

**CITY OF STORM LAKE
REGULAR COUNCIL SESSION MEETING
CITY HALL - COUNCIL CHAMBERS
MARCH 17, 2025
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. Resolution No. 56-R-2024-2025 BVU Request For Spring Events
3. Buy Local Information
4. SLPD City Code Enforcement Summary

E. Unfinished Business

F. New Business

1. Motion To Approve 2025 Outdoor Water Park and Sunrise Pointe Golf Season Pass Special
2. Resolution No. 57-R-2024-2025 To Approve Sunrise Pointe Golf Course Reciprocal Policy
3. Public Hearing for A Text Amendment To The Post-Construction Stormwater Control Ordinance
4. Ordinance No. 05-O-2024-2025 Text Amendment To The Post-Construction Stormwater Control Ordinance - 1st Reading
5. Motion Setting Public Hearing on Setting Tax Levy Rate and Maximum Property Tax Dollars
6. Resolution No. 58-R-2024-2025 Setting the FY2025-2026 Fee Resolution
7. Public Hearing for the Plans, Specificactions, Form of Contract, and Engineer's Estimate for the College and 3rd Lift Station Project.
8. Resolution No. 59-R-2024-2025 Approving the Plans, Specifications, Form of Contract, and

Engineer's Estimate of Cost for the College and 3rd Lift Station Project.

9. Resolution No. 60-R-2024-2025 Making Award of Construction Contract for the Base Bid + Alternate B for the Storm Lake College and 3rd Lift Station Replacement Project.
10. Work Session - Downtown Signage Ad Hoc Committee Recommendations
11. Work Session – Electric Bikes
12. Worksession Amendments to Storm Lake Municipal Code Title 3, Chapter 4 Waterworks

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](https://twitter.com/Storm_Lake) Find us on the Web at <http://www.stormlake.org>.

Staff Summary

3/17/2025

Agenda Item # D.1.



City of Storm Lake
PO Box 1086
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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 March 3, 2025, City Council Minutes and March 4, 2025, Special City Council Minutes
- Approve Renewal Liquor License For Mo's Tap
- Approve BVU Spring Events Request For Noise Variances and Street Closure
- Approve Resolution No. 56-R-2024-2025 For BVU Spring Events
- Approve Buy Local Information
- Approve Storm Lake Police Department City Code Enforcement Update

FISCAL IMPACT: City Will Pay The Following Expenditures:

- List of Bills: \$746,845.20
- King's Pointe & Sunrise Pointe Golf Course Bills: \$173,136.86

City Will Receive The Following Revenue:

- Liquor License Renewals: \$585.00

RECOMMENDATION:

ATTACHMENTS:

1. 3/17/2025 City Claims Expense Report
2. 3/17/2025 King's Pointe Claims 2.28.2025 to 3.13.2025
3. 03/03/2025 City Council Minutes
4. 03/04/2025 City Council Minutes
5. Mo's Tap Liquor Application 2025



Storm Lake, IA

Buy Local_v1

Payment Date Range: 03/06/2025 - 03/19/2025

Vendor Name	Vendor Number	Payable Description	Total Payments
BVC			
Alta Implement Company, Inc	001288	Kubota Mower - Maintenance	350.70
Buena Vista County EMS Association	001543	eDispatch Services	452.00
Buena Vista County Solid Waste	001035	Commercial Waste	242.84
Buena Vista County Treasurer	001155	Property Taxes	146,440.00
Power Solutions, Inc	001465	Fire Alarm Rehab	16,368.64
		BVC Total:	163,854.18
Contract/Agreement			
Bolton & Menk, Inc	001024	General Engineering Services	36,697.50
Charles Sargent Irrigation Company, Inc	001209	Well #18 Pump Repair	55,261.00
I & S Group, Inc	001103	Well Design Services	29,313.55
King Contracting, LLC	001066	Pay #3 of Well 22	23,732.32
Landmark Structures I, LP	002489	Pay #10 of Tower 5 Construction	39,966.50
Reding's Gravel & Excavating Co., Inc	001132	2/17/2025 - Water Dept. Repair	712.80
SCE, LLC	001344	1201 Lochedem Drive - Water Leak	6,626.30
		Contract/Agreement Total:	192,309.97
Local			
A & A Automotive	001022	P14 - Oil Change , Rotate Tires	375.15
Buena Vista Regional Medical Center	001124	03/05/2025 - Tests / Labs	191.00
Central Bank	001025	Services	4,295.01
Edwards Storm Lake	001114	P8 - Oil/Lube	65.71
Fastenal Company	001033	Fasteners	35.34
Graham Tire	001093	Tire Replacement - #62	2,450.00
Growmark Inc New Century FS	001016	Fuel	11,243.10
Jim Bartholomew	001069	March 2025 Airport Contract	6,136.21
King's Pointe Resort	001110	Room- Prof Von Air- Bfest with Santa	89.90
Lake Animal Hospital	001029	Stray Feline Services	285.00
Larson Oil & Distributing Co, Inc	001178	Fuel / Oil	997.10
Long Lines	001077	Fax Line & Emergency Line Service	1,407.71
O'Reilly Automotive Inc	001108	Wipers/Wiper Fluid	53.56
Plumbing & Heating Wholesale, Inc	001126	Filters	135.11
Qwest Corporation	001070	Phone Service	92.97
Rebnord Technologies, Inc	001091	Technology Split	14,658.31
Stanton Electric, Inc	001264	Radio Park LS	2,848.72
Storm City Auto Parts, Inc	001501	Antenna	9.29
Storm Lake Ace Hardware	001216	Supplies	310.97
Storm Lake Hydraulics Co, Inc	001089	Fittings / Hose	57.67
The Storm Lake Times	001214	February 2025 Publications	704.54
Verizon Wireless Services LLC	001075	Cell Phone Service	3,716.56
Vetter Equipment	001098	Mower Parts	186.57
Visual Edge Inc	001063	Copier Maintenance Agreement	578.16
Wiese Plumbing & Heating, Inc	001302	PD Furniture Upgrades	3,159.06
		Local Total:	54,082.72
Non-Local			
ABC Pest Control, Inc	001078	Pest Control Services	95.55
Ahlers & Cooney, P.C.	001023	General City Attorney Services	7,179.00
Alex Air Apparatus 2 LLC	002217	Items Lost/Damaged at Junk Yard Fire	27,491.87
Amerigas	001014	Propane	1,906.67
Baker & Taylor, Inc	001957	Books	132.32
Barnes & Noble Booksellers, USA Inc	001274	Books	89.14
Bend Mailing Services, LLC	002013	Bill Printing Services	3,396.21

Buy Local_v1

Vendor Name	Vendor Number	Payable Description	Total Payments
Blake Severson	002593	Fuel Refund in 11-70 / Class	25.00
Breanna Nieland	001607	Undercover Online Investigations Training	62.00
Brodart Co.	001009	Books	480.22
Central Iowa Distributing, Inc	001026	Bathroom Supplies	182.00
Central Iowa Televising LLC	002049	Sewer Televising & Inspection	10,863.67
Dale Vitito	001061	Uniform Cap	63.94
Derien Beauregard	002195	Training	39.00
Fire Service Training Bureau	001483	HMAO Written & Practical - Ramirez, Daniel	50.00
Foundation Analytical Laboratory, Inc	001100	Testing	2,568.00
Fremarek, Inc	002394	Veg-A-Kill	3,952.28
Hawkins, Inc	001112	Chemicals	16,218.14
H-O-H Water Technology, Inc	001400	Polymer	16,858.10
Housby Heavy Equipment, LLC	001443	Oil Filters - #83	253.80
Ingram Library Services, Inc	001268	Standing Order Books	218.21
International Association of Arson Investi	002477	1 Year Membership	103.00
Iowa Association of Municipal Utilities	001551	FY2025 - 2026 Membership Dues	1,222.00
Iowa Municipal Finance Officers Associat	001333	Matinez Renewal - 04/01/25-04/01/2026	50.00
Joshua Beeck	002472	Window Cleaning Services	45.00
Kasperbauer Cleaners, Inc	002435	Entrance Mat Service	42.36
Leo Pelds Engineering Company	002579	KP Lobby Remodel	3,000.00
Linde Inc	001111	Chemicals - Carbon Dioxide	3,074.06
Mid-States Organized Information Cente	001510	Membership	150.00
Midwest Breathing Air, LLC	001365	Equipment Air Test	461.10
Midwest Tape, LLC	001275	DVDs	41.23
Mississippi Lime Company	001095	Quicklime	51,117.21
Northwest Iowa League of Cities	001118	Conference Registration	125.00
Pitney Bowes	001182	Postage Machine Agreement	244.50
Response Graphics & Embroidery, LLC	002346	Ice Rescue Award Bars	416.16
Salus LLC	001006	February Memberships	60.00
Schumacher Elevator Company	001200	Full Maintenance - City Hall	244.46
Speed's Automotive Supply, Inc	001774	Club Car Carryall	14,374.00
State Industrial Products Corporation	002309	Wastewater Program	5,155.55
The Retail Coach, LLC	002262	3 Year Extension - Market Analysis & Recruit	10,000.00
Thompson Electric Company	001829	WWTP 2025 Gas Calibrations	2,648.19
Underground Location Company	001194	Locate Services	41.50
UnityPoint Clinic- Occupational Medicine	001315	Stamper, Jeffrey - Lab Panel	42.00
UPS	001121	Shipping	29.16
Utility Equipment Co	001096	Clamps / Paint	2,286.58
W. W. Grainger, Inc	001085	Safety Equipment	2,596.56
Ziegler, Inc	001097	Replace ATS Screen - 100-242 Flindt Dr	2,389.06
		Non-Local Total:	192,083.80
Payroll/Refunds			
Beth Ann Dawson McPherran	001434	February 2025 Mileage	13.40
Corey J Galvin	002578	1/22/2025- DW Dist 1- Testing Fee	54.33
Custodian of Petty Cash	001272	Postage	5.11
Custodian of Petty Cash- Jean Cashman	001470	Postage	42.15
Thomas Lane	002020	Training	46.00
		Payroll/Refunds Total:	160.99
		Grand Total:	602,491.66

King's Pointe Resort

Claims Publication

From 2/28 to 3/13/2025

Vendor	Description	Amount
A.H. Hermel Wholesale	Supplies	\$ 774.19
Al Portable Toilets	Services	\$ 1,895.00
ACCO Unlimited Corp	Supplies	\$ 1,779.00
Amazon Capital Services	Supplies	\$ 943.39
ASSA ABLOY	Supplies	\$ 143.64
Bomgaars	Supplies	\$ 294.44
COMMLOG LLC	Services	\$ 64.19
Crescent Electric Supply	Supplies	\$ 371.83
Fastenal Co	Supplies	\$ 18.15
Fintech LLC	Services	\$ 134.60
Foundation Analytical Lab	Services	\$ 66.00
Grainger	Supplies	\$ 217.28
Guest Supply	Supplies	\$ 1,453.59
HyVee	Food	\$ 567.47
Imagine the Possibilities	Services	\$ 150.00
Iowa Division of Labor	Services	\$ 440.00
Iowa Information Inc	Services	\$ 35.00
King's Pointe Resort Payroll- 3/7	Payroll	\$ 93,874.53
Kwik Trip Inc	Supplies	\$ 14.96
Long Lines	Utilities	\$ 2,126.61
Marcus Lumber	Supplies	\$ 45.13
Martin Brothers	Food	\$ 11,328.41
Mediacom	Utilities	\$ 472.90
MidAmerican Energy	Utilities	\$ 14,831.06
Midwestern Mechanical	Services	\$ 1,897.68
Mood Media	Services	\$ 131.18
Office Elements	Supplies	\$ 288.66
Pepsi Beverage Co	Beverages	\$ 1,711.46
Pest Elimination Division	Services	\$ 587.29
Plumbing & Heating Wholesale	Supplies	\$ 747.42
Power Solutions	Services	\$ 1,323.23
Quore Systems	Services	\$ 299.25
Rebnord Technologies	Services	\$ 3,955.43
S&L Hospitality	Management Fee	\$ 4,750.00
Sceptre Hospitality	Services	\$ 2,459.05
SGS LLC	Utilities	\$ 63.00
Storm Lake Ace Hardware	Supplies	\$ 69.95
Storm Lake Times	Services	\$ 50.00
Sysco Iowa Inc	Food	\$ 17,622.37
TNT Sales & Services	Services	\$ 135.00
Vestis	Services	\$ 2,643.22
Vista Paints	Supplies	\$ 244.75

Vizergy	Services	\$ 1,355.45
Wilcor International Inc	Services	\$ 761.10
		<u>\$ 173,136.86</u>

#REF!

REGULAR COUNCIL MEETING, CITY OF STORM LAKE, CITY HALL COUNCIL CHAMBERS, MARCH 3, 2025, 5:00 PM

CITY OF STORM LAKE, REGULAR COUNCIL MEETING, CITY HALL COUNCIL CHAMBERS, MARCH 3, 2025, 5:00 PM

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

Staff Present: City Manager Keri Navratil, Assistant City Manager David Derragon, Police Chief Chris Cole, Fire Chief Glenn Schlessler, King's Pointe Manager Amy VonBank, Library Director Elizabeth Huff, Building and Code Compliance Director Scott Olesen, Communications Coordinator Dana Larsen, Public Services Superintendent Brandon Ripke, Public Works Director Matt Beckman, Development Services Specialist Lee Dutfield, City Treasurer Tyler Gibbins, and City Clerk Mayra Martinez.

Media Present: Allison Moore (via zoom) 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 Ricklefs to approve setting the agenda as presented. Seconded by Council Member Martinez. Vote: All ayes. Motion carried.

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

Hear the Public – No comments.

Consent Agenda - Moved by Council Member Ramos to approve the Consent Agenda which includes list of bills Check #'s 82555 through 82605, EFT #'s 1568 and 6173 through 6212, approve February 17, 2025, Regular City Council Minutes, approve renewal liquor licenses for Lakeshore Café, Jimmy's Bar & Grill, Puffs, Wal-Mart Store #1526, King's Pointe, and Sunrise Pointe Golf Course, approve Buy Local Information, and approve Police Department City Code Enforcement Update. Seconded by Council Member Martinez. Vote: All ayes. Motion carried.

Unfinished Business – No items at this time.

New Business

The Retail Coach - Moved by Council Member Ricklefs to approve a contract with The Retail Coach. Seconded by Council Member Ramos. Vote: Ayes - Council Members McKinney, Ricklefs, and Ramos. Vote: Nays - Council Members McKeon and Martinez. Motion carried.

Stormwater Control Ordinance - Moved by Council Member Martinez to set a Public Hearing for a Text Amendment to the post-construction Stormwater Control Ordinance. Seconded by Council Member McKinney. Vote: All ayes. Motion carried.

Fiscal Year 2026-2030 Capital Improvement Plan - Mayor Porsch opened the public hearing for the Fiscal Year 2026-2030 Capital Improvement Plan stating this was the time and place for any comments. Council Member McKeon requested that the Spoil Site be given a different name to attract businesses or developers to the site. Mayor Porsch suggested contacting Home

REGULAR COUNCIL MEETING, CITY OF STORM LAKE, CITY HALL COUNCIL CHAMBERS, MARCH 3, 2025, 5:00 PM

Town Pride group to help develop a name and City Manager Navratil also suggested using the Parks and Recreation Board to help develop a name. Hearing no other comments and no objections received prior to this public hearing from the Public or City Council, Mayor Porsch closed the public hearing.

Moved by Council Member Martinez to adopt Resolution No. 55-R-2024-2025 approving FY2026-2030 Capital Improvement Plan. Seconded by Council Member Ricklefs. Roll call vote: All ayes. Motion carried.

RESOLUTION NO. 55-R-2024-2025

RESOLUTION APPROVING THE CITY OF STORM LAKE 5-YEAR CAPITAL IMPROVEMENTS PLAN

WHEREAS, the City of Storm Lake has a need to develop a 5-Year Capital Improvements Plan that will assist city staff and the City Council in the development of long-term capital funding priorities; and

WHEREAS, each department of the City of Storm Lake has submitted and prioritized potential projects for the next five fiscal years; and

WHEREAS, the City Manager and City Council have reviewed and prioritized those projects based on potential funding sources in each fund; and

WHEREAS, the proposed 5-Year Capital Improvements Plan has been reviewed and commented on by the City Council during their Budget Workshops in January 2025.

NOW, THEREFORE BE IT HEREBY RