Animal Hospital for veterinary services and associated costs

ATTACHMENTS:

Agreement for Animal Control

AGREEMENT FOR ANIMAL CONTROL AND RESCUE MANAGEMENT SERVICES

This Agreement is made and entered into between the CITY of Storm Lake, Iowa, a municipal corporation with its principal offices at 620 Erie Street, Storm Lake, Iowa 50588, (hereinafter referred to as "City") and LAKE ANIMAL HOSPITAL OF STORM LAKE, IOWA L.L.C,, an Iowa limited liability company, with its principal office at 107 W. 16th. St., Storm Lake, Iowa, 50588, and doing business at 1710 Lake Ave., Storm Lake, Iowa 50588 . (hereinafter referred to as LAH).

WHEREAS, the City is a municipal corporation that regulates animals within its city limits; and

WHEREAS, animal control and animal sheltering services can help communities in a variety of ways including rescuing animals, reuniting lost pets and their owners, and responding to various types of calls for aid involving animals; and

WHEREAS, LAH operates a veterinary hospital capable of providing animal rescue and sheltering services; and

WHEREAS, the City periodically requires services for animal control and rescue management; and

WHEREAS, the City desires to engage LAH to provide public animal shelter and care services.

NOW THEREFORE in consideration of the mutual agreements between the parties hereto, and other valuable consideration the receipt and sufficiency of which is hereby acknowledged, it is agreed as follows:

Section 1. Purpose.

LAH will provide animal shelter and care services upon request for the City. This Agreement is a voluntary undertaking and no separate legal entity is created hereunder. No real or personal property will be acquired, held, or disposed of pursuant to this Agreement.

Section 2. Term.

The Agreement shall be deemed effective _____. 2024, and shall continue under the terms and conditions of this Agreement for a term of _____ . The parties may mutually agree in writing to extend the term of this Agreement beyond its original expiration. Either party may choose to terminate this Agreement for any reason at any time by giving the other party at least ninety (90) days' prior written notice, unless providing said notice is impossible or impracticable under the circumstances.

Section 3. Definitions.

Animal – for purposes of this agreement, shall mean dogs and/or cats.
Cat – includes both male and female members of the felis catus domestica species, whether altered or not.
Dog – includes both male and female members of the canis familiaris species, whether altered or not.
Euthanasia – shall have the same meaning as defined under Iowa Code section 162.2(13) or its successor under state law.
Owner – any person, firm or corporation who claims to be responsible for the care of an animal.
Shelter Period – unless otherwise specified, the five-day period of time when an animal is under the care of LAH for Shelter Services in this Agreement, beginning with the date the Storm Lake Police Department delivers the animal to LAH through 11:59 p.m. on the fifth day following the delivery date.
Shelter Services – shelter services shall include adequate nutrition, water, and shelter. "Shelter services" shall not include medical care, microchip-related services, or medical tests, including canine heartworm tests.

Section 4. Terms.

4.1 LAH Services.

LAH will provide the following services to the City:

a. Dog and Cat shelter services. LAH shall provide shelter services to animals delivered to its hospital by the Storm Lake Police Department.
b. Medical services. LAH shall provide necessary medical services to animals delivered to its hospital and charge the costs identified in this Agreement based on the specific incident giving rise to delivery of the animal.
c. Shelter Services and Medical Care for the City. LAH shall provide Shelter Services and provide necessary care to animals under this Agreement according to the following circumstances:
    1. Neglected, Abused or Hoarded Animals –
        a. LAH shall provide Shelter Services to animals the City delivers in response to neglect or abuse investigations. The City shall be responsible for the cost of Shelter Services during the Shelter Period.
        b. The City shall pay for Distemper- Rabies, Feline Leukemia (FeLV) and Feline Immunodeficiency (FIV) Viruses SNAP tests. The Chief of Police shall be consulted and approve any additional medical treatment other than what is provided herein. The City shall not be responsible for costs associated with microchipping or canine heartworm tests. The fees shall be in amounts set forth in Section 4.2 of this Agreement.

    2. Rabies Quarantine- LAH shall accept any animal the Storm Lake Police Department delivers to LAH for quarantine due to a human bite incident. LAH

agrees to require any person claiming to be the owner of a quarantined animal within ten (10) days of delivery to directly pay LAH for all costs and hold the City harmless. If an animal is not reclaimed after ten (10) days, the City shall pay for ten (10) days of Shelter Services and a rabies vaccination.

3. Impounded Sick Animals. LAH shall administer necessary urgent and proper medical care to any sick animal impounded under City Code sections 8-3-6 or 8-4-6 and deemed necessary after consultation with the City at the time of delivery. LAH agrees to charge the owner of any cat or dog for all Shelter Services and medical care and vaccinations deemed necessary, including Distemper- Rabies, Feline Leukemia (FeLV) and Feline Immunodeficiency (FIV) Viruses SNAP test.

   If an owner does not claim a sick animal delivered to LAH within five (5) days, the City shall pay for five (5) days of Shelter Services and any reasonable medical care already administered by LAH, , including Distemper- Rabies, Feline Leukemia (FeLV) and Feline Immunodeficiency (FIV) Viruses SNAP test. The Chief of Police shall be consulted and approve any additional medical treatment prior to LAH administering such treatment. In no event shall the City be responsible for the costs associated with microchipping services or canine heartworm tests. Animals unclaimed after five (5) days shall become the property of LAH.

4. Impounded Healthy Cat Intakes and SNAP Test- LAH shall accept impounded cats that do not appear sick upon delivery All cats the City delivers to LAH that do not appear sick upon delivery shall be vaccinated. Such cats will be tested for Feline Leukemia (FeLV) and Feline Immunodeficiency (FIV) Viruses at the City's cost. The City will pay for up to five (5) days of Shelter Services. The City Shall pay for vaccinations. Cats unclaimed after five (5) days shall become the property of LAH. If owner reclaims cat, the owner is financially responsible for services provided by LAH.

5. Impounded Healthy Stray Dog Intakes- LAH shall accept impounded dogs delivered by the City to LAH that do not appear sick upon delivery. LAH may administer rabies and distemper shots and any flea or tick prevention. If a dog is not claimed within five (5) days, the City shall pay for Shelter Services, any rabies and distemper shots LAH administered, and any flea or tick prevention. Dogs unclaimed after five (5) days will become the property of LAH. If owner reclaims dog, the owner is financially responsible for services provided by LAH

Section 4.2 Owner Notice and Identification.

Upon receipt of an animal delivered by the City, LAH shall attempt to identify an owner of the animal and notify the owner, if found, of the owner's right to claim the animal and the costs.

Section 4.3 Fees

The following fee schedule shall apply for services under this Agreement:

- Distemper-Rabies vaccination: $20
- 5 days Shelter Services cost: $50
- Feline Leukemia (FeLV) and Feline Immunodeficiency (FIV) Viruses: $25
- Euthanasia: $50
- City pre-Authorized Medications for Impounded Animals: Costs vary and will be estimated at the time of delivery and cited to the City for pre-approval prior to administration.
- Other vaccinations:$10 each vaccination

Fees shall not be increased without a prior written amendment to this Agreement.

Section 4.4 Records

LAH shall maintain intake and financial information related to each animal the City delivers. LAH shall make such information available to the City at any time upon request.

Section 4.5 Compliance

LAH shall maintain all applicable licenses, certifications, and standards applicable to its operations at all times under this Agreement in accordance with federal, state, and local laws. LAH agrees to perform its responsibilities under this Agreement in accordance with the applicable professional standard of care.

Section 4.6 Insurance

LAH shall procure and maintain appropriate insurance policies at LAH's expense sufficient for the protection of its operations and the City against any loss, injury, damage, or other liability in connection with its performance under the terms of this Agreement.

Section 4.7 Indemnification

To the fullest extent permitted by law, LAH agrees to defend, pay on behalf of, indemnify, and hold harmless the City against any and all claims, demands, suits, damages or losses, together with any and all outlay and expense connected therewith including, but not limited to, attorneys' fees and court costs that may be asserted or claimed against, recovered from or suffered by the City by reason of any injury or loss including, but not limited to, personal injury, bodily injury including death, property damage including loss of use thereof, and economic damages that arise out of or are in any way connected to or associated with LAH's services under this Agreement, including that of its officers, agents, employees, contractors, subcontractors and others under the control of LAH, except to the extent caused by or resulting from the negligent act or omission of the City or its employees, consultants, agents or others for whom City is responsible.

Section 5. Notices and Communication

All notices, requests, demands, and other communications hereunder shall be in writing and shall be deemed to have been given if and when delivered or mailed, postage prepaid, by certified or registered mail to:

a. City
City of Storm Lake
620 Erie Street
PO Box 1086
Storm Lake, IA 50588

b. LAH
107 W 16th Street Storm Lake, IA 50588

Section 6. Applicable Law

This Agreement shall be governed by and construed in accordance with the laws of the State of Iowa. Remedies provided in the Agreement are not exclusive of any other rights or remedies that might be available to the parties at law or in equity.

IN WITNESS WHEREOF, the City and LAH have duly executed this Agreement in duplicate originals as of the date set forth above.

City of Storm Lake, Iowa

_____

Mike Porsch, Mayor

Attest

_____

Mayra Martinez, City Clerk

Lake Animal Hospital, LLC
: Dr. Dianne Johnson

Title: Owner

Attest

_____

Staff Summary

06/17/2024
Agenda Item # F.9.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Keri Navratil City Manager

SUBJECT: **Ordinance No. 04-O-2023-2024 For A City Ordinance Establishing Regulations For After-hours Businesses That Permit Alcohol Consumption Beyond 2 AM - 3rd Reading**

BACKGROUND: Over the past years, the Storm Lake Police Department has observed a trend of escalating crimes and violence associated with after-hours establishments allowing alcohol consumption past 2 AM.

These businesses often draw large crowds after the bars close at 2AM and operate without liquor licenses, rendering them unregulated. Consequently, after-hours establishments have become focal points for criminal activities, including large fights, drug-related incidents, public intoxication, property damage, shootings, and various liquor law violations.

The increase in calls linked to after-hours businesses has imposed a significant risk to our staff and a burden on our resources. Officers are frequently dispatched to address disturbances and ensure public safety in these areas, only after the incident has escalated and spun out of control. Incidents of violence and disorderly conduct pose substantial risks to patrons, police officers, and the surrounding community.

In response to these concerns, we recommend the implementation of a new city ordinance specifically addressing after-hours businesses that allow alcohol to be consumed after 2AM.

This ordinance proposes regulations, including a permitting process, background checks, insurance coverage, and consent for police and fire department officials to enter the premises to conduct inspections to ensure compliance with state and city codes.

Additionally, the ordinance outlines enforcement measures and penalties for non-compliance, including a permit revocation process for those

violating the ordinance.

By imposing regulations on these establishments, we hope to reduce the occurrence of violent incidents, safeguard our officers, and uphold the integrity of our community.

The Police Department fully supports the enactment of this ordinance to protect the well-being of our residents and maintain peace and order within our city.

Work Sessions were held on April 1 and April 15.

FISCAL IMPACT: N/A

RECOMMENDATION: Approve second reading of Ordinance No. 04-O-2023-2024 For A City Ordinance Establishing Regulations For After-hours Businesses That Permit Alcohol Consumption Beyond 2 AM

~~First Reading: May 20, 2024~~
~~Second Reading: June 3, 2024~~
Third Reading: June 17, 2024

ATTACHMENTS:

Ordinance No. 04-O-2023-2024 - After Hours Businesses.pdf

ORDINANCE NO. 04-2023-2024

AN ORDINANCE AMENDING TITLE IV OF THE STORM LAKE, IOWA CITY CODE BY ADDING NEW CHAPTER 4-11 REGULATING AFTER HOURS BUSINESSES

4-11-1: PURPOSE; FINDINGS:

The purpose of this chapter is to provide for the reasonable regulation of existing After Hours businesses within the city of Storm Lake. The city council finds that the existence of After Hours businesses, which allow the on-premises consumption of alcohol during early morning hours, in the city of Storm Lake has caused detrimental effects on the health, safety, welfare, and quality of life of residents, and visitors. Based on these findings and intentions, the city council has enacted the following regulations for After Hours businesses in the city of Storm Lake.

4-11-2: DEFINITIONS

AFTER HOURS BUSINESS. Any business open during any time between the hours of 2:00 a.m. to 6:00 a.m. any day of the week and where patrons are allowed to bring their own beer and wine onto the business premises. The term does not include events at hotels or motels or spontaneous social gatherings on residential properties.

APPLICANT. Any person, as defined by this Ordinance, applying for a license to operate an After Hours business.

BUSINESS PREMISES OR LICENSED PREMISES. All buildings and properties including parking lots owned or leased for the benefit of the operation of the after hours business.

HOTEL or MOTEL. Any building or structure, equipped, used, advertised as, or held out to the public to be an inn, hotel, motel, motor inn, or place where regular sleeping accommodations are furnished transient guests for hire, which is licensed by the Iowa Department of Inspections and Appeals.

PERSON. Any individual, association, partnership, corporation, club, or other legal entity.

4-11-3: LICENSE REQUIRED

(A) No person shall operate an After Hours business in the city without first applying for and paying the license fee to procure an After Hours business license.

(B) This Ordinance shall not apply to hotels or motels.

(C) A license to conduct an After Hours business may be issued by the City Clerk to a person who meets all requirements and conditions set forth in this Ordinance.

4-11-4: APPLICATION REQUIREMENTS

A person shall apply to the City Clerk for an original or renewal After Hours business license at least sixty (60) days prior to the date the person plans to begin operating an After Hours business.

The applicant shall provide information required by this Section upon a form to be provided by the City Clerk along with the documents specified below and payment of the application fee in the amount set in the Schedule of Fees adopted by the City Council.

A. The Applicant's full legal name, and any other names used by the Applicant in the preceding five (5) years.
B. The Applicant's current mailing address.
C. Proof of the Individual's age completing the application on behalf of the Applicant. No Person under the age of twenty-one (21) years shall be eligible for a license.
D. The business name, mailing address, location (if different from the mailing address), and phone number.
E. The name and business address of the Applicant's registered agent (if applicable).
F. A statement as to whether the Individual has ever had a license for an After Hours Business, or its equivalent as defined in this Ordinance, denied, revoked, or suspended in any other city, county, or state, and if so, the date(s) and jurisdiction(s) of the denial, revocation, or suspension.
G. A statement as to whether the Applicant has ever owned a business that operated after hours that has been declared by a court of law to be a nuisance or was closed by order of a court of law.
H. Personal injury coverage in the amount of $1 million.
I. General liability insurance in the amount of $2 million.
J. A copy of the Sales Tax Permit for the proposed business, from the Iowa Department of Revenue.
K. Applicant shall provide a written consent for the City to conduct a background check on each Person who signed the application.
L. Applicant shall provide a written consent for members of the Storm Lake Fire and Police Departments to enter the business premises without warrant at any time to inspect for violations of the provisions of state law and City ordinances, including, but not limited to, compliance with the laws of this Ordinance, Iowa Code chapter 123 alcoholic beverages licensing laws, and other applicable fire, building, and health code regulations.

After an Application is received, the City Clerk shall determine whether the application is complete. The City Clerk shall transmit the application to the Fire Department and Building Code Enforcement to conduct an inspection of the premises with the owner's cooperation. The Applicant shall permit the City's Fire Department and Building Code Compliance officers to enter and examine the premises to confirm compliance with City Code standards. The City Clerk shall also forward the Application to the Police Chief to conduct its review.

The Applicant shall immediately supplement any information provided in the application if any changes, errors, or omissions would cause the original application to be false or incomplete. This obligation to supplement continues after a license is issued.

4-11-5 POLICE DEPARTMENT REVIEW. Each application for an original or renewal After Hours Business license shall be provided to the Police Chief for review. Upon receipt, the Police Chief, or designee, shall conduct a background check and an investigation as to the truth of the

facts averred in the application documents. The Police Chief or designee shall forward the results to the City Clerk along with a recommendation for approval or disapproval. No approval of the license may occur until the City Clerk has received the results of the investigation.

4-11-6 LICENSE ISSUANCE

The City Clerk shall issue a license under the following conditions:

A. The application is complete and all information and documents required in section 4-11-3 have been provided.
B. The application fee is paid.
C. The Police Chief or designee has recommended approval.
D. The premises for which an after hours business license is sought must be located within an area where such business is permitted and conforms to City zoning requirements.
E. The premises for which an after hours business license is sought meets all appliable laws, ordinances, resolutions, and health and fire regulations.
F. No license shall be approved for any Applicant that has previously had a liquor license revoked or suspended for any reason within one (1) year of the date of application for After Hours business license.
G. No license shall be approved for a period of one (1) year from the date on which any Applicant has had any premises or business found to be a nuisance under Chapter 8-1.
H. No license shall be approved to any applicant who:
    a. Within one (1) year of the date of application, has violated the state alcoholic beverages laws and regulations for which corrective action has been taken, including suspension or revocation of liquor licenses;
    b. Within five (5) years of the date of application, has been convicted of crimes relating to illegal drug use, possession or sale;
    c. Within five (5) years of the date of application, has been convicted of a felony or serious misdemeanor.
    d. Within one (1) year of the date of application, has had an After Hours business license or renewal license revoked, suspended, or denied.

    These requirements apply to all of the following:
    a. Each of the officers, directors and partners of the person;
    b. Tenants operating the premises on behalf of the Applicant;
    c. A person who directly or indirectly owns or controls 10% or more of any class of stock of the person;
    d. A person who directly or indirectly has an interest of 10% or more in the ownership or profits of the person.

4-11-7 RENEWAL.

A. A license shall remain valid for a period of one (1) year from the date of issuance, unless the license has otherwise been suspended or revoked. A license may be renewed only by making application as provided in this Ordinance and paying the applicable renewal fee.

B. An application for renewal shall be filed at least ninety (90) days before the expiration date.
C. Renewal license applications are evaluated and granted upon the same standards, conditions, and requirements as original applications.
D. After Hours Business licenses are not transferrable.

4-11-8 GROUNDS FOR REVOCATION, SUSPENSION, OR CIVIL PENALTY.

A. An After Hours Business licensee may be required to pay a civil penalty and/or have the license suspended for a period not to exceed one year, or revoked, for violations of this Ordinance.
B. Upon complaint or a reasonable suspicion that there are grounds for revocation or suspension, the City Manager may cause the matter to be investigated. If the city Manager finds that a violation has occurred, the City Manager shall give notice to the licensee of intent to suspend or revoke the license.
C. Notice of the City's intent to suspend, revoke, or deny renewal of a license shall be served upon the licensee by personal service or by certified mail, return receipt requested. The suspension or revocation shall become effective seven (7) days after notice is served or mailed, unless an appeal is timely filed.
D. Grounds for suspension, revocation, or civil penalty, are as follows:
    a. Misrepresentation of any material fact in the license application by the applicant/licensee or their respective employees or agents;
    b. Violation of any provision of state law or city ordinance pertaining to the operation of the business by the licensee or their employees or agents;
    c. Failure to pass any health, fire, or safety code inspections;
    d. Any change in ownership or interest in the business which was not previously reported and approved by the City;
    e. Any event which would have resulted in disqualification from approval of license when originally issued or renewed; or
    f. Any sale or other purported transfer of the license.

4-11-9 APPEAL. Any applicant or licensee aggrieved by the refusal of the City Clerk to Issue or renew a license, or by suspension or revocation of a license by the City Manager, has the right to appeal the decision to the City Council of the City of Storm Lake, Iowa. Such appeal shall be requested by submitting a written request to the City Clerk within ten (10) days of the action which is appealed. The City Council shall consider the appeal at the first regularly scheduled meeting following the filing of the appeal before which meeting sufficient time exists to give the public the required notice of the existence of the appeal hearing on the agenda. At the appeal hearing, the appellant shall be entitled to present their appeal orally or in writing. The City Council shall act on the appeal within twenty-one (21) days of the hearing and shall either uphold or reverse the action of the City Clerk or City Manager, and direct any further action from staff as is necessary to implement the order.

4-11-10 EFFECT OF REVOCATION

A. Any licensee whose license is revoked shall not thereafter be permitted to hold a license in the city for a period of one (1) year from the date of revocation.
B. A spouse or business associate holding 10% or more of the capital stock or ownership interest in the business of a person whose license has been revoked shall not be issued a license and no license shall be issued which covers any business s in which the person ahs a financial interest for a period of two years form the date of revocation.
C. If a license is revoked, the premises covered by the license shall not be re-licensed as an after hours business for one year from the date of revocation.

4-11-11 MUNICIPAL INFRACTION. A violation of any provision of this Chapter shall constitute a Municipal Infraction subject to the penalties and alternative relief authorized by Title I, Chapter 20 of this Code and by Section 364.22 of the Code of Iowa.

4-11-12 APPLICATION TO EXISTING BUSINESSES

All businesses meeting the definition of After Hours Business herein as of the effective date of this Ordinance are granted a temporary license to continue operation for a period of one-hundred and eighty (180) days following the Ordinance's effective date. All After Hours Businesses shall be subject to the requirements of this Ordinance following expiration of the temporary license period.

Section 2. All ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

Section 3. If any section, provision, or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

Section 4. This ordinance shall be in effect following its final passage, approval and publication as provided by law.

PASSED AND APPROVED this _____ day of _____, 2024.

_____
Michael Porsch, Mayor

ATTEST:

_____
Mayra A. Martinez, City Clerk

Read First Time: _____

Read Second Time: _____

Read Third Time: _____

PASSED AND APPROVED JUNE , 2024.

_____
Michael Porsch, Mayor

ATTEST:

_____
Mayra A. Martinez, City Clerk

I, _____, City Clerk of the City of Storm Lake, State of Iowa, hereby certify that the above and foregoing is a true copy of Ordinance No. _____ passed and approved by the City Council of the City at a meeting held _____, 2024, signed by the Mayor on _____, 2024, and published in the Storm Lake Times Pilot on _____, 2024.

_____
Mayra A. Martinez, City Clerk
City of Storm Lake, State of Iowa

Staff Summary

06/17/2024
Agenda Item # F.10.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Keri Navratil City Manager

SUBJECT: **Motion to Approve Funding For Lake Monitoring Equipment**

BACKGROUND: The Lake Improvement Commission (LIC) would like to purchase lake monitoring equipment for $25,000. This equipment would be beneficial to collect data on lake health, temperature and determining the high water mark. The data will be located on the United States Geological Survey (USGS) website.

The Iowa Department of Natural Resources will commit to paying for the yearly maintenance fee if the LIC purchases the equipment.

The Lake Preservation Association has committed $12,500 and the remaining LIC members which include the City of Storm Lake, City of Lakeside, and Buena Vista County, need to consult their respective member organizations to commit funds for the remaining purchase balance.

FISCAL IMPACT: The City Council can set a not to exceed amount for the purchase of equipment.

RECOMMENDATION: Approve funding

ATTACHMENTS:

Staff Summary

06/17/2024
Agenda Item # F.11.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Keri Navratil City Manager

SUBJECT: **City Council Work Session to review City Code Sections 8.3 Dogs, 8.4 Cats, an 8.9 Dangerous and Vicious Animals**

BACKGROUND: City Council will review draft language for Storm Lake City Code Sections 8.3 Dogs, 8.4 Cats, an 8.9 Dangerous and Vicious Animals.

FISCAL IMPACT:

RECOMMENDATION: N/A

ATTACHMENTS:

Ordinance Amending Title VIII Animal Control (6.14 Rev. Draft - Clean) (02365781x7F7E1).docx

ORDINANCE NO. _____

AN ORDINANCE AMENDING TITLE VIII OF THE 1994 RECODIFICATION OF THE MUNICIPAL CODE OF THE CITY OF STORM LAKE, IOWA, BY REPEALING AND REPLACING CERTAIN CHAPTERS PERTAINING TO ANIMAL CONTROL

WHEREAS, Title VIII, Police, of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa ("City Code") contains certain chapters pertaining to the control and regulation of animals and animal ownership within the corporate limits of Storm Lake; and

WHEREAS, the City Council of the City of Storm Lake ("Council" or "City," respectively) seeks to repeal and replace the various chapters pertaining to animal control and regulation for the purposes of updating the provisions; and

WHEREAS, the City finds it proper and necessary to adopt revised ordinances to protect the health and welfare of citizens; and

WHEREAS, the Council hereby determines the revisions and changes to the various animal control sections of City Code Title VIII are in the public's best interests.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, IOWA, THAT:

SECTION ONE. Title VIII of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa, is hereby amended by repealing Chapter 8-3, Dogs, in its entirety and replacing it with the following in lieu thereof:

Chapter 8-3

DOGS

Sections:
8-3-1 Definitions
8-3-2 License
8-3-3 Immunization
8-3-4 Kennel Dogs
8-3-5 Dogs Disturbing the Peace
8-3-6 Impounding
8-3-7 Municipal Infraction

Section 8-3-1 Definitions

For use within this Chapter the following are defined:

(A) "DOGS" includes both male and female members of the canine species, whether altered or not;

(B) "AT LARGE" refers to any dog running otherwise than upon the premises of its owner when the dog is not attached to a leash 6 feet or less in length, or other similar physical restraint, under the control of a person physically competent to restrain or control the dog, properly restrained within a motor vehicle, or housed in an animal hospital or kennel;

(C) "OWNER" includes any person, firm or corporation owning, harboring, sheltering or keeping a dog, including any person who feeds or otherwise cares for a dog.

Section 8-3-2 License

(A) License Required. Every owner of a dog shall annually procure a dog license from the City. The license fee shall be in the amount set by Council Resolution and shall be paid no later than January 1 of each year. It shall be unlawful for an owner to have a dog within the city without procuring a license as required by this Ordinance.

(B) Application for License and Issuance Requirements. License applications shall be on a form provided and proscribed by the City Manager. Applications shall be made within six months of possession of the dog. Applications shall include evidence of rabies vaccination. The rabies vaccination required shall be that which is approved by the state of Iowa in accordance with the approved state agency's standards and requirements, and the frequency of revaccination necessary for approved vaccinations shall be established by that state department. The vaccine shall be administered by a licensed veterinarian and shall be given as approved by the state of Iowa.

A copy of a certificate from a licensed veterinarian must accompany all applications claiming an animal has been spayed or neutered. The city clerk or designee shall issue dog licenses when the application requirements are met and the license fee is paid.

(C) Duration of License. A license granted pursuant to this provision shall be valid for a period of one year.

(D) License Tag. Upon payment of the license fee, the City shall issue to the owner a license which shall contain the name of the owner, his/her place of residence, and a description of the dog. The City shall keep a duplicate of each license issued as a public record. Upon issuance of the license, the City shall deliver to the owner a metal tag stamped with the number of the license and the year for which it is issued. The license tag shall be securely fastened to a collar or harness which shall be worn by the dog for which the license is issued. Any dog found running at large without the license tag attached to its collar or harness shall be deemed unlicensed. Licenses and license tags are not transferable.

Section 8-3-3 Immunization

Every dog owner shall comply with state law requirements to obtain proper immunization against rabies. Ownership or possession of a dog over six months of age within the corporate limits of Storm Lake without proper immunization against rabies shall be unlawful. Proof of immunization

issued by a licensed veterinarian in the form of a metal tag shall be worn by any dog owner's dog, and the dog owner shall additionally maintain documented proof of such immunization.

Section 8-3-4 Kennel Dogs

Kennel dogs which are kept or raised solely for the bona fide purpose of sale and which are kept under constant restraint are not subject to the provisions of this Chapter.

Section 8-3-5 Dogs Disturbing the Peace

(A) It shall be unlawful for an owner of a dog to allow or permit such dog to pass upon the premises of another.

(B) It shall be unlawful for an owner of a dog to allow or permit such dog to run at large.

(C) It shall be unlawful for an owner of a dog to allow or permit such dog to cause serious annoyance or disturbance to any person by frequent and habitual howling, yelping, barking or otherwise; or by running after or chasing persons, bicycles, automobiles or other vehicles.

(D) The provisions of Subsections (A) and (B) shall not apply to dogs being run by an employee of the City or by a person, including the person's employee, under contract with the City of Storm Lake for the purpose of controlling and minimizing the presence of geese in the City parks or other property owned by the City.

Section 8-3-6 Impounding

(A) Any unlicensed dog found at large, or any licensed dog found at large in violation of the provisions of this Chapter, shall be seized and impounded.

(B) The owners of such licensed dogs shall be notified in writing within two (2) days of impounding that upon payment of impounding costs such dogs will be returned. If the impounded licensed dogs are not recovered by their owners within five (5) days after notice, the dogs shall be humanely disposed of by the Chief of Police.

(C) Impounded unlicensed dogs may be recovered by the owner, upon proper identification, by payment of license fee and impounding costs. If such dogs are not claimed within five (5) days after impounding, they shall be humanely disposed of by the Chief of Police.

Section 8-3-7 Municipal Infraction

A violation of any of the provisions of this Chapter shall constitute a municipal infraction subject to the penalties and alternative relief authorized by Title 1, Chapter 20 of this Code and by Section 364.22 of the Code of Iowa.

SECTION TWO. Title VIII of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa, is hereby amended by repealing Chapter 8-4, Cats, in its entirety and replacing it with the following in lieu thereof:

Chapter 8-4

CATS

Sections:
8-4-1 Definitions
8-4-2 License
8-4-3 Immunization
8-4-4 Kennel Cats
8-4-5 Cats Disturbing the Peace
8-4-6 Impounding
8-4-7 Population Control Programs
8-4-8 Municipal Infraction

Section 8-4-1 Definitions

For use within this Chapter the following are defined:

(A) "AT LARGE": Refers to any cat running otherwise than upon the premises of its owner when the cat is not attached to a leash held by a competent person, restrained within a motor vehicle, or in any animal hospital or kennel.

(B) "CATS": Includes both male and female members of the felis catus domestica species, whether altered or not.

(C) "OWNER": Any person, firm or corporation owning, harboring, sheltering or keeping a cat, including any person who feeds or otherwise cares for a cat.

(D) "POPULATION CONTROL PROGRAM" shall mean a program allowed by the City Council exempting persons from liability under this Chapter for returning a cat to its original location while conducting a comprehensive population management strategy known as Trap-Neuter-Return.

Section 8-4-2 License

(A) License Required. Every owner of a cat shall annually procure a cat license from the City. The license fee shall be in the amount set by Council Resolution and shall be paid no later than January 1 of each year. It shall be unlawful for an owner to have a cat within the city without procuring a license as required by this Ordinance.

(B) Application for License and Issuance Requirements. License applications shall be on a form provided and proscribed by the City Manager. Applications shall be made within six

months of possession of the cat. Applications shall include evidence of rabies vaccination. The rabies vaccination required shall be that which is approved by the state of Iowa in accordance with the approved state agency's standards and requirements, and the frequency of revaccination necessary for approved vaccinations shall be established by that state department. The vaccine shall be administered by a licensed veterinarian and shall be given as approved by the state of Iowa.

A copy of a certificate from a licensed veterinarian must accompany all applications claiming an animal has been spayed or neutered. The city clerk or designee shall issue cat licenses when the application requirements are met and license fee is paid.

(C) Duration of License. A license granted pursuant to this provision shall be valid for a period of one year.

(D) License Tag. Upon payment of the license fee, the City shall issue to the owner a license which shall contain the name of the owner, his/her place of residence, and a description of the cat. The City shall keep a duplicate of each license issued as a public record. Upon issuance of the license, the City shall deliver to the owner a metal tag stamped with the number of the license and the year for which it is issued. The license tag shall be securely fastened to a collar or harness which shall be worn by the cat for which the license is issued. Any cat found running at large without the license tag attached to its collar or harness shall be deemed unlicensed. Licenses and license tags are not transferable.

Section 8-4-3 Immunization

Every cat owner shall comply with state law requirements to obtain proper immunization against rabies. Ownership or possession of a cat within the corporate limits of Storm Lake without proper immunization against rabies shall be unlawful. Proof of immunization issued by a licensed veterinarian in the form of a metal tag shall be worn by any cat owner's cat, and the cat owner shall additionally maintain documented proof of such immunization.

Section 8-4-4 Kennel Cats

Kennel cats which are kept or raised solely for the bona fide purpose of sale and which are kept under constant restraint are not subject to the provisions of this Chapter.

Section 8-4-5 Cats Disturbing the Peace

(A) It shall be unlawful for an owner of a cat to allow or permit such cat to pass upon the premises of another.

(B) It shall be unlawful for an owner of a cat to allow or permit such cat to run at large. This provision shall not be construed to prohibit population control programs undertaken by a nonprofit formally authorized by the City Council under Section 8-4-7 to trap, neuter, and release feral, stray, or otherwise unclaimed cats.

(C) It shall be unlawful for an owner of a cat to allow or permit such cat to cause serious annoyance or disturbance to any person by frequent and habitual howling, whining, meowing, or otherwise.

Section 8-4-6 Impounding

(A) Any unlicensed cat found at large, or any licensed cat found at large in violation of the provisions of this Chapter, shall be seized and impounded at the owner's cost.

(B) The owners of such licensed cats shall be notified in writing within two (2) days of impounding that upon payment of impounding costs such cats will be returned. If the impounded licensed cats are not recovered by their owners within five (5) days after notice, the cats shall be humanely disposed of by the Chief of Police.

(C) Impounded unlicensed cats may be recovered by the owner, upon proper identification by payment of the license fee and impounding costs. If such cats are not claimed within seven (7) days after impounding, they shall be humanely disposed of by the Chief of Police.

Section 8-4-7 Population Control Programs

The City Council may authorize a nonprofit engaged in the practice of implementing a comprehensive population control program known as "Trap-Neuter-Release" to operate such program within the City for unlicensed feral, stray, or otherwise unclaimed cats at large without incurring liability as an owner. A City-approved population control nonprofit shall not have liability hereunder for releasing cats as part of a "Trap-Neuter-Release" program. The City shall have no liability for the activities of any such nonprofit, nor shall the nonprofit's program interfere with the City's continued enforcement of all ordinances applicable to cats and other animals.

Section 8-4-8 Municipal Infraction

A violation of any of the provisions of this Chapter shall constitute a municipal infraction subject to the penalties and alternative relief authorized by Title 1, Chapter 20 of this Code and by Section 364.22 of the Code of Iowa.

SECTION THREE. Title VIII of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa, is hereby amended by repealing Chapter 8-9, Dangerous and Vicious Animals, in its entirety and replacing it with the following in lieu thereof:

Chapter 8-9

DANGEROUS AND VICIOUS ANIMALS

Sections:

8-9-1 Definitions

8-9-2 Keeping of Dangerous Animals Prohibited
8-9-3 Dangerous Animal Exceptions
8-9-4 Seizure, Impoundment and Disposition of Dangerous Animals
8-9-5 Keeping of Vicious Animals Prohibited
8-9-6 Vicious Animal Exception
8-9-7 Seizure, Impoundment and Disposition of Vicious Animals
8-9-8 Restrictions of Keeping of Potentially Vicious Animals
8-9-9 Complaint, Procedures and Restrictions of Potentially Vicious Animals

Section 8-9-1 Definitions

Unless otherwise expressly stated or the context clearly indicates a different intention, the following terms shall, for the purpose of this Chapter, have the meanings in this Section:

(A) "DANGEROUS ANIMAL":

1. Any animal which is not naturally tame or gentle, and which is of a wild nature or disposition, and which is capable of killing, inflicting serious injury upon, or causing disease among, human beings or domestic animals and having known tendencies as a species to do so;
2. Any animals declared to be dangerous by the Board of Health of the County or the City Manager or his/her designee;
3. The following animals which shall be deemed to be dangerous animals per se:

    a. All cats, except domestic cats (Carnivora of the family Felidae including, but not limited to, lions, cougars, tigers, jaguars, leopards, lynx, and bobcats.);
    b. Wolves, coyotes and foxes;
    c. Badgers, wolverines, weasels, skunks and mink;
    d. Raccoons;
    e. Bears;
    f. All apes and monkeys, including chimpanzees;
    g. Bats;
    h. Alligators and crocodiles;
    i. Scorpions;
    j. Snakes that are venomous or constrictors; and
    k. Gila monsters.

(B) "POTENTIALLY VICIOUS ANIMAL": Any animal, except for a dangerous animal per se, as listed above, which:

1. Chases or approaches a person, domestic animal, fowl, or livestock in an apparent attitude of attack, or
2. Attacks a person, domestic animal, fowl, or livestock; or
3. Bites, harms, or attempts to bite or harm a person, domestic fowl, or livestock; or
4. Has been trained to fight other domestic animals; or
5. Has been trained as a guard dog for people or property.

This definition shall not apply to law enforcement canines.

An animal provoked to an attitude of self-defense, or assumes a defensive attitude in protection of its owner's property shall not be a per se potentially vicious animal. The City Manager or their designee may take various factors into consideration when determining whether an animal meets this definition. These factors include, but are not limited to, whether the animal was provoked, or whether the animal was acting to protect itself, its owner, or its owner's property.

(C) "VICIOUS ANIMAL": Any animal, except for a dangerous animal per se as listed above which:

1. Has inflicted serious injury on a human being unless the animal was on its owner's premises and either:

   a. The animal was being provoked, teased or tormented; or
   b. The victim was trespassing and was more than seven (7) years of age; or

2. Has attacked, and killed or caused disabling injury to other domestic animal without provocation while off the owner's premises; or
3. Is owned or harbored primarily or in part for the purpose of fighting in contests or any animal trained for such fighting.

As used herein, serious injury includes any one bite which breaks the skin of the victim.

Section 8-9-2 Keeping of Dangerous Animals Prohibited

No person shall keep, shelter, or harbor any dangerous animal as a pet, nor act as a temporary custodian for such animal, nor keep, shelter, or harbor such animal for any other purpose or in any other capacity within the corporate limits of the City of Storm Lake, except as provided in Section 8-9-3 of this Code.

Section 8-9-3 Dangerous Animal Exceptions

The prohibition contained in Section 8-9-2 of this Code shall not apply to the keeping of dangerous animals in the following circumstances:

(A) The keeping of a service animal, as defined and required by state and federal law.

(B) The keeping of dangerous animals in a public zoo, bona fide educational or medical institution, humane society, or museum where they are kept as live specimens for the public to view, or for the purpose of instruction, research or study.

(C) The keeping of dangerous animals for exhibition to the public by a bona fide traveling circus, carnival, exhibit or show.

(D) The keeping of dangerous animals in a bona fide, licensed veterinary hospital for treatment.

(E) The keeping of dangerous animals by a wildlife rescue organization with appropriate permit from the Iowa Conservation Commission.

(F) Any dangerous animals under the jurisdiction of and in the possession of the Iowa Conservation Commission, pursuant to Chapters 481A or 481B of the Iowa Code.

Section 8-9-4 Seizure, Impoundment and Disposition of Dangerous Animals

(A) In the event that a dangerous animal is found at large and unattended upon public property, park property, public right-of-way, or the property of someone other than its owner, thereby creating a hazard to person or property, such animal, may, in the discretion of the City Manager or his/her designee, or the Chief of Police, be destroyed if it cannot be confined or captured. The City of Storm Lake shall be under no duty to attempt the confinement or capture of a dangerous animal found at large, nor shall it have a duty to notify the owner of such animal prior to its destruction.

(B) Upon the complaint of any individual that a person is keeping, sheltering, or harboring a dangerous animal on premises in the City of Storm Lake, the City Manager shall cause the matter to be investigated, and if after investigation, the facts indicate that the person named in the complaint is keeping, sheltering or harboring a dangerous animal in the City, the City Manager shall order the person named in the complaint to safely remove such animal from the City of Storm Lake, permanently place the animal with an organization or group allowed under Section 8-9-3 of this Code to possess dangerous animals, or humanely destroy the animal, within three (3) days of the receipt of such order. Such order shall be contained in a notice to remove dangerous animal, which notice shall be given in writing to the person keeping, sheltering or harboring the dangerous animal, and shall be served personally or by certified mail. Such order and notice to remove dangerous animal shall not be required where such dangerous animal has previously caused serious physical harm or death to any person in which case the City Manager shall cause the animal to be immediately seized and impounded or destroyed if seizure or impoundment are not possible without risk of serious physical harm or death to any person.

(C) The order to remove a dangerous animal issued by the City Manager shall be appealable to the City Council. In order to appeal such order, written notice of appeal must be filed with the City Clerk within three (3) days after receipt of the order contained in the notice to remove dangerous animal. Failure to file such written notice of appeal shall constitute a waiver of right to appeal the order of the City Manager.

(D) The notice of appeal shall state the grounds for such appeal and shall be delivered personally or by certified mail to the City Clerk. The hearing of such appeal shall be scheduled within seven (7) days of the receipt of notice of appeal. The hearing may be continued for good cause. The City Manager may direct quarantine or impound of the dangerous animal until after an appeal hearing. After such hearing, the City Council may

affirm or reverse the order of the City Manager. Such determination shall be contained in a written decision and shall be filed with the City Clerk within three (3) days after the hearing, or any continued session thereof.

(E) If the City Council affirms the action of the City Manager, the City Council shall order in its written decision that the individual or entity owning, sheltering, harboring, or keeping such dangerous animal, remove such animal from the corporate limits of the City of Storm Lake, permanently place such animal with an organization or group allowed under Section 8-9-3 of this Chapter to possess dangerous animals, or humanely destroy it. The decision and order shall immediately be served upon the person or entity against whom rendered in the same manner as the notice of removal. If the original order of the City Manager is not appealed and is not complied with within three (3) days of its issuance, the City Manager or his/her designee is authorized to seize and impound such dangerous animal. An animal so seized shall be impounded for a period of seven (7) days. If at the end of the impoundment period, the individual or entity against whom the decision and order of the City Manager or City Council was issued has not petitioned the Buena Vista County District Court for a review of said order, the City Manager shall cause the animal to be disposed of by sale, permanently place such animal with an organization or group allowed under Section 8-9-3 of this Chapter to possess dangerous animals, or humanely destroy such animal. Failure to comply with an order of the City Manager issued pursuant thereto and not appealed, or of the City Council after appeal, shall constitute a municipal infraction.

Section 8-9-5 Keeping of Vicious Animals Prohibited

No person shall keep, shelter or harbor for any reason within the City a vicious animal so defined herein, except as provided in Section 8-9-6 of this Code.

Section 8-9-6 Vicious Animal Exception

The prohibition contained in Section 8-9-5 of this Code shall not apply to the keeping of vicious animals in the following circumstances:

(A) Animals under the control of a law enforcement or military agency.

(B) The keeping of guard dogs. However, guard dogs must be kept within a structure of fixed enclosure at all times, and any guard dog found at large may be processed as a vicious animal pursuant to the provisions of Section 8-9-5 and 8-9-7 of this Code. Any premises guarded by a guard dog shall be prominently posted with a sign containing the wording "guard dog", "vicious dog", "beware of dog", or words of similar importance, and the owner of such premises shall inform the Chief of Police that a guard dog is on duty at such premises.

Section 8-9-7 Seizure, Impoundment and Disposition of Vicious Animals

(A) Upon the complaint of any individual that a person is keeping, sheltering, or harboring a vicious animal on premises in the City of Storm Lake, the City Manager shall cause the

matter to be investigated, and if after investigation, the facts indicate that the person named in the complaint is keeping, sheltering or harboring a vicious animal in the City, the City Manager shall order the person named in the complaint to safely remove such animal from the City of Storm Lake, or humanely destroy the animal, within three (3) days of the receipt of such order. Such order shall set forth the description of the animal declared to be vicious and an explanation for the determination of viciousness. Such order shall be contained in a notice to remove vicious animal, which notice shall be given in writing to the person keeping, sheltering or harboring the vicious animal, and shall be served personally or by certified mail. Such order and notice to remove vicious animal shall not be required where such vicious animal has previously caused serious physical harm or death to any person in which case the City Manager shall cause the animal to be immediately seized and impounded or humanely destroyed if seizure or impoundment are not possible without risk of serious physical harm or death to any person. If the order is not complied with within three (3) days of its issuance, the City Manager or his/her designee is authorized to seize and impound the animal. An animal so seized shall be impounded for a period of seven (7) days. If at the end of the impoundment period, the individual or entity against whom the order of the City Manager or his/her designee was issued has not appealed such order to the City Council, the City Manager or his/her designee shall cause the animal to be destroyed.

(B) The order to remove or destroy vicious animal issued by the City Manager or his/her designee shall be appealable to the City Council. In order to appeal such order, written notice of appeal must be filed with the City Clerk within three (3) days after receipt of the order to remove or destroy the vicious animal. Failure to file such written notice of appeal shall constitute a waiver of right to appeal the order of the City Manager or his/her designee. The animal shall continue to be quarantined or impounded as directed by the City Manager at the owner's cost until conclusion of the appeal.

(C) The notice of appeal shall state the grounds for such appeal and shall be delivered personally or by certified mail to the City Clerk. The hearing of such appeal shall be scheduled within seven (7) days of the receipt of notice of appeal. The hearing may be continued for good cause. After such hearing, the City Council may affirm or reverse the order of the City Manager or his/her designee. Such determination shall be contained in a written decision and shall be filed with the City Clerk within three (3) days after the hearing, or any continued session thereof.

(D) If the City Council affirms the action of the City Manager or his/her designee, the City Council shall order in its written decision that the individual or entity owning, sheltering, harboring, or keeping such vicious animal, shall remove such animal from the City or cause it to be destroyed in a humane manner. The decision and order shall immediately be served upon the person or entity against whom rendered in the same manner as the order to remove or destroy. If the original order of the City Manager or his/her designee is not appealed and is not complied with within three (3) days or the order of the City Council after appeal is not complied with within three (3) days of its issuance, the City Manager or his/her designee is authorized to seize and impound such vicious animal. An animal so seized shall be impounded for a period of seven (7) days. If at the end of the impoundment period, the

individual or entity against whom the decision and order of the City Manager or his/her designee and/or the City Council was issued has not petitioned the Buena Vista County District Court for a review of said order, the City Manager or his designee shall cause the animal to be destroyed in a humane manner.

(E) Failure to comply with an order of the City Manager or his/her designee issued pursuant hereto and not appealed, or of the City Council after appeal, shall constitute a municipal infraction.

(F) Any animal found at large which displays vicious tendencies may be processed as a vicious animal pursuant to the foregoing, unless the animal is so vicious that it cannot safely be apprehended, in which case the City Manager, Police Chief, or their designee may immediately destroy it.

Any animal which is alleged to be vicious and which is under impoundment or quarantine at the animal shelter shall not be released to the owner, but shall continue to be held at the expense of the owner pending the outcome of the hearing. All costs of such impoundment or quarantine shall be paid by the owner if the animal is determined to be vicious. If the animal is not determined to be vicious, all costs of such impoundment or quarantine shall be paid by the City.

Section 8-9-8 Restrictions of Keeping of Potentially Vicious Animals

No person shall keep, shelter or harbor for any reason within the City a potentially vicious animal as defined herein after such animal has been determined to be potentially vicious as provided in Section 8-9-9, unless the terms and conditions imposed by the hearing officer, or the City Council, as appropriate, for keeping such animal within the City have been strictly complied with.

Section 8-9-9 Complaint, Procedures and Restrictions of Potentially Vicious Animals

(A) The City Manager, or his/her designee, in his/her discretion or upon receipt of a complaint alleging that a particular animal is a potentially vicious animal as defined herein, shall cause the matter to be investigated, and if, after investigation, the facts indicate that the particular animal meets the definition of potentially vicious as provided herein, the City Manager or his/her designee may order that the owner comply with some or all the following restrictions with regard to the animal, as appropriate, as a condition of the animal owner's continued right to maintain the animal within the City limits.

1. The animal may be required to be muzzled at all times when upon public property.
2. The animal may be required to be restrained by a chain leash at all times when the animal is outside the owner's home, and which chain leash should be not more than six feet (6') in length if the animal is on public property.
3. The owner may be required to fence the owner's premises or a portion thereof with chain link or other type fence reasonably calculated to restrain the animal and keep it in good state of repair whenever the animal is outside on the owner's premises.

(B) An order determining an animal to be potentially vicious and imposing restrictions upon the continued existence of that animal within the City limits shall be appealable to the same extent and subject to the same procedural requirements and safeguards as are contained in Section 8-9-7 relating to vicious animals.

(C) Failure to comply with an order of the City Manager's or his/her designee issued pursuant hereto and not appealed, or the City Council after appeal, shall constitute a municipal infraction. Further, failure to comply with regard to a particular animal shall qualify that animal as a vicious animal, notwithstanding the basic definition of vicious animal as contained in Section 8-9-1, and subject the owner and the animal involved to all of the provisions of this Chapter relating to vicious animals.

SECTION FOUR. Severability. If any section, subsection, sentence, clause, phrase or portion of this Ordinance be held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision, and such holding shall not affect the validity of the remaining portion hereof.

SECTION FIVE. Repealer. All ordinances or parts of ordinances in conflict with the provisions of this Ordinance are hereby repealed.

SECTION SIX. Effective. This Ordinance shall be in full force and effect, from and after its passage, adoption, and approval and publication as required by law, unless a subsequent effective date is set out hereinabove.

SECTION SEVEN. When this ordinance is in effect, it shall automatically supplement, amend, and become a part of the said Recodification of the Municipal Code of the City of Storm Lake, Iowa.

PASSED on its first consideration the _____ day of _____, 2024.

PASSED on its second consideration the _____ day of _____, 2024.

Requirement of consideration and vote at two (2) prior Council meetings suspended the _____ day of _____, 2024.

PASSED AND APPROVED on its third consideration this _____ day of _____, 2024.

CITY OF STORM LAKE, IOWA

By:_____

Micheal Porsch, Mayor

_____No action taken by Mayor.

_____ Vetoed this _____ day of _____, 2024.

_____

Michael Porsch, Mayor

ATTEST:

_____

Mayra A. Martinez, City Clerk

_____ Repassed and adopted over the veto this _____ day of _____, 2024.

_____Veto affirmed this _____ day of _____, 2024 by failure of vote taken to repass.

_____ Veto affirmed no timely vote taken to repass over veto.

ATTEST:

_____

Mayra A. Martinez, City Clerk

Staff Summary

06/17/2024
Agenda Item # F.12.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: David Derragon Assistant City Manager

SUBJECT: **Work Session - Infrastructure Maintenance**

BACKGROUND: This work session will cover Infrastructure Maintenance planning, protocols, best management practices and field operations.

Staff will review the Infrastructure Management Plan, Street Budget, Street Finance report and other miscellaneous related information.

FISCAL IMPACT: N/A

RECOMMENDATION: No Action

ATTACHMENTS:

- **384 - Iowa Code - Special Assessments.pdf**
- **35659_11-7422-618 Engineer Estimate (10-28-20).pdf**
- **Cedar Rapids - Special Assessments.docx**
- **Oneida_Street_Reconstruction_Application.pdf**
- **Storm Lake Infrastructure Management Plan 07-25-2021.pdf**
- **Storm Lake Oneida St Phase 2 App 3-7-2022 FINAL.pdf**
- **Storm_Lake2023_SFR.pdf**
- **Staff Summary - SFR.pdf**
- **2023 Public Services Hours.pdf**
- **Blacktop Services 1-11-2024.pdf**

CHAPTER 384

CITY FINANCE

Referred to in §8A.311B, 28E.41, 28E.42, 28J.15, 357A.25, 357B.4, 358.22, 358C.17, 362.1, 362.9, 376.1

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384.15A Resolution establishing maximum property tax dollars — notice — hearing. Repealed by 2023 Acts, ch 71, §96, 98.
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384.19 Written protest.
384.20 Separate accounts.
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384.22 Annual reports — financial report — urban renewal report.

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384.38 Certain costs assessed to private property.
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DEFINITIONS

384.120 Definitions.

SUBCHAPTER I

TAXES AND FUNDS

Referred to in §420.41

384.1 Taxes certified.

1. A city may certify taxes to be levied by the county on all taxable property within the city limits, for all city government purposes.

2. Notwithstanding subsection 3, the tax levied by a city on tracts of land and improvements thereon used and assessed for agricultural or horticultural purposes, shall not exceed three dollars and three-eighths cents per thousand dollars of assessed value in any fiscal year. Improvements located on such tracts of land and not used for agricultural or horticultural purposes and all residential dwellings are subject to the same rate of tax levied by the city on all other taxable property within the city.

3. *a.* For fiscal years beginning before July 1, 2024, a city's tax levy for the general fund shall not exceed eight dollars and ten cents per thousand dollars of assessed value used to calculate taxes in any fiscal year, except for the levies authorized in section 384.12.

b. Subject to adjustment under paragraph *"c"*, subparagraph (2), for purposes of this subsection, *"adjusted city general fund levy rate"* means a levy rate per thousand dollars of assessed value equal to the sum of eight dollars and ten cents per thousand dollars of assessed value plus the sum of the following for the city, as applicable:

(1) The amount per thousand dollars of assessed value levied by or on behalf of the city under section 384.8, Code 2023, for the fiscal year beginning July 1, 2023.

(2) The total amount per thousand dollars of assessed value levied by or on behalf of the city under section 384.12, subsections 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 15, 16, and 20, Code 2023, for the fiscal year beginning July 1, 2023.

(3) The amount per thousand dollars of assessed value levied by the city under section 24.48, Code 2023, for the fiscal year beginning July 1, 2023.

c. (1) For each fiscal year beginning on or after July 1, 2024, but before July 1, 2028, subject to subparagraph (3), a city's tax levy for the general fund, except for levies authorized in section 384.12, shall not exceed in any tax year the greater of eight dollars and ten cents per thousand dollars of assessed value used to calculate taxes for the budget year and the adjusted city general fund levy rate, as adjusted under subparagraph (2), if applicable.

(2) (a) If the total assessed value used to calculate taxes under this paragraph for the budget year exceeds one hundred three percent, but is less than one hundred six percent, of the total assessed value used to calculate taxes under this subsection for the current fiscal year, the adjusted city general fund levy rate, as previously adjusted under this subparagraph,

if applicable, shall be reduced to a rate per thousand dollars of assessed value that is equal to one thousand multiplied by the quotient of the current fiscal year's actual property tax dollars certified for levy under this subsection divided by one hundred two percent of the total assessed value used to calculate such taxes for the current fiscal year. For the budget year beginning July 1, 2024, only, the current fiscal year's actual property tax dollars certified for levy under this subsection shall also include property tax dollar amounts levied under the provisions specified in paragraph *"b"*, subparagraphs (1), (2), and (3).

(b) If the total assessed value used to calculate taxes under this paragraph for the budget year is equal to or exceeds one hundred six percent of the total assessed value used to calculate taxes under this subsection for the current fiscal year, the adjusted city general fund levy rate, as previously adjusted under this subparagraph, if applicable, shall be reduced to a rate per thousand dollars of assessed value that is equal to one thousand multiplied by the quotient of the current fiscal year's actual property tax dollars certified for levy under this subsection divided by one hundred three percent of the total assessed value used to calculate such taxes for the current fiscal year. For the budget year beginning July 1, 2024, only, the current fiscal year's actual property tax dollars certified for levy under this subsection shall also include property tax dollar amounts levied under the provisions specified in paragraph *"b"*, subparagraphs (1), (2), and (3).

(3) (a) (i) In addition to the limitation under subparagraph (2), if the city's actual levy rate imposed under this subsection for the current fiscal year is eight dollars and ten cents or less per thousand dollars of assessed value and the total assessed value used to calculate taxes under this paragraph for the budget year exceeds one hundred three percent, but is less than one hundred six percent, of the total assessed value used to calculate taxes under this subsection for the current fiscal year, the levy rate imposed under this paragraph for the budget year shall not exceed a rate per thousand dollars of assessed value that is equal to one thousand multiplied by the quotient of the current fiscal year's actual property tax dollars certified for levy under this subsection divided by one hundred two percent of the total assessed value used to calculate taxes under this subsection for the current fiscal year.

(ii) For the budget year beginning July 1, 2024, only, the city's actual levy rate imposed under this subsection for the current fiscal year shall also include the sum of the amounts per thousand dollars of assessed value specified in paragraph *"b"*, subparagraphs (1), (2), and (3), and the current fiscal year's actual property tax dollars certified for levy under this subsection shall also include property tax dollar amounts levied by the city under the provisions specified in paragraph *"b"*, subparagraphs (1), (2), and (3).

(b) (i) In addition to the limitation under subparagraph (2), if the city's actual levy rate imposed under this subsection for the current fiscal year is eight dollars and ten cents or less per thousand dollars of assessed value and the total assessed value used to calculate taxes under this paragraph for the budget year is equal to or exceeds one hundred six percent of the total assessed value used to calculate taxes under this subsection for the current fiscal year, the levy rate imposed under this paragraph for the budget year shall not exceed a rate per thousand dollars of assessed value that is equal to one thousand multiplied by the quotient of the current fiscal year's actual property tax dollars certified for levy under this subsection divided by one hundred three percent of the total assessed value used to calculate taxes under this subsection for the current fiscal year.

(ii) For the budget year beginning July 1, 2024, only, the city's actual levy rate imposed under this subsection for the current fiscal year shall also include the sum of the amounts per thousand dollars of assessed value specified in paragraph *"b"*, subparagraphs (1), (2), and (3), and the current fiscal year's actual property tax dollars certified for levy under this subsection shall also include property tax dollar amounts levied by the city under the provisions specified in paragraph *"b"*, subparagraphs (1), (2), and (3).

d. For each fiscal year beginning on or after July 1, 2028, a city's tax levy rate for the general fund, except for levies authorized in section 384.12, shall not exceed eight dollars and ten cents per thousand dollars of assessed value used to calculate taxes in any fiscal year.

4. For purposes of this section:

a. "Budget year" is the fiscal year beginning during the calendar year in which a budget is certified.

b. "Current fiscal year" is the fiscal year ending during the calendar year in which a budget for the budget year is certified.

[C97, §616, 890; S13, §616; C24, 27, 31, 35, 39, §**6210;** C46, 50, §404.4; C54, 58, 62, 66, 71, 73, §404.1, 404.2, 404.15; C75, 77, 79, 81, §384.1]

89 Acts, ch 296, §39; 2023 Acts, ch 71, §14, 19

Referred to in §37.8, 331.263, 357B.8, 357J.15, 373.10, 384.12, 386.8, 386.9

2023 amendment applies to taxes and budgets for fiscal years beginning on or after July 1, 2024; 2023 Acts, ch 71, §19

Section amended

384.2 Fiscal year and tax year.

1. Except as otherwise provided for special charter cities, a city's fiscal year shall be as provided in section 24.2, subsection 3. All city property taxes must be certified by a city to the county auditor on or before April 30 of each year, unless otherwise provided by state law. However, municipal utilities, if not supported by taxation or the proceeds of outstanding indebtedness payable from taxes may, with the council's consent, choose to operate on a fiscal year which is the calendar year. The receipt by the utility of payments from other governmental funds for public fire protection, street lighting, or other public use of the utility's services shall not be deemed support by taxation. After notice and hearing in the same manner as required for the city's regular budget under section 384.16, the utility budget must be approved by resolution of the council not later than twenty days prior to the beginning of the calendar year for which the budget applies.

2. The county auditor shall place city taxes and assessments upon the tax list for the current year, and the county treasurer shall collect city taxes and assessments in the same manner as other taxes. Delinquent city taxes and assessments draw the same interest as other taxes. Sales for delinquent city taxes and assessments must be made in the manner provided in chapter 446. The county treasurer shall combine in one tax sale all taxes and assessments due from the same person and collectible by the county.

[R60, §1123, 1126; C73, §495, 498; C97, §902; S13, §902, 1056-a7, 1056-a34; C24, §5678, 6227, 6228, 6570, 6571; C27, 31, 35, §5676-a1, 6227, 6228, 6570, 6871; C39, §**5676.1, 6227, 6228, 6570, 6871;** C46, 50, §363.51, 404.21, 404.22, 416.95, 420.212; C54, 58, §363.29, 404.3, 404.21; C62, 66, 71, 73, §363.29, 404.3, 404.22; C75, 77, 79, 81, §384.2]

92 Acts, ch 1016, §7; 2019 Acts, ch 24, §104; 2019 Acts, ch 165, §12, 17; 2023 Acts, ch 71, §91, 98

Referred to in §331.559

2023 amendment to subsection 1 applies to political subdivision budgets for fiscal years beginning on or after July 1, 2024; 2023 Acts, ch 71, §98

Subsection 1 amended

384.3 General fund.

All moneys received for city government purposes from taxes and other sources must be credited to the general fund of the city, except that moneys received for the purposes of the debt service fund, the trust and agency funds, the capital improvements reserve fund, the emergency fund and other funds established by state law must be deposited as otherwise required or authorized by state law. All moneys received by a city from the federal government must be reported to the department of management who shall transmit a copy to the legislative services agency.

[C50, §395.26; C54, 58, §395.26, 404.2, 404.23; C62, 66, 71, 73, §395.26, 404.2, 404.24; C75, 77, 79, 81, §384.3]

2003 Acts, ch 35, §45, 49

Property rights defense account; 2009 Acts, ch 179, §148, 153

384.3A Franchise fee account — use of franchise fee revenues.

1. A city that assesses a franchise fee pursuant to an ordinance that is adopted or amended on or after May 26, 2009, to increase the percentage rate at which franchise fees are assessed under section 364.2, subsection 4, paragraph "*f*", shall establish a franchise fee account within the city's general fund. All revenues collected by a city pursuant to such an ordinance shall be deposited in the account. Interest earned on revenues deposited in the account shall remain in the account and be used for the purposes specified in this section. Moneys in the account

are not subject to transfer to any other accounts in the city's general fund or to any other funds established by a city unless such transfer is for a purpose specified in this section.

2. Moneys in the account shall be used for the purposes of inspecting, supervising, and otherwise regulating each franchise approved by the city.

3. Moneys in the account in excess of the amount necessary for the purposes specified in subsection 2 shall be expended for any of the following:

a. Property tax relief.

b. The repair, remediation, restoration, cleanup, replacement, and improvement of existing public improvements and other publicly owned property, buildings, and facilities.

c. Projects designed to prevent or mitigate future disasters as defined in section 29C.2.

d. Energy conservation measures for low-income homeowners, low-income energy assistance programs, and weatherization programs.

e. Public safety, including the equipping of fire, police, emergency services, sanitation, street, and civil defense departments.

f. The establishment, construction, reconstruction, repair, equipping, remodeling, and extension of public works, public utilities, and public transportation systems.

g. The construction, reconstruction, or repair of streets, highways, bridges, sidewalks, pedestrian underpasses and overpasses, street lighting fixtures, and public grounds, and the acquisition of real estate needed for such purposes.

h. Property tax abatements, building permit fee abatements, and abatement of other fees for property damaged by a disaster as defined in section 29C.2.

i. Economic development activities and projects.

j. For franchise fees assessed and collected by a city in excess of five percent of gross revenues generated from sales of the franchisee within the city pursuant to section 364.2, subsection 4, paragraph "*f*", subparagraph (1), subparagraph division (b), during fiscal years beginning on or after July 1, 2013, but before July 1, 2030, the adjustment, renewal, or extension of any part or all of the legal indebtedness of a city, whether evidenced by bonds, warrants, court-approved settlements, court-approved compromises, or judgments, or the funding or refunding of the same, if such legal indebtedness relates to restitution, a refund, or a return ordered by a court of competent jurisdiction for franchise fees assessed and collected by the city before June 20, 2013. This paragraph "*j*" is repealed July 1, 2030.

2009 Acts, ch 179, §230, 231; 2013 Acts, ch 140, §149, 150; 2014 Acts, ch 1092, §88, 197, 198
Referred to in §364.2
For future amendment to subsection 3, paragraph j, effective July 1, 2024, see 2023 Acts, ch 71, §61, 62

384.4 Debt service fund.

1. A city shall establish a debt service fund and shall certify taxes to be levied for the debt service fund in the amount necessary to pay:

a. Judgments against the city, except those authorized by state law to be paid from other funds.

b. Interest as it becomes due and the amount necessary to pay, or to create a sinking fund to pay, the principal at maturity of all general obligation bonds issued by the city.

c. Payments required to be made from the debt service fund under a lease or lease-purchase agreement.

d. Payments required to be made from the debt service fund under a loan agreement.

e. Payments authorized to be made from the debt service fund to a flood project fund under section 418.14, subsection 4.

2. Moneys pledged or available to service general obligation bonds, and received from sources other than property taxes, must be deposited in the debt service fund.

3. If a final judgment is entered against a city with a population of five hundred or less for an amount in excess of eighty-eight thousand dollars over and above what is covered by liability insurance, such city may spread the budgeting and payment of that portion not covered by insurance over a period of time not to exceed ten years. Interest shall be paid by the city on the unpaid balance. This subsection shall only apply to final judgments entered but not fully satisfied prior to March 25, 1976.

4. The taxes realized from the tax levy imposed under section 346.27, subsection 22, for a

joint county-city building shall be deposited into a separate account in the city's debt service fund for the payment of the annual rent and shall be disbursed pursuant to section 346.27, subsection 22.

[C97, §894; SS15, §879-s, 894; C24, 27, 31, 35, 39, §**6211, 6603;** C46, 50, §404.5, 416.132; C54, 58, 62, 66, 71, 73, §404.13; C75, 77, 79, 81, §384.4]

83 Acts, ch 207, §52, 93; 85 Acts, ch 156, §4; 87 Acts, ch 103, §5; 2007 Acts, ch 22, §72; 2010 Acts, ch 1069, §126; 2012 Acts, ch 1060, §4, 7; 2012 Acts, ch 1094, §3, 18; 2014 Acts, ch 1124, §22, 25

Referred to in §357E.11A, 384.24, 384.32, 384.74

384.5 Excess tax.

A tax levied for the debt service fund is not invalid if it raises moneys in excess of those needed for a specific purpose. Only excess moneys remaining after retirement of all indebtedness payable from the fund may be transferred from the debt service fund to any other city fund, subject to the terms of the original bond issue, and as provided in rules promulgated by the city finance committee created in section 384.13.

[C51, §123, 124; R60, §259, 260; C73, §318, 319; C97, §897; C24, 27, 31, 35, 39, §**6222;** C46, 50, §404.16; C54, 58, §404.20; C62, 66, 71, 73, §404.21; C75, 77, 79, 81, §384.5]

384.6 Trust and agency funds.

A city may establish trust and agency funds for the following purposes:

1. Accounting for pension and related employee benefit funds as provided by the city finance committee. A city may certify taxes to be levied for a trust and agency fund in the amount necessary to meet its obligations.

a. A city may make contributions to a retirement system other than the Iowa public employees' retirement system for its city manager, or city administrator performing the duties of city manager, in an annual amount not to exceed the amount that would have been contributed by the employer under section 97B.11.

b. If a police chief or fire chief has submitted a written request to the board of trustees to be exempt from chapter 411, authorized in section 411.3, subsection 1, a city shall make contributions for the chief, in an amount not to exceed the amount that would have been contributed by the city under section 411.8, subsection 1, paragraph "*a*", to the international city management association retirement corporation.

c. A city which has contracted with another city or governmental entity for the provision of public safety services, including but not limited to police protection, fire protection, ambulance, or hazardous materials response, may, pursuant to contract, make contributions for pension and related employee benefits for personnel of the other city or governmental entity providing such services to the city. The city may make such contributions in an annual amount not to exceed the amount of contributions for pension and related employee benefits that would otherwise be paid by the other city or governmental entity for such personnel.

2. Accounting for gifts received by the city for a particular purpose.

3. Accounting for money and property received and handled by the city as trustee or custodian or in the capacity of an agent.

[C54, 58, 62, 66, 71, 73, §404.16; C75, 77, 79, 81, §384.6]

85 Acts, ch 195, §45; 2006 Acts, ch 1130, §1; 2013 Acts, ch 30, §82

Referred to in §364.25, 384.15, 411.15

384.7 Capital improvements fund.

1. A city may establish a capital improvements reserve fund, and may certify taxes not to exceed sixty-seven and one-half cents per thousand dollars of taxable value each year to be levied for the fund for the purpose of accumulating moneys for the financing of specified capital improvements, or carrying out a specific capital improvement plan.

2. The question of the establishment of a capital improvements reserve fund, the time period during which a levy will be made for the fund, and the tax rate to be levied for the fund is subject to approval by the voters, and may be submitted at any city election upon the council's motion, or shall be submitted at the next regular city election upon receipt of a valid petition as provided in section 362.4.

3. If a continuing capital improvements levy is established by election, it may be terminated in the same manner, upon the council's motion or upon petition. Balances in a capital improvements reserve fund are not unencumbered or unappropriated funds for the purpose of reducing tax levies. Transfers may be made between the capital improvements reserve fund, construction funds, and the general fund, as provided in rules promulgated by the city finance committee created in section 384.13.

[C75, 77, 79, 81, §384.7]

2017 Acts, ch 54, §76

Referred to in §386.9

384.8 Emergency fund. Repealed by 2023 Acts, ch 71, §18, 19.

2023 repeal applies to taxes and budgets for fiscal years beginning on or after July 1, 2024; 2023 Acts, ch 71, §19

384.9 Additional funds.

A city may establish other funds and may certify taxes to be levied for the funds as provided by state law. The status of each account or fund must be included in the annual report required in section 384.22.

[C54, 58, 62, 66, 71, 73, §404.1; C75, 77, 79, 81, §384.9]

384.10 Short-term loans.

A city may negotiate short-term loans, and may issue warrants as provided in chapter 74, in anticipation of and not in excess of its estimated revenues for the current fiscal year. However, natural disaster loans from the state or federal government and loans for projects where payment of state or federal funds has been guaranteed but receipt of such funds may not coincide with the fiscal year, may be negotiated in anticipation of revenues for a period of time longer than the current fiscal year.

[R60, §1129; C73, §500; C97, §898; C24, 27, 31, 35, 39, §**6223;** C46, 50, §404.17; C54, 58, §404.18; C62, 66, 71, 73, §404.19; C75, 77, 79, 81, §384.10]

Referred to in §384.57, 386.12

384.11 Direct deposit of taxes.

Before the fifteenth day of each month, the county treasurer shall send the amount collected for each fund through the last day of the preceding month for direct deposit into the depository and the account designated by the city clerk. The county treasurer shall send a notice at the same time to the city clerk stating the amount deposited, date, amount to be credited to each fund according to the budget, and the source of the revenue. This section shall also apply to the collection of special assessments assessed under section 364.12 or subchapter IV of this chapter.

[R60, §1123, 1126; C73, §495, 498; C97, §902; S13, §902; C24, 27, 31, 35, 39, §**6229;** C46, 50, §404.23; C54, 58, §404.19; C62, 66, 71, 73, §404.20; C75, 77, 79, 81, §384.11; 82 Acts, ch 1195, §5]

84 Acts, ch 1003, §9; 2018 Acts, ch 1041, §127

Referred to in §331.559, 423B.3

384.12 Additional taxes.

A city may certify, for the general fund levy, taxes which are not subject to the limit provided in section 384.1, and which are in addition to any other moneys the city may wish to spend for such purposes, as follows:

1. A tax for the operation and maintenance of a municipal transit system or for operation and maintenance of a regional transit district, and for the creation of a reserve fund for the system or district, in an amount not to exceed ninety-five cents per thousand dollars of assessed value each year, when the revenues from the transit system or district are insufficient for such purposes.

2. A tax not to exceed twenty-seven cents per thousand dollars of assessed value each year for an aviation authority as provided in section 330A.15.

3. A tax to pay the premium costs on tort liability insurance, property insurance, and any other insurance that may be necessary in the operation of the city, the costs of a

self-insurance program, the costs of a local government risk pool and amounts payable under any insurance agreements to provide or procure such insurance, self-insurance program, or local government risk pool.

4. A tax that exceeds any tax levy limit within this chapter, provided the question has been submitted at a special levy election and received a simple majority of the votes cast on the proposition to authorize the enumerated levy limit to be exceeded for the proposed budget year.

a. The election may be held as specified in this subsection if notice is given by the city council, not later than forty-six days before the first Tuesday in March, to the county commissioner of elections that the election is to be held.

b. An election under this subsection shall be held on the first Tuesday in March and be conducted by the county commissioner of elections in accordance with the law.

c. The ballot question shall be in substantially the following form:

WHICH TAX LEVY SHALL BE ADOPTED FOR THE CITY OF .....?

(Vote for only one of the following choices.)

CHANGE LEVY AMOUNT .....

Add to the existing levy amount a tax for the purpose of ..... (state purpose of proposed levy) at a rate of ..... (rate) which will provide an additional $..... (amount).

KEEP CURRENT LEVY .....

Continue under the current maximum rate of ....., providing $..... (amount).

d. The commissioner of elections conducting the election shall notify the city officials and other county auditors where applicable, of the results within two days of the canvass which shall be held on the second day that is not a holiday following the special levy election, and beginning no earlier than 1:00 p.m. on that day.

e. Notice of the election shall be published twice in accordance with the provisions of section 362.3, except that the first such notice shall be given at least two weeks before the election.

f. The cost of the election shall be borne by the city.

g. The election provisions of this subsection shall supersede other provisions for elections only to the extent necessary to comply with the provisions of this subsection.

h. The provisions of this subsection apply to all cities, however organized, including special charter cities which may adopt ordinances where necessary to carry out these provisions.

i. The council shall certify the city's budget with the tax askings not exceeding the amount approved by the special levy election.

5. A tax for the support of a local emergency management commission established pursuant to chapter 29C.

1. [C24, 27, 31, 35, 39, §**5835 – 5839;** C46, 50, 54, 58, 62, 66, 71, 73, §375.1 – 375.5; C75, 77, 79, 81, S81, §384.12(1)]

2. [C75, 77, 79, 81, S81, §384.12(2)]

3. [C50, 54, 58, 62, 66, 71, 73, §379A.1 – 379A.5; C75, 77, 79, 81, S81, §384.12(3)]

4. [C62, 66, 71, 73, §379B.1, 379B.2; C75, 77, 79, 81, S81, §384.12(4)]

5, 6. [R60, §710; C73, §796; C97, §758 – 764, 888, 895, 1303; C24, 27, 31, 35, 39, §**5882 – 5887, 6209, 6221;** C46, 50, §381.9 – 381.14, 404.3, 404.15; C54, 58, 62, 66, 71, 73, §381.9 – 381.14, 404.7; C75, 77, 79, 81, S81, §384.12(5, 6)]

7. [S13, §766-a, 766-b; C24, 27, 31, 35, 39, §**5890, 5891, 5894;** C46, 50, 54, 58, 62, 66, 71, 73, §381.17, 381.18, 382.1; C75, 77, 79, 81, S81, §384.12(7)]

8. [C97, §766; C24, 27, 31, 35, 39, §**5889;** C46, 50, 54, 58, 62, 66, 71, 73, §381.16; C75, 77, 79, 81, S81, §384.12(8)]

9. [C58, 62, 66, 71, 73, §386A.1, 386A.4, 386A.9, 386A.12; C75, 77, 79, 81, S81, §384.12(9)]

10. [C58, 62, 66, 71, 73, §386B.12; C75, 77, 79, 81, S81, §384.12(10)]

11. [C71, 73, §378A.6; C75, 77, 79, 81, S81, §384.12(11)]
12. [C71, 73, §378A.10; C75, 77, 79, 81, S81, §384.12(12)]
13. [C71, 73, §404.27; C75, 77, 79, 81, S81, §384.12(13)]
14. [C75, 77, 79, 81, S81, §384.12(14)]
15. [C66, 71, 73, §368.67; C75, 77, 79, 81, S81, §384.12(15); 81 Acts, ch 117, §1081; 82 Acts, ch 1104, §14]
16. [C75, 77, 79, 81, S81, §384.12(16)]
17. [S13, §740; C24, 27, 31, 35, 39, §**10190;** C46, 50, 54, 58, 62, 66, 71, 73, §565.8; C75, 77, 79, 81, S81, §384.12(18); 81 Acts, ch 117, §1081]
18. [C75, 77, 79, 81, S81, §384.12(19)]
20. [C81, S81, §384.12(20)]
83 Acts, ch 101, §82; 85 Acts, ch 195, §46; 86 Acts, ch 1211, §23; 88 Acts, ch 1213, §1; 89 Acts, ch 203, §1; 91 Acts, ch 247, §1; 92 Acts, ch 1139, §29; 94 Acts, ch 1075, §15; 94 Acts, ch 1180, §56; 95 Acts, ch 189, §21; 2004 Acts, ch 1072, §8; 2009 Acts, ch 57, §94; 2010 Acts, ch 1033, §55, 56; 2012 Acts, ch 1060, §5, 7; 2022 Acts, ch 1021, §99; 2023 Acts, ch 71, §15, 19
Referred to in §28M.5, 331.263, 373.10, 384.1, 384.110
2023 amendment applies to taxes and budgets for fiscal years beginning on or after July 1, 2024; 2023 Acts, ch 71, §19
Section amended

SUBCHAPTER II

BUDGETING AND ACCOUNTING

Referred to in §384.34

384.13 City finance committee.

1. As used in this subchapter, unless the context otherwise requires, *"committee"* means the city finance committee and *"director"* means the director of the department of management.
2. An eight-member city finance committee is created. Members of the committee are:
a. The auditor of state or the auditor's designee.
b. A designee of the governor.
c. Five city officials who are regularly involved in budget preparation. One official must be from a city with a population of not over two thousand five hundred, one from a city with a population of over two thousand five hundred but not over fifteen thousand, one from a city with a population of over fifteen thousand but not over fifty thousand, one from a city with a population of over fifty thousand, and one from any size city. The governor shall select and appoint the city officials.
d. One certified public accountant experienced in city accounting, to be selected and appointed by the governor.
3. City official members and the certified public accountant are appointed for four-year terms beginning and ending as provided in section 69.19 and the terms of the city officials are staggered. When a city official member no longer holds the office which qualified the official for appointment, the official may no longer be a member of the committee. Any person appointed to fill a vacancy during a term is appointed to serve for the unexpired portion of the term. Any member is eligible for reappointment, but no member shall be appointed to serve more than two complete terms.
[C75, 77, 79, 81, §384.13]
86 Acts, ch 1245, §118; 2008 Acts, ch 1156, §44, 45, 58; 2018 Acts, ch 1041, §127
Referred to in §384.5, 384.7, 384.89

384.14 Office, expenses, compensation.

1. The committee is located for administrative purposes within the department of management. The director of the department of management shall provide office space and staff assistance, and shall budget funds to cover expenses of the committee.
2. Each member is entitled to receive actual and necessary expenses incurred in the performance of committee duties. Each member other than the state official members is also

entitled to receive a per diem as specified in section 7E.6 for each day spent in performance of committee duties.

[C75, 77, 79, 81, §384.14]

86 Acts, ch 1245, §119; 91 Acts, ch 258, §51; 2019 Acts, ch 24, §104

384.15 Duties — rules — law enforcement officer training reimbursement.

The committee shall:

1. Promulgate rules relating to budget amendments and the procedures for transferring moneys between funds, and other rules necessary or desirable in order to exercise its powers and perform its duties, including rules necessary to implement section 384.6, subsection 1. The committee's rules are subject to chapter 17A as applicable.

2. Select its officers and meet at the call of the director of the department of management or at the request of a majority of the committee.

3. Establish guidelines for program budgeting and accounting and the preparation of five-year capital improvement plans. A city shall hold a public hearing on its capital improvement plan before adoption of the plan. The committee may require performance budgeting. It shall, where practicable, use recommendations of the national council on governmental accounting.

4. Review and comment on city budgets to city officials and provide assistance to enable cities to improve upon and use sound financial procedures.

5. Conduct studies of municipal revenues and expenditures.

6. Advise and make recommendations annually to the governor and the general assembly concerning city budgets and finance.

7. Adopt rules for the administration of a law enforcement officer training reimbursement program by the director of the department of management. A decision of the director may be appealed by a city or county to the committee. The program shall provide reimbursement to a city or county for necessary and actual expenses incurred in training a law enforcement officer who resigns from law enforcement service with the city or county within four years after completion of the law enforcement training. The reimbursable training expenses include mileage, food, lodging, tuition, replacement of an officer while the officer is in training if the replacement officer is a temporary employee hired for that purpose only or is on overtime status, and salary costs of the officer while in training. The law enforcement training eligible for reimbursement is the minimum law enforcement officer training required under chapter 80B and, if funding is available, approved advanced law enforcement training and reserve officer training required under chapter 80D. The committee shall adopt rules prescribing application forms, expense documentation, and procedures necessary to administer the reimbursement program.

a. The amount of reimbursement shall be determined as follows:

(1) If a law enforcement officer resigns less than one year following completion of approved training, one hundred percent.

(2) If a law enforcement officer resigns one year or more but less than two years after completion of approved training, seventy-five percent.

(3) If a law enforcement officer resigns two years or more but less than three years after completion of the approved training, fifty percent.

(4) If a law enforcement officer resigns three years or more but not more than four years after completion of the approved training, twenty-five percent.

b. An appropriated law enforcement training reimbursement account is established in the department of management. The proceeds shall be used by the director of the department of management to reimburse cities or counties for eligible law enforcement training expenses incurred as provided in this section.

[C75, 77, 79, 81, §384.15]

84 Acts, ch 1274, §1; 86 Acts, ch 1245, §120; 90 Acts, ch 1092, §6; 90 Acts, ch 1250, §4; 90 Acts, ch 1266, §42

384.15A Resolution establishing maximum property tax dollars — notice — hearing. Repealed by 2023 Acts, ch 71, §96, 98.
2023 repeal applies to political subdivision budgets for fiscal years beginning on or after July 1, 2024; 2023 Acts, ch 71, §98

384.16 City budget.

Annually, a city that has satisfied the requirements of section 384.22, subsection 3, and the applicable portions of chapter 24, shall prepare and adopt a budget, and shall certify taxes as follows:

1. *a.* A budget must be prepared for at least the following fiscal year. When required by rules of the committee, a tentative budget must be prepared for one or two ensuing years. A proposed budget must show estimates of the following:

(1) Expenditures for each program.

(2) Income from sources other than property taxation.

(3) Amount to be raised by property taxation, and the property tax rate expressed in dollars per one thousand dollars assessed valuation.

b. A budget must show comparisons between the estimated expenditures in each program in the following year, the latest estimated expenditures in each program in the current year, and the actual expenditures in each program from the annual reports as provided in section 384.22, or as corrected by a subsequent audit report. Wherever practicable, as provided in rules of the committee, a budget must show comparisons between the levels of service provided by each program as estimated for the following year, and actual levels of service provided by each program during the two preceding years. For each city that has established an urban renewal area, the budget shall include estimated and actual tax increment financing revenues and all estimated and actual expenditures of the revenues, proceeds from debt and all estimated and actual expenditures of the debt proceeds.

2. Not less than twenty days before the date that a budget must be certified to the county auditor and not less than ten days before the date set for the hearing, the clerk shall make available a sufficient number of copies of the detailed budget to meet the requests of taxpayers and organizations, and have them available for distribution at the offices of the mayor and clerk and at the city library, if any, or have a copy posted at one of the three places designated by ordinance for posting notices if there is no library.

3. Following, and not until, requirements of section 24.2A are completed, the council shall set a time and place for public hearing on the budget before the final certification date and shall publish notice of the hearing not less than ten nor more than twenty days before the hearing in a newspaper published at least once weekly and having general circulation in the city. However, if the city has a population of two hundred or less, publication may be made by posting in three public places in the city. A summary of the proposed budget and a description of the procedure for protesting the city budget under section 384.19, in the form prescribed by the director of the department of management, shall be included in the notice. Proof of publication of the notice under this subsection 3 must be filed with the county auditor. The department of management shall prescribe the form for the public hearing notice for use by cities.

4. At the hearing, any resident or taxpayer of the city may present to the council objections to any part of the budget for the following fiscal year or arguments in favor of any part of the budget.

5. After the hearing, the council shall adopt by resolution a budget for at least the next fiscal year, and the clerk shall certify the necessary tax levy for the next fiscal year to the county auditor and the county board of supervisors. The tax levy certified may be less than but not more than the amount estimated in the proposed budget submitted at the final hearing, unless an additional tax levy is approved at a city election. Two copies each of the detailed budget as adopted and of the tax certificate must be transmitted to the county auditor, who shall complete the certificates and transmit a copy of each to the department of management.

6. Taxes levied by a city whose budget is certified after April 30 shall be limited to the prior year's budget amount. However, this penalty may be waived by the director of the department of management if the city demonstrates that the deadline was missed because of circumstances beyond the control of the city.

7. A city that does not submit a budget in compliance with this section shall have all state funds withheld until a budget that is in compliance with this section is filed with the county auditor and subsequently received by the department of management. The department of management shall send notice to state agencies responsible for disbursement of state funds and that notice is sufficient authorization for those funds to be withheld until later notice is given by the department of management to release those funds.

[C24, 27, 31, 35, 39, §**370, 375 – 378, 381, 383;** C46, 50, 54, 58, 62, 66, 71, 73, §24.3, 24.9 – 24.12, 24.15, 24.17; C75, 77, 79, 81, §384.16]

97 Acts, ch 206, §19, 20, 24; 2005 Acts, ch 179, §62, 63; 2007 Acts, ch 186, §4; 2010 Acts, ch 1069, §127; 2012 Acts, ch 1124, §10, 11; 2019 Acts, ch 165, §14, 15, 17; 2023 Acts, ch 71, §92, 93, 98

Referred to in §384.2, 384.17, 384.18, 384.22, 419.11

2023 amendment to unnumbered paragraph 1 applies to political subdivision budgets for fiscal years beginning on or after July 1, 2024; 2023 Acts, ch 71, §98

2023 amendment to subsections 3, 5, and 6 applies to political subdivision budgets for fiscal years beginning on or after July 1, 2024; 2023 Acts, ch 71, §98

Unnumbered paragraph 1 amended

Subsections 3, 5, and 6 amended

384.17 Levy by county.

At the time required by law, the county board of supervisors shall levy the taxes necessary for each city fund for the following fiscal year. The levy must be as shown in the adopted city budget and as certified by the clerk, subject to any changes made after a protest hearing, and any additional tax rates approved at a city election. A city levy is not valid until proof of publication or posting of notice of a budget hearing under section 384.16, subsection 3, is filed with the county auditor and individual statements are mailed under section 24.2A.

[C24, 27, 31, 35, 39, §**376, 385;** C46, 50, 54, 58, 62, 66, 71, 73, §24.10, 24.19; C75, 77, 79, 81, §384.17]

2019 Acts, ch 165, §16, 17; 2023 Acts, ch 71, §94, 98

2023 amendment applies to political subdivision budgets for fiscal years beginning on or after July 1, 2024; 2023 Acts, ch 71, §98

Section amended

384.18 Budget amendment.

1. A city budget as finally adopted for the following fiscal year becomes effective July 1 and constitutes the city appropriation for each program and purpose specified therein until amended as provided in this section. A city budget for the current fiscal year may be amended for any of the following purposes:

a. To permit the appropriation and expenditure of unexpended, unencumbered cash balances on hand at the end of the preceding fiscal year which had not been anticipated in the budget.

b. To permit the appropriation and expenditure of amounts anticipated to be available from sources other than property taxation, and which had not been anticipated in the budget.

c. To permit transfers from the debt service fund, the capital improvements reserve fund, the emergency fund, or other funds established by state law, to any other city fund, unless specifically prohibited by state law.

d. To permit transfers between programs within the general fund.

2. A budget amendment must be prepared and adopted in the same manner as the original budget, as provided in section 384.16, excluding the requirement for the mailing of individual statements under section 24.2A, and is subject to protest as provided in section 384.19, except that the committee may by rule provide that amendments of certain types or up to certain amounts may be made without public hearing and without being subject to protest. A city budget shall be amended by May 31 of the current fiscal year to allow time for a protest hearing to be held and a decision rendered before June 30. The amendment of a budget

after May 31, which is properly appealed but without adequate time for hearing and decision before June 30 is void.

[C24, 27, 31, 35, 39, §**375;** C46, 50, 54, 58, 62, 66, 71, 73, §24.9; C75, 77, 79, 81, §384.18; 82 Acts, ch 1079, §6]

2010 Acts, ch 1061, §180; 2023 Acts, ch 71, §95, 98

2023 amendment to subsection 2 applies to political subdivision budgets for fiscal years beginning on or after July 1, 2024; 2023 Acts, ch 71, §98

Subsection 2 amended

384.19 Written protest.

1. Within a period of ten days after the final date that a budget or amended budget may be certified to the county auditor, persons affected by the budget may file a written protest with the county auditor specifying their objections to the budget or any part of it. A protest must be signed by registered voters equal in number to one-fourth of one percent of the votes cast for governor in the last preceding general election in the city, but the number shall not be less than ten persons and the number need not be more than one hundred persons.

2. Upon the filing of any such protest, the county auditor shall immediately prepare a true and complete copy of the written protest, together with the budget to which the objections are made, and shall transmit the same forthwith to the state appeal board, and shall also send a copy of the protest to the council.

3. The state appeal board shall proceed to consider the protest in accordance with the same provisions that protests to budgets of municipalities are considered under chapter 24. The state appeal board shall certify its decision with respect to the protest to the county auditor and to the parties to the appeal as provided by rule, and the decision shall be final.

4. The county auditor shall make up the records in accordance with the decision and the levying board shall make its levy in accordance with the decision. Upon receipt of the decision the council shall correct its records accordingly, if necessary.

[C39, §**390.2, 390.7;** C46, 50, 54, §24.26, 24.31; C58, 62, 66, 71, 73, §24.27, 24.32; C75, 77, 79, 81, §384.19; 82 Acts, ch 1079, §7]

2001 Acts, ch 56, §32; 2016 Acts, ch 1011, §121

Referred to in §331.502, 384.16, 384.18

384.20 Separate accounts.

1. A city shall keep separate accounts corresponding to the programs and items in its adopted or amended budget, as recommended by the committee.

2. A city shall keep accounts which show an accurate and detailed statement of all public funds collected, received, or expended for any city purpose, by any city officer, employee, or other person, and which show the receipt, use, and disposition of all city property. Public moneys may not be expended or encumbered except under an annual or continuing appropriation.

3. "*Continuing appropriation*" means the unexpended portion of the cost of public improvements, as defined in section 26.2, which cost was adopted through a public hearing pursuant to section 26.12 and was included in an adopted or amended budget of a city. A continuing appropriation does not expire at the conclusion of a fiscal year. A continuing appropriation continues until the public improvement is completed, but expenditures under the continuing appropriation shall not exceed the resources available for paying for the public improvement.

[S13, §741-a, 741-b; C24, 27, 31, 35, 39, §**5675, 5676;** C46, 50, §363.49, 363.50; C54, 58, 62, 66, 71, 73, §368A.5, 368A.6; C75, 77, 79, 81, §384.20]

96 Acts, ch 1104, §1; 2006 Acts, ch 1017, §36, 42, 43; 2007 Acts, ch 144, §15

384.21 Joint investment of funds.

A city or a city utility board shall keep all funds invested to the extent practicable and may invest the funds jointly with one or more cities, utility boards, judicial district departments of correctional services, counties, or rural water districts created under chapter 357A pursuant

to a joint investment agreement. All investments of funds shall be subject to sections 12B.10 and 12B.10A and other applicable law.

87 Acts, ch 105, §2; 88 Acts, ch 1084, §2; 92 Acts, ch 1156, §15; 95 Acts, ch 77, §6

384.22 Annual reports — financial report — urban renewal report.

1. Not later than December 1 of each year, a city shall publish an annual financial report as provided in section 362.3 containing a summary for the preceding fiscal year of all collections and receipts, all accounts due the city, and all expenditures, the current public debt of the city, and the legal debt limit of the city for the current fiscal year. The annual financial report shall be prepared on forms and pursuant to instructions prescribed by the auditor of state.

2. *a.* Each city that had an urban renewal plan and area in effect at any time during the most recently ended fiscal year shall complete for each such urban renewal plan and area and file with the department of management an urban renewal report by December 1 following the end of such fiscal year. Each report shall be approved by the affirmative vote of a majority of the city council and be prepared in the format and submitted electronically pursuant to the instructions prescribed by the department of management in consultation with the legislative services agency.

b. The report required under this subsection shall include all of the following as of June 30 of the most recently ended fiscal year or the information for such fiscal year, as applicable:

(1) Whether the urban renewal area is determined by the city to be a slum area, blighted area, economic development area or a combination of those areas, and the date such determination was made.

(2) A map clearly identifying the boundaries of the urban renewal area.

(3) A copy of the ordinance providing for a division of revenue in the urban renewal area under section 403.19.

(4) A copy of the urban renewal plan adopted for the urban renewal area, the date of each amendment to the plan, and a copy of such amendment.

(5) A list and description of all urban renewal projects within the urban renewal area that are in process and all urban renewal projects that were completed during the fiscal year.

(6) A description of each expenditure during the fiscal year from the city's special fund created in section 403.19. Each such expenditure shall be classified by the city according to categories established by the department of management and shall be designated as corresponding to the specific loan, advance, indebtedness, or bond which qualifies for payment from the special fund under section 403.19. Each such expenditure shall also be designated as corresponding to one or more specific urban renewal projects. This description shall not be required for the report required to be filed on or before December 1, 2012.

(7) The amount of loans, advances, indebtedness, or bonds, including interest negotiated on such loans, advances, indebtedness, or bonds, which qualify for payment from the special fund created in section 403.19, and which were incurred or issued during the fiscal year. Each such loan, advance, debt, or bond shall be classified by the city according to categories established by the department of management and shall be designated as corresponding to one or more specific urban renewal projects.

(8) The amount of loans, advances, indebtedness, or bonds that remain unpaid at the close of the fiscal year, and which qualify for payment from the special fund created in section 403.19, including interest negotiated on such loans, advances, indebtedness, or bonds.

(9) The total amount of property taxes that were exempted, rebated, refunded, or reimbursed by the city, used to fund a grant provided by the city, or directly paid by the city during the fiscal year for property in the urban renewal area using moneys in the city's special fund created in section 403.19 and such amounts agreed to by the city for future fiscal years.

(10) A list of all properties, including the owner of such properties, and the amount of property taxes due and payable for the fiscal year that were exempted, rebated, refunded, or reimbursed by the city, used to fund a grant provided by the city, or directly paid by the city during the fiscal year using moneys in the city's special fund created in section 403.19 and information for such amounts agreed to by the city for future fiscal years.

(11) The balance of the city's special fund created in section 403.19.

(12) The aggregate assessed value of the taxable property in the urban renewal area, as

shown on the assessment roll used to calculate the amount of taxes under section 403.19, subsection 1, for the fiscal year.

(13) The aggregate assessed value of each classification of taxable property located in the urban renewal area.

(14) That portion of the assessed value of all taxable property located in the urban renewal area that was used to calculate the amount of excess taxes under section 403.19, subsection 2.

(15) The amount of taxes determined under section 403.19, subsection 2, in excess of the amount required to pay the applicable loans, advances, indebtedness, and bonds, if any, and interest thereon, for the fiscal year that was paid into the funds for the respective taxing districts in the same manner as taxes on all other property.

(16) Interest or earnings received by each urban renewal area during the fiscal year on amounts deposited into the special fund created in section 403.19 and the net proceeds during the fiscal year from the sale of assets purchased using amounts deposited into the special fund created in section 403.19.

(17) For each taxing district for which the city divided taxes, the amount of taxes determined under section 403.19, subsection 2, that, in lieu of allocation to the taxing district, were deposited into the city's special fund during the fiscal year.

(18) The amount of expenditures by the city during the fiscal year for the purpose of providing or aiding in the provision of public improvements related to housing and residential development.

(19) The amount and types of assistance to low and moderate income housing provided by the city under section 403.22 during the fiscal year if applicable.

(20) When required as part of an urban renewal development or redevelopment agreement that includes the use of incremental taxes collected pursuant to section 403.19, subsection 2, the total number of jobs to be created, the wages associated with those jobs, the total private capital investment, and the total cost of the public infrastructure constructed.

(21) All other additional information or documentation relating to a city's urban renewal activities or use of divisions of revenue under chapter 403 deemed relevant by the department of management, in consultation with the city finance committee.

c. By December 1, 2012, the department of management, in collaboration with the legislative services agency, shall make publicly available on an internet site a searchable database of all such information contained in the reports required under this subsection. Reports from previous years shall be retained by the department and shall continue to be available and searchable on the internet site.

d. For purposes of this subsection, "*indebtedness*" includes but is not limited to written agreements whereby the city agrees to exempt, rebate, refund, or reimburse property taxes, provide a grant for property taxes paid, or make a direct payment of taxes, with moneys in the special fund created in section 403.19, and bonds, notes, or other obligations that are secured by or subject to repayment from moneys appropriated by the city from moneys in the special fund created in section 403.19.

3. The annual financial report shall be prepared on forms and pursuant to instructions prescribed by the auditor of state and shall be filed with the auditor of state. The urban renewal report shall be filed with the department of management. Each report must be filed prior to the publication and adoption of the city budget under section 384.16 for the fiscal year beginning July 1 following the date such reports are due. If such reports are not filed pursuant to the requirements of this section, the department of management shall not certify the city's taxes back to the county auditor under section 24.17.

[S13, §741-c, 1056-a7, 1056-a9, 1056-a33; C24, 27, 31, 35, 39, §**5677, 5679, 5680, 6581;** C46, 50, §363.54, 363.56, 363.57, 416.109; C54, 58, 62, 66, 71, 73, §368A.9, 368A.11, 368A.12; C75, 77, 79, 81, §384.22]

97 Acts, ch 206, §21, 24; 2003 Acts, ch 178, §4; 2012 Acts, ch 1124, §12, 25; 2012 Acts, ch 1133, §99

Referred to in §11.11, 331.403, 384.9, 384.16, 403.5, 403.23

For future amendment to subsection 1, effective July 1, 2024, see 2023 Acts, ch 71, §147, 154

SUBCHAPTER III

GENERAL OBLIGATION BONDS

Referred to in §386.12, 403.12, 423A.7, 468.240

384.23 Construction of words "and" and "or".

As used in subchapters III through V of this chapter, the use of the conjunctive *"and"* includes the disjunctive *"or"* and the use of the disjunctive *"or"* includes the conjunctive *"and"*, unless the context clearly indicates otherwise.

[C75, 77, 79, 81, §384.23]

2007 Acts, ch 144, §16; 2018 Acts, ch 1041, §127

Referred to in §357E.11A, 389.4, 390.5

384.24 Definitions.

As used in this subchapter, unless the context otherwise requires:

1. *"General obligation bond"* means a negotiable bond issued by a city and payable from the levy of unlimited ad valorem taxes on all the taxable property within the city through its debt service fund which is required to be established by section 384.4.

2. *"City enterprise"* means any of the following, including the real estate, fixtures, equipment, accessories, appurtenances, and all property necessary or useful for the operation of any of the following:

a. Parking facilities systems, which may include parking lots and other off-street parking areas, parking ramps and structures on, above, or below the surface, parking meters, both on-street and off-street, and all other fixtures, equipment, accessories, appurtenances, and requisites useful for the successful operation of a parking facilities system.

b. Civic centers or civic center systems, which may include auditoriums, music halls, theatres, sports arenas, armories, exhibit halls, meeting rooms, convention halls, or combinations of these.

c. Recreational facilities or recreational facilities systems, including, without limitation, real and personal property, water, buildings, improvements, and equipment useful and suitable for administering recreation programs, and also including without limitation, zoos, museums, and centers for art, drama, and music, as well as those programs more customarily identified with the term "recreation" such as public sports, games, pastimes, diversions, and amusement, on land or water, whether or not such facilities are located in or as a part of any public park.

d. Port facilities or port facilities systems, including without limitation, real and personal property, water, buildings, improvements and equipment useful and suitable for taking care of the needs of commerce and shipping, and also including without limitation, wharves, docks, basins, piers, quay walls, warehouses, tunnels, belt railway facilities, cranes, dock apparatus, and other machinery necessary for the convenient and economical accommodation and handling of watercraft of all kinds and of freight and passengers.

e. Airport and airport systems.

f. Solid waste collection systems and disposal systems.

g. Bridge and bridge systems.

h. Hospital and hospital systems.

i. Transit systems.

j. Stadiums.

k. Housing for persons who are elderly or persons with disabilities.

l. Child care centers providing child care or preschool services, or both. For purposes of this paragraph, *"child care"* means providing for the care, supervision, and guidance of a child by a person other than the parent, guardian, relative, or custodian for periods of less than twenty-four hours per day on a regular basis. For purposes of this paragraph, *"preschool"* means child care which provides to children ages three through five, for periods of time not exceeding three hours per day, programs designed to help the children to develop intellectual skills, and motor skills, and to extend their interest and understanding of the world about them.

3. *"Essential corporate purpose"* means:

a. The opening, widening, extending, grading, and draining of the right-of-way of streets, highways, avenues, alleys, public grounds, and market places, and the removal and replacement of dead or diseased trees thereon; the construction, reconstruction, and repairing of any street improvements; the acquisition, installation, and repair of traffic control devices; and the acquisition of real estate needed for any of the foregoing purposes.

b. The acquisition, construction, improvement, and installation of street lighting fixtures, connections, and facilities.

c. The construction, reconstruction, and repair of sidewalks and pedestrian underpasses and overpasses, and the acquisition of real estate needed for such purposes.

d. The acquisition, construction, reconstruction, extension, improvement, and equipping of works and facilities useful for the collection, treatment, and disposal of sewage and industrial waste in a sanitary manner, for the collection and disposal of solid waste, and for the collection and disposal of surface waters and streams.

e. The acquisition, construction, reconstruction, enlargement, improvement, and repair of bridges, culverts, retaining walls, viaducts, underpasses, grade crossing separations, and approaches thereto.

f. The settlement, adjustment, renewing, or extension of any part or all of the legal indebtedness of a city, whether evidenced by bonds, warrants, or judgments, or the funding or refunding of the same, whether or not such indebtedness was created for a purpose for which general obligation bonds might have been issued in the original instance.

g. The undertaking of any project jointly or in cooperation with any other governmental body which, if undertaken by the city alone, would be for an essential corporate purpose, including the joint purchase, acquisition, construction, ownership, or control of any real or personal property.

h. The acquisition, construction, reconstruction, improvement, and extension of works and facilities useful for the control and elimination of any and all sources of air, water, and noise pollution, and the acquisition of real estate needed for such purposes.

i. The acquisition, construction, reconstruction, and improvement of all waterways, and real and personal property, useful for the protection or reclamation of property situated within the corporate limits of cities from floods or high waters, and for the protection of property in cities from the effects of flood waters, including the deepening, widening, alteration, change, diversion, or other improvement of watercourses, within or without the city limits, the construction of levees, embankments, structures, impounding reservoirs, or conduits, and the establishment, improvement, and widening of streets, avenues, boulevards, and alleys across and adjacent to the project, as well as the development and beautification of the banks and other areas adjacent to flood control improvements.

j. The equipping of fire, police, sanitation, street, and civil defense departments and the acquiring, developing, and improving of a geographic computer data base system suitable for automated mapping and facilities management.

k. The acquisition and improvement of real estate for cemeteries, and the construction, reconstruction, and repair of receiving vaults, mausoleums, and other cemetery facilities.

l. The acquisition of ambulances and ambulance equipment.

m. The reconstruction and improvement of dams already owned.

n. The reconstruction, extension, and improvement of an airport owned or operated by the city, an agency of the city, or a multimember governmental body of which the city is a participating member.

o. The rehabilitation and improvement of parks already owned, including the removal, replacement and planting of trees in the parks, and facilities, equipment, and improvements commonly found in city parks.

p. The rehabilitation and improvement of area television translator systems already owned.

q. The aiding in the planning, undertaking, and carrying out of urban renewal projects under the authority of chapter 403, and all of the purposes set out in section 403.12. However, bonds issued for this purpose are subject to the right of petition for an election as provided in section 384.26, without limitation on the amount of the bond issue or the size of the city, and

the council shall include notice of the right of petition in the notice required under section 384.25, subsection 2.

r. The acquisition, construction, reconstruction, improvement, repair, and equipping of waterworks, water mains, and extensions, and real and personal property, useful for providing potable water to residents of a city.

s. The provision of insurance, or funding a self-insurance program or local government risk pool, including but not limited to the investigation and defense of claims, the establishment of reserve funds for claims, the payment of claims, and the administration and management of such self-insurance program or local government risk pool.

t. The acquisition, restoration, or demolition of abandoned, dilapidated, or dangerous buildings, structures or properties or the abatement of a nuisance.

u. The establishment or funding of programs to provide for or assist in providing for the acquisition, restoration, or demolition of housing, as part of a municipal housing project under chapter 403 or otherwise, or for other purposes as may be authorized under chapter 403A.

v. The acquisition of peace officer communication equipment and other emergency services communication equipment and systems.

w. The remediation, restoration, repair, cleanup, replacement, and improvement of property, buildings, equipment, and public facilities that have been damaged by a disaster as defined in section 29C.2 and that are located in an area that the governor has proclaimed a disaster emergency or the president of the United States has declared a major disaster. Bonds issued pursuant to section 384.25 for the purposes specified in this paragraph shall be issued not later than ten years after the governor has proclaimed a disaster emergency or the president of the United States has declared a major disaster, whichever is later.

x. The reimbursement of the city's general fund or other funds of the city for expenditures made related to remediation, restoration, repair, and cleanup of damage caused by a disaster as defined in section 29C.2, if the damage is located in an area that the governor has proclaimed a disaster emergency or the president of the United States has declared a major disaster. Bonds issued pursuant to section 384.25 for the purposes specified in this paragraph shall be issued not later than ten years after the governor has proclaimed a disaster emergency or the president of the United States has declared a major disaster, whichever is later.

4. *"General corporate purpose"* means:

a. The acquisition, construction, reconstruction, extension, improvement, and equipping of city utilities, city enterprises, and public improvements as defined in section 384.37, other than those which are essential corporate purposes.

b. The acquisition, construction, reconstruction, enlargement, improvement, and equipping of community center houses, recreation grounds, recreation buildings, juvenile playgrounds, swimming pools, recreation centers, parks, and golf courses, and the acquisition of real estate therefor.

c. The acquisition, construction, reconstruction, enlargement, improvement, and equipping of city halls, jails, police stations, fire stations, garages, libraries, and hospitals, including buildings to be used for any combination of the foregoing purposes, and the acquisition of real estate therefor.

d. The acquisition, construction, reconstruction, and improvement of dams at the time of acquisition.

e. The removal, replacement, and planting of trees, other than those on public right-of-way.

f. The acquisition, purchase, construction, reconstruction, and improvement of greenhouses, conservatories, and horticultural centers for growing, storing, and displaying trees, shrubs, plants, and flowers.

g. The acquisition, construction, reconstruction, and improvement of airports at the time of establishment.

h. The undertaking of any project jointly or in cooperation with any other governmental body which, if undertaken by the city alone, would be for a general corporate purpose,

including the joint purchase, acquisition, construction, ownership, or control of any real or personal property.

5. The *"cost"* of a project for an essential corporate purpose or general corporate purpose includes construction contracts and the cost of engineering, architectural, technical, and legal services, preliminary reports, property valuations, estimates, plans, specifications, notices, acquisition of real and personal property, consequential damages or costs, easements, rights-of-way, supervision, inspection, testing, publications, printing and sale of bonds, interest during the period or estimated period of construction and for twelve months thereafter or for twelve months after the acquisition date, and provisions for contingencies.

1. [C75, 77, 79, 81, §384.24(1)]

2. a. [C46, §390.1; C50, 54, 58, 62, 66, 71, 73, §390.1, 390.7; C75, 77, 79, 81, §384.24(2, a)]

b. [C35, §5903-f1; C39, §**5903.12;** C46, 50, 54, 58, 62, 66, §385.1; C71, 73, §378A.1, 385.1; C75, 77, 79, 81, §384.24(2, b)]

c. [R60, §1111; C73, §538; C97, §957; C24, 27, 31, 35, 39, §**6742;** C46, 50, §368.9, 420.53; C54, 58, 62, 66, 71, 73, §368.30; C75, 77, 79, 81, §384.24(2, c)]

d. [S13, §741-w2; C24, 27, 31, §5902; C35, §5902, 6066-f2; C39, §**5902, 6066.25;** C46, 50, 54, 58, 62, 66, 71, 73, §384.3, 394.2; C75, 77, 79, 81, §384.24(2, d)]

e. [C31, 35, §5903-c2; C39, §**5903.02;** C46, 50, 54, 58, 62, 66, 71, 73, §330.2; C75, 77, 79, 81, §384.24(2, e)]

f. [S13, §1056-a61; SS15, §696-b; C24, 27, 31, §5746, 6592; C35, §5746, 6066-f1, 6066-f5, 6592; C39, §**5746, 6066.24, 6066.28, 6592;** C46, 50, §368.9, 394.1, 394.5, 416.120; C54, 58, 62, 66, 71, 73, §368.24, 394.1, 394.5; C75, 77, 79, 81, §384.24(2, f)]

g. [C31, 35, §5899-c1; C39, §**5899.01;** C46, 50, 54, 58, 62, 66, 71, 73, §383.1; C75, 77, 79, 81, §384.24(2, g)]

h. [C75, 77, 79, 81, §384.24(2, h)]

i. [C58, 62, 66, 71, 73, §386B.2; C75, 77, 79, 81, §384.24(2, i)]

j. [C75, 77, 79, 81, §384.24(2, j)]

k. [C75, 77, 79, 81, §384.24(2, k)]

3. a. [R60, §1064, 1097; C73, §464, 465, 527; C97, §751, 782; S13, §1056-a65; SS15, §751, 997-a, -c; C24, 27, 31, 35, 39, §**5938, 5951, 6608, 6744, 6746;** C46, 50, §389.1, 389.20, 416.138, 420.55, 420.57; C54, 58, 62, 66, 71, 73, §368.32, 389.1, 389.20, 408.17; C75, 77, 79, 81, §384.24(3, a)]

b. [R60, §1064; C73, §464; C97, §756; C24, 27, 31, 35, 39, §**5949;** C46, 50, 54, 58, 62, 66, 71, 73, §389.16; C75, 77, 79, 81, §384.24(3, b)]

c. [C73, §466; C97, §779; S13, §779; C24, 27, 31, 35, 39, §**5962;** C46, 50, 54, 58, §389.31; C62, 66, 71, 73, §389.31, 391.1; C75, 77, 79, 81, §384.24(3, c)]

d. [S13, §1056-a63; C24, 27, 31, 35, 39, §**6125, 6594;** C46, 50, §396.22, 416.122; C54, 58, §396.22, 404.18; C62, 66, 71, 73, §396.22, 404.19; C75, 77, 79, 81, §384.24(3, d)]

e. [R60, §1097; C73, §527; C97, §757, 758; SS15, §758; C24, 27, 31, 35, 39, §**5874 – 5876;** C46, 50, §381.1 – 381.3; C54, 58, 62, 66, §381.1; C71, 73, §381.1, 381.3; C75, 77, 79, 81, §384.24(3, e)]

f. [C97, §905; C24, 27, 31, 35, 39, §**6252;** C46, 50, 54, 58, 62, 66, 71, 73, §408.1; C75, 77, 79, 81, §384.24(3, f)]

g. [C27, 31, 35, §6066-a1; C39, §**6066.03;** C46, 50, 54, §392.1; C58, 62, 66, 71, 73, §368.49, 392.1; C75, 77, 79, 81, §384.24(3, g)]

h. [C75, 77, 79, 81, §384.24(3, h)]

i. [SS15, §849-a; C24, 27, 31, 35, 39, §**6080;** C46, 50, 54, 58, 62, 66, 71, 73, §395.1; C75, 77, 79, 81, §384.24(3, i)]

j. [C54, 58, 62, 66, 71, 73, §368.16; C75, 77, 79, 81, §384.24(3, j)]

k. [R60, §1060; C73, §458; C97, §697; C24, 27, 31, 35, 39, §**5750;** C46, 50, §368.13; C54, 58, 62, 66, 71, 73, §368.29; C75, 77, 79, 81, §384.24(3, k)]

l. [C66, 71, 73, §368.74; C75, 77, 79, 81, §384.24(3, l)]

m. – p. [C77, 79, 81, §384.24(3, m – p)]

q. [C75, §384.24(4, g); C77, 79, 81, §384.24(3, q)]

r. [82 Acts, ch 1089, §1]

4. a. [S13, §741-w2, 1306-b; C24, 27, 31, 35, 39, §**5902, 6239;** C46, 50, §384.3, 407.3(1); C54, 58, 62, 66, 71, 73, §384.3, 390.13, 407.3(1); C75, 77, 79, 81, §384.24(4, a)]

b. [R60, §1111; C73, §538; C97, §852, 957; S13, §850-c; SS15, §879-r; C24, 27, 31, 35, 39, §**5793, 5830, 5844, 6239, 6742;** C46, 50, §368.9, 370.7, 374.1, 377.1, 407.3(2, 3), 420.53; C54, 58, 62, 66, 71, 73, §368.30, 370.7, 374.1, 377.1, 407.3(2, 3); C75, 77, 79, 81, §384.24(4, b)]

c. [R60, §1116; C73, §542; C97, §732, 735; S13, §668, 732, 741-r; SS15, §741-f; C24, 27, §5772, 6239; C31, §5772, 6239, 6600-c1; C35, §5772, 6239, 6579-f; C39, §**5772, 6239, 6579.1;** C46, 50, §368.40, 407.3(4 – 6), 416.107; C54, 58, 62, 66, §368.15, 368.41, 407.3(4 – 6); C71, 73, §368.15, 368.41, 407.3(4 – 6, 9); C75, 77, 79, 81, §384.24(4, c)]

d. [C27, 31, 35, 39, §**6239;** C46, 50, 54, 58, 62, 66, 71, 73, §407.3(7); C75, 77, 79, 81, §384.24(4, d)]

e. [S13, §1056-a65; SS15, §997-a, -c; C24, 27, 31, 35, 39, §**6608, 6744, 6746;** C46, 50, §416.138, 420.55, 420.57; C54, 58, 62, 66, 71, 73, §368.32; C75, 77, 79, 81, §384.24(4, e)]

f. [C75, 77, 79, 81, §384.24(4, f)]

g. [C77, 79, 81, §384.24(4, g)]

h. [C31, 35, §5766-c1; C39, §**5766.2;** C46, §368.31; C50, §368.31, 368.57, 392.1; C54, 58, 62, 66, 71, 73, §368.12, 368.19, 392.1; C75, 77, 79, 81, §384.24(4, h)]

i. [C75, 77, 79, 81, §384.24(4, i)]

5. [C75, 77, 79, 81, §384.24(5)]

83 Acts, ch 90, §21; 86 Acts, ch 1211, §24; 87 Acts, ch 103, §6 – 8; 89 Acts, ch 182, §10; 89 Acts, ch 189, §3; 96 Acts, ch 1129, §86; 96 Acts, ch 1204, §36; 2001 Acts, ch 88, §1, 2; 2008 Acts, ch 1013, §2, 3; 2009 Acts, ch 100, §13, 21; 2010 Acts, ch 1079, §15; 2018 Acts, ch 1041, §127; 2023 Acts, ch 71, §16, 19

Referred to in §8F.2, 23A.2, 37.6, 76.1, 357E.11A, 358C.19, 384.25, 384.27, 384.28, 384.80, 384.110, 386.1, 386.12, 389.4, 390.5, 392.1, 411.38

2023 strike of former subsection 4, paragraph i applies to taxes and budgets for fiscal years beginning on or after July 1, 2024; 2023 Acts, ch 71, §19

Subsection 4, paragraph i stricken

384.24A Loan agreements.

A city may enter into loan agreements to borrow money for any public purpose in accordance with the following terms and procedures:

1. A loan agreement entered into by a city may contain provisions similar to those sometimes found in loan agreements between private parties, including, but not limited to, the issuance of notes to evidence its obligations.

2. A provision of a loan agreement which stipulates that a portion of the payments be applied as interest is subject to chapter 74A. Other laws relating to interest rates do not apply. Chapter 75 is not applicable. A city utility or city enterprise is a separate entity under this section whether it is governed by the governing body of the city or another governing body.

3. The governing body shall follow substantially the same authorization procedure required for the issuance of general obligation bonds issued for the same purpose to authorize a loan agreement made payable from the debt service fund.

4. The governing body may authorize a loan agreement which is payable from the general fund if the loan agreement would not cause the total of scheduled annual payments of principal or interest or both principal and interest due from the general fund in any single future fiscal year with respect to all loan agreements in force on the date of the authorization to exceed ten percent of the last certified general fund budget amount in accordance with the following procedures:

a. The governing body must follow substantially the authorization procedures of section 384.25 to authorize a loan agreement for personal property which is payable from the general fund. The governing body must follow substantially the authorization procedures of section 384.25 to authorize a loan agreement for real property which is payable from the general fund if the principal amount of the loan agreement does not exceed the following limits:

(1) Four hundred thousand dollars in a city having a population of five thousand or less.

(2) Seven hundred thousand dollars in a city having a population of more than five thousand but not more than seventy-five thousand.

(3) One million dollars in a city having a population of more than seventy-five thousand.

b. The governing body must follow the following procedures to authorize a loan agreement for real property which is payable from the general fund if the principal amount of the loan agreement exceeds the limits set forth in paragraph *"a"*:

(1) The governing body must institute proceedings to enter into a loan agreement payable from the general fund by causing a notice of the meeting to discuss entering into the loan agreement, including a statement of the principal amount and purpose of the loan agreement and the right to petition for an election, to be published at least once in a newspaper of general circulation within the city at least ten days prior to the discussion meeting. No sooner than thirty days following the discussion meeting shall the governing body hold a meeting at which it is proposed to take action to enter into the loan agreement.

(2) (a) If at any time before the end of the thirty-day period after which a meeting may be held to take action to enter into the loan agreement, a petition is filed with the clerk of the city in the manner provided by section 362.4, asking that the question of entering into the loan agreement be submitted to the registered voters of the city, the governing body shall either by resolution declare the proposal to enter into the loan agreement to have been abandoned or shall direct the county commissioner of elections to call a special election upon the question of entering into the loan agreement. However, for purposes of this paragraph, the petition shall not require signatures in excess of one thousand persons.

(b) The question to be placed on the ballot shall be stated affirmatively in substantially the following manner:

Shall the city of ..... enter into a loan agreement in amount of $ ..... for the purpose of .....?

(c) Notice of the election and its conduct shall be in the manner provided in section 384.26, subsections 2 through 4.

(3) If a petition is not filed or if a petition is filed and the proposition of entering into the loan agreement is approved at an election, the governing body may proceed and enter into the loan agreement.

5. The governing body may authorize a loan agreement payable from the net revenues of a city utility, combined utility system, city enterprise, or combined city enterprise by following the authorization procedures of section 384.83.

6. A loan agreement to which a city is a party or in which the city has a participatory interest is an obligation of a political subdivision of this state for the purposes of chapters 502 and 636, and is a lawful investment for banks, trust companies, savings associations, investment companies, insurance companies, insurance associations, executors, guardians, trustees, and any other fiduciaries responsible for the investment of funds.

87 Acts, ch 103, §9; 92 Acts, ch 1138, §5; 95 Acts, ch 67, §53; 2009 Acts, ch 100, §14, 21; 2010 Acts, ch 1061, §154; 2012 Acts, ch 1017, §76

Referred to in §37.6, 357A.11, 357E.11A, 389.4, 390.5

For future amendments to subsection 4, paragraph a, subparagraphs (1), (2), and (3), effective July 1, 2024, see 2023 Acts, ch 71, §148, 154

384.25 General obligation bonds for essential purposes.

1. A city which proposes to carry out any essential corporate purpose within or without its corporate limits, and to contract indebtedness and issue general obligation bonds to provide funds to pay all or any part of the cost of a project must do so in accordance with the provisions of this subchapter.

2. Before the council may institute proceedings for the issuance of bonds for an essential corporate purpose, a notice of the proposed action, including a statement of the amount and purposes of the bonds, and the time and place of the meeting at which the council proposes to take action for the issuance of the bonds, must be published as provided in section 362.3. At the meeting, the council shall receive oral or written objections from any resident or property owner of the city. After all objections have been received and considered, the council may, at that meeting or any adjournment thereof, take additional action for the issuance of the bonds or abandon the proposal to issue the bonds. Any resident or property owner of the city may appeal the decision of the council to take additional action to the district court of the county in which any part of the city is located, within fifteen days after the additional action is

taken, but the additional action of the council is final and conclusive unless the court finds that the council exceeded its authority. The provisions of this subsection with respect to notice, hearing, and appeal, are in lieu of the provisions contained in chapter 73A, or any other law.

3. *a.* Notwithstanding subsection 2, a council may institute proceedings for the issuance of bonds for an essential corporate purpose specified in section 384.24, subsection 3, paragraph "*w*" or "*x*", in an amount equal to or greater than three million dollars by causing a notice of the proposal to issue the bonds, including a statement of the amount and purpose of the bonds, together with the maximum rate of interest which the bonds are to bear, and the right to petition for an election, to be published at least once in a newspaper of general circulation within the city at least ten days prior to the meeting at which it is proposed to take action for the issuance of the bonds.

b. If at any time before the date fixed for taking action for the issuance of the bonds, a petition is filed with the clerk of the city signed by eligible electors of the city equal in number to twenty percent of the persons in the city who voted for the office of president of the United States at the last preceding general election that had such office on the ballot, asking that the question of issuing the bonds be submitted to the registered voters of the city, the council shall either by resolution declare the proposal to issue the bonds to have been abandoned or shall direct the county commissioner of elections to call a special election upon the question of issuing the bonds. Notice of the election and its conduct shall be in the manner provided in section 384.26.

c. If a petition is not filed, or if a petition is filed and the proposition of issuing the bonds is approved at an election, the council may proceed with the authorization and issuance of the bonds.

[R60, §1060; C73, §458; C97, §697; S13, §716-d, 840-e, 849-h, -j, 912, 912-a, 1056-a43, -a63, -a64; SS15, §758-b, -e, 840-g, -p, 997-a, -c; C24, §5750, 5878 – 5881, 6103, 6126, 6261 – 6263, 6265, 6576, 6594, 6595, 6608, 6744, 6746; C27, 31, 35, §5750, 5878 – 5881, 6066-a11, 6103, 6126, 6261 – 6263, 6265, 6594, 6595, 6608, 6744, 6746; C39, §**5750, 5878 – 5881, 6066.13, 6103, 6126, 6261, 6261.1, 6261.2, 6262, 6263, 6265, 6576, 6594, 6595, 6608, 6744, 6746;** C46, 50, §368.13, 381.5 – 381.8, 392.11, 395.25, 396.22, 408.10 – 408.14, 408.16, 416.101, 416.104, 416.122, 416.123, 416.138, 420.55, 420.57; C54, 58, §368.16, 368.29, 368.32, 381.7, 392.11, 395.25, 396.22, 404.18, 408.17; C62, 66, 71, 73, §368.16, 368.29, 368.32, 381.7, 392.11, 395.25, 396.22, 404.19, 408.17; C75, 77, 79, 81, §384.25]

2009 Acts, ch 100, §15, 21; 2018 Acts, ch 1041, §127

Referred to in §28E.17, 37.6, 357E.11A, 364.4, 384.24, 384.24A, 384.71, 386.11, 389.4, 390.5

For future amendment to subsection 2, effective July 1, 2024, see 2023 Acts, ch 71, §149, 154

384.26 General obligation bonds for general purposes.

1. A city which proposes to carry out any general corporate purpose within or without its corporate limits, and to contract indebtedness and issue general obligation bonds to provide funds to pay all or any part of the costs of a project, must do so in accordance with the provisions of this subchapter.

2. Before the council may institute proceedings for the issuance of bonds for a general corporate purpose, it shall call a special election to vote upon the question of issuing the bonds. At the election the proposition must be submitted in the following form:

> Shall the ..... (insert the name of the city) issue its bonds in an amount not exceeding the amount of $..... for the purpose of .....?

3. *a.* All elections held pursuant to this section shall be held on the date specified in section 39.2, subsection 4, paragraph "*d*".

b. Notice of the election must be given by publication as required by section 49.53 in a newspaper of general circulation in the city. At the election the ballot used for the submission of the proposition must be in substantially the form for submitting special questions at general elections.

4. The proposition of issuing general corporate purpose bonds is not carried or adopted unless the vote in favor of the proposition is equal to at least sixty percent of the total vote cast for and against the proposition at the election. If the proposition of issuing the general

corporate purpose bonds is approved by the voters, the city may proceed with the issuance of the bonds.

5. *a.* Notwithstanding the provisions of subsection 2, a council may, in lieu of calling an election, institute proceedings for the issuance of bonds for a general corporate purpose by causing a notice of the proposal to issue the bonds, including a statement of the amount and purpose of the bonds, together with the maximum rate of interest which the bonds are to bear, and the right to petition for an election, to be published at least once in a newspaper of general circulation within the city at least ten days prior to the meeting at which it is proposed to take action for the issuance of the bonds subject to the following limitations:

(1) In cities having a population of five thousand or less, in an amount of not more than four hundred thousand dollars.

(2) In cities having a population of more than five thousand and not more than seventy-five thousand, in an amount of not more than seven hundred thousand dollars.

(3) In cities having a population in excess of seventy-five thousand, in an amount of not more than one million dollars.

b. If at any time before the date fixed for taking action for the issuance of the bonds, a petition is filed with the clerk of the city in the manner provided by section 362.4, asking that the question of issuing the bonds be submitted to the registered voters of the city, the council shall either by resolution declare the proposal to issue the bonds to have been abandoned or shall direct the county commissioner of elections to call a special election upon the question of issuing the bonds. Notice of the election and its conduct shall be in the manner provided in the preceding subsections of this section.

c. If no petition is filed, or if a petition is filed and the proposition of issuing the bonds is approved at an election, the council may proceed with the authorization and issuance of the bonds.

[C73, §461; C97, §727, 741-4, 852 – 855; S13, §727, 741-q, -r, -v, -w2, 850-c, -e, -f, 1306-d, -e; SS15, §696-b, 741-f, -g, -h, 879-r, -s; C24, 27, §5793 – 5795, 5800 – 5804, 5902, 6241, 6244 – 6246, 6248; C31, 35, §5793 – 5795, 5800 – 5804, 5902, 5903-c5, 6241, 6244 – 6246, 6248; C39, §**5793 – 5795, 5800 – 5804, 5902, 5903.05, 6241, 6244 – 6246, 6248, 6261.1;** C46, 50, §330.7, 330.8, 370.7 – 370.9, 370.15 – 370.19, 384.3, 407.5, 407.8 – 407.10, 407.12, 408.11; C54, 58, 62, 66, §330.7, 370.7, 384.3, 390.13, 407.5, 407.8 – 407.10, 407.12; C71, 73, §330.7, 370.7, 378A.11, 384.3, 390.13, 407.5, 407.8 – 407.10, 407.12, 408A.1, 408A.2, 408A.6; C75, 77, 79, 81, §384.26]

92 Acts, ch 1138, §6; 95 Acts, ch 67, §53; 2018 Acts, ch 1041, §127; 2023 Acts, ch 71, §132, 136

Referred to in §28E.17, 37.6, 357E.11A, 364.4, 384.24, 384.24A, 384.25, 384.28, 384.71, 389.4, 390.5

For future amendment to subsection 2, effective July 1, 2024, see 2023 Acts, ch 71, §150, 154

For future amendment to subsection 5, paragraph a, unnumbered paragraph 1, effective July 1, 2024, see 2023 Acts, ch 71, §151, 154

For future amendments to subsection 5, paragraph a, subparagraphs (1), (2), and (3), effective July 1, 2024, see 2023 Acts, ch 71, §152, 154

For future text of subsection 5, paragraph 0b, effective July 1, 2024, see 2023 Acts, ch 71, §153, 154

Subsections 2 and 3 amended

384.27 Sale of bonds.

1. A city may sell general obligation bonds at public or private sale in the manner prescribed by chapter 75.

2. General obligation funding or refunding bonds issued for the purposes specified in section 384.24, subsection 3, paragraph "*f*", may be exchanged for the evidences of the legal indebtedness being funded or refunded, or such funding or refunding bonds may be sold in the manner prescribed by chapter 75 and the proceeds applied to the payment of such indebtedness. Funding or refunding bonds may bear interest at the same rate as, or at a higher or lower rate or rates of interest than the indebtedness being funded or refunded.

[C97, §910; C24, 27, 31, 35, 39, §**6258, 6259;** C46, 50, 54, 58, 62, 66, §408.7, 408.8; C71, 73, §378A.11, 408.7, 408.8; C75, 77, 79, 81, §384.27]

Referred to in §37.6, 357E.11A, 389.4, 390.5

384.28 Categories for general obligation bonds.

1. A city may issue general obligation bonds pursuant to a resolution adopted at a regular or special meeting by a majority of the total number of members to which the council

is entitled. Each paragraph of section 384.24, subsections 3 and 4, describes a separate category. Separate categories of essential corporate purposes and of general corporate purposes may be incorporated in a single notice of intention to institute proceedings for the issuance of bonds, or separate categories may be incorporated in separate notices, and after an opportunity has been provided for filing objections, or after a favorable election has been held, if required, the council may include in a single resolution and sell as a single issue of bonds, any number or combination of essential corporate purposes or general corporate purposes. If an essential corporate purpose is combined with a general corporate purpose in a single notice of intention to institute proceedings to issue bonds, then the entire issue is subject to the referendum requirement provided in section 384.26.

2. Definitions of city enterprises, essential corporate purposes, and general corporate purposes are not mutually exclusive and shall be liberally construed. The detailing of examples is not intended to modify or restrict the meaning of general words used. If a project or activity may be reasonably construed to be included in more than one classification, the council may elect at any time between the classifications and the procedures respectively applicable to each classification.

[C75, 77, 79, 81, §384.28]

83 Acts, ch 90, §22; 2019 Acts, ch 24, §104

Referred to in §37.6, 357E.11A, 389.4, 390.5

384.29 Form of bonds.

As provided by resolution of the council, general obligation bonds may:

1. Bear dates.
2. Bear interest at rates not exceeding the limitations imposed by chapter 75.
3. Mature in one or more installments.
4. Be in either coupon or registered form.
5. Carry registration and conversion privileges.
6. Be payable as to principal and interest at times and places.
7. Be subject to terms of redemption prior to maturity with or without premium.
8. Be in one or more denominations.
9. Be designated with a brief reference to purpose, or if issued for a combination of purposes, be designated “corporate purpose bond”.
10. Contain other provisions not in conflict with the laws of the state of Iowa.

[C97, §908; C24, 27, 31, 35, 39, §**6255;** C46, 50, 54, 58, 62, 66, 71, 73, §408.4; C75, 77, 79, 81, §384.29]

Referred to in §37.6, 357E.11A, 386.11, 389.4, 390.5

384.30 Execution.

General obligation bonds must be executed by the mayor and city clerk. If coupons are attached to the bonds, they must be executed with the original or facsimile signature of the clerk. A general obligation bond is valid and binding if it bears the signatures of the officers in office on the date of the execution of the bonds, notwithstanding that any or all such persons whose signatures appear thereon have ceased to be such officers prior to the delivery thereof.

[C97, §907; C24, 27, 31, 35, 39, §**6254;** C46, 50, 54, 58, 62, 66, 71, 73, §408.3; C75, 77, 79, 81, §384.30]

Referred to in §37.6, 357E.11A, 386.11, 389.4, 390.5

384.31 Negotiable.

General obligation bonds issued pursuant to this subchapter are negotiable instruments.

[C75, 77, 79, 81, §384.31]

2017 Acts, ch 29, §107; 2018 Acts, ch 1041, §127

Referred to in §37.6, 357E.11A, 386.11, 389.4, 390.5

384.32 Tax to pay.

Taxes for the payment of general obligation bonds must be levied in accordance with chapter 76, and the bonds are payable from the levy of unlimited ad valorem taxes on all the taxable property within the city through its debt service fund authorized by section 384.4.

[C97, §852 – 855, 912; S13, §741-w2, 758-b, 849-j, 850-c, -e, -f, 912-a, 1056-a43, -a63, -a64, -a65; SS15, §840-g, -p, 997-c; C24, 27, 31, §5793 – 5795, 5800 – 5804, 5878 – 5881, 5902, 6103, 6261 – 6263, 6265, 6594, 6595, 6608, 6746; C35, §5793 – 5795, 5800 – 5804, 5878 – 5881, 5902, 6103, 6261 – 6263, 6265, 6578-b1, 6594, 6595, 6608, 6746; C39, §**5793 – 5795, 5800 – 5804, 5878 – 5881, 5902, 6103, 6261 – 6263, 6265, 6578.1, 6594, 6595, 6608, 6746;** C46, 50, §370.7 – 370.9, 370.15 – 370.19, 381.5 – 381.8, 384.3, 395.25, 408.10 – 408.14, 408.16, 416.104, 416.122, 416.123, 416.138, 420.57; C54, 58, §368.16, 368.29, 368.32, 370.7, 381.7, 384.3, 390.14, 395.25, 404.18, 408.17; C62, 66, §368.16, 368.29, 368.32, 370.7, 381.7, 384.3, 390.13, 395.25, 404.19, 408.17; C71, 73, §368.16, 368.29, 368.32, 370.7, 378A.11, 381.7, 384.3, 390.13, 395.25, 404.19, 408.17; C75, 77, 79, 81, §384.32]

Referred to in §37.6, 357E.11A, 389.4, 390.5

384.33 Action.

No action may be brought which questions the legality of general obligation bonds or the power of the city to issue the bonds or the effectiveness of any proceedings relating to the authorization and issuance of the bonds from and after sixty days from the time the bonds are ordered issued by the city.

[C71, 73, §378A.13; C75, 77, 79, 81, §384.33]

Referred to in §37.6, 357E.11A, 389.4, 390.5

384.34 Local budget law.

The provisions of subchapter II of this chapter do not apply to any bonds issued pursuant to this subchapter.

[C75, 77, 79, 81, §384.34]

2018 Acts, ch 1041, §127

Referred to in §37.6, 357E.11A, 389.4, 390.5

384.35 Rule of construction.

The enumeration in this subchapter of specified powers and functions is not a limitation of the powers of cities, but the provisions of this subchapter and the procedures prescribed for exercising the powers and functions enumerated in this subchapter shall control and govern in the event of any conflict with the provisions of any other section, division, or chapter of the city code or with the provisions of any other law.

[C75, 77, 79, 81, §384.35]

2018 Acts, ch 1041, §127

Referred to in §37.6, 357E.11A, 389.4, 390.5

384.36 Prior proceedings.

Projects and proceedings for the issuance of general obligation bonds commenced before the effective date of the city code may be consummated and completed as required or permitted by any statute or other law amended or repealed by the city code as though the repeal or amendment had not occurred, and the rights, duties, and interests flowing from such projects and proceedings remain valid and enforceable. Without limiting the foregoing, projects commenced prior to the effective date may be financed by the issuance of general obligation bonds under any such amended or repealed law or by the issuance of general obligation bonds under the city code. For the purposes of this section, commencement of a project includes but is not limited to action taken by the council or authorized officer to fix a date for a hearing in connection with any part of the project, and commencement of proceedings for the issuance of general obligation bonds includes but is not limited to action taken by the council to fix a date for either a hearing or a sale in connection with any part of the general obligation bonds, or to order any part thereof to be issued.

[C75, 77, 79, 81, §384.36]

Referred to in §37.6, 357E.11A, 389.4, 390.5

SUBCHAPTER IV

SPECIAL ASSESSMENTS

Referred to in §331.382, 331.384, 331.486, 331.487, 358.16, 364.13, 384.11, 384.23, 425.17, 468.586, 468.587

384.37 Definitions.

As used in this subchapter, unless the context otherwise requires:

1. *"Abutting lot"* means a lot which abuts or joins the street in which the public improvement is located or which abuts the right-of-way of the public improvement.
2. *"Adjacent lot"* means a lot within the district which does not abut upon the street or right-of-way of the public improvement.
3. *"Construction"* includes materials, labor, acts, operations and services necessary to complete a public improvement.
4. *"District"* means the lots or parts of lots within boundaries established by the council for the purpose of the assessment of the cost of a public improvement.
5. *"Engineer"* means a professional engineer, licensed in the state of Iowa, authorized by the council to render services in connection with the public improvement.
6. *"Final grade"* means the grade to which the public improvement is proposed to be constructed or repaired as shown on the final plans adopted by the council.
7. *"Grade"* means the longitudinal reference lines, as established by ordinance of the council, which designate the elevations at which a street or sidewalk is to be built.
8. *"Gravel"* includes gravel, crushed rock, cinders, shale and similar materials suitable for street construction or repair.
9. *"Lateral sewer"* means a sewer which contributes sewage, or surface or groundwater from a local area to a main sewer or outlet.
10. *"Lot"* means a parcel of land under one ownership, including improvements, against which a separate assessment is made. Two or more contiguous parcels under common ownership may be treated as one lot for purposes of this subchapter if the parcels bear common improvements or if the council finds that the parcels have been assembled into a single unit for the purpose of use or development.
11. *"Main sewer"* means a sewer which serves as an outlet for two or more lateral sewers, and which is commonly referred to as an intercepting sewer, outfall sewer or trunk sewer.
12. *"Oil"* means any asphaltic or bituminous material suitable for street construction or repair.
13. *"Parking facilities"* means parking lots or other off-street areas for the parking of vehicles, including areas below or above the surface of streets.
14. *"Paving"* means any kind of hard street surface, including, but not limited to, concrete, bituminous concrete, brick, stabilized gravel, or combinations of these, together with or without curb and gutter.
15. *"Private property"* means all property within the district except streets.
16. *"Property owner"* or *"owner"* means the owner or owners of property, as shown by the transfer books in the office of the county auditor of the county in which the property is located.
17. *"Proposal"* means a legal bid on work advertised for a public improvement under chapter 26.
18. *"Publication"* means public notice given in the manner provided in section 362.3.
19. *"Public improvement"* includes the principal structures, works, component parts and accessories of any of the following:

a. Sanitary, storm and combined sewers.

b. Drainage conduits, channels and levees.

c. Street grading, paving, graveling, macadamizing, curbing, guttering, and surfacing with oil, oil and gravel or chloride.

d. Street lighting fixtures, connections and facilities.

e. Sewage pumping stations, and disposal and treatment plants.

f. Underground gas, water, heating, sewer and electrical connections located in streets for private property.

g. Sidewalks and pedestrian underpasses or overpasses.
h. Drives and driveway approaches located within the public right-of-way.
i. Waterworks, water mains and extensions.
j. Plazas, arcades and malls.
k. Parking facilities.
l. Removal of diseased or dead trees from any public place, publicly owned right-of-way or private property.
m. Traffic-control devices, fixtures, connections, and facilities.

20. *"Railways"* means all railways except street railways.

21. *"Repair"* includes materials, labor, acts, operations and services necessary for the repair, reconstruction, reconstruction by widening or resurfacing of a public improvement.

22. *"Sewer"* means structures designed, constructed and used for the purpose of controlling or carrying off streams, surface waters, waste or sanitary sewage.

23. *"Sewer systems"* are composed of the main sewers, sewage pumping stations, treatment and disposal plants, lateral sewers, drainage conduits or channels and sewer connections in public streets for private property.

24. *"Street"* means a public street, highway, boulevard, avenue, alley, parkway, public place, plaza, mall or publicly owned right-of-way or easement within the limits of the city.

25. *"Street improvement"* means the construction or repair of a street by grading, paving, curbing, guttering, and surfacing with oil, oil and gravel, or chloride, and street lighting fixtures, connections and facilities.

26. *"Total cost"* or *"cost"* of a public improvement includes the cost of engineering, preliminary reports, property valuations, estimates, plans, specifications, notices, legal services, acquisition of land, consequential damages or costs, easements, rights-of-way, construction, repair, supervision, inspection, testing, notices and publication, interest during construction and for not more than six months thereafter, and printing and sale of bonds.

[R60, §1064, 1097; C73, §464 – 466, 527; C97, §751, 779, 792; S13, §779, 792, 792-f, 840-c, -d; SS15, §751, 840-h, -r; C24, 27, §5938, 5962, 5974, 5975, 5987; C31, 35, §5938, 5962, 5974, 5975, 5987, 6610-c8; C39, §**5938, 5962, 5974, 5975, 5987, 6610.04;** C46, §389.1, 389.31, 391.1, 391.2, 391.14, 417.8; C50, 54, 58, 62, §389.1, 389.31, 391.1, 391.2, 391.14, 391A.1, 417.8; C66, 71, 73, §389.1, 389.31, 390A.39, 391.1, 391.2, 391.14, 391A.1, 417.8; C75, 77, 79, 81, §384.37]
83 Acts, ch 90, §23; 92 Acts, ch 1176, §1; 2007 Acts, ch 126, §61; 2007 Acts, ch 144, §17; 2018 Acts, ch 1041, §127
Referred to in §298.3, 331.485, 357E.11A, 384.24, 384.44, 386.1, 468.585, 669.14, 670.4

384.38 Certain costs assessed to private property.

1. A city may assess to private property within the city the cost of construction and repair of public improvements within the city, and main sewers, sewage pumping stations, disposal and treatment plants, waterworks, water mains, extensions, and drainage conduits extending outside the city.

2. Upon petition as provided in section 384.41, subsection 1, a city may assess to private property affected by public improvements within three miles of the city's boundaries the cost of construction and repair of public improvements within that area. The right-of-way of a railway company shall not be assessed unless the company joins as a petitioner for said improvements. In the petition the property owners shall waive the limitation provided in section 384.62 that an assessment shall not exceed twenty-five percent of the value of the lot. The petition shall contain a statement that the owners agree to pay the city an amount equal to five percent of the cost of the improvements, to cover administrative expenses incurred by the city. This amount may be added to the cost of the improvements. Before the council may adopt the resolution of necessity, the preliminary resolution, preliminary plans and specifications, plat, schedule, and estimate of cost must be submitted to, and receive written approval from, the board of supervisors of any county which contains part of the property, and the city development board established in section 368.9.

3. *a.* A city may establish, by ordinance or by resolution adopted as an ordinance after twenty days' notice published in accordance with section 362.3, and a public hearing, one or more districts and schedules of fees for the connection of property to the city sewer or

water utility. If the governing body directs that notice be made by mail, the notice shall be as required in section 384.50. Each person whose property will be served by connecting to the city sewer or water utility shall pay a connection fee to the city. The ordinance shall be certified by the city and recorded in the office of the county recorder of the county in which a district is located. The connection fees are due and payable when a utility connection application is filed with the city. A connection fee may include the equitable cost of extending the utility to the properties, including reasonable interest from the date of construction to the date of payment. All fees collected under this subsection shall be paid to the city treasurer. The moneys collected as fees shall only be used for the purposes of operating the utility, or to pay debt service on obligations issued to finance improvements or extensions to the utility.

b. This subsection shall not apply when a city annexation plan includes annexation of an area adjoining the city and a petition has not been presented as provided in section 384.41 for a city sewer or water utility connection. Until annexation takes place, or the annexation plan is abandoned, the state mandate contained in section 455B.172, subsections 3, 4, and 5, shall not apply unless the individual property owner voluntarily pays the connection fee and requests to be connected to the city sewer or water utility.

[SS15, §840-d, -g; C24, §5985, 5986; C27, 31, 35, §5985, 5986, 6190-a1; C39, §**5985, 5986, 6190.01;** C46, §391.12, 391.13, 401.1; C50, §391.12, 391.13, 391A.2, 401.1, 420.56; C54, 58, 62, §391.12, 391.13, 391A.2, 401.1; C66, 71, 73, §390A.3, 390A.18, 391.12, 391.13, 391A.2, 401.1; C75, 77, 79, 81, §384.38]

94 Acts, ch 1073, §1; 96 Acts, ch 1120, §1; 2004 Acts, ch 1086, §65; 2010 Acts, ch 1061, §180

Referred to in §357E.11A, 358.22, 384.68

384.39 Improvements brought to grade.

Paving, curbing, guttering, or sidewalks may not be constructed unless the improvement, when completed, will be to grade.

[C73, §466; C97, §779, 792; S13, §779, 792; SS15, §840-q; C24, 27, 31, 35, 39, §**5962, 5976;** C46, §389.31, 391.3; C50, §389.31, 391.3, 391A.2; C54, 58, 62, 66, 71, 73, §389.31, 391.3, 391A.3; C75, 77, 79, 81, §384.39]

Referred to in §357E.11A

384.40 Underground improvements.

A city may include underground gas, water, heating, sewer, or electrical connections to the street or property line for private property as a part of the public improvement, or a city may order the property owner to make, repair, or relocate such connections by publication of a notice once each week for two consecutive weeks in the manner provided by section 362.3, and if the order is not complied with at the end of thirty days after the date of the first publication, the city may cause the work to be done and assess the cost against the property served by the connection.

[C97, §779, 809; S13, §779, 792-f; C24, 27, 31, 35, 39, §**5981;** C46, §391.8; C50, §391.8, 391A.16; C54, 58, 62, 66, 71, 73, §391.8, 391A.4; C75, 77, 79, 81, §384.40]

Referred to in §357E.11A, 384.55

384.41 Petition by property owners.

1. Property owners may initiate a plan for a public improvement to be paid for in whole or in part by special assessments, by written contract to be approved by the city and signed by all of the owners of record of all property affected by the proposed assessment. If all owners of record of all the property to be affected by the public improvement petition the council, said owners may, in their petition, waive notice to property owners by publication and mailing, as provided in section 384.50, and the council may proceed to adopt a preliminary resolution, a plat, schedule and estimate, and resolution of necessity, and order preparation of detailed plans and specifications. Special assessments initiated without notice under this section are liens upon the property to be affected by the assessment, to the same extent as provided in section 384.65, subsection 5, except that they shall be subordinate to any perfected lien unless the holder of such perfected lien consents in writing to the initiation of the public improvement.

2. A petition may be filed subsequent to the initiation by the council of a plan for a

public improvement, and if the petition is received prior to advertising for bids, the public improvement petitioned for may be added by amendment to the resolution of necessity. If the petition is received subsequent to advertising for bids and prior to the completion of the work under contract, the council may, in its discretion, approve the petition and contract with the contractor at a cost not to exceed the unit prices bid at public letting for the construction of the public improvements petitioned for by property owners.

3. This section does not limit the power of a city to initiate a public improvement project on its own motion.

4. Owners of commercial or industrial property may initiate a plan, under subsection 1 or 2, for the purchase of a traffic-control device, fixture, connection, or facility to be paid for in whole or in part by special assessments provided that the proposed assessments shall be made only against the commercial or industrial property owned by the petitioners.

[C31, 35, §6610-c7; C39, §**6610.13;** C46, 50, 54, 58, 62, 66, 71, 73, §417.7; C75, 77, 79, 81, §384.41]

92 Acts, ch 1176, §2

Referred to in §357E.11A, 384.38

384.42 Procedure on public improvement.

To construct or repair a public improvement to be paid for in whole or in part by special assessments, the council shall proceed as follows:

1. Arrange for engineering services to prepare the plats, schedules, estimates of cost, plans, and specifications and to supervise construction of the proposed improvement.

2. Adopt a preliminary resolution by the vote of a majority of all the members of the council. The preliminary resolution shall contain the following:

a. A description of the types or alternate types of improvement proposed.

b. The beginning and terminal points or general location of the proposed improvement.

c. An order to the engineer to prepare preliminary plans and specifications, estimated total cost of the work, and a plat and schedule, and to file them with the clerk.

d. A general description of the property or a designation of the lots which the council believes will be specially benefited by the improvement.

3. The preliminary resolution may also contain the following:

a. A statement of the proportion of the total cost which the council proposes to assess against specially benefited property.

b. A short and convenient designation for the public improvement by which it may be referred to in all subsequent proceedings.

4. A preliminary resolution may include more than one improvement or class of improvement.

5. A single improvement may be in more than one locality or street, and that portion of the street which has been improved by any railway, or which the city may require the railway to improve under franchise or contract, may be excluded.

[C50, §391A.4; C54, 58, 62, 66, 71, 73, §391A.5; C75, 77, 79, 81, §384.42]

Referred to in §357E.11A

384.43 Preliminary plans.

Preliminary plans and specifications must only be in sufficient detail to advise any person interested of the general nature, character, and type of the improvement.

[C54, 58, 62, 66, 71, 73, §391A.6; C75, 77, 79, 81, §384.43]

Referred to in §357E.11A

384.44 Estimated cost.

The estimated total cost of any public improvement constructed under this subchapter must include all of the items of cost listed in section 384.37, subsection 26, which the council proposes to include as a part of the cost of the public improvement, and may include an item to be known as the default fund amounting to not more than ten percent of the portion of the

total cost of the improvement which the council proposes to assess against specially benefited property.

[C50, §391A.25; C54, 58, 62, 66, 71, 73, §391A.7; C75, 77, 79, 81, §384.44]

2017 Acts, ch 29, §108; 2018 Acts, ch 1041, §127

Referred to in §357E.11A

384.45 Plats.

The plat as prepared and filed by the engineer must show the following information:

1. The boundaries of the district containing the lots proposed to be assessed.
2. The location of each lot under separate ownership within the district, including the property of all railways and utilities subject to assessment.
3. The location of the improvement within the district, together with the terminal points of all major parts proposed to be assessed.
4. The type and general details of the improvement.

[C97, §965; S13, §849-b, 965; SS15, §840-k; C24, 27, 31, 35, 39, §**5993, 6081, 6913;** C46, §391.20, 395.3, 420.265; C50, §391.20, 391A.5, 395.3, 420.265; C54, 58, 62, §391.20, 391A.8, 395.3, 420.265; C66, 71, 73, §390A.9, 391.20, 391A.8, 395.3, 420.265; C75, 77, 79, 81, §384.45]

Referred to in §357E.11A

384.46 Lot valuations.

Upon completion of the plat, the council shall determine the valuation of each lot within the proposed assessment district and shall report the valuations to the engineer, who shall show such valuations on the schedule before it is filed with the clerk. A valuation must be the present fair market value of the property with the proposed public improvement completed. As an aid in determining valuations, the council may appoint a committee of three persons skilled in the knowledge of real estate values within the city to appraise the present fair market value of each lot within a district and to file a written report of its appraisals with the council.

[C31, 35, §6610-c4; C39, §**6610.08;** C46, 50, §417.4; C54, 58, 62, 66, 71, 73, §391A.9, 417.4; C75, 77, 79, 81, §384.46]

Referred to in §357E.11A, 358C.17

384.47 Schedule.

The schedule, as prepared by the engineer, must show the following information for each lot within the district:

1. A description and parcel number of each lot and the name of the property owner.
2. The valuation of each lot as determined by the council.
3. The total amount proposed to be assessed to each lot, including the assessment for the default fund, if any.
4. The proportion of the estimated total cost of the public improvement which is allocated to each lot.
5. The amount of deficiency, if any, between the amount proposed to be assessed and the proportion of the estimated total cost of the public improvement allocated to each lot. The amount of deficiency shall be shown as a conditional deficiency assessment as authorized by sections 384.60, 384.62 and 384.63.

[C97, §965; S13, §849-b, 965; SS15, §751, 840-k; C24, 27, 31, 35, 39, §**5993, 6081, 6913;** C46, §391.20, 395.3, 420.265; C50, §391.20, 391A.6, 395.3, 420.265; C54, 58, 62, §391.20, 391A.10, 395.3, 420.265; C66, 71, 73, §390A.9, 391.20, 391A.10, 395.3, 420.265; C75, 77, 79, 81, §384.47]

98 Acts, ch 1107, §11

Referred to in §357E.11A

384.48 Adoption of plat.

When the plat, schedule, and estimate of cost have been filed, the council may, before adopting a proposed resolution of necessity, cause the estimate, valuation, or assessment of any lot or the boundaries of the district as reported by the engineer to be amended, and may adopt the plat, schedule, and estimate as amended or as filed.

[C50, §391A.8; C54, 58, 62, 66, 71, 73, §391A.11; C75, 77, 79, 81, §384.48]

Referred to in §357E.11A, 384.54

384.49 Resolution of necessity.

If, upon adoption of the plat, schedule, and estimate, the council determines to proceed with all or any part of the public improvement, it shall cause a proposed resolution of necessity to be prepared and introduced.

1. The resolution of necessity must include all of the following:

a. A brief description of the proposed public improvement.

b. A statement that there is on file in the office of the clerk an estimated total cost of the work, and a preliminary plat and schedule showing the amount proposed to be assessed to each lot for the improvement.

c. The date, time, and place the council will hear property owners subject to the assessment and interested parties for or against the improvement, its cost, the assessment, or the boundaries of the district.

2. A resolution of necessity may include:

a. Any number of streets or sewer lines for improvement.

b. All improvements which are included in the preliminary resolution.

c. A provision that unless a property owner files objections with the clerk at the time of hearing on the resolution of necessity, the property owner is deemed to have waived all objections pertaining to the regularity of the proceeding and the legality of using the special assessment procedure.

3. *a.* To replace curbing and gutters in cities with a population of less than ten thousand, the council may adopt a preliminary resolution as provided in subsection 1. The description of the curbing and gutters to be replaced shall be prepared under the council's supervision. The council may, by resolution, provide for the computation of the assessments on the basis of the original assessment or of the lineal footage of the curbing and gutters to be replaced. Public improvements initiated under this subsection shall in all other respects comply with this subchapter.

b. For purposes of this subsection, *"replace"* means to substitute new curb and gutter at the same location where old curb and gutter is located and being reconstructed due to deterioration or destruction. *"Replace"* does not include the reconstruction of curb and gutter to change the grade or reconstruction required because of a street widening project.

[C73, §465, 466; C97, §791, 810; S13, §849-c; SS15, §751, 810, 840-j, 840-m; C24, §5942, 5991, 5992; C27, §5942-b2, 5991, 5992, 5995, 6082; C31, 35, §5942-b2, 5991, 5992, 5995, 6082, 6610-c17; C39, §**5942.2, 5991, 5992, 5995, 6082, 6610.16;** C46, §389.6, 391.18, 391.19, 391.22, 395.4, 417.17; C50, §389.6, 391.18, 391.19, 391.22, 391A.9, 395.4, 417.17; C54, 58, 62, §389.6, 391.18, 391.19, 391.22, 391A.12, 395.4, 417.17; C66, 71, 73, §389.6, 390A.7, 390A.8, 390A.11, 391.18, 391.19, 391.22, 391A.12, 395.4, 417.17; C75, 77, 79, 81, §384.49; 82 Acts, ch 1087, §1]
2018 Acts, ch 1041, §127
Referred to in §357E.11A

384.50 Notice of hearing.

1. The clerk shall publish notice of the date, time, and place of the hearing once each week for two consecutive weeks in the manner provided by section 362.3, the first publication of which shall be not less than ten days before the date of the hearing.

2. The notice must be in substantially the following form:

NOTICE TO PROPERTY OWNERS

Notice is given that there is now on file for public inspection in the office of the clerk of ....., Iowa, a proposed resolution of necessity, an estimate of cost, and a plat and schedule showing the amounts proposed to be assessed against each lot and the valuation of each lot within a district approved by the council of ....., Iowa, for a ..... improvement of the type(s) and in the location(s) as follows:

The council will meet at ..... o'clock .....m., on ..... (date), at the ....., at which time the owners of property subject to assessment for the proposed improvement or any other person having an interest in the matter may appear and be heard

for or against the making of the improvement, the boundaries of the district, the cost, the assessment against any lot, or the final adoption of a resolution of necessity. A property owner will be deemed to have waived all objections unless at the time of hearing the property owner has filed objections with the clerk.

.....
Clerk

3. Not less than fifteen days before the hearing, the clerk shall send a copy of the notice by mail to each property owner whose property is subject to assessment for the improvement at the address as shown by the records of the county auditor. If a property is shown to be in the name of more than one owner at the same mailing address, a single notice may be mailed addressed to all owners at that address. Failure to receive a mailed notice is not a defense to the special assessment.

[C97, §810, 823, 824, 965, 971; S13, §823, 840-a, 849-c, 965, 971; SS15, §810, 840-l, -r; C24, 27, §5997, 6026, 6029, 6083, 6092, 6901, 6914; C31, 35, §5997, 6026, 6029, 6083, 6092, 6610-c9, 6610-c10, 6901, 6914; C39, §**5997, 6026, 6029, 6083, 6092, 6610.21, 6610.22, 6901, 6914;** C46, §391.24, 391.53, 391.56, 395.5, 395.14, 417.9, 417.10, 420.253, 420.266; C50, §391.24, 391.53, 391.56, 391A.10, 395.5, 395.14, 417.9, 417.10, 420.253, 420.266; C54, 58, 62, §391.24, 391.53, 391.56, 391A.13, 395.5, 395.14, 417.9, 417.10, 420.253, 420.266; C66, 71, 73, §390A.13, 390A.27, 390A.29, 391.24, 391.53, 391.56, 391A.13, 395.5, 395.14, 417.9, 417.10, 420.253, 420.266; C75, 77, 79, 81, §384.50]

86 Acts, ch 1241, §9; 2000 Acts, ch 1058, §62; 2010 Acts, ch 1061, §155

Referred to in §357E.11A, 384.38, 384.41, 384.55, 384.56

384.51 Adoption of resolution.

1. The council shall meet as specified in the published notice, and after hearing all objections and endorsements from property owners and other persons having an interest in the matter, and after considering all filed, written objections, may adopt or amend and adopt the proposed resolution of necessity, or may defer action until a subsequent meeting. A resolution of necessity requires for passage the vote of three-fourths of all the members of the council, or, in cities having but three members of the council, the vote of two members, and where a remonstrance has been filed with the clerk, signed by the owners subject to seventy-five percent of the amount of the proposed assessments for the entire public improvement included in the resolution of necessity, a resolution of necessity requires a unanimous vote of the council.

2. An amendment which extends the boundaries of a district, increases the amount to be assessed against a lot, or adds additional public improvements, is not effective until an amended plat, schedule, and estimate have been prepared and adopted, a notice published and mailed to all affected property owners, and hearing held in the same manner as the original proceedings, or until all affected property owners agree in writing to the change. The adoption of a resolution of necessity is a legislative determination that the improvement is expedient and proper and that property assessed will be specially benefited by the improvement and this determination of the council is conclusive. Ownership of property to be assessed by an improvement does not, except for fraud or bad faith, disqualify a council member from voting on any measure.

3. After adopting the resolution of necessity, the clerk shall certify to the county treasurer of each county in which the assessed property is located, a copy of the resolution of necessity, the plat, and the schedule of assessments. In counties in which taxes are collected in two or more places, the resolution of necessity, the plat, and the schedule of assessments shall be certified to the office of county treasurer where the special assessments are collected. The county treasurer shall preserve the resolution, plat, and schedule as a part of the records of the office until the city certifies the final assessment schedule as provided in section 384.60 or certifies that the public improvement has been abandoned.

[C73, §466; C97, §793, 794, 810, 811, 965; S13, §792-b, 793, 965; SS15, §810, 840-m; C24, 27, §5996, 5999, 6915; C31, 35, §5996, 5999, 6610-c15, 6610-c16, 6915, 6915-c1; C39, §**5996, 5999, 6610.26, 6610.28, 6915, 6915.1;** C46, §391.23, 391.26, 417.15, 417.16, 420.267, 420.268;

C50, §391.23, 391.26, 391A.11, 417.15, 417.16, 420.267, 420.268; C54, 58, 62, §391.23, 391.26, 391A.14, 417.15, 417.16, 420.267, 420.268; C66, 71, 73, §390A.12, 391.23, 391.26, 391A.14, 417.15, 417.16, 420.267, 420.268; C75, 77, 79, 81, §384.51; 82 Acts, ch 1104, §15]
86 Acts, ch 1241, §10; 89 Acts, ch 39, §11; 2017 Acts, ch 54, §76
Referred to in §331.552, 357E.11A, 384.54, 384.65

384.52 Detailed plans and specifications.

After adopting a resolution of necessity, the council may, by resolution, order the engineer to prepare and file with the clerk detailed plans and specifications, and order the engineer and city attorney, or any attorney designated by the council, to prepare and file with the clerk a notice to bidders and form of contract.

[C97, §965; S13, §965; C24, 27, 31, 35, 39, §**6915;** C46, §420.267; C50, §391A.12, 420.267; C54, 58, 62, 66, 71, 73, §391A.15, 420.267; C75, 77, 79, 81, §384.52]
Referred to in §357E.11A

384.53 Procedures to let contract.

Contract letting procedures shall be as provided in chapter 26. The council may award any number of contracts for construction of any public improvement.

[C97, §791, 812; S13, §840-a; C24, 27, 31, 35, 39, §**6001;** C46, 50, 54, 58, 62, 66, 71, 73, §391.28; C75, 77, 79, 81, §384.53]
2007 Acts, ch 144, §18
Referred to in §357E.11A

384.54 Confirmation by decree.

1. At any time after final adoption of the resolution of necessity, but before awarding the contract, the council may direct the city attorney to file, in the district court of the county in which the property proposed to be assessed is located, a petition praying that the acts done by the council relative to the proposed public improvement be confirmed by decree.

2. The following must be filed with the petition in the office of the clerk of the court:

a. A copy of the resolution of necessity as adopted by the council.

b. A copy of the proposed schedule of assessments as adopted by the council under sections 384.48 and 384.51, which schedule shows the maximum amount that the council proposes to assess against any lot.

c. Preliminary plans and specifications, or, if available, detailed plans and specifications as prepared by the engineer.

d. A copy of the proposed contract if prepared.

3. Notice of the filing of the petition must be given in the same manner as is provided for service of original notice by publication by the rules of civil procedure, except as follows:

a. No affidavit of inability to obtain personal service within the state of Iowa is required.

b. The original notice must name as defendants those property owners who, on the date of filing the petition, have an interest in the real property to be assessed as a part of the public improvement, and the original notice must state that a plat and schedule is on file in the office of the clerk of the district court where the action is pending. No property owner is an indispensable party to the action. Publication of plat and schedule as part of the original notice is not required, nor shall reference in the original notice to specific descriptions of affected real property or the amounts of proposed assessments be necessary.

4. The petition must be given precedence over any other business of the court, except criminal cases. The court shall set the petition for hearing within thirty days from the date of final publication of notice. As a part of its order, the court may provide for a pretrial conference to be held not earlier than twenty days from the date of final publication of notice and require the appearance at the pretrial conference of all interested parties. Failure to appear at the pretrial conference may be grounds for dismissing any objection.

5. If no person having an interest in property proposed to be assessed has entered an appearance or filed an answer within the time set for hearing on the petition, the court shall confirm the assessment, and order the clerk of court to certify its decree to the city clerk.

6. If any person having an interest in property proposed to be assessed has entered an

appearance or filed an answer to the petition, the court shall hear the cause as an action triable in equity.

7. Upon the hearing the court may correct any irregularities or inequalities in valuations or in the schedule of assessments, and shall consider any objections because of alleged illegal procedure or fraud.

8. The court shall render a decision upon the hearing as soon as practical after the final submission of the cause.

9. The clerk of the court shall certify to the city clerk the final action of the court, within three days from the date of the final decree upon the petition, showing assessments as confirmed in the schedule of assessments.

10. An appeal from the decree of the district court must be taken as in other equity cases.

11. A contract may or may not be let, in the discretion of the council, until appeals are finally determined, but the appeals need not delay the letting and execution of a contract for the work, if the council concludes the appeals were not taken in good faith.

12. An appeal does not, in the discretion of the council, delay the certification of an assessment or progress of an improvement, but upon decision of the appeal the assessment appealed from must be corrected and collected in the same manner as provided in section 384.74.

13. Corrections of assessments or valuations made by order of the district court are conclusive and not subject to review on appeal, or otherwise, except as provided in subsections 10 through 12 of this section. When court confirmation is obtained there is no right of appeal under the provisions of section 384.66.

14. If no contract is entered into within ninety days from the date of confirmation by the district court or within a further time allowed by the court on subsequent application, and if no appeal is pending, the court shall cancel the assessment, upon application of the city attorney.

15. *a.* The cost of all court proceedings are a legitimate item of expense in connection with a public improvement, and may be included within the final assessment against any property specially benefited in the assessment district.

b. Whenever on a hearing by the court, the amount of any assessment is reduced or canceled so that there is a deficiency in the total amount remaining assessed in the proceeding, the court may assess the deficiency to the city or distribute the deficiency upon the other property abutting upon or adjacent to the improvement or in the district assessed, in a manner the court finds to be just and equitable, not exceeding, however, the amount the property would be specially benefited by the improvement, and not exceeding twenty-five percent of the value of the lot as shown by the plat and schedule of assessments or as reduced by the court.

[C31, 35, §6610-c28, -c31, -c32, -c34 – c40, -c42 – c44, -c56; C39, §**6610.31 – 6610.33, 6610.36 – 6610.41, 6610.43, 6610.44, 6610.46, 6610.65, 6610.67;** C46, 50, §417.28, 417.31, 417.32, 417.34 – 417.40, 417.42 – 417.44, 417.60; C54, 58, 62, 66, 71, 73, §391A.18, 417.28, 417.31, 417.32, 417.34 – 417.40, 417.42 – 417.44, 417.60; C75, 77, 79, 81, §384.54]

2010 Acts, ch 1069, §128 – 130; 2021 Acts, ch 80, §237

Referred to in §357E.11A

384.55 Notice of paving to water board.

In cities having a water utility under the management of a board of trustees and in which water connections are not installed by the trustees at public expense, the council shall notify the board at the time of the adoption of a preliminary resolution, of any proposed street paving projects. The board shall report to the council the number of connections from water mains in streets to the curb lines of the proposed improvement necessary to serve private property dependent upon those particular mains for water supply, and the numbers of the lots to be served by the connections, and the names of the owners. Notice must be given to property owners, at the same time and in the same manner as the notice provided in section 384.50, to install the necessary connections within thirty days after hearing. For the purposes of the hearing, property owners who are notified to install water connections, but whose property is not within the proposed assessment district, may appear as interested parties. If upon

hearing, the council determines to proceed with the improvement, and any property owner fails to make connections as required, the board of waterworks trustees shall cause them to be made and certify the cost to the council to be assessed against the property and collected in the same manner as provided in section 384.40 for other underground connections.

[C97, §809; S13, §779, 792-f; C24, 27, 31, 35, 39, §**5892, 5893;** C46, §391.9, 391.10; C50, §391.9, 391.10, 391A.17; C54, 58, 62, 66, 71, 73, §391.9, 391.10, 391A.20; C75, 77, 79, 81, §384.55]

Referred to in §357E.11A

384.56 State lands.

1. Cities may assess the cost of a public improvement which extends through, abuts upon, or is adjacent to lands owned by the state, and payment for the assessable portion of the cost of the improvement through or along the lands as provided shall be subject to authorization by the executive council and payable in the manner provided in section 307.45 for property owned by the state and not under the jurisdiction and control of the state department of transportation.

2. When a state park or institutional road abutting on or adjacent to state lands on one side of the road is improved by paving, the state shall pay one-half the total assessed cost of the portion of the improvement abutting, or adjacent to state lands, lots, or portions thereof, but for any other type of improvement so constructed and located, the state shall pay, as provided in section 307.45, the portion of the cost which would be assessable against state lands if they were privately owned.

3. When any portion of the cost of a public improvement is to be paid by the state under this section, the clerk shall, at the time of publication of the notice required by section 384.50, mail a copy of the notice to the secretary of the executive council.

4. Cities in which state buildings are located shall permit sewers for such buildings to be constructed through or under the streets of the city, and connections to be made to the sewer system of the city under the same regulations as for sewer connections to private property.

5. Subsections 1 and 3 of this section do not apply to lands under the jurisdiction and control of the department of transportation.

[C97, §794; C24, 27, 31, 35, 39, §**5988;** C46, §391.15; C50, §391.15, 391A.18; C54, 58, 62, §391.15, 391A.21; C66, 71, 73, §390A.22, 391.15, 391A.21; C75, 77, 79, 81, §384.56]

86 Acts, ch 1241, §11; 2011 Acts, ch 131, §34, 158

Referred to in §357E.11A

384.57 Monthly payments.

The city may contract to pay not to exceed ninety-five percent of the engineer's estimated value of the acceptable work completed during the month to the contractor at the end of each month. Payment may be made in warrants drawn on any funds from which payment for the work may be made. If such funds are depleted, anticipatory warrants may be issued bearing a rate of interest not exceeding that permitted by chapter 74A, which do not constitute a violation of section 384.10, even if the collection of taxes or special assessments or income from the sale of bonds applicable to the public improvement is after the end of the fiscal year in which the warrants are issued. If the city arranges for the private sale of anticipatory warrants, they may be sold and the proceeds used to pay the contractor. Anticipatory warrants may also be used to pay other persons furnishing services constituting a part of the cost of the public improvement. The provisions of this section and section 384.58 shall not apply if the city has entered into a contract with the federal government or accepted a federal grant which is governed by federal laws or rules that are contrary to this section and section 384.58.

[C50, §391A.19; C54, 58, 62, 66, 71, 73, §391A.22; C75, 77, 79, 81, §384.57; 81 Acts, ch 127, §1]

Referred to in §357E.11A, 384.58

384.58 Inspection of work.

1. The engineer for the city shall inspect all work done under this subchapter, and within

fifteen days of final completion of the public improvement, the engineer shall file a certificate with the clerk stating:

a. That the engineer has inspected the completed work.

b. That the work has or has not been performed in compliance with the terms of the contract, and the particulars, if any, in which the work varies from the terms.

c. The total cost of the completed work.

2. Within fifteen days after the filing of the engineer's certificate, the council shall by resolution accept or reject the work.

3. Upon accepting the work, or within ten days thereafter, the council shall ascertain the total cost and by resolution determine the proportion or amount of the cost to be assessed against private property within the assessment district. If the council has elected to award more than one contract for the work, the council may elect to proceed separately with the acceptance and levy of assessments for the work done under each contract.

4. Upon accepting the work, the council shall order payment of any amount due the contractor, to be made by warrants issued in the manner provided by section 384.57 or by other means. The city shall order payment of any amount due the contractor to be made in accordance with the terms of the contract. Failure to make payment within seventy days after the work under the contract has been completed and if the work has been accepted and all required materials, certifications, and other documentations required to be submitted by the contractor and specified by the contract have been furnished the awarding city by the contractor, shall cause interest to accrue on the amount unpaid to the benefit of the unpaid party. Interest shall not accrue on funds retained by a city to satisfy the provisions of section 573.14 regarding claims on file. Interest shall accrue during the period commencing the thirty-first day following the completion of work and satisfaction of the other requirements of this subsection and ending on the date of payment. The rate of interest shall be determined, by the period of time during which interest accrues, and shall be the same as the rate of interest that is in effect under section 12C.6, as of the day interest begins to accrue, for a deposit of public funds for a comparable period of time. Nothing contained in this subsection shall abridge any of the rights set forth in section 573.16.

[C97, §820, 822; S13, §779, 792-f, 820, 840-a; SS15, §840-r; C24, 27, §6018, 6025; C31, 35, §6018, 6025, 6610-c52, 6610-c54; C39, §**6018, 6025, 6610.53, 6610.56;** C46, §391.45, 391.52, 417.56, 417.58; C50, §391.45, 391.52, 391A.20, 417.56, 417.58; C54, 58, 62, 66, 71, 73, §391.45, 391.52, 391A.23, 417.56, 417.58; C75, 77, 79, 81, §384.58; 81 Acts, ch 127, §2]

2018 Acts, ch 1041, §127

Referred to in §357E.11A, 384.57

384.59 Assessment schedule.

1. Within thirty days after the council adopts a resolution fixing the amount to be assessed against private property, the engineer shall file with the clerk an assessment schedule showing:

a. A description and parcel number of each lot to be assessed.

b. The valuation of each lot as fixed by the council.

c. The amount to be assessed against each lot, which shall include the assessment for the default fund, if any, and the amount of deficiency, if any, which may be subsequently assessed against each lot under section 384.63.

2. In the case of the abatement of a nuisance by a city, the city clerk may prepare, sign, and file the assessment schedule and other related documents that would otherwise be required of the engineer.

[C97, §821; S13, §792-f; SS15, §840-r; C24, §6022, 6023; C31, 35, §6022, 6023, 6610-c19; C39, §**6022, 6023, 6610.45;** C46, §391.49, 391.50, 417.19; C50, §391.49, 391.50, 391A.21, 417.19; C54, 58, 62, §391.49, 391.50, 391A.24, 417.19; C66, 71, 73, §390A.24, 391.49, 391.50, 391A.24, 417.19; C75, 77, 79, 81, §384.59]

97 Acts, ch 121, §10; 2002 Acts, ch 1046, §1

Referred to in §331.384, 357E.11A, 358.16, 364.13B

384.60 Adoption of schedule.

1. Within ten days after filing of the assessment schedule, the council shall meet, consider, and adopt or amend and adopt, by resolution, the final assessment schedule. The resolution must:

a. Confirm and levy assessments, including a conditional levy of the amount of deficiencies which may be subsequently assessed against each lot under section 384.63.

b. State the number of annual installments, not exceeding fifteen, into which assessments of more than five hundred dollars are divided.

c. Provide for interest on all unpaid installments at a rate not exceeding that permitted by chapter 74A.

d. State the time when assessments are payable.

e. Direct the clerk to certify the final schedule to the treasurer of the county or counties in which the assessed property is located, and to publish notice of the schedule once each week for two consecutive weeks in the manner provided in section 362.3, the first publication of which shall be not more than fifteen days from the date of filing of the final schedule.

2. On or before the second publication of the notice, the clerk shall send by mail to each property owner whose property is subject to assessment for the improvement, as shown by the records in the office of the county auditor, a copy of the notice. The notice shall also include a statement in substance that assessments may be paid in full or in part without interest within thirty days after the date of the first notice of the final assessment schedule, and thereafter all unpaid special assessments bear interest at the rate specified by the council, but not exceeding that permitted by chapter 74A, computed to the December 1 next following the due dates of the respective installments as provided in section 384.65, subsection 3, and each installment will be delinquent from October 1 following its due date. However, when the last day of September is a Saturday or Sunday, that amount shall be delinquent from the second business day of October. Delinquent installments will draw the same delinquent interest as ordinary taxes. The notice shall also state substantially that property owners may elect to pay any installment semiannually in advance. If a property is shown by the records to be in the name of more than one owner at the same mailing address, a single notice may be mailed to all owners at that address. Failure to receive a mailed notice is not a defense to the special assessment or interest due on the special assessment.

3. The county treasurer shall enter on the county system the amounts to be assessed against each lot within the assessment district, as certified.

[R60, §1068; C73, §481; C97, §825, 826, 827, 982; S13, §791-c, 825, 849-e; SS15, §840-r; C24, 27, §5966, 6030, 6034, 6101, 6923; C31, 35, §5966, 6030, 6034, 6101, 6610-c45, 6923; C39, §**5966, 6030, 6034, 6101, 6610.47, 6923;** C46, §389.35, 391.57, 391.61, 395.23, 417.45, 420.276; C50, §389.35, 391.57, 391.61, 391A.22, 395.23, 417.45, 420.276; C54, 58, 62, §389.35, 391.57, 391.61, 391A.25, 395.23, 417.45, 420.276; C66, 71, 73, §389.35, 390A.30, 391.57, 391.61, 391A.25, 395.23, 417.45, 420.276; C75, 77, 79, 81, §384.60; 82 Acts, ch 1104, §16]

83 Acts, ch 148, §1; 86 Acts, ch 1241, §12; 92 Acts, ch 1016, §8; 97 Acts, ch 121, §11; 98 Acts, ch 1107, §12, 13; 2005 Acts, ch 34, §9, 26; 2012 Acts, ch 1138, §101

Referred to in §331.384, 357E.11A, 358.16, 364.13B, 384.47, 384.51, 384.63, 384.65

384.61 Assessment of benefits.

1. The total cost of a public improvement, except for paving that portion of a street lying between railroad tracks and one foot outside of the tracks, or which is to be otherwise paid, must be assessed against all lots within the assessment district in accordance with the special benefits conferred upon the property, and not in excess of such benefits.

2. If an owner of property subject to special assessment divides the property into two or more lots, and if the plan of division is approved by the council, the owner may discharge the lien upon any of the lots by payment of the amount unpaid, calculated as determined by the council.

[C97, §828; S13, §792-a, -f, 849-e; SS15, §840-a, -j, -r; C24, §6021, 6036, 6089; C27, §5942-b3, 6021, 6036, 6089; C31, 35, §5942-b3, 6021, 6036, 6089, 6610 – 6620; C39, §**5942.3, 6021, 6036, 6089, 6610.14;** C46, §389.7, 391.48, 391.63, 395.11, 417.20; C50, §389.7, 391.48, 391.63,

391A.23, 395.11, 417.20; C54, 58, 62, 66, 71, 73, §389.7, 391.48, 391.63, 391A.26, 395.11, 417.20; C75, 77, 79, 81, §384.61]
2019 Acts, ch 24, §104
Referred to in §331.384, 357E.11A, 358.16, 364.13B

384.62 Limit.

1. A special assessment against a lot for a public improvement shall not be in excess of the amount of the assessment, including the conditional deficiency assessment, as shown in the schedule confirmed by the court, or if court confirmation is not utilized, then on the original plat and schedule adopted by the council, and an assessment shall not exceed twenty-five percent of the value of the lot as shown by the plat and schedule approved by the council or as reduced by the court.

2. Special assessments for the construction or repair of underground connections for private property for gas, water, sewers, or electricity may be assessed to each lot for the actual cost of each connection for that lot, and the twenty-five percent limitation does not apply. Such connections shall not be installed to service railway right-of-way without written agreement with the railway company owning or leasing the right-of-way.

3. A special assessment for a public improvement against a tract of land assessed as agricultural property shall not become payable upon the filing of a request by the owner for deferment until that land is not assessed as agricultural property. This section shall not apply to a tract of land of less than one-quarter acre surrounding any dwelling or nonfarm structure on that tract nor shall it apply to a special assessment levied before July 3, 1978. This section shall not apply if the public improvement is a sewer, water, gas, or electrical line to which the owner of the land makes a connection.

4. Payment of installments of special assessments for a public improvement against property assessed as agricultural property shall be deferred as follows:

a. The property owner who seeks deferment of an assessment shall file a written request for deferment with the city clerk at the time of the hearing on the resolution of necessity for the public improvement or within ten days following the date of the hearing and the request shall identify those lots subject to proposed assessments for which the property owner is seeking deferment which are assessed as agricultural property. The request may be withdrawn by the property owner at any time before or after the adoption of the resolution of necessity.

b. The city shall indicate those lots for which a deferment has been requested on the special assessment schedule.

c. After the assessments for the public improvement have been levied and the special assessment schedule has been filed with the county treasurer, the county treasurer shall indicate on the tax rolls those assessments subject to deferment under this section.

d. A deferment shall continue for as long as the county assessor continues to classify the property as agricultural land on January 1 of each assessment year. A deferment shall end six months following any January 1 assessment date on which the county assessor no longer classifies the property as agricultural land and the special assessment shall become payable in the same manner as the special assessment would have become payable had it not been deferred by this subsection.

[S13, §792-a, -f, 849-e; SS15, §840-a, -j, -r; C24, 27, §6021, 6089; C31, 35, §6021, 6089, 6610-c55; C39, §**6021, 6089, 6610.66;** C46, §391.48, 395.11, 417.59; C50, §391.48, 391A.24, 395.11, 417.59; C54, 58, 62, 66, 71, 73, §391.48, 391A.27, 395.11, 417.59; C75, 77, 79, 81, §384.62; 82 Acts, ch 1104, §17]
2003 Acts, ch 24, §5
Referred to in §331.384, 357E.11A, 358.16, 358C.17, 364.13B, 384.38, 384.47, 384.63

384.63 Insufficiency — certification to county treasurer — deficiency assessment.

1. If the special assessment which may be levied against a lot is insufficient to pay its proportion of the cost of the improvement, or if no special assessment may be levied against a lot, the deficiency shall be paid from the city fund or funds designated by the council.

2. The council shall, by resolution, provide that the deficiencies for the lots specially benefited by a public improvement shall be certified to the county treasurer, who shall record

them in the county system as "special assessment deficiencies", and to the appropriate city official charged with the responsibility of issuing building permits, who shall notify the council when a private improvement is subsequently constructed on any lot subject to a deficiency. Certification to the county treasurer shall include a legal description of each lot. The period of amortization for a public improvement for which there are deficiencies shall commence with the adoption of the resolution of necessity and extend for the same period for which installments of assessments for the project are made payable. Deficiencies may be assessed only during the period of amortization, which shall also be certified to the county treasurer and the city official charged with the responsibility of issuing building permits. Certification to the county treasurer shall include a legal description of each lot.

3. When a private improvement is constructed on a lot subject to a deficiency, during the period of amortization, the council shall, by resolution, assess a pro rata portion of the deficiency on that lot, in the same proportion to the total deficiency on that lot as the number of future installments of special assessments remaining to be paid is to the total number of installments of assessments for the project, subject to the twenty-five percent limitation of section 384.62. A deficiency assessment becomes a lien on the property and is payable in the same manner, and subject to the same interests as the other special assessments. The council shall direct the clerk to certify a deficiency assessment to the county treasurer, and to send a notice of the deficiency assessment by mail to each owner, as provided in section 384.60, but publication of the notice is not required.

4. An owner may appeal from the amount of the assessment within thirty days of the date notice is mailed. County officials shall collect a deficiency assessment, commencing in the year following the assessment, in the manner provided for the collection of other special assessments. Upon collection, the county treasurer shall make the appropriate credit entries in the county system, and shall credit the amounts collected as provided for other special assessments on the same public improvement, or to the city, to the extent that the deficiency has been previously paid from other city funds.

[S13, §792-b; C24, 27, 31, 35, 39, §**6017;** C46, §391.44; C50, §391.44, 391A.25; C54, 58, 62, §391.44, 391A.28; C66, 71, 73, §390A.19, 391.44, 391A.28; C75, 77, 79, 81, §384.63; 82 Acts, ch 1104, §18]

83 Acts, ch 90, §24; 86 Acts, ch 1241, §13; 92 Acts, ch 1016, §9; 97 Acts, ch 121, §12; 2003 Acts, ch 108, §70

Referred to in §331.384, 357E.11A, 358.16, 364.13B, 384.47, 384.59, 384.60

384.64 Assessment to railway company.

The right-of-way of a railway company is subject to special assessments for public improvements, and such assessments constitute a debt due the city which is a paramount lien upon the track of the railway company owning or leasing the right-of-way within the limits of the city. The property of a railway to which a lien for unpaid special assessment has attached may not be released from the lien until the whole assessment is paid.

[C97, §816, 828; S13, §791-i, 792-f, 816; SS15, §840-r; C24, 27, 31, 35, 39, §**6009, 6010, 6013;** C46, §391.36, 391.37, 391.40; C50, §391.36, 391.37, 391.40, 391A.26; C54, 58, 62, 66, 71, 73, §391.36, 391.37, 391.40, 391A.29; C75, 77, 79, 81, §384.64]

Referred to in §331.384, 357E.11A, 358.16, 364.13B

384.65 Installments due.

1. The first installment of each assessment, or the total amount if five hundred dollars or less, is due and payable on July 1 next succeeding the date of the levy, unless the assessment is filed with the county treasurer after May 31 in any year. The first installment shall bear interest on the whole unpaid assessment from the date of acceptance of the work by the council to the first day of December following the due date.

2. The succeeding annual installments, with interest on the whole unpaid amount, to the first day of December following the due date, are respectively due on July 1 annually, and must be paid at the same time and in the same manner as the September semiannual payment of ordinary taxes.

3. All future installments of an assessment may be paid on any date by payment of the then

outstanding balance, plus interest to the next December 1, or additional annual installments may be paid after the current installment has been paid before December 1 without interest. A payment must be for the full amount of the next installment. If installments remain to be paid, the next annual installment with interest added to December 1 will be due as provided in subsection 2.

4. *a.* Each installment of an assessment with interest on the unpaid balance is delinquent from October 1 after its due date and bears the same delinquent interest as ordinary taxes. However, when the last day of September is a Saturday or Sunday, the unpaid balance of the installment is delinquent from the second business day of October after its due date. When collected, the interest must be credited to the same fund as the special assessment.

b. To avoid interest on delinquent special assessment installments, a payment of the full installment amount must be received by the treasurer on or before the last business day of the month preceding the delinquent date, or mailed with appropriate postage and applicable fees paid, and a United States postal service postmark affixed to the payment envelope, with the postmark bearing a date preceding the delinquent date. Items returned to the sender by the United States postal service for insufficient postage or applicable fees shall be assessed interest, unless the appropriate postage and fees are paid and the items are postmarked again before the delinquent date. However, if the last calendar day of a month falls on a Saturday, Sunday, or a holiday, that amount becomes delinquent on the second business day of the following month.

c. To avoid interest on current or delinquent special assessment installments, for payments made through a county treasurer's authorized internet site only, if the last day of the month falls on a Saturday, Sunday, or a holiday, the electronic payment must be entered by midnight on the first business day of the next month. All other electronic payments must be entered by midnight on the last day of the month preceding the delinquent date.

5. From the date of filing of a certified copy of the resolution of necessity, the plat, and the schedule of assessments as provided in section 384.51, all special assessments with all interest become and remain a lien on the benefited properties until paid, and have equal precedence with ordinary taxes, and are not divested by any judicial sale.

6. After December 1, if a special assessment is not delinquent, a property owner may pay one-half or all of the next annual installment of principal and interest of a special assessment prior to the delinquency date of the installment. When the next installment has been paid in full, successive principal installments may be prepaid. The county treasurer shall accept the payments of the special assessment, and shall credit the next annual installment or future installments of the special assessment to the extent of the payment or payments, and shall remit the payments to the city. If a property owner elects to pay one or more principal installments in advance, the pay schedule shall be advanced by the number of principal installments prepaid.

7. Each installment of an assessment shall be equal to the amount of the unpaid assessment as computed on the thirty-first day after the certification of the assessment divided by the number of annual installments into which the assessment may be divided as adopted by the council pursuant to section 384.60.

8. Each installment of a special assessment shall be calculated to the nearest whole dollar. Interest on unpaid installments and interest added for delinquencies shall also be calculated to the nearest whole dollar. The minimum interest amount is one dollar.

[R60, §1068; C73, §478, 481; C97, §816, 825, 827, 974, 975; S13, §791-b, -c, 792-f, 816, 825, 840-a, 975; SS15, §840-r, 974; C24, 27, 31, 35, 39, §**5965, 5966, 6008, 6033, 6906 – 6908;** C46, §389.33 – 389.35, 391.35, 391.60, 420.258 – 420.260; C50, §389.33 – 389.35, 391.35, 391.60, 391A.27, 420.258 – 420.260; C54, 58, 62, 66, 71, 73, §389.33 – 389.35, 391.35, 391.60, 391A.30, 420.258 – 420.260; C75, 77, 79, 81, §384.65]

83 Acts, ch 90, §25; 83 Acts, ch 148, §2; 86 Acts, ch 1215, §1; 88 Acts, ch 1104, §1; 92 Acts, ch 1016, §10; 95 Acts, ch 57, §8; 98 Acts, ch 1107, §14; 99 Acts, ch 83, §6; 2005 Acts, ch 34, §10, 26; 2010 Acts, ch 1061, §180; 2012 Acts, ch 1138, §102; 2013 Acts, ch 90, §257; 2017 Acts, ch 92, §2

Referred to in §311.17, 331.384, 331.559, 357E.11A, 358.16, 358C.17, 364.13B, 384.41, 384.60

384.66 Test of regularity.

1. A person having an interest in property subject to special assessment may, within twenty days after the adoption of a resolution of necessity, test the regularity of the proceedings or legality of the assessment procedure by a petition in equity filed in the district court of the county where the property is located. A petition does not stay further proceedings on the improvement by the council, unless there is also filed a bond in an amount and with security approved by the court.

2. A person having an interest in any property specially assessed may appeal from the amount of the assessment, at any stage of the special assessment procedure up to twenty days after the final publication of notice of filing of the final assessment schedule, by petition to the district court of the county where the property is located but such appeal is only to the amount of that assessment and does not stay further proceedings by the council on the improvement. No action shall be brought appealing the amount of any special assessment from and after twenty days after said final publication.

3. A person having an interest in property subject to special assessment has a right of appeal to the district court on the ground of fraud.

4. No action may be brought questioning the regularity of the proceedings pertaining to special assessments or the validity of any special assessment levied for any public improvement under this subchapter, from and after sixty days after the final publication of notice of filing the final assessment schedule.

[C97, §839; S13, §792-c, -f, 840-a; SS15, §840-r; C24, 27, 31, 35, 39, §**6063 – 6065, 6091;** C46, §391.88 – 391.90, 395.13; C50, §391.88 – 391.90, 391A.28, 395.13; C54, 58, 62, 66, 71, 73, §391.88 – 391.90, 391A.31, 395.13; C75, 77, 79, 81, §384.66]

2017 Acts, ch 29, §109; 2018 Acts, ch 1041, §127

Referred to in §331.384, 357E.11A, 358.16, 364.13B, 384.54

384.67 Payment to county treasurer.

Assessments levied and certified under the provisions of this subchapter, including installments and interest, are payable at the office of the county treasurer of the county where the property assessed is located, except that assessments may be paid in full or in part and without interest within thirty days after the date of certification, at the office of the county treasurer, if the property being assessed is located in an unincorporated area, or the city clerk, if the property being assessed is located in an incorporated area.

[C97, §825; S13, §825; C24, 27, 31, 35, 39, §**6031;** C46, §391.58; C50, §391.58, 391A.29; C54, 58, 62, 66, 71, 73, §391.58, 391A.32; C75, 77, 79, 81, §384.67]

2003 Acts, ch 24, §6; 2018 Acts, ch 1041, §127

Referred to in §331.384, 357E.11A, 358.16, 364.13B

384.68 Bonds issued.

1. After certification of the final assessment schedule, the city may, by resolution, authorize and issue bonds in anticipation of the collection of unpaid special assessments. However, the total principal amount of bonds issued for a public improvement may not exceed the total amount of unpaid special assessments less the proportionate unpaid amount assessed for the default fund.

2. All special assessment bonds are negotiable, must state on their face that they are issued under the provisions of this subchapter, and are payable as to both principal and interest from the proceeds of the special assessments levied for the public improvement. Such bonds may bear interest at a rate not exceeding that permitted by chapter 74A payable annually or semiannually, must mature serially on December 1 of the years in which any of the principal is scheduled to become due, and may contain a provision that the city reserves the right and option of calling and redeeming any or all of the bonds prior to maturity on any interest payment date or within forty-five days thereafter upon the terms specified therein. Such bonds must be called "improvement bonds", must designate the general type of improvement or improvements for which issued, and may be issued in any denomination, not exceeding ten thousand dollars. Bonds issued for a public improvement authorized in section 384.38, subsection 2, must be named in a way to distinguish them from other improvement bonds of

the city, and to designate the property specially assessed for the improvement. Improvement bonds issued for any one levy must bear the same date and be divided into as many series as there are years in which installments of the special assessment mature, and each series must be as nearly equal in amount as practicable.

3. The proceeds of the special assessments and interest collected thereon must be used and applied by the city to the payment of the interest on the bonds and to the retirement of the principal as rapidly as proceeds are collected. Such bonds and coupons do not make the city liable in any way, except for the proper application of special assessments. If interest becomes due on any of the bonds when there is no fund or funds from which to pay it, the council may make a temporary loan for payment of the interest, which loan must be repaid from the special assessments and interest pledged to secure the bonds, but in case of purchase by the city at tax sale of the property on which a special assessment is levied, the loan must be repaid from the funds of the city from which deficiencies on the improvement were paid, or if there were no deficiencies, from the general fund.

4. Special assessment bonds must be sold at public or private sale in the manner provided by chapter 75, and may not be sold for less than par value with accrued interest from date to the time of delivery, or if no bids are received at public sale, bonds bearing the same rate of interest as the special assessment may be delivered to the contractor in payment of the cost of the public improvement. The proceeds of the sale must be applied to the payment of the cost of the public improvement.

5. Any excess of proceeds from special assessments remaining after all of the bonds for a particular improvement have been paid with interest may be credited to the fund from which deficiencies for the improvement could have been paid. However, any excess in a default fund established for a public improvement authorized in section 384.38, subsection 2, shall be held by the city in a special fund to guarantee other improvement bonds which may be issued by the city for public improvements authorized under that section.

6. Cities may issue refunding bonds to pay off and take up special assessment bonds issued in payment for public improvements, or to refund any part thereof, as follows:

a. Refunding bonds must substantially conform to the provisions of this subchapter, and the face value is limited to the amount of the unpaid special assessments with the interest thereon of the particular issue of bonds to be refunded.

b. Refunding bonds or their proceeds may be used only to pay improvement bonds taken up.

c. The expense of refunding bonds must be paid out of the funds of the city from which the cost of similar improvements might lawfully be paid.

d. When refunding bonds are issued to pay improvement bonds, all special assessments and sinking funds applicable to the payment of the improvement bonds previously issued must be applied in the same manner and to the same extent to the payment of the refunding bonds, and all the powers and duties to levy and to carry special assessments and taxes, to create liens upon property, and to establish sinking funds in respect to the bonds previously issued continue until refunding bonds are paid.

e. The city shall collect the special assessment out of which the refunding bonds are payable and hold the proceeds in trust for the payment of the refunding bonds, but it is not liable except for the proper application of the assessments.

7. No action shall be brought questioning the legality of the bonds authorized by this section from and after sixty days from the date the bonds are ordered issued by the city.

[C97, §842, 843, 845, 847, 987; C24, §6109 – 6113, 6117, 6118, 6121 – 6124, 6925, 6932; C27, §5942-b3, 6066-a11, 6109 – 6113, 6117, 6118, 6121 – 6124, 6126-a1 – a6, 6925, 6932; C31, 35, §5942-b3, 6066-a11, 6109 – 6113, 6117, 6118, 6121 – 6124, 6126-a1 – a6, 6610-c65, -c66, 6925, 6932; C39, §**5942.3, 6066.13, 6109 – 6113, 6117, 6118, 6121 – 6124, 6126.1 – 6126.6, 6610.71, 6610.72, 6925, 6932;** C46, §389.7, 392.11, 396.6 – 396.10, 396.14, 396.15, 396.18 – 396.21, 396.24 – 396.29, 417.68, 417.69, 420.278, 420.285; C50, §389.7, 391A.30, 392.11, 396.6 – 396.10, 396.14, 396.15, 396.18 – 396.21, 396.24 – 396.29, 417.68, 417.69, 420.278, 420.285;

C54, 58, 62, 66, 71, 73, §389.7, 391A.33, 392.11, 396.6 – 396.10, 396.14, 396.15, 396.18 – 396.21, 396.24 – 396.29, 417.68, 417.69, 420.278, 420.285; C75, 77, 79, 81, §384.68]
2018 Acts, ch 1041, §127
Referred to in §357E.11A

384.69 Property sold at tax sale.

Property against which a special assessment has been levied for public improvements may be sold for any sum of principal or interest due and delinquent, at any regular or adjourned tax sale in the same manner with the same forfeitures, interest, right of redemption, certificates, and deeds, as for the nonpayment of ordinary taxes. The purchaser at a tax sale, other than the county, takes the property charged with the lien of the remaining unpaid installments and interest. When bonds have been issued in anticipation of special assessments and interest for which property is to be sold, the city may be a purchaser and is entitled to all rights of purchasers at tax sales. The proceeds subsequently realized from sales of property so purchased by the city must be credited to the funds of the city from which deficiencies on the improvement were paid, or if there were no deficiencies, to the general fund.

[C97, §829, 976, 983; SS15, §840-r; C24, 27, 31, 35, 39, §**6037 – 6040, 6909 – 6911, 6924;** C46, §391.64 – 391.67, 420.261 – 420.263, 420.277; C50, §391.64 – 391.67, 391A.31, 420.261 – 420.263, 420.277; C54, 58, 62, 66, 71, 73, §391.64 – 391.67, 391A.34, 420.261 – 420.263, 420.277; C75, 77, 79, 81, §384.69]
92 Acts, ch 1016, §11
Referred to in §357E.11A

384.70 Redemption by bondholder.

A holder of a special assessment bond payable in whole or in part out of a special assessment against any lot or parcel of ground, or a city within which the lot or parcel of ground is situated, which lot or parcel of ground has been sold for taxes, either general or special, may have an assignment of any certificate of tax sale of the property for any general taxes or special taxes thereon, upon tender to the holder or to the county treasurer of the amount to which the holder of the tax sale certificate would be entitled in case of redemption.

[C97, §816; S13, §792-f, 816; C24, 27, 31, 35, 39, §**6041;** C46, 50, 54, 58, 62, 66, 71, 73, §391.68; C75, 77, 79, 81, §384.70]
97 Acts, ch 121, §13
Referred to in §357E.11A

384.71 Costs paid from applicable funds.

The whole or any part of the cost of construction or repair of a public improvement may be paid from the proceeds of the issuance of general obligation bonds under the provisions of section 384.25 or 384.26, as applicable, or from the fund or funds of the city authorized to be used for the particular type of improvement, and the council shall provide that the tax authorized for purposes of the fund or funds must be annually levied to the full extent necessary to reimburse the fund or funds for the amount paid for the construction or repair of the improvement.

[R60, §1064; C73, §465; C97, §751, 830, 831, 977, 978; S13, §840-a, -d; SS15, §751; C24, 27, 31, 35, 39, §**5940, 6042, 6050, 6125, 6916, 6917;** C46, §389.3, 391.69, 391.75, 396.22, 420.269, 420.270; C50, §389.3, 391.69, 391.75, 391A.32, 396.22, 420.269, 420.270; C54, 58, 62, §389.3, 391.69, 391.75, 391A.35, 396.22, 420.269, 420.270; C66, 71, 73, §389.3, 390A.18, 391.69, 391.75, 391A.35, 396.22, 420.269, 420.270; C75, 77, 79, 81, §384.71]
Referred to in §357E.11A

384.72 Reassessment and relevy.

When by reason of nonconformity to any law or resolution, or by reason of any omission, informality, or irregularity, any special tax or assessment levied is determined by the council to be invalid or is adjudged illegal, the council may correct the levy by resolution, and may

reassess and relevy with the same force and effect as if done at the proper time and in the manner provided by law or by the resolution.

[C97, §836, 980; S13, §840-a; SS15, §836, 840-r; C24, 27, §6059, 6920; C31, 35, §6059, 6610-c58, 6920; C39, §**6059, 6610.68, 6920;** C46, §391.84, 417.62, 420.273; C50, §391.84, 391A.33, 417.62, 420.273; C54, 58, 62, 66, 71, 73, §391.84, 391A.36, 417.62, 420.273; C75, 77, 79, 81, §384.72]

Referred to in §331.384, 357E.11A, 358.16, 364.13B, 384.75

384.73 Void tax or assessment.

When a special tax or assessment, upon property not exempt, is adjudged void for any jurisdictional defect, or other reason, the council may as to such property, by resolution, cause to be prepared a schedule and proposed reassessment in proportion to and not in excess of benefits, cause notice to be given, hear objections, and make necessary corrections, and may reassess and relevy the tax or special assessment as corrected with the same force and effect as if jurisdiction had been acquired in the first instance and all subsequent proceedings had been regularly and legally had.

[SS15, §836, 840-r; C24, 27, 31, 35, 39, §**6060;** C46, 50, 54, 58, 62, 66, 71, 73, §391.85; C75, 77, 79, 81, §384.73]

Referred to in §331.384, 357E.11A, 358.16, 364.13B, 384.75

384.74 Correction of errors.

1. When, in making a special assessment, any property is assessed too little or too much, the assessment may be corrected and a reassessment and relevy made in conformity with the correction, and a tax collected in excess of the proper amount must be refunded to the person paying it. Corrected assessments are a lien on the lots the same as the original assessments, must be certified by the clerk to the county treasurer in the same manner, and must so far as practicable, be collected in the same installments, draw interest at the same rate, and be enforced in the same manner as the original assessment.

2. However, if the city does not certify the assessments within six months of final publication as required by subchapter IV of this chapter, all such assessments shall be null, void, and of no effect. Any bonds issued with such void assessments as security shall be paid by the city as they become due out of its debt service as provided in section 384.4.

[C97, §837, 981; SS15, §840-r; C24, §6061, 6921; C31, 35, §6061, 6610-c21, 6921; C39, §**6061, 6610.59, 6921;** C46, 50, 54, 58, 62, 66, 71, 73, §391.86, 417.21, 420.274; C75, 77, 79, 81, §384.74; 82 Acts, ch 1104, §19]

2018 Acts, ch 1041, §127

Referred to in §331.384, 357E.11A, 358.16, 364.13B, 384.54, 384.75

384.75 Special provisions.

1. Any provision of law, resolution, or ordinance specifying a time when or the order in which acts must be done in a proceeding which may result in a special assessment, is subject to the qualifications of sections 384.72 through 384.74.

2. A city may combine any one or more of the procedural acts required by this subchapter and call for bids for construction of a public improvement and comply with legal requirements respecting public contracts so as to permit the council to receive and consider proposals at the time of hearing on the resolution of necessity.

[C97, §838, 981; SS15, §840-r; C24, 27, 31, 35, 39, §**6062, 6921;** C46, 50, 54, 58, 62, 66, 71, 73, §391.87, 420.274; C75, 77, 79, 81, §384.75]

2018 Acts, ch 1041, §127; 2021 Acts, ch 80, §238

Referred to in §331.384, 357E.11A, 358.16, 364.13B

384.76 Application to joint undertakings.

The provisions of this subchapter apply to any public improvement undertaken jointly by the city and another city or by the city and the state or any other political subdivision of the state, and a city may enter into an agreement for such purpose under the provisions of chapter 28E and may assess and pay its portion of the cost of a public improvement as provided in this subchapter, but any requirement of this subchapter in respect to approval of detailed

plans and specifications, calling for construction bids, awarding construction contracts and acceptance of the completed improvement may be carried out by each city with other cities, the state or any other political subdivision of the state, as provided in an agreement entered into as permitted by chapter 28E. However, an agreement between the city and the state department of transportation is also governed by the provisions of sections 313.21 through 313.23.

[C50, §391A.34; C54, 58, 62, 66, 71, 73, §391A.37; C75, 77, 79, 81, §384.76]
2017 Acts, ch 29, §110; 2018 Acts, ch 1041, §127; 2021 Acts, ch 80, §239
Referred to in §357E.11A

384.77 Assessments along railways.

In the making of assessments for paving streets, avenues or public places along or upon which a track of a railway or street railway company is located, the engineer shall make an estimate of the cost of building the improvement, and an estimate of the cost of the improvement if tracks were not there. The railway or street railway company may be charged with the difference between the two estimates of cost, and shall make payment in the same manner as other special assessments are paid. This section applies only to track within the limits of the improvement proper and shall not be construed as exempting a railway or street railway company from a special assessment on other property, adjacent or abutting, within the assessment district and owned by the company, nor does this section relieve a company from any of its duties and liabilities set forth in any other law concerning repair or construction of the strip of paving between the rails and one foot outside.

[C31, 35, §6051-c1; C39, §**6051.1;** C46, 50, §391.77; C54, 58, 62, 66, 71, 73, §391.77, 391A.38; C75, 77, 79, 81, §384.77]
Referred to in §357E.11A

384.78 Prior proceedings.

Projects and proceedings for the levy of special assessments and the issuance of special assessment bonds commenced before the effective date of the city code may be hereafter consummated and completed and special assessments levied and special assessment bonds issued as required or permitted by any statute or other law amended or repealed by 1972 Iowa Acts, ch. 1088, as though such repeal or amendment had not occurred, and the rights, duties, and interests flowing from such projects and proceedings remain valid and enforceable. Without limiting the foregoing, projects commenced prior to said effective date may be financed by the issuance of special assessment bonds and other bonds under any such amended or repealed law or by the issuance of special assessment bonds, or other bonds under the city code. For the purposes of this section, commencement of a project includes but is not limited to action taken by the council or authorized officer to fix a date for a hearing in connection with any part of a public improvement, and commencement of proceedings for the levy of special assessments and the issuance of special assessment bonds includes but is not limited to action taken by the council to fix a date for a hearing in connection with any public improvement proposed to be financed in whole or in part through special assessments.

[C75, 77, 79, 81, §384.78]
2016 Acts, ch 1011, §58
Referred to in §357E.11A

384.79 Conflicting provisions.

The enumeration in this subchapter of special powers and functions is not a limitation of the powers of cities, but the provisions of this subchapter and the procedures prescribed for exercising the powers and functions enumerated in this subchapter control and govern in the event of any conflict with the provisions of any other section, division, or chapter of the city code or with the provisions of any other law.

[C75, 77, 79, 81, §384.79]
2018 Acts, ch 1041, §127
Referred to in §357E.11A

SUBCHAPTER V

REVENUE FINANCING

Referred to in §357A.11, 384.23, 386.7, 392.1, 392.3

384.80 Definitions.

As used in this subchapter, unless the context otherwise requires:

1. *"City enterprise"* means the same as defined in section 384.24.
2. *"Combined city enterprise"* means two or more city enterprises combined and operated as a single enterprise.
3. *"Combined service account"* means a customer service account for the provision of two or more utility or enterprise services, regardless of whether those services are being provided by a single city, or by any combination of city utilities, combined utility systems, city enterprises, or combined city enterprises of one or more cities.
4. *"Combined utility system"* means two or more city utilities owned by a single city, and combined and operated as a single system.
5. *"Governing body"* means the public body which by law is charged with the management and control of a city utility, combined utility system, city enterprise, or combined city enterprise. The council is the governing body of each city utility, combined utility system, city enterprise, or combined city enterprise, except that a utility board, as provided in chapter 388, is the governing body of the city utility, city utilities or combined utility system which it operates.
6. *"Gross revenue"* means all income and receipts derived from the operation of a city utility, combined utility system, city enterprise, or combined city enterprise.
7. *"Landlord"* means the owner of record of a rental property, or a real estate manager or management company appointed by the owner to administer rental property.
8. *"Net revenues"* means gross revenues less operating expenses.
9. *"Operating expense"* means salaries, wages, cost of maintenance and operation, materials, supplies, insurance and all other items normally included under recognized accounting practices, but does not include allowances for depreciation in the value of physical property.
10. *"Owner"* means the owner of record as reflected in the records of the county treasurer.
11. *"Pledge order"* means a promise to pay out of the net revenues of a city utility, combined utility system, city enterprise, or combined city enterprise, which is delivered to the contractors or other persons in payment of all or part of the cost of the project.
12. *"Project"* means the acquisition, construction, reconstruction, extending, remodeling, improving, repairing, and equipping of all or part of a city utility, combined utility system, city enterprise, or combined city enterprise, or a water resource restoration project within or without the corporate limits of the city.
13. *"Rates"* means rates, fees, tolls, rentals, and charges for the use of or service provided by a city utility, combined utility system, city enterprise, or combined city enterprise.
14. *"Revenue bond"* means a negotiable bond issued by a city and payable from the net revenues of a city utility, combined utility system, city enterprise, or combined city enterprise.
15. *"Water resource restoration project"* means the acquisition of real property or improvements or other activity or undertaking that will assist in improving the quality of the water in the watershed where a city water or wastewater utility is located.

[C75, 77, 79, 81, §384.80]

94 Acts, ch 1056, §1; 2009 Acts, ch 72, §3, 4; 2018 Acts, ch 1041, §127

Referred to in §26.9, 357E.11A, 364.4, 388.1, 388.9, 388.9A, 389.4, 390.1, 390.5, 403.7, 455B.199, 476.1A

384.81 Provisions of city code exclusive — combined utility or enterprise.

1. A city which proposes to establish, own, acquire by purchase, condemnation, or otherwise, lease, sell, construct, reconstruct, extend, remodel, improve, repair, equip, maintain and operate within or without its corporate limits a city utility, combined utility system, city enterprise, or combined city enterprise must do so in accordance with the provisions of the city code.

2. If all of the utilities involved in the establishment of a combined utility system are, at the time of establishment, controlled and managed by the same utility board, such utility board shall continue as the governing body of the combined utility system; otherwise the city council is the governing body of a combined utility system, but a utility board for a combined utility system may be established as provided in chapter 388. If a combined utility system or combined city enterprise is dissolved, each city utility or city enterprise shall continue in existence as a separate city utility or city enterprise unless the voters additionally authorize the abandonment thereof. The governing body of a combined utility system which is dissolved shall continue as the governing body of each city utility which was a part of the combined utility system unless changed as provided in chapter 388. The adding of an additional city utility to an existing combined utility system is the establishment of a new combined utility system and must be approved by the voters of the city as provided in chapter 388, but the governing body of the existing combined utility system shall continue as the governing body of the new combined utility system.

3. A combined utility system or combined city enterprise may be established, but if there are obligations outstanding which by their terms are payable from the revenues of any city utility or city enterprise involved, all such outstanding obligations must be assumed by the governing body of the combined utility system or combined city enterprise subject to all terms established at the time of the original issue, or refunded through the issuance of revenue bonds of the combined utility system or combined city enterprise as a part of the procedure for the establishment of the combined utility system or combined city enterprise, or funds sufficient to pay the principal of and all interest and premium, if any, on such outstanding obligations at and prior to maturity must have been properly set aside and pledged for that purpose. Any revenues earmarked for payment of the obligations must be handled by the governing body of the combined utility or combined city enterprise in the same manner as they were handled by the governing body of the city utility or city enterprise involved. A city utility or city enterprise may not be abandoned and a combined utility system or combined city enterprise may not be dissolved so long as there are obligations outstanding which by their terms are payable from the revenues of the city utility, combined utility system, city enterprise, or combined city enterprise unless funds sufficient to pay the principal of and all interest and premium, if any, on such outstanding obligations at and prior to maturity have been properly set aside and pledged for such purpose.

[C73, §471 – 473; C97, §720; S13, §720; C24, 27, 31, 35, 39, §**6127;** C46, 50, 54, §390.1, 397.1; C58, 62, 66, 71, 73, §386B.2, 390.1, 397.1; C75, 77, 79, 81, §384.81]

Referred to in §26.9, 357E.11A, 389.4, 390.5

384.82 Authority — revenue bonds — pledge orders.

1. *a.* A city may carry out projects, borrow money, and issue revenue bonds and pledge orders to pay all or part of the cost of projects, which may include a qualified water resource restoration project, such revenue bonds and pledge orders to be payable solely and only out of the net revenues of the city utility, combined utility system, city enterprise, or combined city enterprise involved in the project. The cost of a project includes the construction contracts, interest upon the revenue bonds and pledge orders during the period or estimated period of construction and for twelve months thereafter, or for twelve months after the acquisition date, such reserve funds as the governing body may deem advisable in connection with the project and the issuance of revenue bonds and pledge orders, and the costs of engineering, architectural, technical and legal services, preliminary reports, surveys, property valuations, estimates, plans, specifications, notices, acquisition of real and personal property, consequential damages or costs, easements, rights-of-way, supervision, inspection, testing, publications, printing and sale of bonds and provisions for contingencies. A city may sell revenue bonds or pledge orders at public or private sale in the manner prescribed by chapter 75 and may deliver revenue bonds and pledge orders to the contractors, sellers, and other persons furnishing materials and services constituting a part of the cost of the project in payment therefor.

b. A city may deliver its revenue bonds to the federal government or any agency thereof

which has loaned the city money for sanitary or solid waste projects, water projects or other projects for which the government has a loan program.

2. A city may issue revenue bonds or pledge orders to refund revenue bonds, pledge orders, and other obligations which are by their terms payable from the net revenues of the same city utility, combined utility system, city enterprise, or combined city enterprise, or from a city utility comprising a part of the combined utility system or a city enterprise comprising a part of the combined city enterprise, at lower, the same, or higher rates of interest. Upon a finding of necessity by the governing body, a city may issue revenue bonds or pledge orders to refund general obligation bonds to the extent the general obligation bonds were issued or the proceeds of them were expended for a city utility, city enterprise, or a portion of a combined city utility or city enterprise. These revenue bonds or pledge orders may be issued at lower, the same, or at higher rates of interest than the rates of the general obligation bonds being refunded. A city may sell refunding revenue bonds or pledge orders at public or private sale in the manner prescribed by chapter 75 and apply the proceeds to the payment of the obligations being refunded, and may exchange refunding revenue bonds or pledge orders in payment and discharge of the obligations being refunded. The principal amount of refunding revenue bonds or pledge orders may exceed the principal amount of the obligations being refunded to the extent necessary to pay a premium due on the call of the obligations being refunded, to fund interest accrued and to accrue on the obligations being refunded, to pay the costs of issuance of the refunding revenue bonds or pledge orders, and to fund such reserve funds as the governing body may deem advisable in connection with the issuance of the refunding revenue bonds or pledge orders.

[C31, §6134-d1; C35, §5903-f4, 6066-f6, 6134-d1, -f1; C39, §**5903.15, 6066.29, 6134.01 – 6134.03;** C46, §385.4, 394.6, 397.9 – 397.11; C50, §385.4, 390.9, 394.6, 397.9 – 397.11; C58, 62, 66, §385.4, 386B.10, 390.9, 394.6, 397.9 – 397.11; C71, 73, §385.4, 386B.10, 390.9, 390.16, 394.6, 397.9 – 397.11; C75, 77, 79, 81, §384.82; 81 Acts, ch 126, §1]

84 Acts, ch 1058, §1; 2009 Acts, ch 72, §5; 2010 Acts, ch 1061, §180

Referred to in §26.9, 357E.11A, 389.4, 390.5

384.83 Procedures for revenue bonds and pledge orders.

1. A city may issue revenue bonds pursuant to a resolution of the governing body of the city utility, combined utility system, city enterprise, or combined city enterprise, adopted at a regular or special meeting by a majority of the total number of members to which the governing body is entitled.

2. *a.* Before the governing body institutes proceedings for the issuance of revenue bonds, it shall fix a time and place of meeting at which it proposes to take action and give notice by publication in the manner directed in section 362.3. The notice must include a statement of the time and place of the meeting, the maximum amount of the proposed revenue bonds, the purpose or purposes for which the revenue bonds will be issued, and the city utility, combined utility system, city enterprise, or combined city enterprise whose net revenues will be used to pay the revenue bonds and interest on them. The governing body shall at the meeting receive oral or written objections from any resident or property owner of the city. After all objections have been received and considered, the governing body may, at the meeting or any adjournment of the meeting, take additional action for the issuance of the bonds or abandon the proposal to issue bonds. Any resident or property owner of the city may appeal a decision of the governing body to take additional action to the district court of the county in which any part of the city is located within fifteen days after the additional action is taken, but the additional action of the governing body is final and conclusive unless the court finds that the governing body exceeded its authority. The provisions of this subsection with respect to notice, hearing, and appeal in connection with the issuance of revenue bonds are in lieu of those contained in chapter 73A or any other law.

b. Separate purposes may be incorporated in a single notice of intention to institute proceedings or separate purposes may be incorporated in separate notices and, after an opportunity for filing objections, the governing body may include in a single issue of revenue bonds any number or combination of purposes.

3. Revenue bonds may bear dates, bear interest at rates not exceeding that permitted by

chapter 74A, mature in one or more installments, be in either coupon or registered form, carry registration and conversion privileges, be payable as to principal and interest at times and places, be subject to terms of redemption prior to maturity with or without premium, and be in one or more denominations, all as provided by the resolution of the governing body authorizing their issuance. The resolution may also prescribe additional provisions, terms, conditions, and covenants which the governing body deems advisable, consistent with the provisions of the city code, including provisions for creating and maintaining reserve funds, the issuance of additional revenue bonds ranking on a parity with such revenue bonds and additional revenue bonds junior and subordinate to such revenue bonds, and that such revenue bonds shall rank on a parity with or be junior and subordinate to any revenue bonds which may be then outstanding. Revenue bonds are a contract between the city and holders and the resolution is a part of the contract.

4. If the governing body is a city council, the revenue bonds must be executed by the mayor and clerk of the city. If the governing body is a utility board, the revenue bonds must be executed by the chairperson and secretary of the board. If coupons are attached to the revenue bonds, they must be executed with the original or facsimile signature of the clerk or secretary. A revenue bond is valid and binding for all purposes if it bears the signatures of the officers in office on the date of the execution of the bonds notwithstanding that any or all persons whose signatures appear thereon have ceased to be such officers prior to the delivery thereof. The issuance of revenue bonds must be recorded in the office of the city treasurer or other financial officer designated by the council, and a certificate of the recording by the treasurer or other officer must be printed on the back of each revenue bond.

5. Revenue bonds and pledge orders issued pursuant to this subchapter are negotiable instruments.

6. A city may issue pledge orders pursuant to a resolution of the governing body of the city utility, combined utility system, city enterprise, or combined city enterprise, adopted by a majority of the total number of members to which the governing body is entitled, at a regular or special meeting, ordering their issuance and delivery in payment for all or part of the cost of a project. Pledge orders may bear interest at rates not exceeding that permitted by chapter 74A.

7. The physical properties of a city utility, combined utility system, city enterprise, or combined city enterprise may not be pledged or mortgaged to secure the payment of revenue bonds or pledge orders or the interest thereon.

[C35, §5903-f4, 6066-f6, -f7; C39, §**5903.15, 6066.29 – 6066.31;** C46, 50, §385.4, 394.6 – 394.8; C58, 62, 66, 71, 73, §385.4, 386B.10, 394.6 – 394.8; C75, 77, 79, 81, §384.83]

83 Acts, ch 90, §26; 2018 Acts, ch 1041, §127

Referred to in §26.9, 357A.11, 357E.11A, 364.4, 384.24A, 389.4, 390.5, 418.14, 423B.9

384.84 Rates and charges — billing and collection — contracts.

1. The governing body of a city utility, combined utility system, city enterprise, or combined city enterprise may establish, impose, adjust, and provide for the collection of rates and charges to produce gross revenues at least sufficient to pay the expenses of operation and maintenance of the city utility, combined utility system, city enterprise, or combined city enterprise. When revenue bonds or pledge orders are issued and outstanding pursuant to this subchapter, the governing body shall establish, impose, adjust, and provide for the collection of rates to produce gross revenues at least sufficient to pay the expenses of operation and maintenance of the city utility, combined utility system, city enterprise, or combined city enterprise, and to leave a balance of net revenues sufficient to pay the principal of and interest on the revenue bonds and pledge orders as they become due and to maintain a reasonable reserve for the payment of principal and interest, and a sufficient portion of net revenues must be pledged for that purpose. Rates must be established by ordinance of the council or by resolution of the trustees, published in the same manner as an ordinance.

2. The governing body of a city water or wastewater utility may enter into an agreement with a qualified entity to use proceeds from revenue bonds for a water resource restoration project if the rate imposed is no greater than if there was not a water resource restoration project agreement. For purposes of this subsection, "*qualified entity*" is an entity created

pursuant to chapter 28E or two entities that have entered into an agreement pursuant to chapter 28E, whose purpose is to undertake a watershed project that has been approved for water quality improvements in the watershed.

3. *a.* A city utility or enterprise service to a property or premises, including services of sewer systems, storm water drainage systems, sewage treatment, solid waste collection, water, solid waste disposal, or any of these services, may be discontinued or disconnected if the account for the service becomes delinquent. Gas or electric service provided by a city utility or enterprise shall be discontinued or disconnected only as provided by section 476.20, subsections 1 through 4, and discontinuance or disconnection of those services is subject to rules adopted by the utilities board.

b. If more than one city utility or enterprise service is billed to a property or premises as a combined service account, all of the services may be discontinued or disconnected if the account becomes delinquent.

c. A city utility or enterprise service to a property or premises shall not be discontinued or disconnected unless prior written notice is sent, by ordinary mail, to the account holder in whose name the delinquent rates or charges were incurred, informing the account holder of the nature of the delinquency and affording the account holder the opportunity for a hearing prior to discontinuance or disconnection of service. If the account holder is a tenant, and if the owner or landlord of the property or premises has made a written request for notice, the notice shall also be given to the owner or landlord. If the account holder is a tenant and requests a change of name for service under the account, such request shall be sent to the owner or landlord of the property if the owner or landlord has made a written request for notice of any change of name for service under the account to the rental property.

d. (1) If a delinquent amount is owed by an account holder for a utility service associated with a prior property or premises, a city utility, city enterprise, or combined city enterprise may withhold service from the same account holder at any new property or premises until such time as the account holder pays the delinquent amount owing on the account associated with the prior property or premises. A city utility, city enterprise, or combined city enterprise shall not withhold service from, or discontinue or disconnect service to, a subsequent owner who obtains fee simple title of the prior property or premises unless such delinquent amount has been certified in a timely manner to the county treasurer as provided in subsection 4, paragraph *"a"*, subparagraphs (1) and (2).

(2) Delinquent amounts that have not been certified in a timely manner to the county treasurer are not collectible against any subsequent owner of the property or premises.

e. (1) A legal entity created pursuant to chapter 28E by a city or cities, or other political subdivisions, and public or private agencies for the purposes of providing wastewater, sewer system, storm water drainage, or sewage treatment services shall have the same powers and duties as a city utility or enterprise under this subsection with respect to account holders and subsequent owners, or with respect to properties and premises, associated with a delinquent account under this subsection.

(2) The governing body of a city utility, combined city utility, city enterprise, or combined city enterprise may enter into an agreement with a legal entity described in subparagraph (1) to discontinue or disconnect water service to a property or premises if an account owed the legal entity for wastewater, sewer system, storm water drainage, or sewage treatment services provided to that customer's property or premises becomes delinquent. The customer shall be responsible for all costs associated with discontinuing or disconnecting and reestablishing water service disconnected pursuant to this paragraph *"e"*.

(3) This paragraph *"e"* shall not apply to a property or premises if, prior to July 1, 2015, the account holder for that property or premises had an established account with a legal entity described in subparagraph (1) for the provision of wastewater, sewer system, storm water drainage, or sewage treatment services to the property or premises.

f. (1) A legal entity providing wastewater, sewer system, storm water drainage, or sewage treatment services to a city or cities or other political subdivisions pursuant to a franchise or other agreement shall have the same powers and duties as a city utility or enterprise under this subsection with respect to account holders and subsequent owners, or with respect to properties and premises, associated with a delinquent account under this subsection.

(2) The governing body of a city utility, combined city utility, city enterprise, or combined city enterprise may enter into an agreement with a legal entity described in subparagraph (1) to discontinue or disconnect water service to a property or premises if an account owed the legal entity for wastewater, sewer system, storm water drainage, or sewage treatment services provided to that customer's property or premises becomes delinquent. The customer shall be responsible for all costs associated with discontinuing or disconnecting and reestablishing water service disconnected pursuant to this paragraph *"f"*.

(3) This paragraph *"f"* shall not apply to a property or premises if, prior to July 1, 2015, the account holder for that property or premises had an established account with a legal entity described in subparagraph (1) for the provision of wastewater, sewer system, storm water drainage, or sewage treatment services to the property or premises.

4. *a.* (1) Except as provided in paragraph *"d"*, all rates or charges for the services of sewer systems, storm water drainage systems, sewage treatment, solid waste collection, water, solid waste disposal, or any of these services, if not paid as provided by ordinance of the council or resolution of the trustees, are a lien upon the property or premises served by any of these services upon certification to the county treasurer that the rates or charges are due. The governing body of a city utility may, by resolution, delegate to a designee named in the resolution the city utility's authority to certify unpaid rates or charges to the county treasurer. The city council of a city that is contracting with a city utility for joint billing or collection or both pursuant to chapter 28E may, by ordinance, delegate to such city utility, or the city utility's designee, the city's authority to certify unpaid rates or charges to the county treasurer.

(2) If the delinquent rates or charges were incurred prior to the date a transfer of the property or premises in fee simple is filed with the county recorder and such delinquencies were not certified to the county treasurer prior to such date, the delinquent rates or charges are not eligible to be certified to the county treasurer. If certification of such delinquent rates or charges is attempted subsequent to the date a transfer of the property or premises in fee simple is filed with the county recorder, the county treasurer shall return the certification to the city utility, city enterprise, or combined city enterprise attempting certification along with a notice stating that the delinquent rates or charges cannot be made a lien against the property or premises.

(3) If the city utility, city enterprise, or combined city enterprise is prohibited under subparagraph (2) from certifying delinquent rates or charges against the property or premises served by the services described in subparagraph (1), the city utility, city enterprise, or combined city enterprise may certify the delinquent rates or charges against any other property or premises located in this state and owned by the account holder in whose name the rates or charges were incurred.

(4) A lien under subparagraph (1) shall not be placed upon a premises that is a mobile home, modular home, or manufactured home served by any of the services under that subparagraph if the mobile home, modular home, or manufactured home is owned by a tenant of and located in a mobile home park or manufactured home community and the mobile home park or manufactured home community owner or manager is the account holder, unless the lease agreement specifies that the tenant is responsible for payment of a portion of the rates or charges billed to the account holder.

b. The lien under paragraph *"a"* may be imposed upon a property or premises even if a city utility or enterprise service to the property or premises has been or may be discontinued or disconnected as provided in this section.

c. A lien for a city utility or enterprise service under paragraph *"a"* shall not be certified to the county treasurer for collection unless prior written notice of intent to certify a lien is given to the account holder in whose name the delinquent rates or charges were incurred at least thirty days prior to certification. If the account holder is a tenant, and if the owner or landlord of the property or premises has made a written request for notice, the notice shall also be given to the owner or landlord. The notice shall be sent to the appropriate persons by ordinary mail not less than thirty days prior to certification of the lien to the county treasurer.

d. (1) Residential or commercial rental property where a charge for water service is separately metered and paid directly to the city utility or enterprise by the tenant is

exempt from a lien for delinquent rates or charges associated with such water service if the landlord gives written notice to the city utility or enterprise that the property is residential or commercial rental property and that the tenant is liable for the rates or charges. A city utility or enterprise may require a deposit not exceeding the usual cost of ninety days of water service to be paid to the utility or enterprise. Upon receipt, the utility or enterprise shall acknowledge the notice and deposit. A written notice shall contain the name of the tenant responsible for charges, address of the residential or commercial rental property that the tenant is to occupy, and the date that the occupancy begins.

(2) A change in tenant for a residential rental property shall require a new written notice to be given to the city utility or enterprise within thirty business days of the change in tenant. A change in tenant for a commercial rental property shall require a new written notice to be given to the city utility or enterprise within ten business days of the change in tenant. When the tenant moves from the rental property, the city utility or enterprise shall return the deposit if the water service charges are paid in full.

(3) A change in the ownership of the residential rental property shall require written notice of such change to be given to the city utility or enterprise within thirty business days of the completion of the change of ownership. A change in the ownership of the commercial rental property shall require written notice of such change to be given to the city utility or enterprise within ten business days of the completion of the change of ownership.

(4) The lien exemption for rental property does not apply to charges for repairs to a water service if the repair charges become delinquent.

e. Residential rental property where a charge for any of the services of sewer systems, storm water drainage systems, sewage treatment, solid waste collection, and solid waste disposal is paid directly to the city utility or enterprise by the tenant is exempt from a lien for delinquent rates or charges associated with such services if the landlord gives written notice to the city utility or enterprise that the property is residential rental property and that the tenant is liable for the rates or charges. A city utility or enterprise may require a deposit not exceeding the usual cost of ninety days of the services of sewer systems, storm water drainage systems, sewage treatment, solid waste collection, and solid waste disposal to be paid to the utility or enterprise. A city utility or enterprise may require a deposit not exceeding the usual cost of sixty days of the services of gas and electric to be paid to the utility or enterprise. Upon receipt, the utility or enterprise shall acknowledge the notice and deposit. A written notice shall contain the name of the tenant responsible for the charges, the address of the residential rental property that the tenant is to occupy, and the date that the occupancy begins. A change in tenant shall require a new written notice to be given to the city utility or enterprise within thirty business days of the change in tenant. When the tenant moves from the rental property, the city utility or enterprise shall return the deposit if the charges for the services of gas, electric, sewer systems, storm water drainage systems, sewage treatment, solid waste collection, and solid waste disposal are paid in full. A change in the ownership of the residential rental property shall require written notice of such change to be given to the city utility or enterprise within thirty business days of the completion of the change of ownership. The lien exemption for rental property does not apply to charges for repairs related to a service of sewer systems, storm water drainage systems, sewage treatment, solid waste collection, and solid waste disposal if the repair charges become delinquent.

5. A lien shall not be imposed pursuant to this section for a delinquent charge of less than five dollars. The governing body of the city utility or enterprise may charge up to five dollars, and the county treasurer may charge up to five dollars, as an administrative expense of certifying and filing this lien, which amounts shall be added to the amount of the lien to be collected at the time of payment of the assessment from the payor. Administrative expenses collected by the county treasurer on behalf of the city utility or enterprise shall be paid to the governing body of the city utility or enterprise, and those collected by the county treasurer on behalf of the county shall be credited to the county general fund. The lien has equal precedence with ordinary taxes, may be certified to the county treasurer and collected in the same manner as taxes, and is not divested by a judicial sale.

6. *a.* The governing body of a city utility or city enterprise providing wastewater, sewer system, storm water drainage, or sewage treatment services may file suit in the appropriate

court against a customer if the customer's account for such services becomes delinquent pursuant to subsection 3. The governing body may recover the costs for providing such services to the customer's property or premises and reasonable attorney fees actually incurred.

b. A legal entity described in subsection 3, paragraph *"e"* or *"f"*, shall have the same powers and duties as a city utility or enterprise under paragraph *"a"* of this subsection with respect to filing suit in an appropriate court against a customer if the customer's account for such services becomes delinquent.

7. A governing body may declare all or a certain portion of a city as a storm water drainage system district for the purpose of establishing, imposing, adjusting, and providing for the collection of rates as provided in this section. The ordinance provisions for collection of rates of a storm water drainage system may prescribe a formula for determination of the rates which may include criteria and standards by which benefits have been previously determined for special assessments for storm water public improvement projects under this chapter.

8. *a.* The governing body of a city utility, combined utility system, city enterprise, or combined city enterprise may:

(1) By ordinance of the council or by resolution of the trustees published in the same manner as an ordinance, establish, impose, adjust, and provide for the collection of charges for connection to a city utility or combined utility system.

(2) Contract for the use of or services provided by a city utility, combined utility system, city enterprise, or combined city enterprise with persons whose type or quantity of use or service is unusual.

(3) Lease for a period not to exceed fifteen years all or part of a city enterprise or combined city enterprise, if the lease will not reduce the net revenues to be produced by the city enterprise or combined city enterprise.

(4) Contract for a period not to exceed forty years with other governmental bodies for the use of or the services provided by the city utility, combined utility system, city enterprise, or combined city enterprise on a wholesale basis.

(5) Contract for a period not to exceed forty years with persons and other governmental bodies for the purchase or sale of water, gas, or electric power and energy on a wholesale basis.

b. Two or more city utilities, combined utility systems, city enterprises, or combined city enterprises, including city utilities established pursuant to chapter 388, may contract pursuant to chapter 28E for joint billing or collection, or both, of combined service accounts for utility or enterprise services, or both. The contracts may provide for the discontinuance or disconnection of one or more of the city utility or enterprise services if a delinquency occurs in the payment of any charges billed under a combined service account.

c. One or more city utilities or combined utility systems, including city utilities established pursuant to chapter 388, may contract pursuant to chapter 28E with one or more sanitary districts established pursuant to chapter 358 for joint billing or collection, or both, of combined service accounts from utility services and sanitary district services. The contracts may provide for the discontinuance or disconnection of one or more of the city water utility services or sanitary district services if a delinquency occurs in the payment of any charges billed under a combined service account.

9. The portion of cost attributable to the agreement or arbitration awarded under section 357A.21 may be apportioned in whole or in part among water customers within an annexed area.

10. For the purposes of this section, *"premises"* includes a mobile home, modular home, or manufactured home as defined in section 435.1.

11. Notwithstanding subsection 4, except for mobile home parks or manufactured home communities where the mobile home park or manufactured home community owner or manager is responsible for paying the rates or charges for services, a lien shall not be filed against the land if the premises are located on leased land. If the premises are located on leased land, a lien may be filed against the premises only.

[C73, §471, 473, 475; C97, §720, 725, 749; S13, §720, 724, 725, 766-c; C24, 27, 31, §5892, 5898, 6130, 6142, 6143, 6159; C35, §5892, 5898, 5903-f3, 5903-f6, 6066-f5, 6066-f8, 6130, 6142,

6143, 6159; C39, §**5892, 5898, 5903.14, 5903.17, 6066.28, 6066.32, 6130, 6142, 6143, 6159;** C46, 50, 54, §381.19, 382.5, 385.3, 385.6, 390.4, 390.5, 394.5, 394.9, 397.4, 397.27, 397.28, 398.10; C58, §381.19, 382.5, 385.3, 385.6, 386B.8, 390.4, 390.5, 394.5, 394.9, 397.4, 397.27, 397.28, 398.10; C62, §381.15, 382.5, 385.3, 385.6, 386B.8, 390.4, 390.5, 392.11, 394.5, 394.9, 397.4, 397.27, 397.28; C66, §368.24, 381.19, 382.5, 385.3, 385.6, 386B.8, 390.4, 390.5, 392.11, 394.5, 394.9, 397.4, 397.27, 397.28, 398.10; C71, 73, §368.24, 378A.7 – 378A.9, 381.19, 382.5, 385.3, 385.6, 386B.8, 390.4, 390.5, 392.11, 393.14, 394.5, 394.9, 397.4, 397.27, 397.28, 398.10; C75, 77, 79, 81, §384.84; 81 Acts, ch 128, §1]

83 Acts, ch 90, §27; 84 Acts, ch 1221, §1; 87 Acts, ch 109, §4; 88 Acts, ch 1246, §6; 90 Acts, ch 1206, §2; 90 Acts, ch 1211, §1; 93 Acts, ch 73, §4; 94 Acts, ch 1056, §2; 95 Acts, ch 49, §11; 95 Acts, ch 57, §9; 95 Acts, ch 67, §31; 97 Acts, ch 62, §3; 98 Acts, ch 1107, §15; 99 Acts, ch 149, §1, 2; 2000 Acts, ch 1085, §4; 2003 Acts, 1st Ex, ch 2, §19, 209; 2008 Acts, ch 1090, §1, 2; 2009 Acts, ch 72, §6; 2009 Acts, ch 133, §131, 132; 2011 Acts, ch 53, §1; 2012 Acts, ch 1087, §1 – 3; 2013 Acts, ch 89, §1; 2014 Acts, ch 1085, §1; 2015 Acts, ch 90, §1, 2; 2016 Acts, ch 1011, §59; 2016 Acts, ch 1138, §31, 32; 2017 Acts, ch 62, §1 – 3; 2018 Acts, ch 1041, §127; 2023 Acts, ch 19, §2666

Referred to in §26.9, 357A.11, 357E.11A, 384.84A, 389.4, 390.5, 445.1, 455B.199, 455B.291, 476.20
Collection of taxes, see chapter 445
Subsection 3, paragraph a amended

384.84A Special election.

1. The governing body of a city may institute proceedings to issue revenue bonds for storm water drainage construction projects under section 384.84, subsection 7, by causing notice of the proposed project, with a description of the proposed project and a description of the formula for the determination of the rate or rates applied to users for payment of the bonds, and a description of the bonds and maximum rate of interest and the right to petition for an election if the project meets the requirement of subsection 2, to be published at least once in a newspaper of general circulation within the city at least thirty days before the meeting at which the governing body proposes to take action to institute proceedings for issuance of revenue bonds for the storm water drainage construction project.

2. If, before the date fixed for taking action to authorize the issuance of revenue bonds for the storm water drainage construction project, a petition signed by eligible electors residing within the city equal in number to at least three percent of the registered voters of the city is filed, asking that the question of issuing revenue bonds for the storm water drainage construction project be submitted to the registered voters of the city, the council, by resolution, shall declare the project abandoned or shall direct the county commissioner of elections to call a special election upon the question of issuing the bonds for the storm water drainage construction project if the cost of the project and population of the city meet one of the following criteria:

a. The project cost is seven hundred fifty thousand dollars or more in a city having a population of five thousand or less.

b. The project cost is one million five hundred thousand dollars or more in a city having a population of more than five thousand but not more than seventy-five thousand.

c. The project cost is two million dollars or more in a city having a population of more than seventy-five thousand.

3. The proposition of issuing revenue bonds for a storm water drainage construction project under this section is not approved unless the vote in favor of the proposition is equal to a majority of the votes cast on the proposition.

4. If a petition is not filed, or if a petition is filed and the proposition is approved at an election, the council may issue the revenue bonds.

5. If a city is required by the federal environmental protection agency to file application for storm water sewer discharge or storm water drainage system under the federal Clean Water Act of 1987, this section does not apply to that city with respect to improvements and facilities required for compliance with federal environmental protection agency regulations, or any city that enters into a chapter 28E agreement to implement a joint storm water discharge or

drainage system with a city that is required by the federal environmental protection agency to file application for storm water discharge or storm water drainage system.

90 Acts, ch 1206, §3; 95 Acts, ch 67, §53; 2001 Acts, ch 56, §33; 2002 Acts, ch 1119, §52; 2023 Acts, ch 64, §62

Referred to in §26.9, 357A.11, 357E.11A, 389.4, 390.5
Subsection 5 amended

384.85 Records — accounts — deposits.

1. The governing body of each city utility, combined utility system, city enterprise, or combined city enterprise being operated on a revenue producing basis shall maintain a proper system of books, records, and accounts.

2. The gross revenues of each city utility, combined utility system, city enterprise, or combined city enterprise must be deposited with the treasurer of the governing body and kept by the treasurer in a separate account apart from the other funds of the city and from each other. The treasurer shall apply the gross revenues of each city utility, combined utility system, city enterprise, or combined city enterprise only as ordered by the governing body and in strict compliance with such orders, including the provisions, terms, conditions, and covenants of any and all resolutions of the governing body pursuant to which revenue bonds or pledge orders are issued and outstanding. If the council is the governing body, it may designate another city officer to serve as treasurer.

[C97, §748; S13, §741-w2, 748; C24, 27, 31, 35, 39, §**5902, 6158;** C46, 50, 54, 58, 62, 66, 71, 73, §384.3(12), 398.9; C75, 77, 79, 81, §384.85]

Referred to in §26.9, 357A.11, 357E.11A, 389.4, 390.5

384.86 Pledge valid and effective.

The pledge of any net revenues of a city utility, combined utility system, city enterprise, or combined city enterprise is valid and effective as to all persons and other governmental bodies when it becomes valid and effective between the city and the holders of the revenue bonds or pledge orders.

[C75, 77, 79, 81, §384.86]

Referred to in §26.9, 357A.11, 357E.11A, 389.4, 390.5

384.87 Payable from revenues.

Revenue bonds and pledge orders are payable both as to principal and interest solely out of the portion of the net revenues of the city utility, combined utility system, city enterprise, or combined city enterprise pledged to their payment and are not a debt of or charge against the city within the meaning of any constitutional or statutory debt limitation provision.

[C58, 62, 66, 71, 73, §386B.10; C75, 77, 79, 81, §384.87]

Referred to in §26.9, 357A.11, 357E.11A, 389.4, 390.5

384.88 Sole remedy.

The sole remedy for a breach or default of a term of a revenue bond or pledge order is a proceeding in law or in equity by suit, action or mandamus to enforce and compel performance of the duties required by this subchapter and of the terms of the resolution authorizing the issuance of the revenue bonds or pledge orders, or to obtain the appointment of a receiver to take possession of and operate the city utility, combined utility system, city enterprise, or combined city enterprise, and to perform the duties required by this subchapter and the terms of the resolution authorizing the issuance of the revenue bonds or pledge orders.

[C58, 62, 66, 71, 73, §386B.10; C75, 77, 79, 81, §384.88]

2018 Acts, ch 1041, §127

Referred to in §26.9, 357A.11, 357E.11A, 389.4, 390.5

384.89 Transfer of surplus.

The governing body of a city utility, combined utility system, city enterprise, or combined city enterprise which has on hand surplus funds, after making all deposits into all funds required by the terms, covenants, conditions, and provisions of outstanding revenue bonds, pledge orders, and other obligations which are payable from the revenues of the city utility,

combined utility system, city enterprise, or combined city enterprise and after complying with all of the requirements, terms, covenants, conditions and provisions of the proceedings and resolutions pursuant to which revenue bonds, pledge orders, and other obligations are issued, may transfer such surplus funds to any other fund of the city in accordance with any rules promulgated by the city finance committee created in section 384.13 if the transfer is also approved by the city council, provided that no transfer may be made if it conflicts with any of the requirements, terms, covenants, conditions or provisions of any resolution authorizing the issuance of revenue bonds, pledge orders, or other obligations which are payable from the revenues of the city utility, combined utility system, city enterprise, or combined city enterprise which are then outstanding.

[C27, 31, 35, §6151-b1 – 6151-b3, 6151-c1; C39, §**6151.1 – 6151.4;** C46, 50, 54, 58, 62, 66, 71, 73, §397.38 – 397.41; C75, 77, 79, 81, §384.89]

Referred to in §26.9, 357E.11A, 389.4, 390.5, 437A.3, 437A.4, 437A.5, 437A.8

384.90 Part payment from other bonds and other sources.

This subchapter does not prohibit or prevent a city from using funds derived from the issuance of general obligation bonds, the levy of special assessments and the issuance of special assessment bonds, and any other source which may be properly used for such purpose, to pay a part of the cost of a project.

[C75, 77, 79, 81, §384.90]

2018 Acts, ch 1041, §127

Referred to in §26.9, 357E.11A, 389.4, 390.5

384.91 City to pay for services.

The city shall pay for the use of or the services provided by the city utility, combined utility system, city enterprise, or combined city enterprise as any other customer, except that the city may pay for use or service at a reduced rate or receive free use or service so long as the city complies with the provisions, terms, conditions and covenants of any and all resolutions pursuant to which revenue bonds or pledge orders are issued and outstanding.

[C75, 77, 79, 81, §384.91]

Referred to in §26.9, 357E.11A, 388.6, 389.4, 390.5

384.92 Statute of limitation.

No action may be brought which questions the legality of revenue bonds or the power of the city to issue revenue bonds or the effectiveness of any proceedings relating to the authorization and issuance of revenue bonds, from and after sixty days from the time the bonds are ordered issued by the city.

[C97, §913; C24, 27, 31, 35, 39, §**6264;** C46, 50, 54, 58, 62, 66, 71, 73, §408.15; C75, 77, 79, 81, §384.92]

Referred to in §26.9, 357A.11, 357E.11A, 386.7, 389.4, 390.5

384.93 Conflicting provisions.

The enumeration in this subchapter of specified powers and functions is not a limitation of the powers of cities, but the provisions of this subchapter and the procedures prescribed for exercising the powers and functions enumerated in this subchapter control and govern in the event of any conflict with the provisions of any other section, division, or chapter of the city code or with the provisions of any other law.

[C75, 77, 79, 81, §384.93]

2018 Acts, ch 1041, §127

Referred to in §26.9, 357A.11, 357E.11A, 389.4, 390.5

384.94 Prior projects preserved.

Projects and proceedings for the issuance of revenue bonds, pledge orders, and other temporary obligations commenced before the effective date of the city code may be consummated and completed as required or permitted by any statute or other law amended or repealed by 1972 Iowa Acts, ch. 1088, as though such repeal or amendment had not occurred, and the rights, duties, and interests flowing from such projects and proceedings remain valid and enforceable. Without limiting the foregoing, projects commenced prior to

said effective date may be financed by the issuance of revenue bonds, pledge orders, and other temporary obligations under any such amended or repealed law or by the issuance of revenue bonds and pledge orders under the city code. For purposes of this section, commencement of a project includes but is not limited to action taken by the governing body or authorized officer to fix a date for either a hearing or an election in connection with any part of the project, and commencement of proceedings for the issuance of revenue bonds, pledge orders, and other temporary obligations includes but is not limited to action taken by the governing body to fix a date for either a hearing or a sale in connection with any part of such revenue bonds, pledge orders, or other temporary obligations or to order any part thereof to be issued.

[C75, 77, 79, 81, §384.94]

2007 Acts, ch 22, §73

Referred to in §26.9, 357E.11A, 389.4, 390.5

SUBCHAPTER VI

BONDS AND CONTRACT LETTING PROCEDURE

384.95 through 384.102 Repealed by 2006 Acts, ch 1017, §41 – 43.

384.103 Bonds authorized — emergency repairs.

1. A governing body may authorize, sell, issue, and deliver its bonds whether or not notice and hearing on the plans, specifications, form of contract, and estimated cost for the public improvement to be paid for in whole or in part from the proceeds of said bonds has been given, and whether or not a contract has been awarded for the construction of the improvement. This subsection does not apply to bonds which are payable solely from special assessment levies against benefited property.

2. *a.* When emergency repair of a public improvement is necessary and the delay of advertising and a public letting might cause serious loss or injury to the city, the chief officer or official of the governing body of the city or the governing body shall make a finding of the necessity to institute emergency proceedings under this section, and shall procure a certificate from a competent licensed professional engineer or licensed architect, certifying that emergency repairs are necessary.

b. In that event, the chief officer or official of the governing body or the governing body may accept, enter into, and make payment under a contract for emergency repairs without holding a public hearing and advertising for bids, and the provisions of chapter 26 do not apply.

[C75, 77, 79, 81, §384.103]

2006 Acts, ch 1017, §37, 42, 43; 2007 Acts, ch 126, §62; 2009 Acts, ch 100, §16, 21; 2010 Acts, ch 1061, §180; 2016 Acts, ch 1011, §60; 2017 Acts, ch 131, §7

Referred to in §28E.6, 314.1, 331.341, 357A.12, 390.3

384.104 through 384.109 Reserved.

SUBCHAPTER VII

INSURANCE, SELF-INSURANCE, AND RISK POOLING FUNDS

384.110 Insurance, self-insurance, and risk pooling funds.

A city may credit funds to a fund or funds for the purposes authorized by section 364.4, subsection 5; section 384.12, subsection 3; or section 384.24, subsection 3, paragraph "*s*". Moneys credited to the fund or funds, and interest earned on such moneys, shall remain in the

fund or funds until expended for purposes authorized by section 364.4, subsection 5; section 384.12, subsection 3; or section 384.24, subsection 3, paragraph *"s"*.

86 Acts, ch 1211, §25; 2023 Acts, ch 71, §17, 19

2023 amendment applies to taxes and budgets for fiscal years beginning on or after July 1, 2024; 2023 Acts, ch 71, §19

Section amended

384.111 through 384.119 Reserved.

SUBCHAPTER VIII

DEFINITIONS

384.120 Definitions.

As used in this chapter, unless the context otherwise requires, *"book"*, *"list"*, *"record"*, or *"schedule"* kept by a county auditor, assessor, treasurer, recorder, sheriff, or other county officer means the county system as defined in section 445.1.

2000 Acts, ch 1148, §1

ENGINEER'S ESTIMATE

2020 STREET & UTILITY IMPROVEMENTS

CITY OF STORM LAKE

IDOT Project Number: STBG-SWAP-7422(618)--SG-11

BOLTON & MENK
Real People. Real Solutions.

October 26, 2020

Item No.	Item	Unit	PARTICIPATING	NON-PARTICIPATING	TOTAL	Unit Price	Total Amount
1	CLEARING AND GRUBBING	UNIT	160.0	-	160	$30.00	$4,800.00
2	EXCAVATION, CLASS 13, ROADWAY AND BORROW	CY	6483.0	-	6483	$15.00	$97,245.00
3	TOPSOIL, FURNISH AND SPREAD	CY	1236.0	-	1236	$60.00	$74,160.00
4	SPECIAL COMPACTION OF SUBGRADE	STA	21.0	-	21	$1,080.00	$22,680.00
5	MODIFIED SUBBASE	CY	1843.0	-	1843	$64.00	$117,952.00
6	SHOULDER FINISHING, EARTH	STA	30.0	-	30	$480.00	$14,400.00
7	RELOCATION OF MAIL BOXES	EACH	1.0	-	1	$500.00	$500.00
8	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS A, CLASS 3 DURABILITY, 7"	SY	8481.0	-	8481	$50.00	$424,050.00
9	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE	TON	21.0	-	21	$34.00	$714.00
10	MANHOLE, SANITARY SEWER, SW-301, 48"	EACH	-	1.0	1	$6,600.00	$6,600.00
11	MANHOLE, STORM SEWER, SW-401, 48"	EACH	1.0	-	1	$4,000.00	$4,000.00
12	MANHOLE, STORM SEWER, SW-401, 60"	EACH	3.0	-	3	$6,000.00	$18,000.00
13	MANHOLE, STORM SEWER, SW-401, 72"	EACH	1.0	-	1	$7,000.00	$7,000.00
14	MANHOLE, STORM SEWER, SW-401, 84"	EACH	1.0	-	1	$9,500.00	$9,500.00
15	MANHOLE, STORM SEWER, SW-402 MODIFIED	EACH	1.0	-	1	$9,000.00	$9,000.00
16	INTAKE, SW-501	EACH	10.0	-	10	$3,400.00	$34,000.00
17	INTAKE, SW-502, 48"	EACH	3.0	-	3	$4,000.00	$12,000.00
18	INTAKE, SW-502, 60"	EACH	3.0	-	3	$6,000.00	$18,000.00
19	INTAKE, SW-505	EACH	4.0	-	4	$4,500.00	$18,000.00
20	SUBDRAIN, LONGITUDINAL, (SHOULDER) 6"	LF	3984.0	-	3984	$14.00	$55,776.00
21	SUBDRAIN RISER, 6", AS PER PLAN	EACH	21.0	-	21	$600.00	$12,600.00
22	SUBDRAIN OUTLET, DR-303	EACH	37.0	-	37	$315.00	$11,655.00
23	STORM SEWER GRAVITY MAIN, TRENCHED, RCP 2000D, 24"	LF	16.0	-	16	$70.00	$1,120.00
24	STORM SEWER GRAVITY MAIN, TRENCHED, RCP 2000D, 30"	LF	22.0	-	22	$78.00	$1,716.00
25	STORM SEWER GRAVITY MAIN, TRENCHED, RCP 2000D, 36"	LF	50.0	-	50	$115.00	$5,750.00
26	STORM SEWER GRAVITY MAIN, TRENCHED, RCP 3750D, 12"	LF	8.0	-	8	$250.00	$2,000.00
27	STORM SEWER GRAVITY MAIN, TRENCHED, RCP 3750D, 15"	LF	943.0	-	943	$60.00	$56,580.00
28	STORM SEWER GRAVITY MAIN, TRENCHED, RCP 3750D, 18"	LF	83.0	-	83	$63.00	$5,229.00
29	STORM SEWER GRAVITY MAIN, TRENCHED, 2000D LOW CLEARANCE CONCRETE PIPE, EQUIVALENT DIAMETER 24 IN	LF	753.0	-	753	$60.00	$45,180.00
30	STORM SEWER GRAVITY MAIN, TRENCHED, 2000D LOW CLEARANCE CONCRETE PIPE, EQUIVALENT DIAMETER 30 IN	LF	359.0	-	359	$64.00	$22,976.00
31	REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36"	LF	2155.0	-	2155	$17.00	$36,635.00
32	SANITARY SEWER GRAVITY MAIN, TRENCHED, PVC, 8"	LF	-	66.0	66	$100.00	$6,600.00
33	SANITARY SEWER SERVICE STUB, PVC, 4"	LF	-	57.0	57	$75.00	$4,275.00

ENGINEER'S ESTIMATE

2020 STREET & UTILITY IMPROVEMENTS

CITY OF STORM LAKE

IDOT Project Number: STBG-SWAP-7422(618)--SG-11

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October 26, 2020

Item No.	Item	Unit	PARTICIPATING	NON-PARTICIPATING	TOTAL	Unit Price	Total Amount
34	SANITARY SEWER SERVICE STUB, PVC, 6"	LF	-	46.0	46	$92.00	$4,232.00
35	REMOVE SANITARY SEWER PIPE LESS THAN OR EQUAL TO 36"	LF	-	66.0	66	$30.00	$1,980.00
36	REMOVAL OF PAVEMENT	SY	9393.0	-	9393	$4.00	$37,572.00
37	REMOVAL OF INTAKE AND UTILITY ACCESS	EACH	19.0	-	19	$500.00	$9,500.00
38	REMOVAL OF SIDEWALK	SY	429.0	-	429	$10.00	$4,290.00
39	SIDEWALK, PCC, 5"	SY	117.0	-	117	$54.00	$6,318.00
40	SIDEWALK, PCC, 6"	SY	298.0	-	298	$59.00	$17,582.00
41	DETECTABLE WARNING	SF	216.0	-	216	$43.00	$9,288.00
42	DRIVEWAY, PCC, 6"	SY	2925.0	-	2925	$60.00	$175,500.00
43	REMOVAL OF PAVED DRIVEWAY	SY	2255.0	-	2255	$7.00	$15,785.00
44	SAFETY CLOSURE	EACH	14.0	-	14	$150.00	$2,100.00
45	REMOVE AND REINSTALL SIGN	EACH	17.0	-	17	$215.00	$3,655.00
46	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT	STA	5.57	-	5.57	$500.00	$2,785.00
47	PAINTED SYMBOL AND LEGEND, WATERBORNE OR SOLVENT	EACH	2.0	-	2	$200.00	$400.00
48	TRAFFIC CONTROL	LS	0.8	0.2	1	$30,000.00	$30,000.00
49	MOBILIZATION	LS	0.8	0.2	1	$50,000.00	$50,000.00
50	TRENCH FOUNDATION	TON	50.0	150.0	200	$36.00	$7,200.00
51	WATER MAIN, TRENCHED, PVC, 6"	LF	-	2066.0	2066	$53.00	$109,498.00
52	FITTINGS BY WEIGHT, DUCTILE IRON	LB	-	745.0	745	$10.00	$7,450.00
53	WATER SERVICE STUB, POLYETHYLENE, 1"	LF	-	199.0	199	$37.00	$7,363.00
54	WATER SERVICE CURB STOP & BOX	EACH	-	12.0	12	$800.00	$9,600.00
55	VALVE, GATE, DIP, 4"	EACH	-	4.0	4	$1,300.00	$5,200.00
56	VALVE, GATE, DIP, 6"	EACH	-	12.0	12	$1,600.00	$19,200.00
57	FIRE HYDRANT ASSEMBLY, WM-201	EACH	-	5.0	5	$5,500.00	$27,500.00
58	DELIVER AND STOCKPILE SALVAGED MATERIALS	LS	1.0	-	1	$1,200.00	$1,200.00
59	CONNECT TO EXISTING SANITARY SEWER	EACH	-	4.0	4	$250.00	$1,000.00
60	CONNECT TO EXISTING STORM SEWER	EACH	1.0	-	1	$400.00	$400.00
61	CONNECT TO EXISTING WATER MAIN	EACH	-	9.0	9	$2,000.00	$18,000.00
62	SALVAGE FIRE HYDRANT	EACH	-	4.0	4	$850.00	$3,400.00
63	SANITARY SEWER SERVICE REPAIR	EACH	-	5.0	5	$2,000.00	$10,000.00
64	TILE REPAIR	EACH	5.0	-	5	$950.00	$4,750.00
65	YARD HYDRANT	EACH	-	1.0	1	$3,000.00	$3,000.00
66	EXPLORATORY EXCAVATION	HOUR	16.0	3.0	19	$400.00	$7,600.00
67	SWEEPING	HOUR	49.0	-	49	$200.00	$9,800.00

ENGINEER'S ESTIMATE

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CITY OF STORM LAKE

IDOT Project Number: STBG-SWAP-7422(618)--SG-11

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October 26, 2020

Item No.	Item	Unit	PARTICIPATING	NON-PARTICIPATING	TOTAL	Unit Price	Total Amount
68	4" SUBDRAIN STUB	LF	120.0	-	120	$30.00	$3,600.00
69	WATERMAIN REMOVAL OR ABANDONMENT	LF	-	1918.0	1918	$15.00	$28,770.00
70	GARBAGE SERVICE MAINTENANCE	LS	1.0	-	1	$5,000.00	$5,000.00
71	TEMPORARY MAIL SERVICE MAINTENANCE	LS	1.0	-	1	$5,000.00	$5,000.00
72	TEMPORARY WATER	LS	-	1.0	1	$50,000.00	$50,000.00
73	DUST CONTROL	MGAL	500.0	-	500	$35.00	$17,500.00
74	POLYSTYRENE INSULATION, 4"	SY	-	25.0	25	$180.00	$4,500.00
75	TEMPORARY GRANULAR SURFACE CASE 1	SY	1615.0	-	1615	$10.00	$16,150.00
76	TEMPORARY ROLLED EROSION CONTROL PRODUCTS (RECP), TYPE 1B	SY	9600.0	-	9600	$2.00	$19,200.00
77	GRANULAR SUBBASE	TON	5905.0	-	5905	$23.00	$135,815.00
78	TEMPORARY GRANULAR SURFACE CASE 2	TON	150.0	-	150	$30.00	$4,500.00
79	MULCH, BONDED FIBER MATRIX	ACRE	2.0	-	2	$4,500.00	$9,000.00
80	SEED AND FERTILIZE (URBAN)	ACRE	2.0	-	2	$4,000.00	$8,000.00
81	HYDRAULIC SEEDING	ACRE	2.0	-	2	$3,500.00	$7,000.00
82	STABILIZED CONSTRUCTION ENTRANCE, EC-303	LF	160.0	-	160	$58.00	$9,280.00
83	GRATE INTAKE SEDIMENT FILTER BAG	EACH	48.0	-	48	$200.00	$9,600.00
84	MAINTENANCE OF GRATE INTAKE SEDIMENT FILTER BAG	EACH	132.0	-	132	$40.00	$5,280.00
85	REMOVAL OF GRATE INTAKE SEDIMENT FILTER BAG	EACH	48.0	-	48	$40.00	$1,920.00
86	MOBILIZATION, EROSION CONTROL	EACH	10.0	-	10	$500.00	$5,000.00
		Subtotals:	**$1,780,428.00**	**$348,528.00**			

OPINION OF PROBABLE CONSTRUCTION COST: $2,128,956.00

Cedar Rapids

Chapter 5 - Special Assessments

One of the funding resources available to public entities is special assessments. This chapter spells out what types of improvements the City may choose to assess for as well as how they may assess including via petition and assessment agreements, voluntary assessments, or by following the special assessment process set forth in the Iowa State Code.

Assessable Improvements

Iowa State Code allows cities to assess the cost of construction and repair of public improvements. The Code gives cities considerable leeway in deciding what public improvements to assess for. However, the City of Cedar Rapids' standing practice has been more limited. The City has followed these guidelines in the past:

Any project which makes an improvement benefiting a property within the assessment district is typically assessed. Examples include but are not limited to the following:

- Upgrading a seal coat street to a street with a permanent surface
- Adding curb and gutter to a street
- Adding a turn lane to an existing roadway
- Replacing a private sanitary sewer service line (ex. Orangeburg)
- Installing traffic signals where they did not exist before
- Stormwater drainage improvements

The City of Cedar Rapids does not currently assess the following types of costs:

- Replacing sidewalk, when prompted by changes to the roadway
- Constructing ADA-accessible sidewalk ramps
- Replacing paved private driveways, when prompted by changes to the roadway
- Replacing private water services between the main and the stop box
- Installing drain tile where it did not exist before

Refer to website: IOWA STATE CODE - CHAPTER 384

Sidewalk Improvements

NEW SIDEWALK

When the new sidewalk is constructed where it did not previously exist, it will be specially assessed according to the City's sidewalk assessment policy.

Refer to document: CITY OF CEDAR RAPIDS, IOWA NEW SIDEWALK CONSTRUCTION SPECIAL ASSESSMENT POLICY MARCH 2017

SIDEWALK REPAIR

The City manages an Annual Sidewalk Repair program to maintain the existing sidewalks. Identified problems are recorded and shared with the adjacent property owner. The owner is given an opportunity to conduct the repair with their own contractor. Otherwise, the City conducts the repair and assesses the cost to the property owner. When planning a CIP project, consult the Sidewalk Repair Program Coordinator to determine if plans are in place to repair the area with this program.

Utility Extensions

Requests for sanitary sewer, storm sewer, or water main extensions to the property are not typically built as assessment projects. They are typically a Building Services function and do not often require involvement from Engineering.

Petition and Assessment Agreements
A property owner may petition the City to construct improvements to benefit the owner's property and agree to be assessed by the City for costs to construct the improvements in accordance with the Code of Iowa and City assessment policy and procedures. These agreements are typically between the City and a developer for future improvements. A Petition and Assessment Agreement (P&AA) is a document that is signed by a property owner and submitted to the City to address the cost of the future improvements. For example, a developer may postpone installing a concrete sidewalk adjacent to the houses they built until the City urbanizes an adjacent road in the future. The agreement is bound to the property, not the owner who signs the agreement. Whoever owns the property at that future point would be responsible for the cost of constructing the sidewalk.

If there is an existing P&AA (or some other similarly named agreement) in place for a property, the assessment process spelled out in Iowa Code does not have to be followed. This is because, per the language in the P&AA, the property owner agrees to pay the cost for the public improvements and waives the right to object to the assessment. However, the City may choose to follow the assessment process and allow objections to be expressed at a public hearing.

P&AAs are typically stored within the same files as the subdivision's Final Plat. Agreements for individual, un-platted properties can usually be found among property records on the Linn County Recorder's website.

Refer to document: SOP – FINDING PLANS AND RECORD DOCUMENTS

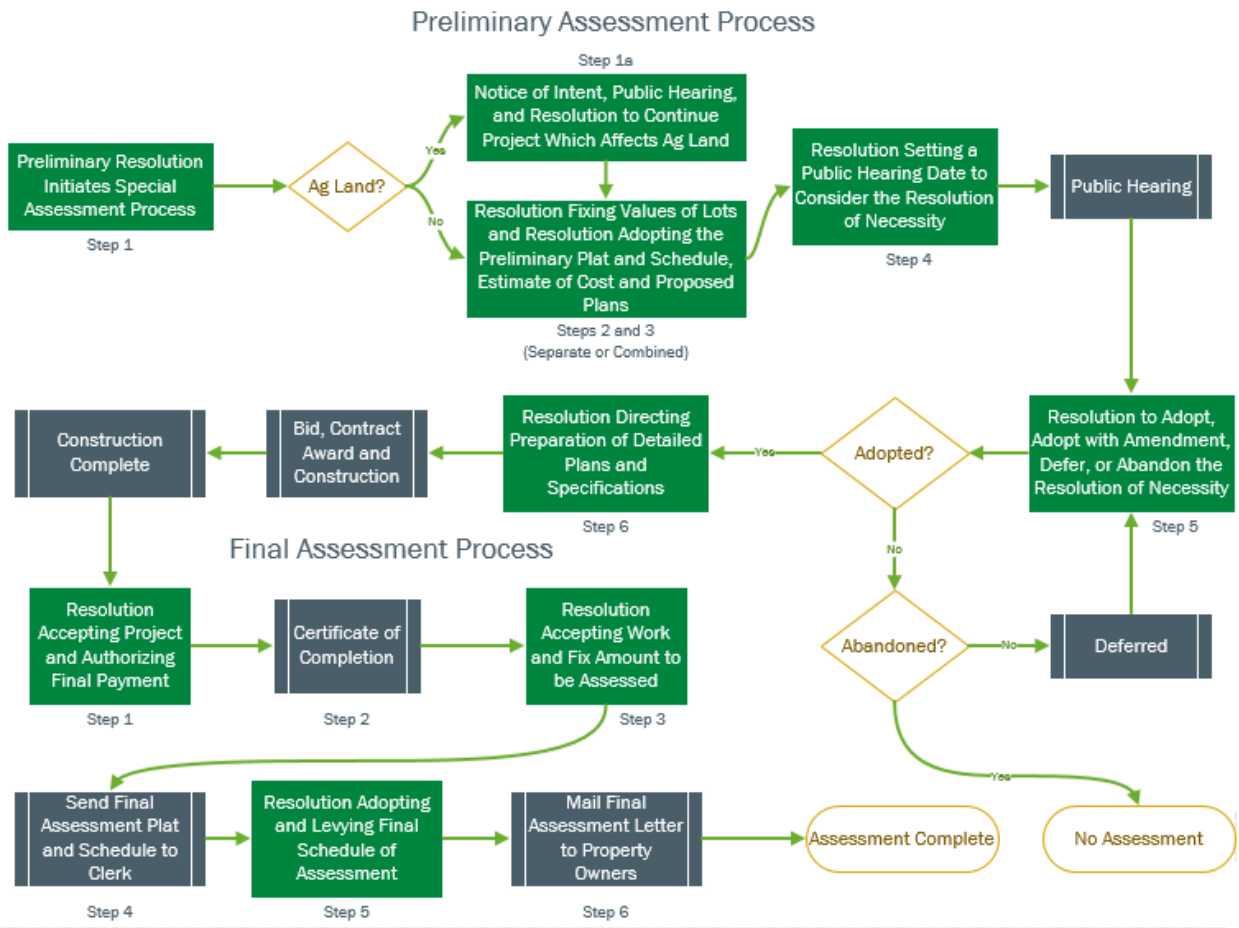
Assessments for Property Owner Petitioned Improvements
A property owner or owners may petition the City to build an improvement and voluntarily accept the cost of the project. Common requests include alley paving; sidewalk extension; and curb and gutter installation. If the number of assessments is relatively small and all of the property owners adjacent to the proposed improvement are in favor of the assessed improvement, Voluntary Assessment Agreements may be considered. This eliminates the need to hold a public hearing and significantly reduces the preliminary assessment process. A Voluntary Assessment Agreement may also be considered when an issue arises late in the design – i.e. discovery of Orangeburg sanitary sewer services.

Refer to document: SOP – PETITION BY PROPERTY OWNERS FOR IMPROVEMENTS

Special Assessment Process
To construct or repair a public improvement to be paid for in whole or in part by special assessment, a detailed process must be followed. This process is spelled out in the Iowa State Code.

Refer to website: IOWA STATE CODE - CHAPTER 384

If the proper sequence is not followed, the assessment will not be enforceable, and the City will have to find an alternative funding source. The entire process includes preliminary assessments, bidding, construction, and final assessments.



Preliminary Special Assessments
If the decision is made to proceed with assessing for an improvement, the Preliminary Assessment process must be followed. The purpose of this process is to ensure the affected property owners are aware of the proposed improvements and are given ample opportunity to object to the project. The process takes a minimum of five Council meetings to complete, for a total minimum of approximately three months.

Refer to document: SOP – PRELIMINARY SPECIAL ASSESSMENTS

Final Special Assessments
Once a construction contract is accepted by Council, this kicks off the series of steps necessary to issue a Final Assessment. The timing of the Final Assessment is more sensitive than the Preliminary Assessment. The Final Assessment requires two Council meetings to complete. If the proper procedure and time intervals aren't followed, a property owner could challenge and invalidate the assessment.

Refer to document: SOP - FINAL SPECIAL ASSESSMENTS

Pre-Payments of Assessments
At times, an owner will sell their property after the preliminary assessment has been issued but before the final assessment has been issued. As assessments are levied against the property, not the individual, the current property owner at the time when final assessments are issued is

responsible for the assessment. Therefore, some lending institutions may require the current owner to pay off the assessment before the property is sold – i.e. before the final assessment. Contact the Program Manager for additional information.

The City's preference is to try to avoid accepting pre-payments wherever possible, especially for Preliminary Assessment amounts. Doing so properly entails placing the funds into escrow so that the future property owner may be reimbursed the balance of a pre-payment if the Final Assessment value comes in lower than the Preliminary. The Real Estate Management team can provide guidance on the use of escrow services.

If the City does accept a pre-payment, obtain a customer number and an invoice number from the Finance Department Accounts Receivable Manager. These will be needed by the Treasurer to accept the payment.

LYON	OSCEOLA	DICKINSON	EMMET
SIOUX	O'BRIEN	CLAY	PALO ALTO
		BUENA VISTA	

REGION III

MAP-21

APPLICATION

PACKAGE

2017-2020 Regional Transportation Improvement Program Years

Application Produced by: The Northwest Iowa Planning & Development Commission

APPLICATION FOR REGION III TRANSPORTATION PROJECTS

Complete and return the original plus (1) copy to: Ted Kourousis, Executive Director, NWIPDC
P.O. Box 1493, Spencer, Iowa 51301 by 4:30 p.m. 3/11/2016
(Please do not send any color maps or maps larger than 8.5" x 14" legal size paper)

1. Project Name: Oneida Street Reconstruction			Date: 3/7/2016
2. Contact Person: Jason Etnyre, Public Works Director			Phone Number: 712 732-8000
3. Address of Contact Person	City	County	Zip Code
P.O. Box 1086	Storm Lake, Iowa	Buena Vista	50588
4. Project Sponsor (lead entity if multi-jurisdictional) City of Storm Lake			Sponsor Signature

5. Classification of Project: (check all that apply)

x Highway

☒ Construction, reconstruction resurfacing, restoration, and rehabilitation

☐ Highway safety improvements Capital and operating costs for traffic management and control

☐ Surface Transportation planning, highway And research and development

☐ Operational Improvements

☐ Fringe and corridor parking facilities

☐ Most transportation control measures in The Clean Air Act

☐ Development and establishment of management system

☐ Transit

☐ Capital Costs for transit projects

☐ Surface Trans. planning for transit technology transfer activities

☐ Transportation Alternatives

☐ Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990

☐ Conversion and use of abandoned railroad corridors for trails for pedestrians, bicyclists, or other non-motorized transportation users

☐ Construction of turnouts, overlooks, and viewing areas

☐ Community improvement activities, including-
*inventory, control, or removal of outdoor advertising;
*historic preservation and rehabilitation of historic transportation facilities;
*vegetation management practices in transportation rights-of-way to improve roadway safety, prevent against invasive species, and provide erosion control; and
*archaeological activities relating to impacts from Implementation of a transportation project eligible under title 23

☐ Any environmental mitigation activity, including prevention and pollution abatement activities and mitigation to-
*address stormwater management, control, and water pollution prevention and abatement related to highway construction or due to highway runoff, including activities described in sections 133(b)(11), 328(a), and 329 of title 23; or
*reduce vehicle-caused wildlife mortality or to restore and Maintain connectivity among terrestrial or aquatic habitats

☐ The recreational trails program under section 206 of title 23

☐ Planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former right-of-way of former Interstate System routes or other divided highways

6. Please describe the proposed project within the space provided.

This project provides for the reconstruction of Oneida Street from Hwy 7 (Milwaukee Avenue) to East Railroad Street in the City. Project includes removal and replacement of a 70+ year old collector street in a 100 foot right of way with a new roadway designed to carry the current traffic loading. The roadway is beyond its useful life and requires substantial patching and other repairs yearly. The corridor has heavy commercial and industrial users along its west side with dependence on good infrastructure to serve its clients. The roadway is also a main north-south corridor that connects the schools with the main residential areas of the community. Businesses located along the roadway include service companies such as a feed mill with scales that service Hillshire and Tyson Foods and the School transportation fleet facility. The project will consist of complete removal and replacement of approximately 2,200 feet of 31 foot wide roadway with replacement using a 31 foot wide PCC pavement, 8" thick on a modified subgrade with subdrains. The total project cost is approximately $1,800,000 with the city applying for 60% STP funding for the roadway portion of the project. Other improvements to be financed by the city include storm sewer, water main and sanitary sewer improvements along with the engineering costs. Not easements or right of way acquisition is anticipated with the project.

7. Please provide a brief description of the project area. Include a map with the area marked (please do not enclose and color maps or maps larger than 8.5" x 14" (legal size) paper

Oneida Street is a main north-south corridor in the city that runs from 13th Street on the north side of the city to the lake on the south. It is evident that the city fathers when platting the community intended the roadway to serve as a collector roadway serving the community. See attached map of the city.

8. Project Budget

EXPENSES		REVENUE		
ITEM	COST	SOURCE	AMOUNT	%
Land/Site Acquisition Costs	0	Fed.	594,300	33
Construction/Materials Costs	$1,554,500	Local	$1,193,700	67
Engineering/Consulting Costs	$233,500		Click here to enter text	Click here to enter text
Capital Acquisition explain:	0		Click here to enter text	Click here to enter text
Click here to enter text.			Click here to enter text	Click here to enter text

Other (expl.)
The city is requesting 60% funding for the roadway portion of the project estimated at $990,500. Other construction costs to include storm sewer, water main and sanitary sewer is estimated at $564,500 and will be paid out of city funding.

TOTAL COST	$1,788,000	TOTAL COST	$1,788,000	100

9. Work plan and schedule for project completion (please be sure to coincide the work plan with the correct federal fiscal year, fiscal year for this cycle is 2020 (Federal fiscal year is October 1-September 30)

The proposed schedule for the improvements anticipated to be constructed in CY 2020 is as follows:
Design phase May-October 2019
Letting December 2019- January 2020
Construction April 2020-September 2020
Project Closeout October 2020-December 2020

10. Is there a need to coordinate with another entity in the programming and/or implementation of this project?

☐ Yes ☒ No

If yes, list other entities involved and describe the interaction needed and coordination to date.

Click here to enter text.

QUESTIONS 11-13 ARE FOR HIGHWAY PROJECTS ONLY

11. If applicable, what is the Average Daily Traffic of the proposed project? 1,280

12. If applicable, what is the Federal Functional Classification(s) of the route within the proposed project?

Collector

13. If applicable, what are the basic roadway sufficiency numbers for the route within the proposed project?

Unknown

PROJECT CHECKLIST

14. The following items are required		Note: Applications must specifically and directly answer each criterion within the space provided to receive points. Pertinent attachments are allowed such as maps, drawings, and/or photos as long as they are reproducible
☒	Project Description	
☒	Project Location Map (reproducible)	
☒	Project Budget	
☒	Project work plan with schedule	

Please fill in the following appropriate blanks:

We, the City of Storm Lake Support this application for Oneida Street Reconstruction
(city, County or State) (Project Name)
by submitting this application, Regional MAP-21 (Transportation Alternatives or Surface Transportation)
(underline one)
funds in the amount of $594,300 are requested. This project has the support of local match

funding of $1,193,700, which is 67% of the anticipated project costs.

BY: _____
Jon Kruse, Mayor

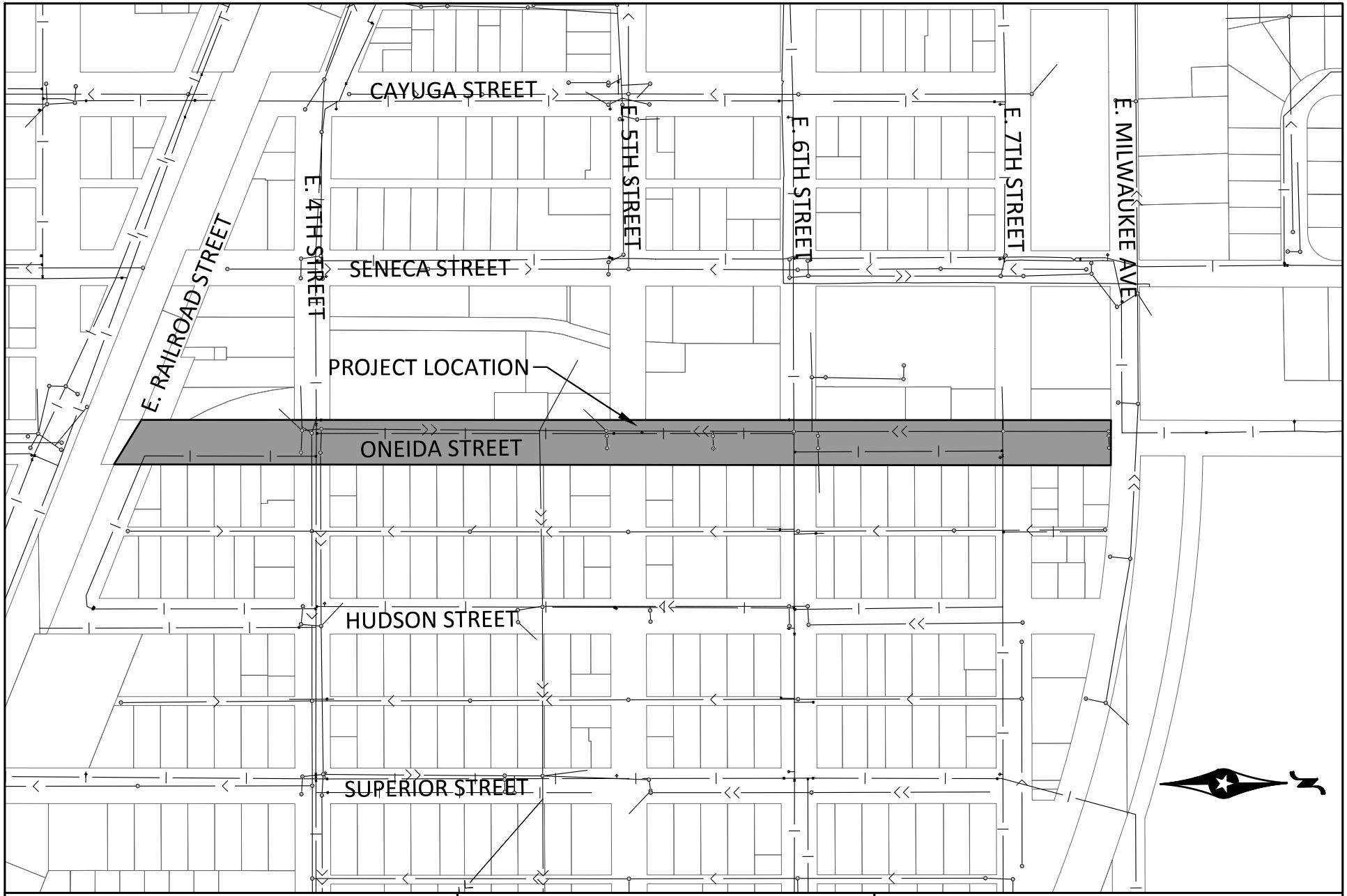
ATTEST: _____
Sue Vossberg, City Clerk

Oneida Street Reconstruction
Hwy 7 (Milwaukee Ave) to Railroad Street
February 2016

A.	Street Related Improvements		
	1. Pavement Removal 8,800 SY @ $10/ SY	$88,000	
	2. Subgrade Preparation 9,950 SY @ $2.50/ SY	$24,875	
	3. 6" Thick Modified Subbase 2,920 TONS @ $30/ TON	$87,600	
	4. Earthwork 6,500 CY @ $10/ CY	$65,000	
	5. 8" PCC Pavement 8,800 SY @ $50/ SY	$440,000	
	6. Driveway Removal/ Replacement 1,250 SY @ $45/ SY	$43,750	
	7. Sidewalk Removal 200 SY @ $8/ SY	$16,000	
	8. Pedestrian Ramps 30 EA @ $1200/ EA	$36,000	
	9. Subdrains 2,500 LF @ $20/ LF	$50,000	
	10. Mobilization	$50,000	
	11. Traffic Control	$25,000	
	12. Contingency	$64,275	
	Roadway Related Work Subtotal:		$990,500
B.	Non-Roadway Related Work		
	1. 8" Watermain 2,000 LF @ $50/ LF	$250,000	
	2. 18" Storm Sewer 2,100 LF @ $60/ LF	$126,000	
	3. Intakes 16 EA @ $4,000/ EA	$64,000	
	4. Storm Manholes 8 EA @ $4,000/ EA	$32,000	
	5. Sanitary Sewer Replacement	$18,000	
	6. Misc. Utility Contingency	$74,000	
	Non-Roadway Subtotal		$564,000
C.	Estimated Construction Costs		$1,554,500
D.	Engineering (Design & Construction)		$233,500
E.	Total Project Cost		$1,788,000

F. Project Schedule

1.	Consultant Selection	March 2019
2.	Concept Statement Submittal	May 2019
3.	Preliminary Plans Submittal	June 2019
4.	Final Plans & PDC Submittal	August 2019
5.	Letting	Dec. 2019- Jan. 2020
6.	Construction	April – Sept. 2020
7.	Project Closeout	Oct- Dec. 2020



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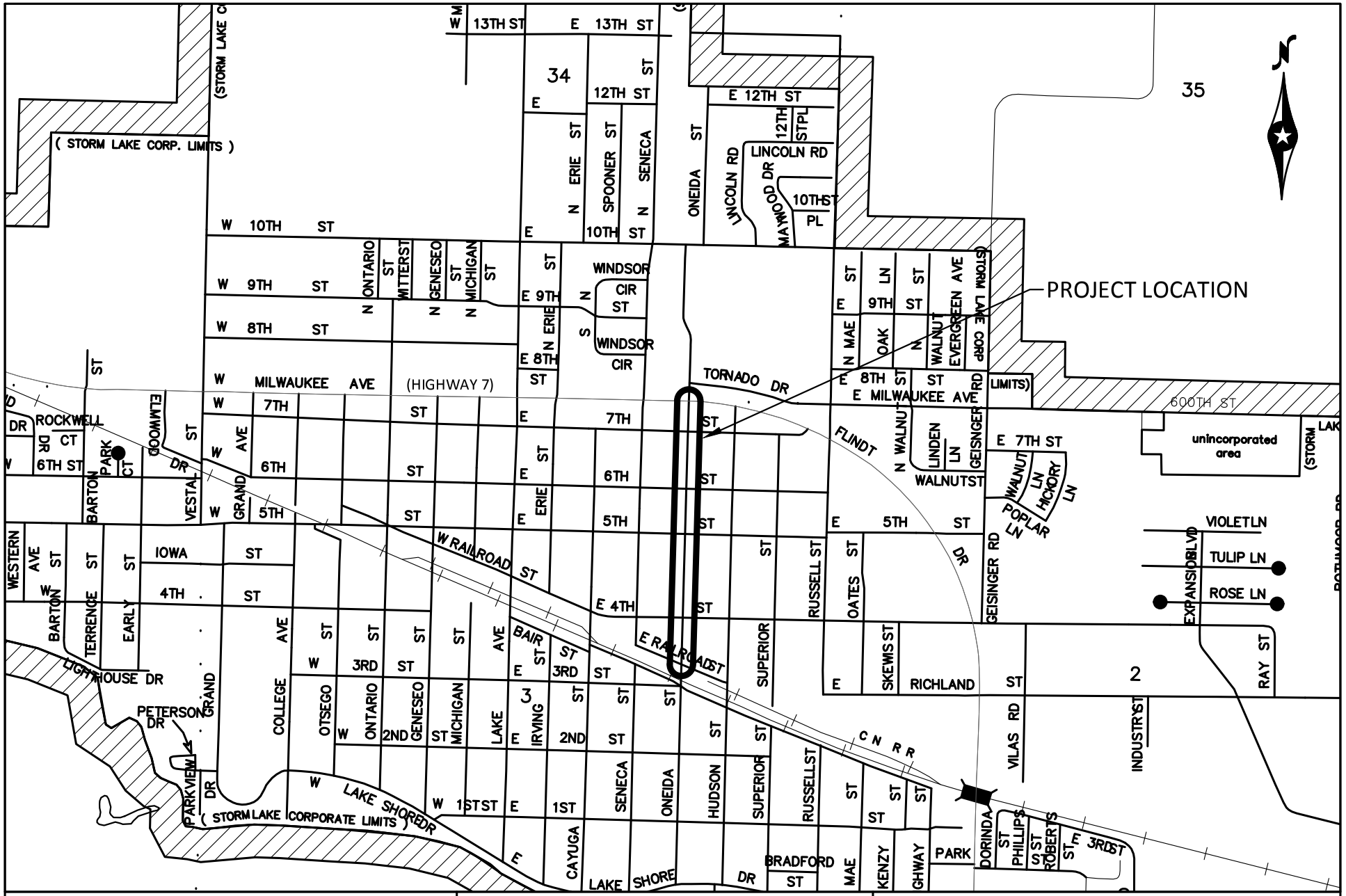
BOLTON & MENK, INC.
Consulting Engineers & Surveyors
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN WILLMAR, MN
CHASKA, MN RAMSEY, MN MAPLEWOOD, MN BAXTER, MN ROCHESTER, MN
AMES, IA SPENCER, IA DES MOINES, IA FARGO, ND

CITY OF STORM LAKE, IOWA
ONEIDA STREET RECONSTRUCTION
E. MILWAUKEE AVE TO E. RAILROAD ST

FEBRUARY, 2016 FIGURE NO. 1



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Infrastructure Management Plan

City of Storm Lake, IA

July 2021

Submitted by:
Bolton & Menk, Inc.
212 11th Street SW Plaza
Spencer, IA 51301
P: 712-580-5075

Certification

2021 Infrastructure Management Plan

City of Storm Lake, Iowa

July 2021

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. _____ Date: _____ Joshua Pope License No. 23600 My renewal date is 12/31/2021 Pages or sheets covered by this seal: All Sheets

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- C-1: Pavement Maintenance Projects (2 pages)
- C-2: Pavement Rehabilitation Projects (3 pages)
- C-3: Reconstruction Projects (7 pages)

I. INTRODUCTION

A. Purpose

The purpose of this report is to summarize the overall conditions of pavements and utilities within the City of Storm Lake. Once the existing conditions are understood, the need for maintenance and replacement costs can be better understood. This report will provide the information needed for budgeting and planning future projects. This information can then be used for updating the City's Capital Improvement Plan.

B. Method & Scope

Traditionally, cities approach infrastructure management from a reactive approach. As issues arise, a City will respond to the most immediate needs first. This type of infrastructure management may seem efficient since only the most critical elements are being replaced; however proactive management of these systems have proven to be more effective and efficient.

This report describes an infrastructure management strategy that is more proactive than traditional methods. This approach recognizes that the street and utility systems within Storm Lake are interwoven. Proper timing for maintenance and replacement of all elements will ensure that the useful life of all infrastructure within a given corridor is maximized prior to replacement. This approach will also improve the overall quality of infrastructure over its useful life and reduce the potential for unplanned and unforeseen replacements.

This report will discuss the existing conditions, maintenance, and replacement procedures for public streets, water distribution system piping, and sanitary collection system piping.

The following sections first include discussion on pavement management, followed by utility (watermain and sanitary sewer) management. The report is concluded with a summary of how to use this information for future infrastructure maintenance and replacement planning.

II. PAVEMENT MANAGEMENT

A. Introduction & Approach

The timing of maintenance and rehabilitation of concrete pavements can greatly influence their effectiveness, costs, and overall pavement life. In general, once a pavement needs attention, the sooner maintenance or rehabilitation activity is undertaken, the more cost-effective it will be. Storm Lake maintains approximately 50 miles of paved streets. This includes 32 miles of concrete pavement, 3 miles of asphalt pavement, and 15 miles of street consisting of both pavement types. This represents a significant portion of the City's capital worth and needs to be managed efficiently. These lengths do not include highways or county roads within city limits.

In 2020, the Iowa Department of Transportation conducted a visual condition survey of City streets. This process was undertaken to determine the current condition of these assets and rate their condition relative to each other. The City can use this baseline data for determining the appropriate timing of cost-effective road treatments.

The visual conditions were evaluated using the general guidelines of the Pavement Condition Index (PCI) system, quantifying several different types of pavement distress. This rating system assigns a numerical rating to each street within the community. The City can use this data to prioritize needs and assign the proper level of maintenance for each street.

Total reconstruction of a street is a very costly procedure. Research shows that periodic maintenance of streets in good condition can extend their service life at a reduced cost and increase the average pavement condition throughout the service life.

B. Street Life Cycle

The condition of a street pavement is affected by several factors, including but not limited to:

- Street section (pavement and aggregate base thickness)
- Traffic characteristics and loading
- Subgrade soil (sand, clay, silt) and moisture conditions
- Drainage (street profile, cross section, storm sewer)
- Age
- Maintenance program

Each of the above listed items contributes to the overall condition and lifecycle of a public street. It is not uncommon for streets in the same area and constructed at the same time, to vary in condition.

In many cases, the approach utilized by cities includes rehabilitation and reconstruction to address the poorest condition road segments first with less attention paid to preventative maintenance. The approach advocated by pavement experts recommends that more attention be placed on preventative maintenance and preserving the pavement condition to extend the useful life of the road segment.

After the initial construction, concrete pavements require periodic maintenance and rehabilitation to maximize life. In general, concrete pavements deteriorate slowly during the first 25 years of the street lifecycle. Following this period, pavements tend to deteriorate more rapidly.

Figure 1 illustrates how the typical street condition will deteriorate with little to no maintenance or rehabilitation.

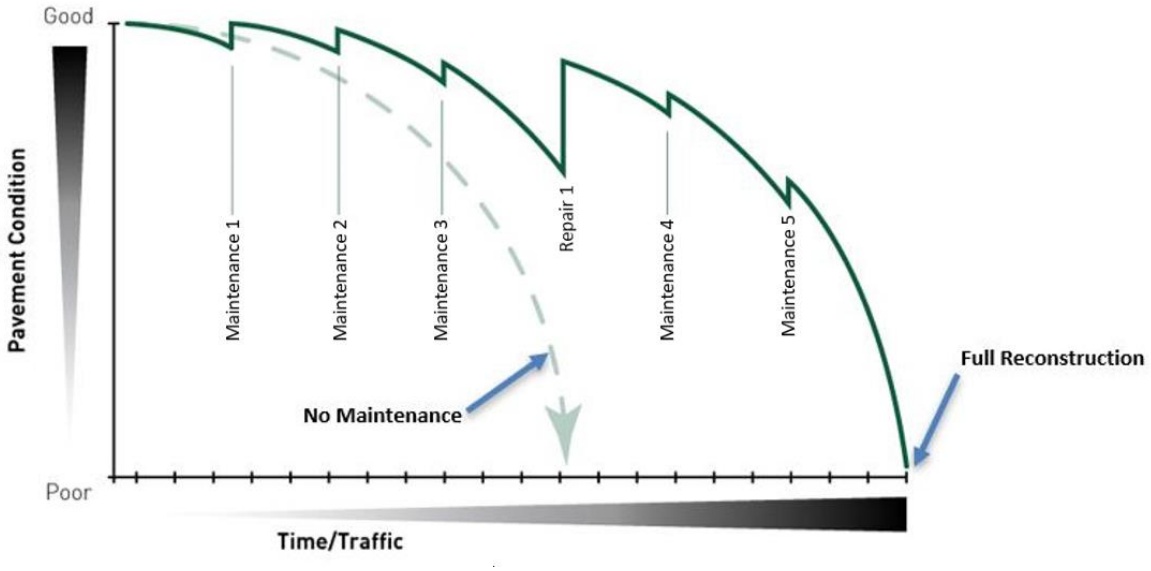
Figure 1: Typical Pavement Lifecycle w/ No Maintenance or Rehabilitation

The first and most cost-effective approach to extending the life of pavement is through joint/crack sealing and isolated repairs. This type of maintenance prevents the migration of surface water into the underlying soils and repairs pavement defects before they impact the structural integrity of the pavement. Collectively, joint/crack sealing and isolated pavement repairs will increase the life of pavements moderately, if completed within 5-10 years of construction.

Eventually, pavements will deteriorate to a level where maintenance costs increase and the benefits of the joint/crack sealing and isolated repairs decrease. In these cases, the next level of pavement management will generally include full depth repairs and panel replacements.

With the proper combination of pavement maintenance and rehabilitation, a pavement can be used for 50 years or more. ***Figure 2*** shows how the pavement lifecycle can be maximized using the proper combination of maintenance and rehabilitation.

Figure 2: Typical Pavement Lifecycle w/ Maintenance & Rehabilitation



In any scenario, pavements will eventually deteriorate to a point where low-cost maintenance or rehabilitation activities are no longer effective and a complete replacement of the street section (reconstruction) is required. The amount of effort a City puts into the street before it reaches this point will ultimately influence how often these costly reconstructions occur.

Table 1 provides an example cost analysis for comparing the costs of pavement management with and without an active maintenance program. Anticipated costs and general pavement conditions are provided over a 60-year time period.

Table 1 - Pavement Life Cycle Cost Example				
Item		**Year**	**Approximate Pavement Cost (Per Foot)**	
			With Maintenance	**Without Maintenance**
Initial Construction		0	$500.00	$500.00
Seal Joints		5	$5.00	
Seal Joints		10	$5.00	
Seal Joints & Isolated Repairs		15	$22.00	
Seal Joints		20	$5.00	
Seal Joints		25	$5.00	
Rehabilitation	Reconstruction	30	$150.00	$500.00
Seal Joints		35	$5.00	
Seal Joints		40	$5.00	
Seal Joints & Isolated Repairs		45	$22.00	
Seal Joints		50	$5.00	
Seal Joints		55	$5.00	
Reconstruction		60	$500.00	$500.00
Life Cycle Cost Per Foot			**$1234.00**	**$1500.00**
Difference			**(-) $266.00**	-

Good Pavement Condition
Fair Pavement Condition
Poor Pavement Condition

*Costs indicated above are based on typical costs for the area in 2021 dollars. Unit pricing per foot is based on an average 31-ft wide residential concrete street pavement.

In this representative example, the overall life cycle costs for managing pavements with an active maintenance program results in a net savings in comparison to management without maintenance. When holding all variables equal, the driving surface conditions throughout the service life of the street are drastically improved when pavements are regularly addressed with preventative maintenance and timely rehabilitation.

It should also be noted that the additional reconstruction project required on the street without maintenance will require a major disruption to adjacent landowners for one construction season. In comparison, the street with regular maintenance will not require major disruption until after 50 years or more of service life.

C. Current Pavement Condition

The paved streets in Storm Lake were evaluated by visually observing the condition of the pavement surface. The pavement was rated using a numerical condition rating system for several types of pavement distress. The rating scale ranged from 100 for a newly surfaced street to 1 for a failed surface. Gravel surfaces were not included in this evaluation.

The pavement condition ratings are illustrated in ***Appendix B-1***.

Table 2, below, shows a summary of typical recommended maintenance and rehabilitation options based on the current pavement condition rating.

Table 2 – Pavement Conditional Ratings Description		
Conditional Rating	**Condition Description**	**Typical Recommended Activity**
70 – 100	Excellent to Good	Joint/Crack Sealing and Isolated Repairs
40– 69	Good to Fair	Full Depth Repairs & Panel Replacement
1 – 39	Fair to Very Poor	Reconstruction

Table 3, below, provides a summary of the overall pavement condition throughout the city.

Table 3 – Pavement Conditional Ratings Summary		
Conditional Rating	**Total Street Length (Miles)**	**Percentage of Total Miles**
70 – 100	14.3	29%
40– 69	31.8	64%
1 – 39	3.6	7%
Total	**49.7**	**100%**

As presented in ***Table 3***, the City has 29% of streets in excellent to good condition (Rating 70 – 100). As discussed previously, the condition of these streets into the future is highly dependent on the City's ability to provide timely maintenance.

A larger percentage (64%) of streets are designated as good to fair condition (Rating 40 – 69). These streets are beginning to deteriorate more rapidly. Pavement maintenance (joint/crack sealing & isolated repairs) within these streets will likely be costly and will not adequately address the needs of the street section. When considering options for pavement management alone, these streets are recommended for full-depth repairs with panel replacement, as needed.

A smaller portion (7%) of the streets have a fair to very poor rating (1 - 39) due to their level of deterioration where neither joint/crack sealing nor patching would be appropriate methods of rehabilitation. These streets are generally addressed through a full depth replacement of the pavement surface and subbase or other similar methods.

If current needs are not addressed, pavements will continue to deteriorate, increasing the amount of costly reconstruction projects.

When prioritizing pavement management projects, it is important to first consider the streets in good conditions and continue with a regularly scheduled maintenance program. Once a preventative maintenance program is properly funded, a regular pavement rehabilitation program can be funded. For most cities using this approach, these programs exhaust the street maintenance cash budget. As a result, the costlier reconstructions of heavily deteriorated streets are given a minimal amount of attention until a project can be financed or funded with other alternative sources.

Prior to executing an effective pavement management plan, understanding the needs of underground public utility mains is crucial. In many cases, the needs of utilities will drastically change future pavement maintenance activities. The following section contains discussion on utility management, followed by recommendations for combining pavement and utility management into an effective infrastructure management program.

III. UTILITY MANAGEMENT

A. Introduction

The following contains a brief review of the City of Storm Lake's current water distribution and sanitary collection systems. The report does not address the condition of water storage tanks, wells, or treatment systems.

Bolton & Menk has reviewed information for the sanitary and watermain pipe networks throughout the community. Information collected is summarized in this report. The following sections discuss the condition and needs of the water distribution and sanitary sewer pipe networks.

B. Watermain

The City of Storm Lake's water distribution system consists of approximately 91 miles of watermain, including mains outside of city limits. These mains have pipe diameters between 2 and 18 inches. Pipe materials consist of mostly cast iron and PVC pipe with a few segments of ductile iron pipe.

In general, the cast iron pipe consists of smaller diameters (4-6 inches) which generally do not provide adequate flows for fire protection. Cast iron pipe tends to lose strength due to corrosion of pipe walls over time. Pipe which is severely corroded is susceptible to watermain breaks resulting in unplanned, costly repairs. In less severe cases, corrosion can cause pin holes in pipe walls, leading to water loss within the system.

The City should begin the process of replacing cast iron pipe within the existing water distribution system, prioritizing on sections with small diameters and/or frequent breaks. Over time, the replacement of this pipe with new 8 inch or larger PVC will reduce the occurrence of watermain breaks, decrease water loss, and provide increased hydraulic conductivity.

In some areas throughout the city, rather than replacing the existing cast iron pipe, an additional parallel main was installed to increase flows and reduce short term costs. In the future, the City should consider replacing these dual mains with a single properly sized pipe, resulting in less total pipe, less maintenance, and less future cost.

In many cases the replacement of watermain is most cost effective if completed with regularly scheduled street reconstruction projects. During these projects, the overlying pavement surface is already being replaced, which provides the opportunity to excavate and replace with new piping. This is also a good opportunity to replace water service lines and curb stops within the public right-of-way. Replacement of service lines during reconstructions allows the City to ensure that piping is buried to adequate depth for frost protection and curb stops are functional.

When developing future reconstruction projects, it is important to consider the impact of each segment to the entire water system. **Moving forward, City should utilize and regularly update its water distribution model.** An accurate model will provide guidance to proper pipe sizing, critical trunk line locations, and overall system improvements.

The layout of the existing water distribution system is illustrated in ***Appendix B-2***.

C. Sanitary Sewer

The existing sanitary sewer collection system of Storm Lake consists of approximately 64 miles of sanitary sewer mains with diameters between 6 and 30 inches. Most of the sanitary collection system pipe materials consist of vitrified clay pipe (VCP) or PVC.

VCP sanitary sewer typically consists of short (3- to 5-foot) segments of pipe with cement mortar joints. Typically, VCP sanitary sewer is susceptible to groundwater infiltration, resulting in increased wastewater treatment costs, wastewater treatment permit violations, and increased potential for wastewater backups and emergency overflows during heavy rainfall events. In areas with VCP sanitary main, it is common to find concrete block or brick manhole structures in use. These structures are also susceptible to groundwater infiltration.

The City of Storm Lake will benefit from implementing a sanitary sewer rehabilitation and replacement plan. From a high-level planning standpoint, target areas of the system should generally include those with clay pipe sanitary main.

The layout of the existing sanitary collection system is illustrated in ***Appendix B-3***.

Sanitary sewer can be replaced or rehabilitated using several different methods. In the most basic forms, these methods include either open excavation replacement or lining methods. If sanitary sewer replacement is planned with other street improvements, open excavation, removal of old piping, and replacement with new pipe is the most cost-effective means of implementing improvements. In most cases, sanitary services are in similar or worse condition than the main located below the street. For this reason, replacement of sanitary service lines within the public right-of-way should also be planned with sanitary sewer improvement projects.

In other instances, lining methods can be used to rehabilitate existing mains. In most cases, lining is best utilized when there are few service connections and/or when mains are located in areas where surface excavations require costly challenges such as alleys. Approximately 10,000 feet of Storm Lake's sanitary sewer mains are in alleys where narrow right of way and other utilities make open excavation challenging.

Over time, additional information on key problem areas can be added to the details of this report. **Moving forward, the City should consider starting a regular televising and cleaning program.** This form of inspection allows the City to prioritize sanitary sewer replacements in the future. More importantly, critical failures within the collection system can often be identified and addressed prior to the occurrence of backups. In most cases, Cities with televising and cleaning programs use around a 10-year cycle for all sanitary mains within the City. The City should also consider implementing a sump pump inspection program. Regular inspection programs will better assure that few major clear water inflow contributors exist within the system over a long period of time.

Similar to a water distribution model, a sanitary sewer collection model can assist with future planning. **The City should consider building upon the recent lift station study and developing a sanitary sewer collection model.** A system-wide model will help determine collection system sizing, lift station sizing, and establish current and future capacities.

IV. EXECUTION

A. Introduction

As discussed in the pavement management and utility management sections of this report, the infrastructure needs can be broken down into three separate categories, as summarized in ***Table 4***. For this management plan all maintenance, rehabilitation, and reconstruction is assumed to be of concrete pavement.

Table 4 – Infrastructure Management Programs

Improvement Type	Infrastructure Type	Goal
Pavement Maintenance Joint/Crack Sealing & Isolated Repairs	Pavement	Preserve condition of existing surface
Pavement Rehabilitation Full Depth Repairs & Panel Replacement	Pavement	Rehabilitate the existing surface
Full Reconstruction	Pavement	Replace the existing surface
	Watermain	Replace cast-iron pipe (prioritize sections with small diameters and/or frequent breaks)
	Sanitary Sewer	Replace or Rehab clay (VCP) pipe

B. Pavement Maintenance Program

Joint/Crack Sealing & Isolated Repairs should be completed for all streets in good or better condition (Rating ≥ 70). These streets will only remain in their current condition with regular maintenance.

Streets to be considered for future maintenance are illustrated in ***Appendix B-4***. Planning level cost estimates for all streets in the pavement maintenance program are included in ***Appendix C-1***.

It is recommended that the City budget approximately $120,000 annually for the pavement maintenance program. This budget is based on the current street conditions and a 5-year cycle after initial construction. Over time, this annual budget for pavement maintenance will increase as more streets are reconstructed. This budget includes the estimated cost for joint/crack sealing and isolated repairs only. Additional funding will be necessary for other street maintenance.

C. Pavement Rehabilitation Program

A large portion of the existing streets have a current conditional rating which warrant full-depth patching and panel replacements. These streets have the following in common:

- Pavement Conditional Rating of 40 to 69
- No public utilities below street or utilities below street in satisfactory condition

Please note that streets to be considered for pavement rehabilitation do not include those with known utility replacement needs below the pavement surface. Streets recommended for a pavement rehab are illustrated in ***Appendix B-4***. Planning level cost estimates are included in ***Appendix C-2***.

Currently, there is approximately $13.2 million worth of pavement rehabilitation projects recommended. It is recommended that the City budget $900,000 to $1,300,000 annually for the pavement rehabilitation program. The City may implement these improvements in phases; however, failure to address these streets within the next 10 to 15 years will likely result in deterioration of the pavement, requiring more robust repairs (such as a full reconstruction).

D. Reconstruction Program

Street and utility reconstruction projects are expensive and invasive. When planning for these projects, it is important that adequate funds are available. Proper timing of these projects will also ensure a high degree of value with each project.

The Street Reconstruction Map is illustrated in ***Appendix B-5***. These areas are characterized based on the need for a reconstruction. These categories include the following:

- *Reconstruction based on street and utility condition (High Value)*
  - Street condition requires reconstruction.
  - Sanitary and/or watermain requires replacement.
- *Reconstruction based on unsatisfactory utility condition and repairable pavement condition (Medium Value)*
  - Street condition requires rehabilitation.
  - Sanitary and/or watermain requires replacement.
- *Reconstruction based on unsatisfactory utility condition only (Low Value)*
  - Street in good condition, no current need for reconstruction/rehabilitation
  - Sanitary and/or watermain requires replacement.
- *Reconstruction based on unsatisfactory street condition only (High Value)*
  - Street condition requires reconstruction.
  - Sanitary and/or watermain in satisfactory condition or does not exist.

Complete excavation and replacement of a pavement surface provides an opportunity for more cost-effective underground utility replacement. Streets requiring reconstruction based on the poor conditions of both street and utility conditions will provide the most value to the City. A complete list of all streets currently recommended for reconstruction is provided in ***Appendix C-3***.

Based on the review completed as part of this report, the city-wide reconstruction needs total to approximately $164 million.

Of the total reconstruction need, approximately **$23.1 million are higher value projects** which would not require premature replacement of pavement if completed in the near future. Although addressing the total needs of the City's infrastructure may be financially infeasible within a standard capital improvement planning period of 5 to 10 years, it is important to note that the City will benefit from regular and steady progress. Over time, properly planned improvements will result in less costly maintenance and an overall increase to the quality of the street and utility systems.

Using a service life of 50-60 years and the total reconstruction need of $164 million, **the City of Storm Lake should aim to complete $2.7 to $3.3 million of reconstruction improvements annually.** These improvements may fall under one larger project, or multiple smaller (~$1 million) projects depending on the location and type of improvements.

The timing and size of each improvement project can be determined by the City's financial advisor when updating the Capital Improvement Plan. For the sake of discussion, most cities the size of Storm Lake implement street and utility improvement projects between $1 million and $3 million. Projects smaller than $1 million can sometimes result in increased costs, due to some of the fixed costs (i.e. mobilization, portions of design costs, etc.) associated with any project. Similarly, projects more than $3 million usually result in a smaller pool of available bidders that are equipped to complete a larger project.

Although street improvement projects are most typically financed through the sale of bonds, other outside funding sources do arise from time to time. In some cases, these funding opportunities offer grants. The information contained in this report will allow the City to respond to funding/grant opportunities quickly.

V. CONCLUSION & RECOMMENDATIONS

This report is intended to be used for high level pavement and utility management. The recommendations below summarize the key takeaways from this report.

- Implement an on-going **Pavement Maintenance Program** for streets in good or better condition (70-100 rating).
    - Current recommended budget: $120,000/year
    - Budgeting for pavement management can be optimized by aggressively targeting pavement maintenance projects first.
- Implement an on-going **Pavement Rehabilitation Program** for streets beginning to show signs of aging (40-69 rating).
    - Current recommended budget: $900,000-$1,300,000/year
    - Determine funding source for Pavement Rehabilitation Program
    - Complete recommended rehabilitation projects within the next 10-15 years.
- Begin regularly scheduled **Street and Utility Reconstruction projects**, as financially feasible.
    - Current recommended budget: $2.7-$3.3 million/year
    - When evaluating projects, consider needs of both pavement & utilities.
    - Update capital improvement plan and financing plan with City's financial advisor
    - Prioritize streets with both pavement and utility needs for project selection.
- Utilize and regularly update the **Water Distribution Model**.
    - Determine proper pipe sizing & establish critical trunk line locations.
    - Assist with future planning and improvements.
- Develop and implement a **Sanitary Sewer Cleaning and Televising Program**.
    - Identify areas of infiltration and prevent pipe failures.
    - Assist with project evaluations.
- Develop a **Sanitary Sewer Collection Model**.
    - Determine collection system and lift station sizing.
    - Analyze current and future capacities.
- Information from **this report should be updated at least every five years**, or with every regularly scheduled reconstruction project, as part of the project selection process.

Appendix A:

- Pavement Management Terminology

Pavement Management Terminology

Pavement Condition Index (PCI): The Pavement Condition Index is a numerical system used to rate pavement condition based on the type, severity, and density of distress observed on the pavement surface. The ratings range from 100 for a newly surfaced street to 1 for a failed surface.

Joint/Crack Sealing –Routinely applying joint sealant to a concrete surface that lengthens the pavement service life. It is a material that minimizes both infiltration of surface water and incompressible material into the joint system. Secondarily, sealants are also intended to reduce the potential for dowel bar corrosion by reducing entrance of de-icing chemicals in the pavement structure.

Full Depth Repairs – Full depth repairs involve removing existing concrete that has deteriorated and/or has shown signs of structural distress. Next steel reinforcement and/or steel dowel bars are installed to secure the repair/transfer load to the adjacent pavement. New concrete is poured and finished to complete the repair. These repairs vary in shape, size and configuration depending on the existing pavement condition, type of distress, and jointing pattern. Pavement repairs provide smoother driving surface and extend the life of the pavement.

Panel Replacement – Similar to full depth repairs, panel replacements consist of removing and replacing the full pavement section and installing steel reinforcement and/or steel dowel bars. Rather than replacing a portion of an existing concrete panel, or repairing a failed joint, this type of repair consists of replacing the entire panel of concrete pavement.

Pavement Maintenance – Pavement maintenance includes joint/crack sealing, and isolated repairs such as full depth repairs or surface grinding. This work can preserve the existing pavement condition, slow deterioration, and ultimately extend the service life of the pavement. It is recommended to perform these pavement maintenance practices on a 5-year cycle on pavements with PCI ratings between 70 and 100.

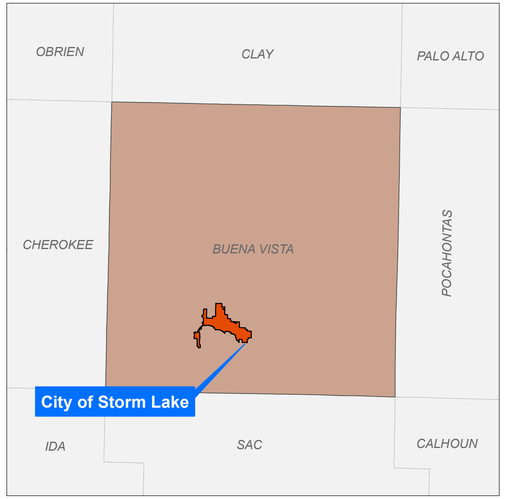
Pavement Rehabilitation – Pavement rehabilitation includes full depth repairs and/or panel replacements. These rehabilitation practices consist of removing and replacing the full pavement section and steel/dowel bars. This type of improvement can extend the life of the pavement by 20 years or more, delaying the need for a full reconstruction.

Full Reconstruction – A street reconstruction includes the complete removal of existing pavement and aggregate base and replacement with new base and pavement. In many cases, a portion of the existing subgrade soils are removed and replaced with a structural sand/rock layer (subgrade correction), and portions or all of the curb and gutter may be replaced in urban sections. This option requires the largest investment and is typically applied in areas where pavements are showing significant areas of major distress or the underlying municipal utility conditions warrant replacement. However, this option provides a period of 20-30 years before major pavement rehabilitation is required.

Appendix B: Figures

Storm Lake, IA
Pavement Ratings

LOCATION MAP



Legend

Pavment Ratings (PCI)

- Very Poor
- Poor
- Fair
- Good
- Very Good
- Excellent
- Storm Lake City Limits

0 — 1 Mile

Source: ESRI, City of Storm Lake, Buena Vista County, Iowa DOT.

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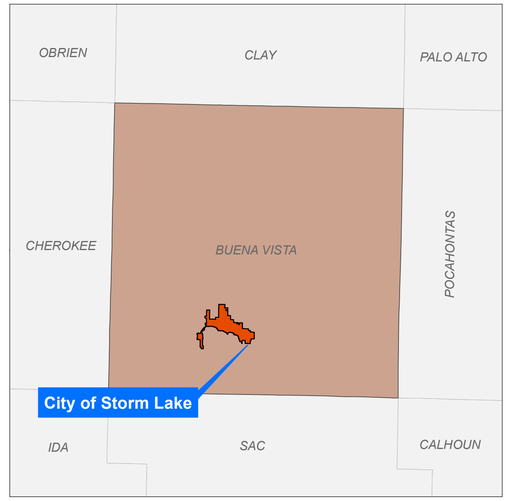
Map Document: \\arcserver1\GIS\SMLK\OP1122815\ESRI\Maps\Pavement Rating Map.mxd | Date Saved: 7/23/2021 12:29:43 PM

Storm Lake, IA
Water Distribution

LOCATION MAP



Legend

Watermain (By Material)

- CIP
- DIP
- PVC
- Copper
- Other/Unknown
- Storm Lake City Limits

0 — 1 Mile

Source: ESRI, City of Storm Lake, Buena Vista County, Iowa DOT.

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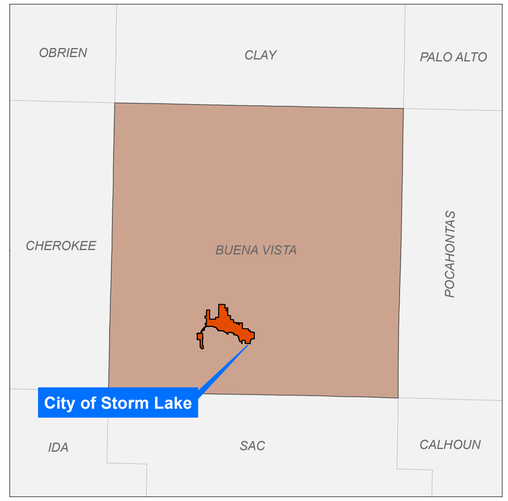
Map Document: \\arcserver1\GIS\SMLK0P1122815\ESRIMaps\Watermain Map.mxd | Date Saved: 7/23/2021 11:25:36 AM

Storm Lake, IA

Sanitary Sewer Collection

LOCATION MAP



Legend

- Sanitary Lift Station
- Sanitary Manhole

Sanitary Sewer Main (By Material)

- VCP (Clay)
- CIP
- PVC
- CIPP
- Other/Unknown
- Sanitary Forcemain
- Storm Lake City Limits

0 — 1 Mile

Source: ESRI, City of Storm Lake, Buena Vista County, Iowa DOT.

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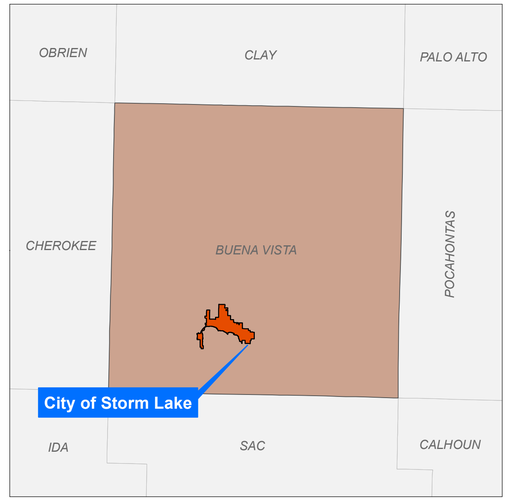
Map Document: \\arcserver1\GIS\SMLK\0P1122815\ESRI\Maps\Sanitary Sewer Map.mxd | Date Saved: 7/23/2021 11:25:20 AM

Storm Lake, IA

Pavement Maintenance
Rehabilitation Map

LOCATION MAP



Legend

- Pavement Maintenance: Joint/Crack Seal & Isolated Repairs
- Pavement Rehabilitation: Full Depth Repairs & Panel Replacement
- Storm Lake City Limits

0 — 1 Mile

Source: ESRI, City of Storm Lake, Buena Vista County, Iowa DOT.

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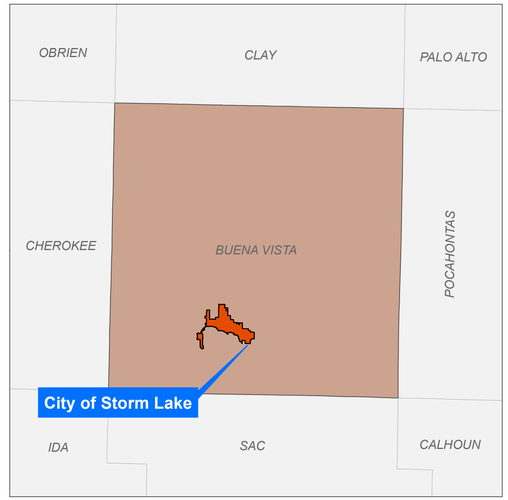
Map Document: \\arcserver1\GIS\SMLK\0P1122815\ESRI\Maps\Pavement MaintenanceRehabilitation Map.mxd | Date Saved: 7/23/2021 11:28:34 AM

Storm Lake, IA

Reconstruction Project Map

LOCATION MAP



Legend

- High Value - Street & Utility
- Medium Value - Street & Utility
- Low Value - Utility Driven
- High Value - Street Driven
- Storm Lake City Limits

0 1 Mile

Source: ESRI, City of Storm Lake, Buena Vista County, Iowa DOT.

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July 2021

Map Document: \\arcserver1\GIS\SMLK\0P1122815\ESRI\Maps\Reconstruction Project Map.mxd | Date Saved: 7/23/2021 11:23:05 AM

Appendix C: Cost Estimates

PAVEMENT MAINTENANCE PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Length (Ft)	Street Width (Ft)	Pavement Area (Sq. Yd)	Joint Seal & Isolated Patching Estimated Cost (Sq. Yd) $3.00	Street Rating (PCI)
East-West Streets (Page 1)							
WEST 3RD STREET	COLLEGE AVENUE	OTSEGO STREET	385	28	1198	$3,594.00	80
WEST 3RD STREET	OTSEGO STREET	ONTARIO STREET	390	30	1300	$3,900.00	96
WEST 3RD STREET	ONTARIO STREET	GENESEO STREET	387	30	1290	$3,870.00	97
EAST 3RD STREET	LAKE AVENUE	IRVING STREET	345	58	2223	$6,669.00	93
EAST 3RD STREET	IRVING STREET	CAYUGA STREET	330	58	2127	$6,381.00	98
EAST 3RD STREET	CAYUGA STREET	SENECA STREET	387	58	2494	$7,482.00	98
EAST 3RD STREET	SENECA STREET	BAIR STREET	390	30	1300	$3,900.00	97
EAST 3RD STREET	HUDSON STREET	SUPERIOR STREET	405	30	1350	$4,050.00	82
WEST 4TH STREET	LARCHWOOD DRIVE	WESTERN AVENUE	302	51	1711	$5,133.00	92
WEST 4TH STREET	WESTERN AVENUE	BARTON STREET	349	30	1163	$3,489.00	89
WEST 5TH STREET	RENSHAW DRIVE (S)	RENSHAW DRIVE (N)	134	48	715	$2,145.00	93
WEST 5TH STREET	RENSHAW DRIVE (N)	RENSHAW DRIVE (S)	219	48	1168	$3,504.00	92
WEST 5TH STREET	RENSHAW DRIVE (S)	VISTA DRIVE	366	48	1952	$5,856.00	88
WEST 5TH STREET	NORTHWESTERN DRIVE	GRAN DRIVE	273	44	1335	$4,005.00	89
WEST 5TH STREET	GRAN DRIVE	SWALLUM DRIVE	290	34	1096	$3,288.00	86
WEST 5TH STREET	SWALLUM DRIVE	LARCHWOOD DRIVE	289	34	1092	$3,276.00	83
WEST 5TH STREET	LARCHWOOD DRIVE	WESTERN AVENUE	307	34	1160	$3,480.00	80
WEST 6TH STREET	IA 110	RENSHAW DRIVE	585	30	1950	$5,850.00	88
WEST 7TH STREET	GENESEO STREET	MICHIGAN STREET	350	28	1089	$3,267.00	86
EAST 7TH STREET	SENECA STREET	ONEIDA STREET	387	30	1290	$3,870.00	72
EAST 8TH STREET	EVERGREEN AVENUE	GEISINGER ROAD	198	30	660	$1,980.00	88
EAST 9TH STREET	RUSSELL STREET	NORTH MAE STREET	236	30	787	$2,361.00	87
EAST 9TH STREET	NORTH WALNUT STREET	EVERGREEN AVENUE	322	30	1073	$3,219.00	71
EAST 9TH STREET	EVERGREEN AVENUE	GEISINGER ROAD	194	30	647	$1,941.00	77
WEST 10TH STREET	VESTAL STREET	ONTARIO	1370	31	4719	$14,157.00	79
WEST 10TH STREET	MICHIGAN STREET	LAKE AVENUE	326	30	1087	$3,261.00	76
EAST 10TH STREET	NORTH SENECA STREET	ONEIDA STREET (S)	281	30	937	$2,811.00	83
EAST 10TH STREET	ONEIDA STREET (S)	ONEIDA STREET (N)	148	30	493	$1,479.00	87
EAST 10TH STREET	ONEIDA STREET (N)	LINCOLN ROAD	433	30	1443	$4,329.00	93
EAST 10TH STREET	LINCOLN ROAD	MAYWOOD DRIVE	336	30	1120	$3,360.00	95
EAST 10TH STREET	MAYWOOD DRIVE	RUSSELL STREET	329	30	1097	$3,291.00	88
EAST 12TH STREET	ONEIDA STREET	12TH STREET PLACE	715	30	2383	$7,149.00	76
EAST 12TH STREET	12TH STREET PLACE	RUSSELL STREET	343	30	1143	$3,429.00	70
EAST 13TH STREET	LAKE AVENUE	NORTH ERIE STREET	535	30	1783	$5,349.00	77
EAST 13TH STREET	NORTH SENECA STREET	MID-BLOCK	106	30	353	$1,059.00	94
WEST 14TH STREET	SEGMENT END	MICHIGAN STREET	35	30	117	$351.00	76
590TH STREET	LAKE AVENUE	SEGMENT END	585	40	2600	$7,800.00	77
BAIR STREET	MID-BLOCK	IRVING STREET	100	26	289	$867.00	81
BAIR STREET	CAYUGA STREET	SENECA STREET	416	30	1387	$4,161.00	76
EXPANSION BOULEVARD	EAST RICHLAND STREET	RADIO ROAD	2482	24	6619	$19,857.00	85
EXPANSION BOULEVARD	RADIO ROAD	GILBERT STREET	3507	24	9352	$28,056.00	100
EXPANSION BOULEVARD	GILBERT STREET	SEGMENT END	588	24	1568	$4,704.00	91
LEONA DRIVE	CLOVER LANE	SEGMENT END	450	30	1500	$4,500.00	84
WEST LAKE SHORE DRIVE	COLLEGE AVENUE	OTSEGO STREET	388	28	1207	$3,621.00	97
WEST LAKE SHORE DRIVE	OTSEGO STREET	ONTARIO STREET	405	30	1350	$4,050.00	98
WEST LAKE SHORE DRIVE	ONTARIO STREET	GENESEO STREET	432	30	1440	$4,320.00	98
WEST LAKE SHORE DRIVE	GENESEO STREET	WEST 1ST STREET	90	30	300	$900.00	98
WEST LAKE SHORE DRIVE	WEST 1ST STREET	LAKE AVENUE	678	30	2260	$6,780.00	97
EAST LAKE SHORE DRIVE	IRVING STREET	CAYUGA STREET	330	30	1100	$3,300.00	90
EAST LAKE SHORE DRIVE	CAYUGA STREET	SENECA STREET	399	28	1241	$3,723.00	92
EAST LAKE SHORE DRIVE	SENECA STREET	ONEIDA STREET	405	28	1260	$3,780.00	86
EAST LAKE SHORE DRIVE	ONEIDA STREET	HUDSON STREET (S)	327	28	1017	$3,051.00	92
EAST LAKE SHORE DRIVE	HUDSON STREET	HUDSON STREET (N)	66	28	205	$615.00	92
EAST LAKE SHORE DRIVE	HUDSON STREET (N)	SUPERIOR STREET	385	28	1198	$3,594.00	94
EAST LAKE SHORE DRIVE	SUPERIOR STREET	CHAUTAQUA PARK DRIVE	104	28	324	$972.00	85
EAST LAKE SHORE DRIVE	CHAUTAQUA PARK DRIVE	RUSSELL STREET	322	28	1002	$3,006.00	88
EAST LAKE SHORE DRIVE	RUSSELL STREET	MAE STREET	358	28	1114	$3,342.00	91
EAST LAKE SHORE DRIVE	MAE STREET	KENZY STREET	286	28	890	$2,670.00	92
EAST LAKE SHORE DRIVE	KENZY STREET	HIGHWAY STREET	311	28	968	$2,904.00	96
EAST LAKE SHORE DRIVE	HIGHWAY STREET	SEGMENT END	414	28	1288	$3,864.00	83
LOCHEDEM DRIVE	HIGHVIEW DRIVE	PINECREST DRIVE	279	30	930	$2,790.00	75
LOCHEDEM DRIVE	PINECREST DRIVE	NORTHWESTERN DRIVE	264	39	1144	$3,432.00	74
LOCHEDEM DRIVE	COLONIAL CIRCLE	HYLAND DRIVE	252	23	644	$1,932.00	77
EAST MILWAUKEE AVENUE	GEISINGER ROAD	MID-BLOCK	377	30	1257	$3,771.00	76
PETERSON DRIVE	PARKVIEW DRIVE	SEGMENT END	43	24	115	$345.00	74
WEST RAILROAD STREET	GENESEO STREET	MICHIGAN STREET	372	56	2315	$6,945.00	70
EAST RAILROAD STREET	ERIE STREET	CAYUGA STREET	380	56	2364	$7,092.00	89
EAST RICHLAND STREET	EXPANSION BOULEVARD	RADIO ROAD	1822	22	4454	$13,362.00	72
SHOREWAY ROAD	NORTHWESTERN DRIVE	GRAN DRIVE	293	30	977	$2,931.00	77
SHOREWAY ROAD	GRAN DRIVE	SWALLUM DRIVE	307	30	1023	$3,069.00	92
SHOREWAY ROAD	SWALLUM DRIVE	MID-BLOCK	249	30	830	$2,490.00	91
SHOREWAY ROAD	MID-BLOCK	LARCHWOOD DRIVE	63	52	364	$1,092.00	95

PAVEMENT MAINTENANCE PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Length (Ft)	Street Width (Ft)	Pavement Area (Sq. Yd)	Joint Seal & Isolated Patching Estimated Cost (Sq. Yd) $3.00	Street Rating (PCI)
North-South Streets (Page 1)							
TULIP LANE	SEGMENT END	EXPANSION BOULEVARD	497	32	1767	$5,301.00	98
120TH AVENUE	EXPANSION BOULEVARD	LAKESHORE DRIVE	1364	24	3637	$10,911.00	74
12TH ST PLACE	LINCOLN ROAD	SEGMENT END	301	30	1003	$3,009.00	84
90TH AVENUE	MILWAUKEE AVE	MID-BLOCK	529	24	1411	$4,233.00	94
BARTON STREET	WEST 4TH STREET	WEST 5TH STREET	660	24	1760	$5,280.00	79
COLLEGE AVENUE	WEST 7TH STREET	MILWAUKEE AVE	202	30	673	$2,019.00	75
COLLEGE AVENUE	WEST 5TH STREET	SEGMENT END	86	25	239	$717.00	86
COLONIAL CIRCLE	HYLAND DRIVE	LOCHEDEM DRIVE	229	24	611	$1,833.00	76
COLONIAL CIRCLE	LARCHWOOD DRIVE	LOCHEDEM DRIVE	213	24	568	$1,704.00	73
COLONIAL CIRCLE	LARCHWOOD DRIVE	SEGMENT END	18	24	48	$144.00	89
EARLY STREET	WEST 6TH STREET	SEGMENT END	250	30	833	$2,499.00	70
EMERALD DRIVE	MID-BLOCK	PARLINA LANE	465	30	1550	$4,650.00	84
ERIE STREET	EAST 7TH STREET	NORTH ERIE STREET	247	51	1400	$4,200.00	94
ERIE STREET	EAST 6TH STREET	EAST 7TH STREET	485	51	2748	$8,244.00	99
EVERGREEN AVENUE	SEGMENT END	EAST 9TH STREET	516	30	1720	$5,160.00	88
EVERGREEN AVENUE	EAST 9TH STREET	EAST 8TH STREET	460	30	1533	$4,599.00	90
GILBERT STREET	EXPANSION BOULEVARD	SEGMENT END	590	24	1573	$4,719.00	94
HUDSON STREET	EAST 7TH STREET	MILWUAKEE AVENUE	225	30	750	$2,250.00	72
HUDSON STREET	EAST 6TH STREET	EAST 7TH STREET	480	30	1600	$4,800.00	76
HUDSON STREET	EAST 5TH STREET	EAST 4TH STREET	701	30	2337	$7,011.00	78
HUDSON STREET	EAST 4TH STREET	EAST 3RD STREET	749	30	2497	$7,491.00	80
LAKE AVENUE	12TH STREET	10TH STREET	1088	44	5319	$15,957.00	95
LAKE AVENUE	10TH STREET	9TH STREET	543	44	2655	$7,965.00	92
LAKE AVENUE	9TH STREET	8TH STREET	321	44	1569	$4,707.00	97
LAKE AVENUE	8TH STREET	8TH STREET	203	44	992	$2,976.00	97
LAKE AVENUE	8TH STREET	MILWAUKEE AVE	88	44	430	$1,290.00	97
LAKE AVENUE	6TH STREET	5TH STREET	380	83	3504	$10,512.00	87
LAKE AVENUE	5TH STREET	RAILROAD STREET	395	83	3643	$10,929.00	88
LEONA CIRCLE	LEONA DRIVE	MEADOW LANE	647	30	2157	$6,471.00	72
MAE STREET	EAST 1ST STREET	EAST 3RD STREET	539	30	1797	$5,391.00	71
MICHIGAN STREET	MILWAKUKEE AVENUE	WEST 7TH STREET	237	53	1396	$4,188.00	86
OLD CREEK ROAD	OLD CREEK ROAD	OLD CREEK ROAD	1722	30	5740	$17,220.00	91
PARK COURT	WEST 6TH STREET	SEGMENT END	253	20	562	$1,686.00	74
PIERCE DRIVE	ALVIN PLACE	PARLINA LANE	245	30	817	$2,451.00	71
PRAIRIE ROAD	PRAIRIE ROAD	SUNDOWN ROAD	139	30	463	$1,389.00	91
PRAIRIE ROAD	SUNDOWN ROAD	590TH STREET	914	30	3047	$9,141.00	94
RADIO ROAD	120TH AVENUE	EXPANSION BOULEVARD	1293	24	3448	$10,344.00	77
RADIO ROAD	RADIO ROAD	RADIO ROAD	2349	24	6264	$18,792.00	91
RUSSELL STREET	EAST 9TH STREET	EAST 8TH STREET	461	30	1537	$4,611.00	73
RUSSELL STREET	EAST 8TH STREET	EAST MILWAUKEE AVENUE	297	30	990	$2,970.00	75
NORTH SENECA STREET	SEGMENT END	EAST 13TH STREET	587	30	1957	$5,871.00	82
SENECA STREET	MILWAUKEE AVE	EAST 7TH STREET	253	26	731	$2,193.00	81
SENECA STREET	EAST 6TH STREET	EAST 7TH STREET	483	49	2630	$7,890.00	98
SENECA STREET	EAST 5TH STREET	EAST 6TH STREET	380	26	1098	$3,294.00	98
SENECA STREET	EAST 4TH STREET	EAST 5TH STREET	709	26	2048	$6,144.00	96
SUNRISE PARK ROAD	SUNRISE PARK ROAD	SUNRISE PARK ROAD	475	18	950	$2,850.00	95
SUNRISE PARK ROAD	SUNRISE PARK ROAD	SUNRISE PARK ROAD	144	31	496	$1,488.00	93
SUPERIOR STREET	EAST 7TH STREET	EAST 6TH STREET	479	30	1597	$4,791.00	79
VILAS ROAD	EAST 4TH STREET	EAST RICHLAND STREET	604	30	2013	$6,039.00	94
VILAS ROAD	EAST RICHLAND STREET	SEGMENT END	728	30	2427	$7,281.00	89
WINTHROP CIRCLE	WINTHROP CIRCLE	WINTHROP CIRCLE	243	30	810	$2,430.00	81
WINTHROP CIRCLE	EMERALD DRIVE	SEGMENT END	89	30	297	$891.00	73
					Total Estimated Cost Per 5-Year Life Cycle	**$601,149.00**	
					Annual Pavement Maintenance Cost	**$120,000.00**	

Notes:
1) Refer to attached Street Maintenance Map for illustrations of referenced projects.
2) Costs presented above are in 2021 dollars.

PAVEMENT REHABILITATION PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Length (Ft)	Street Width (Ft)	Pavement Area (Sq. Yd)	Patching & Panel Replacement Estimated Cost (Sq. Yd) (3) $50.00	Street Rating (PCI)
East-West Streets (Page 1)							
WEST 1ST STREET	MICHIGAN STREET	WEST LAKE SHORE DRIVE	268	30	893	$44,650.00	55
WEST 1ST STREET	EAST 1ST STREET	LAKE AVENUE	335	30	1117	$55,850.00	49
WEST 2ND STREET	GENESEO STREET	MICHIGAN STREET	334	28	1039	$51,950.00	45
WEST 2ND STREET	MICHIGAN STREET	LAKE AVENUE	337	28	1048	$52,400.00	44
EAST 2ND STREET	LAKE AVENUE	IRVING STREET	341	28	1061	$53,050.00	46
EAST 2ND STREET	IRVING STREET	CAYUGA STREET	330	28	1027	$51,350.00	45
EAST 2ND STREET	CAYUGA STREET	SENECA STREET	389	40	1729	$86,450.00	46
EAST 3RD STREET	BAIR STREET	HUDSON STREET;	427	30	1423	$71,150.00	56
EAST 3RD STREET	SUPERIOR STREET	RUSSELL STREET	447	30	1490	$74,500.00	45
EAST 3RD STREET	RUSSELL STREET	MAE STREET	388	30	1293	$64,650.00	51
EAST 3RD STREET	MAE STREET	KENZY STREET	389	30	1297	$64,850.00	54
EAST 3RD STREET	KENZY STREET	HIGHWAY STREET	209	30	697	$34,850.00	64
EAST 4TH STREET	RUSSELL STREET	OATES STREET	334	30	1113	$55,650.00	50
WEST 5TH STREET	VISTA DRIVE	ANGIER DRIVE	302	36	1208	$60,400.00	68
WEST 5TH STREET	ANGIER DRIVE	NORTHWESTERN DRIVE	1178	36	4712	$235,600.00	68
WEST 5TH STREET	WESTERN AVENUE	BARTON STREET (S)	353	34	1334	$66,700.00	41
WEST 5TH STREET	BARTON STREET (S)	BARTON STREET (N)	133	34	502	$25,100.00	69
WEST 5TH STREET	BARTON STREET (N)	TERRENCE STREET	180	34	680	$34,000.00	49
WEST 5TH STREET	TERRENCE STREET	EARLY STREET	315	34	1190	$59,500.00	52
WEST 5TH STREET	EARLY STREET	VESTAL STREET	501	34	1893	$94,650.00	57
WEST 5TH STREET	VESTAL STREET	GRAND AVENUE (S)	197	65	1423	$71,150.00	56
WEST 5TH STREET	GRAND AVENUE (S)	GRAND AVENUE (N)	211	65	1524	$76,200.00	52
WEST 5TH STREET	GRAND AVENUE (N)	COLLEGE AVENUE	385	34	1454	$72,700.00	60
WEST 5TH STREET	COLLEGE AVENUE	BAIR STREET	167	38	705	$35,250.00	48
WEST 5TH STREET	OTSEGO STREET	ONTARIO STREET	387	37	1591	$79,550.00	54
WEST 5TH STREET	GENESEO STREET	MICHIGAN STREET	348	61	2359	$117,950.00	58
EAST 5TH STREET	ERIE STREET	CAYUGA STREET	354	50	1967	$98,350.00	46
EAST 5TH STREET	CAYUGA STREET	SENECA STREET	385	50	2139	$106,950.00	48
EAST 5TH STREET	SENECA STREET	ONEIDA STREET	389	37	1599	$79,950.00	47
EAST 5TH STREET	ONEIDA STREET	HUDSON STREET	389	30	1297	$64,850.00	47
EAST 5TH STREET	HUDSON STREET	SUPERIOR STREET	382	30	1273	$63,650.00	47
EAST 5TH STREET	SUPERIOR STREET	RUSSELL STREET	419	30	1397	$69,850.00	47
WEST 6TH STREET	VESTAL STREET	GRAND AVENUE	442	29	1424	$71,200.00	45
EAST 6TH STREET	SUPERIOR STREET	RUSSELL STREET	422	30	1407	$70,350.00	60
EAST 7TH STREET	ERIE STREET	CAYUGA STREET	350	24	933	$46,650.00	45
EAST 8TH STREET	LAKE AVENUE	NORTH ERIE STREET	341	25	947	$47,350.00	66
WEST 9TH STREET	NORTH ONTARIO STREET	NORTH ONTARIO STREET	126	30	420	$21,000.00	52
WEST 9TH STREET	NORTH ONTARIO STREET	WITTER STREET	157	30	523	$26,150.00	56
WEST 9TH STREET	WITTER STREET	NORTH GENESEO STREET	287	30	957	$47,850.00	50
WEST 9TH STREET	NORTH GENESEO STREET	MICHIGAN STREET	292	30	973	$48,650.00	55
WEST 9TH STREET	MICHIGAN STREET	LAKE AVENUE	330	30	1100	$55,000.00	40
EAST 9TH STREET	NORTH MAE STREET	OAK LANE	285	30	950	$47,500.00	65
EAST 9TH STREET	OAK LANE	NORTH WALNUT STREET	285	30	950	$47,500.00	69
EAST 10TH STREET	LAKE AVENUE	NORTH ERIE STREET (S)	348	30	1160	$58,000.00	62
EAST 10TH STREET	NORTH ERIE STREET (S)	NORTH ERIE STREET (N)	186	30	620	$31,000.00	52
10TH ST PLACE	MAYWOOD DRIVE	SEGMENT END	328	30	1093	$54,650.00	59
ALVIN PLACE	KELVIN ROAD	PIERCE DRIVE	309	30	1030	$51,500.00	54
BAIR STREET	LAKE AVENUE	MID-BLOCK	275	26	794	$39,700.00	67
BAIR STREET	IRVING STREET	CAYUGA STREET	357	26	1031	$51,550.00	66
BAIR STREET	SENECA STREET	EAST 3RD STREET	428	30	1427	$71,350.00	69
CHAUTAQUA PARK DRIVE	CAYUGA STREET	EAST LAKE SHORE DRIVE;HUDSON STREET	1489	24	3971	$198,550.00	53
CHAUTAQUA PARK DRIVE	EAST LAKE SHORE DRIVE	HUDSON STREET	651	26	1881	$94,050.00	53
HYLAND DRIVE	IA 110	ANGIER DRIVE	1484	30	4947	$247,350.00	52
IOWA STREET	EARLY STREET	GRAND AVENUE	695	24	1853	$92,650.00	45
IOWA STREET	GRAND AVENUE	COLLEGE AVENUE	596	24	1589	$79,450.00	49
LEONA DRIVE	LEONA CIRCLE	MEADOW LANE	349	30	1163	$58,150.00	56
LEONA DRIVE	CLOVER LANE	MEADOW LANE	342	30	1140	$57,000.00	57
WEST LAKE SHORE DRIVE	GRAND AVENUE	COLLEGE AVENUE	645	44	3153	$157,650.00	57
EAST LAKE SHORE DRIVE	LAKE AVENUE	IRVING STREET	391	30	1303	$65,150.00	60
LIGHTHOUSE DRIVE	BARTON STREET	TERRENCE STREET	348	30	1160	$58,000.00	60
LIGHTHOUSE DRIVE	TERRENCE STREET	EARLY STREET	323	30	1077	$53,850.00	51
LIGHTHOUSE DRIVE	EARLY STREET	SEGMENT END	87	30	290	$14,500.00	50
LINCOLN ROAD	12TH ST PLACE	RUSSEL STREET	349	30	1163	$58,150.00	64
LOCHEDEM DRIVE	PLEASANTVIEW DRIVE	HIGHVIEW DRIVE	308	30	1027	$51,350.00	60
MAYWOOD DRIVE	10TH ST PLACE	SEGMENT END	758	30	2527	$126,350.00	67
PARLINA LANE	EMERALD DRIVE	PIERCE DRIVE	315	30	1050	$52,500.00	66
PETERSON DRIVE	GRAND AVENUE	PARKVIEW DRIVE	141	24	376	$18,800.00	64

PAVEMENT REHABILITATION PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Length (Ft)	Street Width (Ft)	Pavement Area (Sq. Yd)	Patching & Panel Replacement Estimated Cost (Sq. Yd) (3) $50.00	Street Rating (PCI)
East-West Streets (Page 2)							
WEST RAILROAD STREET	OTSEGO STREET	ONTARIO STREET	416	30	1387	$69,350.00	44
WEST RAILROAD STREET	ONTARIO STREET	GENESEO STREET	417	36	1668	$83,400.00	68
WEST RAILROAD STREET	MICHIGAN STREET	LAKE AVENUE	338	56	2103	$105,150.00	50
EAST RAILROAD STREET	LAKE AVENUE	ERIE STREET	351	56	2184	$109,200.00	61
EAST RICHLAND STREET	INDUSTRY	EXPANSION BOULEVARD	753	30	2510	$125,500.00	46
ROSE LANE	SEGMENT END	EXPANSION BOULEVARD	391	30	1303	$65,150.00	50
ROSE LANE	EXPANSION BOULEVARD	SEGMENT END	698	30	2327	$116,350.00	68
SHOREWAY ROAD	SEGMENT END	ANGIER DRIVE	146	30	487	$24,350.00	63
SHOREWAY ROAD	ANGIER DRIVE	NORTHWESTERN DRIVE	1178	30	3927	$196,350.00	43
TULIP LANE	EXPANSION BOULEVARD	SEGMENT END	702	32	2496	$124,800.00	67
WEST MARINA ROAD	IA 110	CITY LIMITS	1003	22	2452	$122,600.00	56
North-South Streets (Page 1)							
120TH AVENUE	LAKESHORE DRIVE	MID-BLOCK	1993	22	4872	$243,600.00	68
120TH AVENUE	MID-BLCOK	CITY LIMITS	645	22	1577	$78,850.00	64
ALLEN AVENUE	MAPLE STREET	SEGMENT END	183	30	610	$30,500.00	63
BARTON STREET	LIGHTHOUSE DRIVE	SEGMENT END	393	30	1310	$65,500.00	64
BARTON STREET	WEST 5TH STREET	WEST 6TH STREET	398	30	1327	$66,350.00	58
BARTON STREET	ROCKWELL COURT	SEGMENT END	677	30	2257	$112,850.00	64
CAYUGA STREET	CHAUTAQUA PARK DRIVE	EAST 1ST STREET	630	30	2100	$105,000.00	44
COLLEGE AVENUE	WEST 6TH STREET	SEGMENT END	225	24	600	$30,000.00	51
COLLEGE AVENUE	IOWA STREET	WEST 5TH STREET	347	30	1157	$57,850.00	53
COLLEGE AVENUE	IOWA STREET	WEST 4TH STREET	357	30	1190	$59,500.00	48
COLLEGE AVENUE	WEST LAKE SHORE DRIVE	SEGMENT END	405	24	1080	$54,000.00	61
COLONIAL CIRCLE	LOCHEDEM DRIVE	SEGMENT END	213	24	568	$28,400.00	64
EARLY STREET	IOWA STREET	WEST 5TH STREET	318	24	848	$42,400.00	53
EARLY STREET	IOWA STREET	WEST 4TH STREET	343	24	915	$45,750.00	44
EARLY STREET	LIGHTHOUSE DRIVE	WEST 4TH STREET	566	24	1509	$75,450.00	54
EMERALD DRIVE	NORTH EMERALD DRIVE	MID-BLOCK	583	30	1943	$97,150.00	60
EMERALD DRIVE	MID-BLOCK	KELVIN ROAD	92	30	307	$15,350.00	44
EMERALD DRIVE	KELVIN ROAD	WINTHROP CIRCLE	357	30	1190	$59,500.00	56
EMERALD DRIVE	PARLINA LANE	SEGMENT END	570	30	1900	$95,000.00	60
NORTH ERIE STREET	EAST 8TH STREET	EAST 9TH STREET	530	30	1767	$88,350.00	63
ERIE STREET	EAST 5TH STREET	EAST 6TH STREET	380	57	2407	$120,350.00	45
GENESEO STREET	WEST RAILROAD STREET	WEST 4TH STREET	564	30	1880	$94,000.00	44
GENESEO STREET	WEST 4TH STREET	WEST 3RD STREET	564	30	1880	$94,000.00	42
GENESEO STREET	WEST 3RD STREET	WEST 2ND STREET	577	30	1923	$96,150.00	46
GRAND AVENUE	IA 7	WEST 7TH STREET	193	30	643	$32,150.00	49
GRAND AVENUE	WEST 4TH STREET	PETERSON DRIVE	1392	30	4640	$232,000.00	43
GRAND AVENUE	PETERSON DRIVE	WEST LAKE SHORE DRIVE	267	30	890	$44,500.00	69
HUDSON STREET	EAST 6TH STREET	EAST 5TH STREET	380	30	1267	$63,350.00	67
KELVIN ROAD	EMERALD DRIVE	SEGMENT END	104	30	347	$17,350.00	65
KELVIN ROAD	PIERCE DRIVE	ALVIN PLACE	752	30	2507	$125,350.00	64
KELVIN ROAD	ALVIN PLACE	PIERCE DRIVE	353	30	1177	$58,850.00	57
KELVIN ROAD	PIERCE DRIVE	SEGMENT END	342	30	1140	$57,000.00	61
LAKE AVENUE	590TH STREET	16TH STREET	505	48	2693	$134,650.00	60
LAKE AVENUE	16TH STREET	14TH STREET	1045	48	5573	$278,650.00	64
LAKE AVENUE	14TH STREET	13TH STREET	664	48	3541	$177,050.00	66
LAKE AVENUE	13TH STREET	12TH STREET	657	44	3212	$160,600.00	69
LAKE AVENUE	BAIR STREET	3RD STREET	534	51	3026	$151,300.00	47
LAKE AVENUE	3RD STREET	2ND STREET	577	51	3270	$163,500.00	47
LAKE AVENUE	2ND STREET	1ST STREET	570	51	3230	$161,500.00	53
LAKE AVENUE	1ST STREET	LAKE SHORE DRIVE	380	49	2069	$103,450.00	49
LARCHWOOD DRIVE	COLONIAL CIRCLE	WEST 6TH STREET	184	24	491	$24,550.00	66
MAE STREET	EAST 1ST STREET	EAST LAKE SHORE DRIVE	686	30	2287	$114,350.00	41
MAYWOOD DRIVE	10TH ST PLACE	EAST 10TH STREET	311	30	1037	$51,850.00	52
MEADOW LANE	610TH STREET	LEONA DRIVE	985	32	3502	$175,100.00	63
MEADOW LANE	LEONA CIRCLE	LEONA DRIVE	309	32	1099	$54,950.00	58
MICHIGAN STREET	WEST 3RD STREET	SEGMENT END	642	20	1427	$71,350.00	53
MICHIGAN STREET	WEST 3RD STREET	WEST 2ND STREET	577	20	1282	$64,100.00	40
MICHIGAN STREET	WEST 2ND STREET	WEST 1ST STREET	571	20	1269	$63,450.00	45
NORTH EMERALD DRIVE	EMERALD DRIVE	SEGMENT END	554	27	1662	$83,100.00	57
NORTHWESTERN DRIVE	HYLAND DRIVE	LOCHEDEM DRIVE	500	30	1667	$83,350.00	64
NORTHWESTERN DRIVE	LOCHEDEM DRIVE	WEST 6TH STREET	336	30	1120	$56,000.00	63
NORTHWESTERN DRIVE	WEST 6TH STREET	WEST 5TH STREET	398	30	1327	$66,350.00	60
ONEIDA STREET	EAST 10TH STREET	TORNADO DRIVE	1176	30	3920	$196,000.00	67
ONEIDA STREET	TORNADO DRIVE	MILWAUKEE AVE	153	30	510	$25,500.00	68
ONEIDA STREET	MILWAUKEE AVE	EAST 7TH STREET	257	31	885	$44,250.00	52
ONEIDA STREET	EAST 7TH STREET	EAST 6TH STREET	481	31	1657	$82,850.00	41
ONEIDA STREET	EAST 4TH STREET	BAIR STREET	576	31	1984	$99,200.00	49

PAVEMENT REHABILITATION PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Length (Ft)	Street Width (Ft)	Pavement Area (Sq. Yd)	Patching & Panel Replacement Estimated Cost (Sq. Yd) (3) $50.00	Street Rating (PCI)
North-South Streets (Page 2)							
ONTARIO STREET	IA 7	WEST 7TH STREET	222	30	740	$37,000.00	55
ONTARIO STREET	WEST 7TH STREET	WEST 6TH STREET	496	30	1653	$82,650.00	61
ONTARIO STREET	WEST 5TH STREET	WEST 4TH STREET	717	30	2390	$119,500.00	43
ONTARIO STREET	WEST 4TH STREET	WEST 3RD STREET	564	30	1880	$94,000.00	58
ONTARIO STREET	WEST 2ND STREET	WEST LAKE SHORE DRIVE	374	30	1247	$62,350.00	40
OTSEGO STREET	SEGMENT END	WEST 7TH STREET	211	30	703	$35,150.00	63
OTSEGO STREET	WEST 7TH STREET	WEST 6TH STREET	503	24	1341	$67,050.00	50
OTSEGO STREET	WEST RAILROAD STREET	WEST 5TH STREET	163	30	543	$27,150.00	66
OTSEGO STREET	WEST 4TH STREET	WEST 3RD STREET	564	30	1880	$94,000.00	46
OTSEGO STREET	WEST 3RD STREET	WEST 2ND STREET	576	30	1920	$96,000.00	44
PIERCE DRIVE	KELVIN ROAD	PARLINA LANE	696	30	2320	$116,000.00	65
PIERCE DRIVE	ALVIN PLACE	SEGMENT END	328	30	1093	$54,650.00	49
PRAIRIE LANE	PRAIRIE LANE	PRAIRIE LANE	625	28	1944	$97,200.00	53
RUSSELL STREET	EAST 1ST STREET	BRADFORD STREET	392	30	1307	$65,350.00	47
RUSSELL STREET	BRADFORD STREET	EAST LAKE SHORE DRIVE	257	30	857	$42,850.00	48
SENECA STREET	EAST 4TH STREET	SEGMENT END	235	26	679	$33,950.00	46
SENECA STREET	BAIR STREET	EAST 3RD STREET	172	38	726	$36,300.00	54
SENECA STREET	EAST 1ST STREET	EAST LAKE SHORE DRIVE	628	26	1814	$90,700.00	46
SUNRISE PARK ROAD	SUNRISE PARK ROAD	SUNRISE PARK ROAD	3074	23	7856	$392,800.00	69
SUPERIOR STREET	EAST 6TH STREET	EAST 5TH STREET	380	30	1267	$63,350.00	68
SUPERIOR STREET	EAST 5TH STREET	EAST 4TH STREET	699	30	2330	$116,500.00	58
SUPERIOR STREET	EAST 4TH STREET	SEGMENT END	727	30	2423	$121,150.00	66
SUPERIOR STREET	EAST 1ST STREET	EAST 2ND STREET	569	24	1517	$75,850.00	44
SUPERIOR STREET	BRADFORD STREET	EAST 1ST STREET	391	30	1303	$65,150.00	58
SUPERIOR STREET	EAST LAKE SHORE DRIVE	BRADFORD STREET	184	30	613	$30,650.00	49
TERRENCE STREET	WEST 4TH STREET	WEST 5TH STREET	658	24	1755	$87,750.00	65
VISTA DRIVE	WEST 5TH STREET	WEST 6TH STREET	388	30	1293	$64,650.00	58
WESTERN AVENUE	WEST 4TH STREET	WEST 5TH STREET	665	24	1773	$88,650.00	69
					Total Estimated Pavement Rehabilitation Costs	**$13,273,450.00**	
					Annual Pavement Rehabilitation Cost (10-15 Year Plan)	**$900,000.00 to $1,300,000.00**	

Notes:

1) Refer to attached Street Maintenance Map for illustrations of referenced projects.
2) Costs presented above are in 2021 dollars, including estimated construction, contingency, and engineering.
3) Costs based on 20% of pavement surface area requiring repair.
4) Prior to pavement rehab project selection, the existing utility condition should be reevaluated for each street segment.

RECONSTRUCTION PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Rating (PCI)	Improvement Length (LF) & Cost									Estimated Total Project Cost (5)	Reconstruction Based On:			
				Street & Site Improvements (2)			Utility Improvements										
				31' Street w/Curb	Additional Width (6) (SY)	Total Street Cost	Storm Sewer (3)	Storm Sewer Cost	Sanitary Sewer (4)	Sanitary Sewer Cost	Watermain (4)	Watermain Cost		HIGH VALUE (STREET & UTILITY)	MEDIUM VALUE (STREET & UTILITY)	LOW VALUE (UTILITY DRIVEN)	HIGH VALUE (STREET DRIVEN)
				$775.00	$160.00		$195.00		$160.00		$165.00						
East-West Streets (Page 1)																	
EAST 1ST STREET	LAKE AVENUE	IRVING STREET	45	343		$265,825.00	343	$66,885.00	343	$54,880.00	343	$56,595.00	**$444,185.00**				
EAST 1ST STREET	IRVING STREET	CAYUGA STREET	38	328		$254,200.00	328	$63,960.00	328	$52,480.00	328	$54,120.00	**$424,760.00**				
EAST 1ST STREET	CAYUGA STREET	SENECA STREET	45	394		$305,350.00	394	$76,830.00	394	$63,040.00	394	$65,010.00	**$510,230.00**				
EAST 1ST STREET	SENECA STREET	ONEIDA STREET	54	389		$301,475.00	389	$75,855.00	389	$62,240.00	389	$64,185.00	**$503,755.00**				
EAST 1ST STREET	ONEIDA STREET	HUDSON STREET	42	392		$303,800.00	392	$76,440.00	392	$62,720.00	392	$64,680.00	**$507,640.00**				
EAST 1ST STREET	HUDSON STREET	SUPERIOR STREET	61	377		$292,175.00	377	$73,515.00	377	$60,320.00	377	$62,205.00	**$488,215.00**				
EAST 1ST STREET	SUPERIOR STREET	RUSSELL STREET	65	420		$325,500.00	420	$81,900.00	420	$67,200.00	420	$69,300.00	**$543,900.00**				
EAST 1ST STREET	RUSSELL STREET	MAE STREET	63	361		$279,775.00	361	$70,395.00	361	$57,760.00	361	$59,565.00	**$467,495.00**				
EAST 1ST STREET	MAE STREET	KENZY STREET	69	280		$217,000.00	280	$54,600.00			280	$46,200.00	**$317,800.00**				
EAST 1ST STREET	KENZY STREET	KENZY STREET	69	90		$69,750.00	90	$17,550.00			90	$14,850.00	**$102,150.00**				
EAST 1ST STREET	KENZY STREET	HIGHWAY STREET	58	211		$163,525.00	211	$41,145.00	211	$33,760.00	211	$34,815.00	**$273,245.00**				
EAST 1ST STREET	HIGHWAY STREET	SEGMENT END	68	268		$207,700.00	268	$52,260.00	268	$42,880.00	268	$44,220.00	**$347,060.00**				
WEST 2ND STREET	OTSEGO STREET	ONTARIO STREET	36	390		$302,250.00	390	$76,050.00	185	$29,600.00	390	$64,350.00	**$472,250.00**				
WEST 2ND STREET	ONTARIO STREET	GENESEO STREET	46	386		$299,150.00	386	$75,270.00	386	$61,760.00	386	$63,690.00	**$499,870.00**				
EAST 2ND STREET	SENECA STREET	ONEIDA STREET	57	391		$303,025.00	391	$76,245.00			391	$64,515.00	**$443,785.00**				
EAST 2ND STREET	ONEIDA STREET	HUDSON STREET	81	390		$302,250.00	390	$76,050.00			390	$64,350.00	**$442,650.00**				
EAST 2ND STREET	HUDSON STREET	SUPERIOR STREET	63	378		$292,950.00	378	$73,710.00			378	$62,370.00	**$429,030.00**				
WEST 3RD STREET	GENESEO STREET	MICHIGAN STREET	97	334		$258,850.00	334	$65,130.00	334	$53,440.00	334	$55,110.00	**$432,530.00**				
WEST 3RD STREET	MICHIGAN STREET	LAKE AVENUE	97	333	1000	$418,075.00	333	$64,935.00	333	$53,280.00	333	$54,945.00	**$591,235.00**				
WEST 4TH STREET	BARTON STREET	TERRENCE STREET	74	308	30	$243,500.00	308	$60,060.00			308	$50,820.00	**$354,380.00**				
WEST 4TH STREET	TERRENCE STREET	EARLY STREET	77	319		$247,225.00	319	$62,205.00			319	$52,635.00	**$362,065.00**				
WEST 4TH STREET	EARLY STREET	GRAND AVENUE	43	693		$537,075.00	693	$135,135.00	500	$80,000.00	693	$114,345.00	**$866,555.00**				
WEST 4TH STREET	GRAND AVENUE	MID-BLOCK	62	212		$164,300.00	212	$41,340.00	212	$33,920.00	212	$34,980.00	**$274,540.00**				
WEST 4TH STREET	MID-BLOCK	COLLEGE AVENUE	35	383	810	$426,425.00	383	$74,685.00	383	$61,280.00	383	$63,195.00	**$625,585.00**				
WEST 4TH STREET	COLLEGE AVENUE	OTSEGO STREET	32	384		$297,600.00	384	$74,880.00	200	$32,000.00	384	$63,360.00	**$467,840.00**				
WEST 4TH STREET	OTSEGO STREET	ONTARIO STREET	25	391		$303,025.00	391	$76,245.00			391	$64,515.00	**$443,785.00**				
WEST 4TH STREET	ONTARIO STREET	GENESEO STREET	46	388		$300,700.00	388	$75,660.00			388	$64,020.00	**$440,380.00**				
EAST 4TH STREET	CAYUGA STREET	SENECA STREET	60	394		$305,350.00	394	$76,830.00			394	$65,010.00	**$447,190.00**				
EAST 4TH STREET	SENECA STREET	ONEIDA STREET	38	388		$300,700.00	388	$75,660.00			388	$64,020.00	**$440,380.00**				
EAST 4TH STREET	ONEIDA STREET	HUDSON STREET	62	390		$302,250.00	390	$76,050.00	390	$62,400.00	390	$64,350.00	**$505,050.00**				
EAST 4TH STREET	HUDSON STREET	SUPERIOR STREET	49	382		$296,050.00	382	$74,490.00	382	$61,120.00	382	$63,030.00	**$494,690.00**				
EAST 4TH STREET	SUPERIOR STREET	RUSSELL STREET	62	417		$323,175.00	417	$81,315.00	417	$66,720.00	417	$68,805.00	**$540,015.00**				
EAST 4TH STREET	OATES STREET	SKEWIS STREET	62	296		$229,400.00	296	$57,720.00	296	$47,360.00	296	$48,840.00	**$383,320.00**				
EAST 4TH STREET	SKEWIS STREET	GEISINGER ROAD	55	695		$538,625.00	695	$135,525.00	695	$111,200.00	695	$114,675.00	**$900,025.00**				
EAST 4TH STREET	GEISINGER ROAD	VILAS ROAD	19	373		$289,075.00	373	$72,735.00	373	$59,680.00	373	$61,545.00	**$483,035.00**				
EAST 4TH STREET	VILAS ROAD	EXPANSION BOULEVARD	28	1463		$1,133,825.00	1463	$285,285.00	1463	$234,080.00	800	$132,000.00	**$1,785,190.00**				
WEST 5TH STREET	VISTA DRIVE	RENSHAW DRIVE (S)	87	564	48	$444,780.00	564	$109,980.00	564	$90,240.00	564	$93,060.00	**$738,060.00**				
WEST 5TH STREET	BAIR STREET	OTSEGO STREET (N)	20	222	170	$199,250.00	222	$43,290.00					**$242,540.00**				
WEST 5TH STREET	ONTARIO STREET	GENESEO STREET	52	390	820	$433,450.00	390	$76,050.00			390	$64,350.00	**$573,850.00**				
WEST 5TH STREET	MICHIGAN STREET	LAKE AVENUE	39	317	630	$346,475.00	317	$61,815.00			190	$31,350.00	**$439,640.00**				
EAST 5TH STREET	LAKE AVENUE	ERIE STREET	57	322	680	$358,350.00	322	$62,790.00	322	$51,520.00	322	$53,130.00	**$525,790.00**				
EAST 5TH STREET	RUSSELL STREET	OATES STREET	47	309		$239,475.00	309	$60,255.00			309	$50,985.00	**$350,715.00**				
EAST 5TH STREET	OATES STREET	FLINDT DR	45	600		$465,000.00	600	$117,000.00	600	$96,000.00	600	$99,000.00	**$777,000.00**				
EAST 5TH STREET	FLINDT DR	GEISINGER ROAD	78	414		$320,850.00	414	$80,730.00			414	$68,310.00	**$469,890.00**				
WEST 6TH STREET	RENSHAW DRIVE	VISTA DRIVE	67	579		$448,725.00	579	$112,905.00	579	$92,640.00	579	$95,535.00	**$749,805.00**				
WEST 6TH STREET	VISTA DRIVE	ANGIER DRIVE	74	303		$234,825.00	303	$59,085.00	303	$48,480.00	303	$49,995.00	**$392,385.00**				
WEST 6TH STREET	ANGIER DRIVE	PLEASANTVIEW DRIVE	60	323		$250,325.00	323	$62,985.00	323	$51,680.00	323	$53,295.00	**$418,285.00**				
WEST 6TH STREET	NORTHWESTERN DRIVE	MID- BLOCK	71	592		$458,800.00	592	$115,440.00	592	$94,720.00	592	$97,680.00	**$766,640.00**				
WEST 6TH STREET	MID- BLOCK	LARCHWOOD DRIVE	56	256		$198,400.00	256	$49,920.00	256	$40,960.00	256	$42,240.00	**$331,520.00**				
WEST 6TH STREET	LARCHWOOD DRIVE	HYLAND DRIVE	47	374		$289,850.00	374	$72,930.00	374	$59,840.00	374	$61,710.00	**$484,330.00**				
WEST 6TH STREET	HYLAND DRIVE	BARTON STREET	60	422	40	$333,450.00	422	$82,290.00	422	$67,520.00	422	$69,630.00	**$552,890.00**				
WEST 6TH STREET	BARTON STREET	PARK COURT	48	292		$226,300.00	292	$56,940.00	292	$46,720.00	292	$48,180.00	**$378,140.00**				
WEST 6TH STREET	PARK COURT	EARLY STREET	55	202		$156,550.00	202	$39,390.00	202	$32,320.00	202	$33,330.00	**$261,590.00**				
WEST 6TH STREET	EARLY STREET	VESTAL STREET	48	499	24	$390,565.00	499	$97,305.00	499	$79,840.00	499	$82,335.00	**$650,045.00**				

RECONSTRUCTION PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Rating (PCI)	Improvement Length (LF) & Cost								Estimated Total Project Cost (5)	Reconstruction Based On:			
				Street & Site Improvements (2)			Utility Improvements									
				31' Street w/Curb	Additional Width (6) (SY)	Total Street Cost	Storm Sewer (3)	Storm Sewer Cost	Sanitary Sewer (4)	Sanitary Sewer Cost	Watermain (4)	Watermain Cost		HIGH VALUE (STREET & UTILITY)	MEDIUM VALUE (STREET & UTILITY)	LOW VALUE (UTILITY DRIVEN)	HIGH VALUE (STREET DRIVEN)
				$775.00	$160.00		$195.00		$160.00		$165.00						
East-West Streets (Page 2)																	
WEST 6TH STREET	GRAND AVENUE	COLLEGE AVENUE	46	380		$294,500.00	380	$74,100.00	380	$60,800.00	380	$62,700.00	**$492,100.00**				
WEST 6TH STREET	COLLEGE AVENUE	OTSEGO STREET	46	389		$301,475.00	389	$75,855.00			389	$64,185.00	**$441,515.00**				
WEST 6TH STREET	OTSEGO STREET	ONTARIO STREET	46	388		$300,700.00	388	$75,660.00			388	$64,020.00	**$440,380.00**				
WEST 6TH STREET	ONTARIO STREET	GENESEO STREET	43	391		$303,025.00	391	$76,245.00			391	$64,515.00	**$443,785.00**				
WEST 6TH STREET	GENESEO STREET	MICHIGAN STREET	45	346	540	$354,550.00	346	$67,470.00			346	$57,090.00	**$479,110.00**				
WEST 6TH STREET	MICHIGAN STREET	LAKE AVENUE	41	323	1010	$411,925.00	323	$62,985.00			323	$53,295.00	**$528,205.00**				
EAST 6TH STREET	LAKE AVENUE	ERIE STREET	44	317	59	$255,115.00	317	$61,815.00			317	$52,305.00	**$369,235.00**				
EAST 6TH STREET	ERIE STREET	CAYUGA STREET	45	354	51	$282,510.00	354	$69,030.00			354	$58,410.00	**$409,950.00**				
EAST 6TH STREET	CAYUGA STREET	SENECA STREET	45	385		$298,375.00	385	$75,075.00			385	$63,525.00	**$436,975.00**				
EAST 6TH STREET	SENECA STREET	ONEIDA STREET	56	389		$301,475.00	389	$75,855.00			389	$64,185.00	**$441,515.00**				
EAST 6TH STREET	ONEIDA STREET	HUDSON STREET	49	390		$302,250.00	390	$76,050.00			390	$64,350.00	**$442,650.00**				
EAST 6TH STREET	HUDSON STREET	SUPERIOR STREET	65	380		$294,500.00	380	$74,100.00			380	$62,700.00	**$431,300.00**				
WEST 7TH STREET	VESTAL STREET	GRAND AVENUE	80	421		$326,275.00	421	$82,095.00	421	$67,360.00	421	$69,465.00	**$545,195.00**				
WEST 7TH STREET	GRAND AVENUE	COLLEGE AVENUE	58	381		$295,275.00	381	$74,295.00	381	$60,960.00	381	$62,865.00	**$493,395.00**				
WEST 7TH STREET	COLLEGE AVENUE	OTSEGO STREET	65	388		$300,700.00	388	$75,660.00	388	$62,080.00	388	$64,020.00	**$502,460.00**				
WEST 7TH STREET	OTSEGO STREET	ONTARIO STREET	59	388		$300,700.00	388	$75,660.00	388	$62,080.00	388	$64,020.00	**$502,460.00**				
WEST 7TH STREET	ONTARIO STREET	GENESEO STREET	53	393		$304,575.00	393	$76,635.00	393	$62,880.00	393	$64,845.00	**$508,935.00**				
WEST 7TH STREET	MICHIGAN STREET	LAKE AVENUE	62	326	59	$262,090.00	326	$63,570.00			326	$53,790.00	**$379,450.00**				
EAST 7TH STREET	LAKE AVENUE	ERIE STREET	71	310	59	$249,690.00	310	$60,450.00			310	$51,150.00	**$361,290.00**				
EAST 7TH STREET	CAYUGA STREET	SENECA STREET	46	390	37	$308,170.00	390	$76,050.00			390	$64,350.00	**$448,570.00**				
EAST 7TH STREET	ONEIDA STREET	HUDSON STREET	64	392	30	$308,600.00	392	$76,440.00			392	$64,680.00	**$449,720.00**				
EAST 7TH STREET	HUDSON STREET	SUPERIOR STREET	67	375	30	$295,425.00	375	$73,125.00	375	$60,000.00	375	$61,875.00	**$490,425.00**				
EAST 7TH STREET	SUPERIOR STREET	MILWAUKEE AVENUE	65	261		$202,275.00	261	$50,895.00	261	$41,760.00	261	$43,065.00	**$337,995.00**				
EAST 7TH STREET	GEISINGER ROAD	WALNUT LANE	63	393		$304,575.00	393	$76,635.00			393	$64,845.00	**$446,055.00**				
EAST 7TH STREET	WALNUT LANE	HICKORY LANE	54	276		$213,900.00	276	$53,820.00			276	$45,540.00	**$313,260.00**				
WEST 8TH STREET	VESTAL STREET	NORTH ONTARIO STREET	59	1579	30	$1,228,525.00	1579	$307,905.00	1579	$252,640.00	1579	$260,535.00	**$2,049,605.00**				
WEST 8TH STREET	NORTH ONTARIO STREET	LAKE AVENUE	53	1060		$821,500.00	1060	$206,700.00	1060	$169,600.00	1060	$174,900.00	**$1,372,700.00**				
EAST 8TH STREET	RUSSELL STREET	NORTH MAE STREET	58	233		$180,575.00	233	$45,435.00			233	$38,445.00	**$264,455.00**				
EAST 8TH STREET	NORTH MAE STREET	OAK LANE	59	285		$220,875.00	285	$55,575.00	285	$45,600.00	285	$47,025.00	**$369,075.00**				
EAST 8TH STREET	OAK LANE	WALNUT STREET (S)	40	157		$121,675.00	157	$30,615.00	157	$25,120.00	157	$25,905.00	**$203,315.00**				
EAST 8TH STREET	WALNUT STREET (S)	WALNUT STREET (N)	69	128		$99,200.00	128	$24,960.00	128	$20,480.00	128	$21,120.00	**$165,760.00**				
EAST 8TH STREET	WALNUT STREET (N)	EVERGREEN AVENUE	73	320		$248,000.00	320	$62,400.00			320	$52,800.00	**$363,200.00**				
WEST 9TH STREET	VESTAL STREET	NORTH ONTARIO STREET	58	1453	30	$1,130,875.00	1453	$283,335.00	1453	$232,480.00	1453	$239,745.00	**$1,886,435.00**				
EAST 9TH STREET	LAKE AVENUE	NORTH ERIE STREET	62	347		$268,925.00	347	$67,665.00	347	$55,520.00	180	$29,700.00	**$421,810.00**				
EAST 9TH STREET	NORTH ERIE STREET	NORTH WINDSOR CIRCLE	55	317		$245,675.00	317	$61,815.00	317	$50,720.00	317	$52,305.00	**$410,515.00**				
EAST 9TH STREET	NORTH WINDSOR CIRCLE	NORTH SENECA STREET	59	431		$334,025.00	431	$84,045.00	431	$68,960.00	431	$71,115.00	**$558,145.00**				
EAST 10TH STREET	NORTH ERIE STREET (N)	SPOONER STREET	62	293		$227,075.00	293	$57,135.00	293	$46,880.00	293	$48,345.00	**$379,435.00**				
EAST 10TH STREET	SPOONER STREET	NORTH SENECA STREET	54	287		$222,425.00	287	$55,965.00	287	$45,920.00	287	$47,355.00	**$371,665.00**				
EAST 12TH STREET	LAKE AVENUE	NORTH ERIE STREET	50	533		$413,075.00	533	$103,935.00	360	$57,600.00	533	$87,945.00	**$662,555.00**				
EAST 12TH STREET	NORTH ERIE STREET	SPOONER STREET	56	294		$227,850.00	294	$57,330.00	294	$47,040.00	294	$48,510.00	**$380,730.00**				
EAST 12TH STREET	SPOONER STREET	NORTH SENECA STREET	59	294		$227,850.00	294	$57,330.00	130	$20,800.00	294	$48,510.00	**$354,490.00**				
WEST 13TH STREET	SEGMENT END	MICHIGAN STREET	85	172	30	$138,100.00	172	$33,540.00	172	$27,520.00	172	$28,380.00	**$227,540.00**				
WEST 13TH STREET	MICHIGAN STREET	LAKE AVENUE	86	488	30	$383,000.00	488	$95,160.00	488	$78,080.00	488	$80,520.00	**$636,760.00**				
EAST 13TH STREET	NORTH ERIE STREET	NORTH SENECA STREET	68	591	30	$462,825.00	591	$115,245.00	591	$94,560.00	591	$97,515.00	**$770,145.00**				

RECONSTRUCTION PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Rating (PCI)	Improvement Length (LF) & Cost									Estimated Total Project Cost (5)	Reconstruction Based On:			
				Street & Site Improvements (2)			Utility Improvements										
				31' Street w/Curb	Additional Width (6) (SY)	Total Street Cost	Storm Sewer (3)	Storm Sewer Cost	Sanitary Sewer (4)	Sanitary Sewer Cost	Watermain (4)	Watermain Cost		HIGH VALUE (STREET & UTILITY)	MEDIUM VALUE (STREET & UTILITY)	LOW VALUE (UTILITY DRIVEN)	HIGH VALUE (STREET DRIVEN)
				$775.00	$160.00		$195.00		$160.00		$165.00						
East-West Streets (Page 3)																	
WEST 14TH STREET	MICHIGAN STREET	LAKE AVENUE	78	491	30	$385,325.00	491	$95,745.00			491	$81,015.00	**$562,085.00**				
EAST 16TH STREET	LAKE AVENUE	SEGMENT END	81	495	30	$388,425.00	495	$96,525.00	495	$79,200.00	495	$81,675.00	**$645,825.00**				
610TH STREET	MID-BLOCK	MEADOW LANE	56	224	23	$177,280.00	224	$43,680.00	224	$35,840.00	224	$36,960.00	**$293,760.00**				
610TH STREET	MEADOW LANE	MID-BLOCK	60	136	23	$109,080.00	136	$26,520.00	136	$21,760.00	136	$22,440.00	**$179,800.00**				
BRADFORD STREET	RUSSELL STREET	SUPERIOR STREET	48	419		$324,725.00	419	$81,705.00	419	$67,040.00	419	$69,135.00	**$542,605.00**				
EMERALD DRIVE	NORTH EMERALD DRIVE	IA 110	52	406	32	$319,770.00	406	$79,170.00	406	$64,960.00	406	$66,990.00	**$530,890.00**				
HYLAND DRIVE	ANGIER DRIVE	PLEASANTVIEW DRIVE	67	312	30	$246,600.00	312	$60,840.00			312	$51,480.00	**$358,920.00**				
HYLAND DRIVE	PLEASANTVIEW DRIVE	HIGHVIEW DRIVE	66	291	30	$230,325.00	291	$56,745.00			291	$48,015.00	**$335,085.00**				
HYLAND DRIVE	HIGHVIEW DRIVE	PINECREST DRIVE	60	244	30	$193,900.00	244	$47,580.00			244	$40,260.00	**$281,740.00**				
HYLAND DRIVE	PINECREST DRIVE	NORTHWESTERN DRIVE	56	263	31	$208,785.00	263	$51,285.00			263	$43,395.00	**$303,465.00**				
HYLAND DRIVE	NORTHWESTERN DRIVE	GREENWOOD DRIVE	58	319	30	$252,025.00	319	$62,205.00	319	$51,040.00	319	$52,635.00	**$417,905.00**				
HYLAND DRIVE	GREENWOOD DRIVE	COLONIAL CIRCLE	60	446	30	$350,450.00	446	$86,970.00	446	$71,360.00	446	$73,590.00	**$582,370.00**				
HYLAND DRIVE	COLONIAL CIRCLE	COLONIAL CIRCLE	63	231	30	$183,825.00	231	$45,045.00	231	$36,960.00	231	$38,115.00	**$303,945.00**				
HYLAND DRIVE	COLONIAL CIRCLE	LOCHEDEM DRIVE	59	427	30	$335,725.00	427	$83,265.00	427	$68,320.00	427	$70,455.00	**$557,765.00**				
LOCHEDEM DRIVE	NORTHWESTERN DRIVE	GREENWOOD DRIVE	59	317		$245,675.00	317	$61,815.00	317	$50,720.00	317	$52,305.00	**$410,515.00**				
LOCHEDEM DRIVE	GREENWOOD DRIVE	COLONIAL CIRCLE	56	365	30	$287,675.00	365	$71,175.00	365	$58,400.00	365	$60,225.00	**$477,475.00**				
MAPLE STREET	ALLEN STREET	NORTHWESTERN DRIVE	70	812		$629,300.00	812	$158,340.00	812	$129,920.00	812	$133,980.00	**$1,051,540.00**				
EAST MILWAUKEE AVENUE	RUSSELL STREET	NORTH WALNUT STREET	56	680		$527,000.00	680	$132,600.00	680	$108,800.00	680	$112,200.00	**$880,600.00**				
EAST MILWAUKEE AVENUE	NORTH WALNUT STREET	GEISINGER ROAD	68	638		$494,450.00	638	$124,410.00	638	$102,080.00	638	$105,270.00	**$826,210.00**				
PARK STREET	HIGHWAY STREET	FLINDT DRIVE	67	378		$292,950.00	378	$73,710.00	378	$60,480.00			**$427,140.00**				
PARK STREET	FLINDT DRIVE	DORINDA STREET	48	178	30	$142,750.00	178	$34,710.00	178	$28,480.00			**$205,940.00**				
PARK STREET	DORINDA STREET	PHILLIPS STREET	63	263	30	$208,625.00	263	$51,285.00	263	$42,080.00			**$301,990.00**				
PARK STREET	PHILLIPS STREET	ROBERTS STREET	63	267	30	$211,725.00	267	$52,065.00	267	$42,720.00			**$306,510.00**				
PARK STREET	ROBERTS STREET	SEGMENT END	64	248	30	$197,000.00	248	$48,360.00	248	$39,680.00			**$285,040.00**				
POPLAR LANE	GEISINGER ROAD	WALNUT LANE	45	282		$218,550.00	282	$54,990.00	282	$45,120.00	282	$46,530.00	**$365,190.00**				
POPLAR LANE	WALNUT LANE	HICKORY LANE	34	285		$220,875.00	285	$55,575.00	285	$45,600.00	285	$47,025.00	**$369,075.00**				
RENSHAW DRIVE	WEST 5TH STREET	SEGMENT END	55	1108		$858,700.00	1108	$216,060.00	650	$104,000.00	700	$115,500.00	**$1,294,260.00**				
EAST RICHLAND STREET	FLINDT RIVE	VILAS ROAD	83	381		$295,275.00	381	$74,295.00			381	$62,865.00	**$432,435.00**				
EAST RICHLAND STREET	VILAS ROAD	INDUSTRY	89	1038		$804,450.00	1038	$202,410.00			1038	$171,270.00	**$1,178,130.00**				
ROCKWELL COURT	BARTON STREET	SEGMENT END	63	265		$205,375.00	265	$51,675.00			265	$43,725.00	**$300,775.00**				
TORNADO DRIVE	RUSSELL STREET	ONEIDA STREET	37	1206		$934,650.00	1206	$235,170.00			350	$57,750.00	**$1,227,570.00**				
VIOLET LANE	EXPANSION BOULEVARD	SEGMENT END	54	489	30	$383,775.00	489	$95,355.00	489	$78,240.00	489	$80,685.00	**$638,055.00**				
VIOLET LANE	EXPANSION BOULEVARD	SEGMENT END	65	489	30	$383,775.00	489	$95,355.00	489	$78,240.00	489	$80,685.00	**$638,055.00**				
VISTA DRIVE	WEST 5TH STREET	SEGMENT END	36	2110		$1,635,250.00	2110	$411,450.00	2110	$337,600.00	2110	$348,150.00	**$2,732,450.00**				
WALNUT STREET	NORTH WALNUT STREET	LINDEN LANE	51	302		$234,050.00	302	$58,890.00			302	$49,830.00	**$342,770.00**				
WALNUT STREET	LINDEN LANE	GEISINGER ROAD	59	343		$265,825.00	343	$66,885.00	343	$54,880.00	343	$56,595.00	**$444,185.00**				
NORTH WINDSOR CIRCLE	EAST 9TH STREET	NORTH SENECA STREET	73	700		$542,500.00	700	$136,500.00	700	$112,000.00	700	$115,500.00	**$906,500.00**				
SOUTH WINDSOR CIRCLE	EAST 9TH STREET	NORTH SENECA STREET	67	714		$553,350.00	714	$139,230.00	714	$114,240.00	714	$117,810.00	**$924,630.00**				

RECONSTRUCTION PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Rating (PCI)	Improvement Length (LF) & Cost									Estimated Total Project Cost (5)	Reconstruction Based On:			
				Street & Site Improvements (2)			Utility Improvements										
				31' Street w/Curb	Additional Width (6) (SY)	Total Street Cost	Storm Sewer (3)	Storm Sewer Cost	Sanitary Sewer (4)	Sanitary Sewer Cost	Watermain (4)	Watermain Cost		HIGH VALUE (STREET & UTILITY)	MEDIUM VALUE (STREET & UTILITY)	LOW VALUE (UTILITY DRIVEN)	HIGH VALUE (STREET DRIVEN)
				$775.00	$160.00		$195.00		$160.00		$165.00						
North-South Streets (Page 1)																	
ANGIER DRIVE	SHOREWAY ROAD	WEST 5TH STREET	48	422	30	$331,850.00	422	$82,290.00	422	$67,520.00	422	$69,630.00	**$551,290.00**				
ANGIER DRIVE	HYLAND DRIVE	WEST 6TH STREET	63	854	30	$666,650.00	854	$166,530.00	854	$136,640.00	854	$140,910.00	**$1,110,730.00**				
ANGIER DRIVE	HYLAND DRIVE	SEGMENT END	66	600	30	$469,800.00	600	$117,000.00	600	$96,000.00	600	$99,000.00	**$781,800.00**				
BARTON STREET	ROCKWELL COURT	WEST 6TH STREET	52	386		$299,150.00	386	$75,270.00	386	$61,760.00	386	$63,690.00	**$499,870.00**				
CAYUGA STREET	EAST 6TH STREET	EAST 7TH STREET	45	484		$375,100.00	484	$94,380.00	484	$77,440.00	484	$79,860.00	**$626,780.00**				
CAYUGA STREET	EAST 5TH STREET	EAST 6TH STREET	46	379	1470	$528,925.00	379	$73,905.00	379	$60,640.00	379	$62,535.00	**$726,005.00**				
CAYUGA STREET	BAIR STREET	EAST 4TH STREET	30	282	690	$328,950.00	282	$54,990.00			282	$46,530.00	**$430,470.00**				
CAYUGA STREET	BAIR STREET	SEGMENT END	66	62	140	$70,450.00	62	$12,090.00	62	$9,920.00	62	$10,230.00	**$102,690.00**				
CAYUGA STREET	EAST 4TH STREET	EAST 5TH STREET	45	671	1490	$758,425.00	671	$130,845.00	671	$107,360.00	671	$110,715.00	**$1,107,345.00**				
CAYUGA STREET	BAIR STREET	EAST 3RD STREET	42	259	580	$293,525.00	259	$50,505.00	259	$41,440.00	259	$42,735.00	**$428,205.00**				
CAYUGA STREET	EAST 3RD STREET	EAST 2ND STREET	42	574	770	$568,050.00	574	$111,930.00	574	$91,840.00	574	$94,710.00	**$866,530.00**				
CAYUGA STREET	EAST 1ST STREET	EAST 2ND STREET	41	570		$441,750.00	570	$111,150.00	570	$91,200.00	570	$94,050.00	**$738,150.00**				
CLOVER LANE	EMERALD DRIVE	LEONA DRIVE	39	983	30	$766,625.00	983	$191,685.00	1883	$301,280.00	983	$162,195.00	**$1,421,785.00**				
CLOVER LANE	LEONA DRIVE	SEGMENT END	17	490		$379,750.00	490	$95,550.00	490	$78,400.00	490	$80,850.00	**$634,550.00**				
COLLEGE AVENUE	WEST 6TH STREET	WEST 7TH STREET	66	511		$396,025.00	511	$99,645.00	511	$81,760.00	511	$84,315.00	**$661,745.00**				
COLLEGE AVENUE	WEST 3RD STREET	WEST 4TH STREET	33	563	500	$516,325.00	563	$109,785.00			400	$66,000.00	**$692,110.00**				
COLLEGE AVENUE	WEST 3RD STREET	WEST LAKE SHORE DRIVE	54	808	990	$784,600.00	808	$157,560.00	808	$129,280.00	808	$133,320.00	**$1,204,760.00**				
COLONIAL CIRCLE	HYLAND DRIVE	LOCHEDEM DRIVE	65	327		$253,425.00	327	$63,765.00	200	$32,000.00	327	$53,955.00	**$403,145.00**				
DORINDA STREET	PARK STREET	DEAD END	61	487		$377,425.00	487	$94,965.00	487	$77,920.00	487	$80,355.00	**$630,665.00**				
EARLY STREET	WEST 5TH STREET	WEST 6TH STREET	49	399	24	$313,065.00	399	$77,805.00			399	$65,835.00	**$456,705.00**				
ELMWOOD DRIVE	MILWAUKEE AVE	SEGMENT END	66	473		$366,575.00	473	$92,235.00	473	$75,680.00	473	$78,045.00	**$612,535.00**				
EMERALD DRIVE	WINTHROP CIRCLE	MID-BLOCK	36	157		$121,675.00	157	$30,615.00	157	$25,120.00	157	$25,905.00	**$203,315.00**				
NORTH ERIE STREET	EAST 12TH STREET	EAST 13TH STREET	56	581		$450,275.00	581	$113,295.00	581	$92,960.00	581	$95,865.00	**$752,395.00**				
NORTH ERIE STREET	EAST 12TH STREET	SEGMENT END	50	91		$70,525.00	91	$17,745.00	91	$14,560.00	91	$15,015.00	**$117,845.00**				
NORTH ERIE STREET	EAST 10TH STREET	EAST 12TH STREET	61	1082		$838,550.00	1082	$210,990.00	1082	$173,120.00	1082	$178,530.00	**$1,401,190.00**				
NORTH ERIE STREET	EAST 10TH STREET	EAST 9TH STREET	52	543		$420,825.00	543	$105,885.00	543	$86,880.00	543	$89,595.00	**$703,185.00**				
NORTH ERIE STREET	EAST 8TH STREET	ERIE STREET	39	239	30	$190,025.00	239	$46,605.00					**$236,630.00**				
ERIE STREET	EAST 5TH STREET	EAST RAILROAD STREET	55	530	1770	$693,950.00	530	$103,350.00	530	$84,800.00	530	$87,450.00	**$969,550.00**				
EXPANSION BOULEVARD	VIOLET LANE	TULIP LANE	56	298	30	$235,750.00	298	$58,110.00	298	$47,680.00	298	$49,170.00	**$390,710.00**				
EXPANSION BOULEVARD	TULIP LANE	ROSE LANE	86	302	30	$238,850.00	302	$58,890.00	302	$48,320.00	302	$49,830.00	**$395,890.00**				
EXPANSION BOULEVARD	ROSE LANE	EAST 4TH STREET	83	188	30	$150,500.00	188	$36,660.00	188	$30,080.00	188	$31,020.00	**$248,260.00**				
EXPANSION BOULEVARD	EAST 4TH STREET	EAST RICHLAND STREET	40	707	23	$551,605.00	707	$137,865.00	707	$113,120.00	707	$116,655.00	**$919,245.00**				
GEISINGER ROAD	MILWAKUKEE AVENUE	EAST 7TH STREET	49	354		$274,350.00	354	$69,030.00	354	$56,640.00	354	$58,410.00	**$458,430.00**				
GEISINGER ROAD	EAST 7TH STREET	WALNUT STREET	45	179		$138,725.00	179	$34,905.00	179	$28,640.00	179	$29,535.00	**$231,805.00**				
GEISINGER ROAD	WALNUT STREET	POPLAR LANE	63	221		$171,275.00	221	$43,095.00	221	$35,360.00	221	$36,465.00	**$286,195.00**				
GEISINGER ROAD	POPLAR LANE	EAST 5TH STREET	41	303		$234,825.00	303	$59,085.00	303	$48,480.00	303	$49,995.00	**$392,385.00**				
GEISINGER ROAD	EAST 5TH STREET	EAST 4TH STREET	45	752		$582,800.00	752	$146,640.00	752	$120,320.00	752	$124,080.00	**$973,840.00**				
NORTH GENESEO STREET	WEST 10TH STREET	WEST 9TH STREET	42	505		$391,375.00	505	$98,475.00	505	$80,800.00	505	$83,325.00	**$653,975.00**				
GENESEO STREET	WEST 7TH STREET	IA 7	73	232		$179,800.00	232	$45,240.00	232	$37,120.00	232	$38,280.00	**$300,440.00**				
GENESEO STREET	WEST 7TH STREET	WEST 6TH STREET	38	489		$378,975.00	489	$95,355.00	489	$78,240.00	489	$80,685.00	**$633,255.00**				
GENESEO STREET	WEST 6TH STREET	WEST 5TH STREET	49	381	1310	$504,875.00	381	$74,295.00	381	$60,960.00	381	$62,865.00	**$702,995.00**				
GENESEO STREET	WEST 5TH STREET	WEST RAILROAD STREET	49	142	270	$153,250.00	142	$27,690.00	142	$22,720.00	142	$23,430.00	**$227,090.00**				
GENESEO STREET	WEST 2ND STREET	WEST LAKE SHORE DRIVE	38	567		$439,425.00	567	$110,565.00	300	$48,000.00	567	$93,555.00	**$691,545.00**				
GRAN DRIVE	SHOREWAY ROAD	WEST 5TH STREET	59	491		$380,525.00	491	$95,745.00	491	$78,560.00	491	$81,015.00	**$635,845.00**				

RECONSTRUCTION PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Rating (PCI)	Improvement Length (LF) & Cost									Estimated Total Project Cost (5)	Reconstruction Based On:			
				Street & Site Improvements (2)			Utility Improvements										
				31' Street w/Curb	Additional Width (6) (SY)	Total Street Cost	Storm Sewer (3)	Storm Sewer Cost	Sanitary Sewer (4)	Sanitary Sewer Cost	Watermain (4)	Watermain Cost		HIGH VALUE (STREET & UTILITY)	MEDIUM VALUE (STREET & UTILITY)	LOW VALUE (UTILITY DRIVEN)	HIGH VALUE (STREET DRIVEN)
				$775.00	$160.00		$195.00		$160.00		$165.00						
North-South Streets (Page 2)																	
GRAND AVENUE	WEST 7TH STREET	WEST 6TH STREET	59	518		$401,450.00	518	$101,010.00	370	$59,200.00	518	$85,470.00	**$647,130.00**				
GRAND AVENUE	SEGMENT END	WEST 5TH STREET	44	213		$165,075.00	213	$41,535.00			213	$35,145.00	**$241,755.00**				
GRAND AVENUE	WEST 5TH STREET	IOWA STREET	46	345		$267,375.00	345	$67,275.00	345	$55,200.00	345	$56,925.00	**$446,775.00**				
GRAND AVENUE	IOWA STREET	WEST 4TH STREET	48	347		$268,925.00	347	$67,665.00	347	$55,520.00	347	$57,255.00	**$449,365.00**				
GREENWOOD DRIVE	HYLAND DRIVE	LOCHEDEM DRIVE	70	480		$372,000.00	480	$93,600.00	480	$76,800.00	480	$79,200.00	**$621,600.00**				
HICKORY LANE	EAST 7TH STREET	POPLAR LANE	49	611		$473,525.00	611	$119,145.00	611	$97,760.00	611	$100,815.00	**$791,245.00**				
HIGHVIEW DRIVE	SEGMENT END	HYLAND DRIVE	48	429		$332,475.00	429	$83,655.00	429	$68,640.00	429	$70,785.00	**$555,555.00**				
HIGHVIEW DRIVE	HYLAND DRIVE	LOCHEDEM DRIVE	69	510		$395,250.00	510	$99,450.00	510	$81,600.00	510	$84,150.00	**$660,450.00**				
HIGHVIEW DRIVE	LOCHEDEM DRIVE	SEGMENT END	57	253		$196,075.00	253	$49,335.00	253	$40,480.00	253	$41,745.00	**$327,635.00**				
HIGHWAY STREET	EAST 3RD STREET	EAST 1ST STREET	68	351		$272,025.00	351	$68,445.00	351	$56,160.00	351	$57,915.00	**$454,545.00**				
HIGHWAY STREET	EAST 1ST STREET	PARK STREET	69	293		$227,075.00	293	$57,135.00	293	$46,880.00	293	$48,345.00	**$379,435.00**				
HIGHWAY STREET	PARK STREET	EAST LAKE SHORE DRIVE	40	531		$411,525.00	531	$103,545.00	531	$84,960.00	531	$87,615.00	**$687,645.00**				
HUDSON STREET	EAST 3RD STREET	EAST 2ND STREET	61	400		$310,000.00	400	$78,000.00	400	$64,000.00	400	$66,000.00	**$518,000.00**				
HUDSON STREET	EAST 2ND STREET	EAST 1ST STREET	50	569		$440,975.00	569	$110,955.00	569	$91,040.00	569	$93,885.00	**$736,855.00**				
HUDSON STREET	EAST 1ST STREET	EAST LAKE SHORE DRIVE	43	521		$403,775.00	521	$101,595.00	410	$65,600.00	521	$85,965.00	**$656,935.00**				
HUDSON STREET	CHAUTAQUA PARK DRIVE	EAST LAKE SHORE DRIVE	54	393		$304,575.00	393	$76,635.00			200	$33,000.00	**$414,210.00**				
HYLAND DRIVE	LOCHEDEM DRIVE	WEST 6TH STREET	35	329		$254,975.00	329	$64,155.00	329	$52,640.00	329	$54,285.00	**$426,055.00**				
IRVING STREET	BAIR STREET	EAST 3RD STREET	44	392		$303,800.00	392	$76,440.00	392	$62,720.00	392	$64,680.00	**$507,640.00**				
IRVING STREET	EAST 3RD STREET	EAST 2ND STREET	52	577		$447,175.00	577	$112,515.00	577	$92,320.00	577	$95,205.00	**$747,215.00**				
IRVING STREET	EAST 2ND STREET	EAST 1ST STREET	47	570		$441,750.00	570	$111,150.00	570	$91,200.00	570	$94,050.00	**$738,150.00**				
IRVING STREET	EAST 1ST STREET	EAST LAKE SHORE DRIVE	24	561		$434,775.00	561	$109,395.00	561	$89,760.00	561	$92,565.00	**$726,495.00**				
KENZY STREET	EAST 3RD STREET	EAST 1ST STREET	71	419		$324,725.00	419	$81,705.00	419	$67,040.00	419	$69,135.00	**$542,605.00**				
KENZY STREET	EAST 1ST STREET	EAST LAKE SHORE DRIVE	63	727		$563,425.00	727	$141,765.00	450	$72,000.00	727	$119,955.00	**$897,145.00**				
LAKE AVENUE	7TH STREET	7TH STREET	50	398	2300	$676,450.00	398	$77,610.00	398	$63,680.00	398	$65,670.00	**$883,410.00**				
LAKE AVENUE	7TH STREET	6TH STREET	90	486	2810	$826,250.00	486	$94,770.00	486	$77,760.00	486	$80,190.00	**$1,078,970.00**				
LAKE AVENUE	RAILROAD STREET	BAIR STREET	36	342	720	$380,250.00	342	$66,690.00	342	$54,720.00	342	$56,430.00	**$558,090.00**				
LARCHWOOD DRIVE	WEST 6TH STREET	WEST 5TH STREET	57	398	24	$312,290.00	398	$77,610.00	398	$63,680.00	398	$65,670.00	**$519,250.00**				
LARCHWOOD DRIVE	WEST 5TH STREET	SHOREWAY ROAD	64	668	28	$522,180.00	668	$130,260.00	668	$106,880.00	668	$110,220.00	**$869,540.00**				
LINCOLN ROAD	12TH ST PLACE	SEGMENT END	66	1302		$1,009,050.00	1302	$253,890.00	1302	$208,320.00	1302	$214,830.00	**$1,686,090.00**				
LINDEN LANE	WALNUT STREET	SEGMENT END	67	263		$203,825.00	263	$51,285.00	263	$42,080.00	263	$43,395.00	**$340,585.00**				
NORTH MAE STREET	SEGMENT END	EAST 9TH STREET	64	520		$403,000.00	520	$101,400.00	520	$83,200.00	520	$85,800.00	**$673,400.00**				
NORTH MAE STREET	EAST 9TH STREET	EAST 8TH STREET	60	458		$354,950.00	458	$89,310.00	458	$73,280.00	458	$75,570.00	**$593,110.00**				
MICHIGAN STREET	WEST 14TH STREET	WEST 13TH STREET	82	673	30	$526,375.00	673	$131,235.00	673	$107,680.00	673	$111,045.00	**$876,335.00**				
MICHIGAN STREET	WEST 13TH STREET	SEGMENT END	79	421	30	$331,075.00	421	$82,095.00	421	$67,360.00	421	$69,465.00	**$549,995.00**				
MICHIGAN STREET	WEST 10TH STREET	WEST 9TH STREET	62	506		$392,150.00	506	$98,670.00	506	$80,960.00	506	$83,490.00	**$655,270.00**				
MICHIGAN STREET	WEST 7TH STREET	MID-BLOCK	89	359	680	$387,025.00	359	$70,005.00	359	$57,440.00	359	$59,235.00	**$573,705.00**				
MICHIGAN STREET	MID-BLOCK	WEST 6TH STREET	97	128	410	$164,800.00	128	$24,960.00	128	$20,480.00	128	$21,120.00	**$231,360.00**				
MICHIGAN STREET	WEST 6TH STREET	WEST 5TH STREET	45	381	1310	$504,875.00	381	$74,295.00	381	$60,960.00	381	$62,865.00	**$702,995.00**				
MICHIGAN STREET	WEST 5TH STREET	WEST RAILROAD STREET	40	272	940	$361,200.00	272	$53,040.00	272	$43,520.00	272	$44,880.00	**$502,640.00**				
NORTH WALNUT STREET	SEGMENT END	EAST 9TH STREET	66	510		$395,250.00	510	$99,450.00	510	$81,600.00	510	$84,150.00	**$660,450.00**				
NORTH WALNUT STREET	EAST 9TH STREET	EAST 8TH STREET	52	459		$355,725.00	459	$89,505.00	459	$73,440.00	459	$75,735.00	**$594,405.00**				
NORTH WALNUT STREET	EAST 8TH STREET	EAST MILWAUKEE AVENUE	62	315		$244,125.00	315	$61,425.00			315	$51,975.00	**$357,525.00**				
NORTH WALNUT STREET	EAST MILWAUKEE AVENUE	WALNUT STREET	47	480		$372,000.00	480	$93,600.00	480	$76,800.00	480	$79,200.00	**$621,600.00**				

RECONSTRUCTION PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Rating (PCI)	Improvement Length (LF) & Cost									Estimated Total Project Cost (5)	Reconstruction Based On:			
				Street & Site Improvements (2)			Utility Improvements										
				31' Street w/Curb	Additional Width (6) (SY)	Total Street Cost	Storm Sewer (3)	Storm Sewer Cost	Sanitary Sewer (4)	Sanitary Sewer Cost	Watermain (4)	Watermain Cost		HIGH VALUE (STREET & UTILITY)	MEDIUM VALUE (STREET & UTILITY)	LOW VALUE (UTILITY DRIVEN)	HIGH VALUE (STREET DRIVEN)
				$775.00	$160.00		$195.00		$160.00		$165.00						
North-South Streets (Page 3)																	
NORTHWESTERN DRIVE	SEGMENT END	HYLAND DRIVE	68	661		$512,275.00	661	$128,895.00	170	$27,200.00	170	$28,050.00	**$696,420.00**				
NORTHWESTERN DRIVE	WEST 5TH STREET	SHOREWAY ROAD	40	398		$308,450.00	398	$77,610.00	350	$56,000.00	398	$65,670.00	**$507,730.00**				
OAK LANE	SEGMENT END	EAST 9TH STREET	67	510		$395,250.00	510	$99,450.00	510	$81,600.00	510	$84,150.00	**$660,450.00**				
OAK LANE	EAST 9TH STREET	EAST 8TH STREET	63	457		$354,175.00	457	$89,115.00	457	$73,120.00	457	$75,405.00	**$591,815.00**				
OATES STREET	EAST 4TH STREET	EAST 5TH STREET	85	747		$578,925.00	747	$145,665.00	747	$119,520.00	747	$123,255.00	**$967,365.00**				
ONEIDA STREET	MID-BLOCK	EAST 12TH STREET	72	145	30	$117,175.00	145	$28,275.00	145	$23,200.00	145	$23,925.00	**$192,575.00**				
ONEIDA STREET	EAST 12TH STREET	EAST 10TH STREET	65	1181		$915,275.00	1181	$230,295.00	1181	$188,960.00	1181	$194,865.00	**$1,529,395.00**				
ONEIDA STREET	EAST 6TH STREET	EAST 5TH STREET	22	380		$294,500.00	380	$74,100.00			380	$62,700.00	**$431,300.00**				
ONEIDA STREET	EAST 5TH STREET	EAST 4TH STREET	28	704		$545,600.00	704	$137,280.00			704	$116,160.00	**$799,040.00**				
ONEIDA STREET	BAIR STREET	EAST 2ND STREET	35	570		$441,750.00	570	$111,150.00	570	$91,200.00	570	$94,050.00	**$738,150.00**				
ONEIDA STREET	EAST 2ND STREET	EAST 1ST STREET	58	570	24	$445,590.00	570	$111,150.00	570	$91,200.00	570	$94,050.00	**$741,990.00**				
ONEIDA STREET	EAST 1ST STREET	EAST LAKE SHORE DRIVE	52	531		$411,525.00	531	$103,545.00	531	$84,960.00	531	$87,615.00	**$687,645.00**				
NORTH ONTARIO STREET	WEST 10TH STREET	WEST 9TH STREET	58	504		$390,600.00	504	$98,280.00	504	$80,640.00	504	$83,160.00	**$652,680.00**				
NORTH ONTARIO STREET	WEST 9TH STREET	WEST 8TH STREET	25	359		$278,225.00	359	$70,005.00	359	$57,440.00	359	$59,235.00	**$464,905.00**				
NORTH ONTARIO STREET	WEST 8TH STREET	IA 7	77	453		$351,075.00	453	$88,335.00	453	$72,480.00	453	$74,745.00	**$586,635.00**				
ONTARIO STREET	WEST 6TH STREET	WEST 5TH STREET	46	370	950	$438,750.00	370	$72,150.00	370	$59,200.00	370	$61,050.00	**$631,150.00**				
ONTARIO STREET	WEST 3RD STREET	WEST 2ND STREET	45	576		$446,400.00	576	$112,320.00	576	$92,160.00	576	$95,040.00	**$745,920.00**				
OTSEGO STREET	WEST 6TH STREET	WEST RAILROAD STREET	63	218		$168,950.00	218	$42,510.00	218	$34,880.00	218	$35,970.00	**$282,310.00**				
OTSEGO STREET	WEST 5TH STREET	WEST 4TH STREET	34	852		$660,300.00	852	$166,140.00	852	$136,320.00	852	$140,580.00	**$1,103,340.00**				
OTSEGO STREET	WEST 2ND STREET	WEST LAKE SHORE DRIVE	25	265		$205,375.00	265	$51,675.00			265	$43,725.00	**$300,775.00**				
PARKVIEW DRIVE	PETERSON DRIVE	SEGMENT END	65	368		$285,200.00	368	$71,760.00	368	$58,880.00	368	$60,720.00	**$476,560.00**				
PHILLIPS STREET	PARK STREET	SEGMENT END	81	449	30	$352,775.00	449	$87,555.00	449	$71,840.00	449	$74,085.00	**$586,255.00**				
PINECREST DRIVE	HYLAND DRIVE	SEGMENT END	63	339		$262,725.00	339	$66,105.00	339	$54,240.00	339	$55,935.00	**$439,005.00**				
PINECREST DRIVE	HYLAND DRIVE	LOCHEDEM DRIVE	58	502	30	$393,850.00	502	$97,890.00	502	$80,320.00	502	$82,830.00	**$654,890.00**				
PLEASANTVIEW DRIVE	HYLAND DRIVE	SEGMENT END	55	463		$358,825.00	463	$90,285.00	463	$74,080.00	463	$76,395.00	**$599,585.00**				
PLEASANTVIEW DRIVE	HYLAND DRIVE	LOCHEDEM DRIVE	56	510		$395,250.00	510	$99,450.00	510	$81,600.00	510	$84,150.00	**$660,450.00**				
PLEASANTVIEW DRIVE	LOCHEDEM DRIVE	WEST 6TH STREET	58	341		$264,275.00	341	$66,495.00	341	$54,560.00	341	$56,265.00	**$441,595.00**				
RENSHAW DRIVE	WEST 5TH STREET	WEST 6TH STREET	46	427	30	$335,725.00	427	$83,265.00	427	$68,320.00	427	$70,455.00	**$557,765.00**				
ROBERTS STREET	PARK STREET	3RD STREET	62	389	30	$306,275.00	389	$75,855.00	389	$62,240.00	389	$64,185.00	**$508,555.00**				
RUSSELL STREET	EAST 10TH STREET	EAST 9TH STREET	81	556		$430,900.00	556	$108,420.00	556	$88,960.00	556	$91,740.00	**$720,020.00**				
RUSSELL STREET	EAST MILWAUKEE AVENUE	EAST 6TH STREET	46	742		$575,050.00	742	$144,690.00	260	$41,600.00	742	$122,430.00	**$883,770.00**				
RUSSELL STREET	EAST 6TH STREET	EAST 5TH STREET	80	335		$259,625.00	335	$65,325.00			335	$55,275.00	**$380,225.00**				
RUSSELL STREET	EAST 5TH STREET	EAST 4TH STREET	55	697		$540,175.00	697	$135,915.00	300	$48,000.00	697	$115,005.00	**$839,095.00**				
RUSSELL STREET	EAST 4TH STREET	SEGMENT END	47	622		$482,050.00	622	$121,290.00	402	$64,320.00	560	$92,400.00	**$760,060.00**				
RUSSELL STREET	EAST 3RD STREET	EAST 1ST STREET	33	671		$520,025.00	671	$130,845.00	671	$107,360.00	671	$110,715.00	**$868,945.00**				
NORTH SENECA STREET	EAST 13TH STREET	EAST 12TH STREET	64	578	30	$452,750.00	578	$112,710.00	578	$92,480.00	578	$95,370.00	**$753,310.00**				
NORTH SENECA STREET	EAST 12TH STREET	EAST 10TH STREET	93	1175		$910,625.00	1175	$229,125.00	1175	$188,000.00	1175	$193,875.00	**$1,521,625.00**				
NORTH SENECA STREET	EAST 10TH STREET	NORTH WINDSOR CIRCLE	64	306	30	$241,950.00	306	$59,670.00	306	$48,960.00	306	$50,490.00	**$401,070.00**				
NORTH SENECA STREET	NORTH WINDSOR CIRCLE	EAST 9TH STREET	54	323	30	$255,125.00	323	$62,985.00	323	$51,680.00	323	$53,295.00	**$423,085.00**				
NORTH SENECA STREET	EAST 9TH STREET	SOUTH WINDSOR CIRCLE	62	307	30	$242,725.00	307	$59,865.00			307	$50,655.00	**$353,245.00**				
NORTH SENECA STREET	SOUTH WINDSOR CIRCLE	MILWAUKEE AVE	30	382		$296,050.00	382	$74,490.00			382	$63,030.00	**$433,570.00**				
SENECA STREET	EAST 2ND STREET	EAST 3RD STREET	42	572	450	$515,300.00	572	$111,540.00	572	$91,520.00	572	$94,380.00	**$812,740.00**				
SENECA STREET	EAST 1ST STREET	EAST 2ND STREET	54	570		$441,750.00	570	$111,150.00	570	$91,200.00	570	$94,050.00	**$738,150.00**				

RECONSTRUCTION PROJECTS (BY STREET SEGMENT)

INFRASTRUCTURE MANAGEMENT PLAN

CITY OF STORM LAKE, IA

Street	From	To	Street Rating (PCI)	Improvement Length (LF) & Cost									Estimated Total Project Cost (5)	Reconstruction Based On:			
				Street & Site Improvements (2)			Utility Improvements										
				31' Street w/Curb	Additional Width (6) (SY)	Total Street Cost	Storm Sewer (3)	Storm Sewer Cost	Sanitary Sewer (4)	Sanitary Sewer Cost	Watermain (4)	Watermain Cost		HIGH VALUE (STREET & UTILITY)	MEDIUM VALUE (STREET & UTILITY)	LOW VALUE (UTILITY DRIVEN)	HIGH VALUE (STREET DRIVEN)
				$775.00	$160.00		$195.00		$160.00		$165.00						
North-South Streets (Page 4)																	
SKEWIS STREET	4TH STREET	RICHLAND STREET	65	174		$134,850.00	174	$33,930.00	174	$27,840.00	174	$28,710.00	**$225,330.00**				
SPOONER STREET	EAST 10TH STREET	EAST 12TH STREET	91	1174		$909,850.00	1174	$228,930.00	1174	$187,840.00	1174	$193,710.00	**$1,520,330.00**				
SUNRISE PARK ROAD	SUNRISE PARK ROAD	SUNRISE PARK ROAD	30	468		$362,700.00	468	$91,260.00			468	$77,220.00	**$531,180.00**				
SUNRISE PARK ROAD	SUNRISE PARK ROAD	SUNRISE PARK ROAD	30	468		$362,700.00	468	$91,260.00			468	$77,220.00	**$531,180.00**				
SUPERIOR STREET	EAST 2ND STREET	EAST 3RD STREET	46	256		$198,400.00	256	$49,920.00	256	$40,960.00	256	$42,240.00	**$331,520.00**				
SWALLUM DRIVE	SHOREWAY ROAD	WEST 5TH STREET	33	602		$466,550.00	602	$117,390.00	602	$96,320.00	602	$99,330.00	**$779,590.00**				
TERRENCE STREET	LIGHTHOUSE DRIVE	WEST 4TH STREET	58	562	24	$439,390.00	562	$109,590.00	562	$89,920.00	562	$92,730.00	**$731,630.00**				
VESTAL STREET	WEST 10TH STREET	WEST 9TH STREET	67	500		$387,500.00	500	$97,500.00	500	$80,000.00	500	$82,500.00	**$647,500.00**				
VESTAL STREET	WEST 9TH STREET	WEST 8TH STREET	62	362		$280,550.00	362	$70,590.00	362	$57,920.00	362	$59,730.00	**$468,790.00**				
VESTAL STREET	WEST 8TH STREET	WEST 7TH STREET	61	638	31	$499,410.00	638	$124,410.00	638	$102,080.00	638	$105,270.00	**$831,170.00**				
VESTAL STREET	WEST 7TH STREET	WEST 6TH STREET	57	384		$297,600.00	384	$74,880.00	384	$61,440.00	384	$63,360.00	**$497,280.00**				
VESTAL STREET	WEST 6TH STREET	SEGMENT END	45	162		$125,550.00	162	$31,590.00			162	$26,730.00	**$183,870.00**				
VESTAL STREET	WEST 5TH STREET	WEST 6TH STREET	47	392		$303,800.00	392	$76,440.00			392	$64,680.00	**$444,920.00**				
WALNUT LANE	EAST 7TH STREET	POPLAR LANE	55	458		$354,950.00	458	$89,310.00	458	$73,280.00	458	$75,570.00	**$593,110.00**				
WITTER STREET	WEST 9TH STREET	SEGMENT END	56	505		$391,375.00	505	$98,475.00	505	$80,800.00	505	$83,325.00	**$653,975.00**				
		Totals		127037 LF	28164 SY	$102,959,915.00		$24,772,215.00		$16,139,360.00		$19,424,460.00	$164,019,970.00	25	208	38	10
		High Value Street & Utility Project Totals (7)				$11,268,025.00		$2,720,445.00		$1,436,800.00		$2,030,325.00	$17,455,595.00				
		Medium Value Street & Utility Project Totals (8)				$72,958,945.00		$17,582,565.00		$11,894,080.00		$14,439,480.00	$116,875,070.00				
		Low Value (Utility Driven) Project Totals (9)				$14,731,845.00		$3,491,865.00		$2,176,160.00		$2,954,655.00	$23,354,525.00				
		High Value (Street Driven) Project Totals (10)				$4,001,100.00		$977,340.00		$632,320.00			$5,610,760.00				

Notes:

1) Refer to attached Reconstruction Project Map for illustrations of referenced projects.
2) Street & Site costs include estimated pavement, subbase, curb & gutter, sidewalk (2 sides), driveways, and turf reestablishment.
3) Storm sewer costs include mainline pipe, leads, structures, & subdrain.
4) Utility costs include typical mainline pipe, service lines, leads, structures, etc.
5) Costs presented above are in 2021 dollars, including estimated construction, contingency, and engineering.
6) Additional width costs include pavement and subbase beyond base street width of 31 feet used in determination of costs.
7) "High Value" projects include those improvements which do not include premature replacement of overlying pavements, if completed in near future.
8) "Medium Value" projects include those improvements which include slightly premature replacement of overlying pavements, if completed in near future.
9) "Low Value" projects include those improvements which include premature replacement of overlying pavements
10)"High Value" (Street Driven) projects include segments with no utilities or no outstanding utility replacements needs. These projects include placeholder costs for potential stormwater and drainage improvements, and potential sanitary sewer lining.

LYON	OSCEOLA	DICKINSON	EMMET
SIOUX	O'BRIEN	CLAY	PALO ALTO
		BUENA VISTA	

REGION III

REGIONAL SURFACE TRANSPORTATION

APPLICATION

2023-2026 Regional Transportation Improvement Program Years

Application Produced by: The Northwest Iowa Planning & Development Commission

APPLICATION FOR REGION III TRANSPORTATION PROJECTS

Complete and return the original plus copy to: Ted Kourousis, Executive Director, NWIPDC
P.O. Box 1493, Spencer, Iowa 51301 by 4:30 p.m. **3/25/2022**
(Fully executed applications will be accepted electronically: **ted.kourousis@nwipdc.org** Do not send maps larger than 8.5" x 14" legal size paper)

1. Project Name: Oneida Street Reconstruction – Phase 2			Date: 3/7/2022
2. Contact Person: David M Derragon, Assistant City Manager			Phone Number: 712-732-8000
3. Address of Contact Person PO Box 1086	City Storm Lake	County Buena Vista	Zip Code 50588
4. Project Sponsor (lead entity if multi-jurisdictional) City of Storm Lake			Sponsor Signature

5. Classification of Project: (check all that apply)

☒ Highway

☒ Construction, reconstruction resurfacing, restoration, and rehabilitation

☐ Highway safety improvements Capital and operating costs for traffic management and control

☐ Surface Transportation planning, highway And research and development

☐ Operational Improvements

☐ Fringe and corridor parking facilities

☐ Most transportation control measures in The Clean Air Act

☐ Development and establishment of management system

☐ Transit

☐ Capital Costs for transit projects

☐ Surface Trans. planning for transit technology transfer activities

6. Please describe the proposed project within the space provided.
This project involves the reconstruction of Oneida Street from East Railroad Street to Lakeshore om the City. Project includes removal and replacement of a 70+ year old collector street in a 100 foot right of way with a new roadway designed to carry the current traffic loading. The roadway is beyond its useful life and requires substantial patching and other repairs yearly. The corridor has heavy commercial and industrial users along its west side with dependence on good infrastructure to serve its clients. The roadway is also a main north-south corridor that connects the schools with the main residential areas of the community. Businesses located along the roadway include service companies such as a feed mill with scales that service Hillshire and Tyson Foods and the School Transportation Fleet Facility. This road also serves as a primary north – south route for public safety services. The project will consist of removal and replacement of approximately 1800 feet of 31 foot wide roadway with replacement using a 31 foot wide PCCC pavement, 8" thick on a modified subgrade with subdrains. The total project cost is approximately $3,918,000, including watermain and sanitary sewer improvement. The city applying for 50% funding in the amount of $1,140,000 for the roadway and storm water portion of the project which totals $2,280,000. Other improvements to be financed by the city include water main and sanitary sewer improvements along with the engineering costs. Total city investment into the project is $2,778,000. No easement or right of way acquisition is anticipated with the project.

7. Please provide a brief description of the project area. Include a map with the area marked (please do not enclose and color maps or maps larger than 8.5" x 14" (legal size) paper

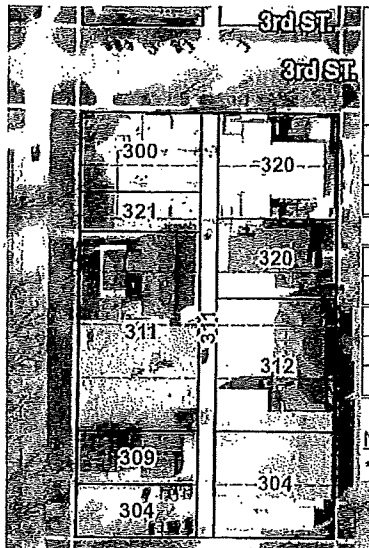
Oneida Street is a main north – south corridor in the city that runs from 13th Street on the north side of the city to the lake on the south. The roadway serves as a collector roadway in the community and is a main route for public safety services. See attached map of the city.

8. Project Budget

EXPENSES		REVENUE		
ITEM	COST	SOURCE	AMOUNT	%
Land/Site Acquisition Costs		Regional	$1,140,000	29%
Construction/Materials Costs	$2,280,000	Local	$2,778,000	71%
Engineering/Consulting Costs	$571,000			
Capital Acquisition explain:				

Other (expl.)
Non-DOT Eligible Costs: $1,067,000
Water Main - $508,000
Sewer $345,000
Engineering - $214,000

TOTAL COST	$3,918,000	TOTAL COST	$3,918,000	



	DOT Funding Eligible (Construction Only)		Non-DOT Eligible	
	Street, Grading, and Sidewalk	Storm Sewer	Sanitary Sewer	Watermain
Total Estimated Construction	$1,399,000.00	$407,000.00	$273,000.00	$402,000.00
Engineering, Administration, & Legal	$350,000.00	$102,000.00	$68,000.00	$101,000.00
Total Estimated Project Cost (2022)	*$1,749,000.00*	*$509,000.00*	*$341,000.00*	*$503,000.00*
Projected Construction Cost*	$1,766,000.00	$514,000.00	$345,000.00	$508,000.00
Projected Engineering, Administration, & Legal*	$442,000.00	$129,000.00	$86,000.00	$126,000.00
*Projected DOT Funding Eligible Cost**	*$2,280,000.00*		*$0.00*	
*Projected Non-DOT Funding Eligible Cost**	*$571,000.00*		*$1,067,000.00*	
Projected Total Estimated Project Cost*	***$3,918,000.00***			

Note:

**Anticipated 6% inflation increase per year through FY 2026*

0 200 Feet

BOLTON & MENK

Real People. Real Solutions.

Disclaimer:

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information, and data located in various city, county, and state offices, and other sources affecting the area shown, and is to be used for reference purposes only. The City of Storm Lake is not responsible for any inaccuracies herein contained.

© Bolton & Menk, Inc - Web GIS 1/27/2022 1:15 PM

Storm Lake Jump Right In!

Oneida Street

9. Work plan and schedule for project completion (please be sure to coincide the work plan with the correct federal fiscal year, fisca year for this cycle is 2023-2026(Federal fiscal year is October 1-September 30)
The proposed schedule for the improvements anticipated to be construction in the CY 2026 follows: 1) Design Phase May 2025 to October 2025; 2) Letting December 2024 – January 2026; 3) Construction April 2026 to September 2026; 4) Project Closeout October 2026 – December 2026.

10. Is there a need to coordinate with another entity in the programming and/or implementation of this project?

☐ Yes ☒ No

If yes, list other entities involved and describe the interaction needed and coordination to date.

QUESTIONS 11-13 ARE FOR HIGHWAY PROJECTS ONLY

11. If applicable, what is the Average Daily Traffic of the proposed project? 850

12. If applicable, what is the Federal Functional Classification(s) of the route within the proposed project?

Collector

13. If applicable, what are the basic roadway sufficiency numbers for the route within the proposed project?

Unknown

PROJECT CHECKLIST

14. The following items are required		Note: Applications must specifically and directly answer each criterion within the space provided to receive points. Pertinent attachments are allowed such as maps, drawings, and/or photos as long as they are reproducible
☒	Project Description	
☒	Project Location Map (reproducible)	
☒	Project Budget	
☒	Project work plan with schedule	

Please fill in the following appropriate blanks:

We, the City of Storm Lake Support, this application for Oneida Street Reconstruction – Phase 2
(City, County or State) (Project Name)
by submitting this application, Regional FAST Act

funds in the amount of $1,140,000 are requested. This project has the support of local match

funding of $2,778,000, which is 71% of the anticipated project costs.

BY: _____
Michael Porsch, Mayor

ATTEST: _____
Mayra Martinez, City Clerk

IOWADOT
Bureau of Local Systems
Ames, IA 50010

City Street Finance Report

Fiscal Year 2023
Storm Lake
10/11/2023 2:55:29 PM

Expenses

	General Fund Streets (001)	Road Use (110)	Other Special Revenues	Debt Service (200)	Capitial Projects (300)	Utilities (600 & U0)	Grand Total
Salaries - Roads/Streets		$497,185					$497,185
Benefits - Roads/Streets		$4,933	$180,960				$185,893
Training & Dues		$199					$199
Building & Grounds Maint. & Repair		$29,163					$29,163
Vehicle & Office Equip Operation and Repair		$33,806					$33,806
Other Utilities		$1,524					$1,524
Engineering		$39,120					$39,120
Insurance		$4,018					$4,018
Medical		$1,252					$1,252
Payments to othe agencies		$2,305					$2,305
Rents & Leases		$815					$815
Street Maintenance Expense		$63,945					$63,945
Tax Expense		$250					$250
Technology Expense		$31,908					$31,908
Other Professional Services		$48					$48
Other Contract Services		$8,130					$8,130
Chemicals		$4,332					$4,332

City Street Finance Report

	General Fund Streets (001)	Road Use (110)	Other Special Revenues	Debt Service (200)	Capitial Projects (300)	Utilities (600 & U0)	Grand Total
Minor Equipment Purchases		$19,494					$19,494
Other Equipment		$6,490					$6,490
Operating Supplies		$3,858					$3,858
Postage & Safety		$48					$48
New Posts & Signs		$5,314					$5,314
Other Supplies		$95,379					$95,379
Vehicles		$297,214					$297,214
Heavy Equipment		$58,903					$58,903
Right-of-Way		$20,415					$20,415
Street - Safety/ Environment		$1,478					$1,478
Transfer Out		$300,000	$744,612		$673,541		$1,718,153
Street Lighting		$206,318					$206,318
Traffic Control/Safety		$30,207					$30,207
Snow Removal		$492,313					$492,313
Depreciation & Building Utilities		$20,940					$20,940
Snow Removal Salaries		$122,978					$122,978
Snow Removal Benefits			$53,120				$53,120
Total		$2,404,282	$978,692		$673,541		$4,056,515

City Street Finance Report

Revenue

	General Fund Streets (001)	Road Use (110)	Other Special Revenues	Debt Service (200)	Capitial Projects (300)	Utilities (600 & U0)	Grand Total
Levied on Property	$0		$234,080	$0			$234,080
Interest		$1,501					$1,501
State Revenues - Road Use Taxes		$1,550,741					$1,550,741
Charges/fees		$5,653				$0	$5,653
Transfer In		$744,612	$673,541		$300,000		$1,718,153
Total	$0	$2,302,507	$907,621	$0	$300,000	$0	$3,510,128

Bonds/Loans

Bond/Loan Description	Principal Balance As of 7/1	Total Principal Paid	Total Interest Paid	Principal Roads	Interest Roads	Principal Balance As of 6/30
Total						

Equipment

Description	Model Year	Usage Type	Cost	Purchased Status
Boom Aerial Truck	2022	Purchased	$152,030	No Change
Backhoe Hammer	2011	Purchased	$11,500	No Change
Bobcat 5610	2017	Purchased	$56,278	No Change
Western Star 4700SF	2017	Purchased	$145,000	No Change
Volvo Wheel Loader	2019	Purchased	$122,900	No Change
Chevy Silverado	2018	Purchased	$41,872	No Change
International 7400 Plow Truck	2014	Purchased	$67,600	No Change
Sterling Tandem Dump Truck	2002	Purchased	$69,995	No Change
Stump Grinder	2011	Purchased	$30,324	No Change
ALF Condor Lite Sweeper Truck	2008	Purchased	$195,000	No Change
Chevy CC850 Dump Truck	2003	Purchased	$74,055	No Change
Ford F313 Truck	2003	Purchased	$31,125	No Change
Freightliner 2 Ton Truck	2008	Purchased	$70,000	No Change
1 Ton Pickup with Dump Body	2022	Purchased	$49,745	No Change
Komatsu WA250 Loader	2002	Purchased	$98,725	No Change
Freightliner FL80 Truck	2002	Purchased	$57,177	No Change
John Deere 624G Loader	1997	Purchased	$61,638	No Change
Chevy C/8500 Truck	1999	Purchased	$67,000	No Change
International 4700 Truck	1997	Purchased	$36,607	No Change
Caterpillar 930 Endloader	1984	Purchased	$74,500	No Change
Chevy Kodiak Truck	1995	Purchased	$41,703	No Change

City Street Finance Report

Description	Model Year	Usage Type	Cost	Purchased Status
Chevy 3500 Truck	1995	Purchased	$18,698	No Change
Chevy 3500 Truck	1990	Purchased	$15,000	No Change
Kubota B300 Asphalt Roller	1991	Purchased	$16,280	No Change
Chevy C/70 Truck	1988	Purchased	$21,984	No Change
Chevy C/70 Truck	1986	Purchased	$20,000	No Change
Chevy C/70 Truck	1983	Purchased	$67,738	No Change
Chevy C/70 Truck	1990	Purchased	$22,995	No Change
Chevy 3500 Truck	1992	Purchased	$14,327	No Change
John Deere 6300 Tractor	1997	Purchased	$36,692	No Change
Case 580 Backhoe	1993	Purchased	$34,307	No Change
Ford F550 Truck	2012	Purchased	$29,575	No Change
Rotary Brush Clearer	2020	Purchased	$9,000	No Change
Kenworth Snow Plow	2011	Purchased	$79,900	No Change
John Deere 672CH II Road Grader	2004	Purchased	$155,900	No Change
International 7400 Plow Truck	2019	Purchased	$158,875	New
Tandem Plow Truck	2022	Purchased	$188,045	New
Housby Wheel Loader	2022	Purchased	$247,871	New
GMC Sierra 3500	2022	Purchased	$49,343	New

Street Projects

Project Description	Contract Price	Final Price	Contractor Name

Bureau of Local Systems
Ames, IA 50010

City Street Finance Report

Fiscal Year 2023
Storm Lake
10/11/2023 2:55:29 PM

Summary

	General Fund Streets (001)	Road Use (110)	Other Special Revenues	Debt Service (200)	Capitial Projects (300)	Utilities (600 & U0)	Grand Total
Begining Balance	$0	$1,137,779	$71,071	$35,394	$577,000	$0	$1,821,244
SubTotal Expenses (-)		$2,104,282	$234,080				$2,338,362
Transfers Out (-)		$300,000	$744,612		$673,541		$1,718,153
Subtotal Revenues (+)	$0	$1,557,895	$234,080	$0		$0	$1,791,975
Transfers In (+)		$744,612	$673,541		$300,000		$1,718,153
Ending Balance	$0	$1,036,004	$0	$35,394	$203,459	$0	$1,274,857

Resolution Number:
Execution Date:
Signature:

Staff Summary

10/16/2023
Agenda Item # F.1.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Brian Oakleaf Finance Director

SUBJECT: **Resolution No. 10-R-2023-2024 Approving the 2023 Street Finance Report**

BACKGROUND: The State of Iowa requires each entity receiving Road Use Tax funding to submit a Street Finance Report to the DOT by December 1st each year. Road Use Tax is collected through fuel tax, vehicle registrations and other transportation related fees. The State distributes 20% of these revenues to cities each year based on their population. The estimate for this year's distribution is $132 per capita.

RUT makes up the funding for 75-80% of all street maintenance, traffic control, street lighting and snow removal. RUT is determined and capped at the State level, with future increases estimated at only 0.75% a year, so locally, these services are subsidized by LOST for equipment purchases, and if necessary and available, the General Fund.

FISCAL IMPACT: For fiscal year 2023, Storm Lake received $1,550,741 in RUT. Expenses are as follows:

$1,252,465,90	Roadway Maintenance, Repair and Capital Outlays
$ 206,318.14	Street Lighting
$ 30,207.47	Signs and Signals
$ 615,290.94	Snow Removal
$2,104,282.45	TOTAL

Beginning Cash Balance: $1,137,779
Ending Cash Balance: $1,036,004

Even with support from LOST and the General Fund, our Reserves are

seeing a slight erosion. With RUT increases under 1% annually, any reduction in LOST or General Fund revenues would immediately affect the funding of these services.

There are no official road projects listed, nor is there any debt listed. Obviously very little revenue would be available to support a bond payment, which places any street project of that scope in the realm of GO Bonds payable by property taxes.

RECOMMENDATION: Review and approve the 2023 Street Finance Report

ATTACHMENTS:

Storm Lake2023 SFR.pdf

Resolution No. 10-R-2023-2024 - Street Finance Report

2023													
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TASK	YEARLY TOTAL	HRS											
DAYLOGS/MEETINGS	1132	72	109	121.5	85	94	82.5	69.5	69.5	82.5	145	103	98.5
EQUIPMENT/VEHICLE	1700.75	248.75	209.5	257.5	125	71.5	87	44	61	152.5	172	161	111
TREES	3402.25	473	444	712.25	302.5	75.5	73	58	96.5	280.5	81.5	198	607.5
SNOW REMOVAL	517.5	400	92.5	25	0	0	0	0	0	0	0	0	0
SANDED STREETS	241.5	95.5	54	51	8	0	0	0	0	0	0	31	2
HAULED SNOW	222	193.5	25	3.5	0	0	0	0	0	0	0	0	0
SIGNS/SIGNALS	481	72	48	44	13	23.5	30	50.5	66	11.5	25.5	36.5	60.5
DOWNTOWN GARBAGE	98.5	8	5	5.5	5	10	6.5	11	7	18	6.5	11	5
POTHOLES	676.5	13	136.5	155	20	8	78	139.5	44	62.5	2	18	0
STUMPS	679	35.5	34.5	59	163.5	161.5	57.5	18.5	87.5	12	49.5	0	0
LAKEBANK	135	8.5	50	69	0	0	7.5	0	0	0	0	0	0
SNOW EQUIP REPAIR	246	141.5	83	7	13.5	1	0	0	0	0	0	0	0
AIRPORT SNOW	101	86	6	9	0	0	0	0	0	0	0	0	0
CHRISTMAS DECORATIONS	157	57	29	0	0	0	0	0	0	0	4	59.5	7.5
CLEANING/BLD MAINT	692.5	42	99	71	44	47.5	34	23.5	21.5	34.5	63.5	128.5	83.5
INTAKES	492.5	65.5	56	20.5	5.5	27	32	66.5	34.5	41.5	87	8.5	48
DOCKS	483.5	22.5	7.5	36	34	197	2.5	24.5	9	0	125.5	25	0
SNOW DAMAGE REPAIR	22	0	4.5	4	3	3	7.5	0	0	0	0	0	0
ALLEYS	117	0	4	2	22.5	1.5	21.5	16.5	11.5	3	12.5	1	21
CONCRETE	2254.5	0	0	12.5	69.5	203.5	440.5	179.5	568	353	235	193	0
SWEEP	639.5	0	0	16	97	95.5	36.5	21.5	4	1	52	207	109
RAINGARDENS	67	0	0	0	0	1.5	0	0	0	12	47	6.5	0
MOW	352.5	0	0	0	5	77	72.5	46	84.5	40.5	26	1	0
MOW-AIRPORT	118.5	0	0	0	0	27.5	28	22.5	9.5	20	11	0	0
PAINT	159.5	0	0	0	0	7	74	17	58.5	3	0	0	0
SPRAY	42	0	0	0	0	0	12.5	21.5	8	0	0	0	0
MOW-DOWNTOWN	3.5	0	0	0	0	0	0	0	3.5	0	0	0	0
4TH OF JULY PREP	77.5	0	0	0	0	0	0	77.5	0	0	0	0	0
DOWNTOWN CHRISTMAS LIGHTS	122.5	0	0	0	0	0	0	0	0	0	0	104	18.5
SNOWFENCE	129.5	0	0	0	55	0	0	0	0	0	48.5	26	0
VACATION/SICK/PERSONAL	1806	112	42	192	172	248	56	64	152	224	160	112	272

LIGHTHOUSES	0	0	0	0	0	0	0	0	0	0	0	0	0
CAMPGROUND	237.5	0	0	18	132.5	10.5	2.5	3	5	0	58.5	7.5	0
WATERBREAK REPAIR	18	0	0	0	0	0	14	4	0	0	0	0	0
CITY EVENT	126.5	0	0	0	0	38	38.5	2	23	0	7.5	3.5	14
STORM DAMAGE CLEANUP	0	0	0	0	0	0	0	0	0	0	0	0	0
SPILL CLEANUP/FIRE DEPT ASSIST	2	0	2	0	0	0	0	0	0	0	0	0	0
PLAYGROUND INSTALL	0	0	0	0	0	0	0	0	0	0	0	0	0
GOLF COURSE	1765.25	0	0	76.75	154	202.5	168.5	170	163	211.5	271.5	186	161.5
PARKS	229.5	0	0	5	64	32.5	11	20.5	23	2	60.5	2	9
WASTEWATER	32	0	0	32	0	0	0	0	0	0	0	0	0
SNACK SHACK	46.5	0	0	2	5.5	3	6	22	0	0	0	0	8
HAUL SAND	64	30.5	6	4.5	7.5	6.5	9	0	0	0	0	0	0
KINGS POINTE	3	0	0	0	0	0	0	0	0	0	0	0	3
HAULING	38.5	0	2	0	0	10	0	0	0	3.5	6.5	16.5	0
CLASSES	0	0	0	0	0	0	0	0	0	0	0	0	0
DOWNTOWN FLOWERBEDS	4.5	0	0	0	0	4.5	0	0	0	0	0	0	0
DUST CONTROL	4	0	0	0	4	0	0	0	0	0	0	0	0
AIRPORT	2	0	0	0	0	0	0	0	2	0	0	0	0
WATERTESTING	30	0	0	0	0	6	14	6	4	0	0	0	0
FIRECALLS	13.5	4.5	2.5	2.5	0	1	3	0	0	0	0	0	0
PARKS GARBAGE/RESTROOMS	0	0	0	0	0	0	0	0	0	0	0	0	0
SLU EVENT	47	0	0	0	0	0	0	0	23	0	24	0	0
SANTAS CASTLE	368	96.5	159.5	52	60	0	0	0	0	0	0	0	0
LIBRARY	104.5	0	86.5	0	0	1	0	2	0	8	7	0	0
RAGBRAI	534	0	3	1	0	24	9	497	0	0	0	0	0
MONTHLY TOTAL HRS	21040.25	2277.75	1800.5	2067	1670.5	1720.5	1515	1698	1639	1577	1789.5	1646	1639.5
Fuel Total - Snow		9136.51	2874.96										
		689	171.5										
$/hr		13	16	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

1012

Contact Name: _____
Billing Address: _____
_____
Phone: _____
Fax: _____
E-Mail: _____

Blacktop SERVICE CO.
[illegible] Tofft Street
PO Box 632 • Humboldt, IA 50548
(515)332-4208 *office* • (515)332-3653 *fax*

PROPOSAL AND ACCEPTANCE

Blacktop Service Co. submits the following proposal to City, of Storm Lake. Said proposal must be accepted by _____ or the same is withdrawn. Once accepted, executed by both parties and delivered, this proposal shall become a valid and enforceable contract.

The work shall consist of the following: W 10th St: Notch mill, 2" Pave, manhole & water valve risers

Irving St: 2" mill, 2" pave

(see detail sheet)

In exchange for the above-described work, _____ shall pay Blacktop Service Co. the sum of _____ Dollars and cents ($_____).

A down payment for mobilization shall be paid to Blacktop Service Co. in the sum of _____ Dollars and cents ($_____) before work is commenced, and the balance shall be due upon completion. There will be a two percent (2%) per month service charge on any payments delinquent more than thirty (30) days after the invoice date.

Check the following, if appropriate:

____ This project is exempt from Iowa sales tax (must send sales tax exempt certificate prior to start of project, see enclosed instructions)

____ The contract amount is based on an estimate and the final price shall be based on actual time and material at the following rates: _____

BLACKTOP SERVICE CO.

By Robert P Wyman 1-4-24
Date

I/we accept the above proposal.

By Keri Nawrocki 1/11/2024
Date

_____ **Initials for acceptance of Additional Terms on reverse side**

1013

Blacktop SERVICE CO.

16 North Taft Street
PO Box 632 • Humboldt, IA 50548
(515)332-4208 *office* • (515)332-3653 *fax*

Storm Lake detail sheet

W 10th St: Lake to Vestal 2600' x 32' x 2"
Notch mill at Lake, Vestal, Michigan, Geneso, Witter, Ontario prior to placing at 2" Hot Mix Asphalt lift.
Includes 8 manhole risers & 3 water valve risers

$ 100,258.94

Irving St: Lakeshore to 3rd including intersections, then jump 3rd st intersection and go from North side of 3rd to Bair

2" mill entire area prior to placing 2" of Hot Mix Asphalt

$ 79,542.58

Robert P Wojnar
Proposed by

1-4-24
Date

Keri Nawrocki
Accepted by

1/11/2024
Date

Staff Summary

06/17/2024
Agenda Item # F.13.

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
f (712) 732-4114

REPORT TO: Honorable Mayor & Council

FROM: Mayra Martinez City Clerk

SUBJECT: **City Council Requested Items / City Council Updates**

BACKGROUND: June 26, 2024 at 5:00 pm- TNR - Trap-neuter-return Discussion.
Date to be determined - Sign Ordinance Review

FISCAL IMPACT:

RECOMMENDATION:

ATTACHMENTS: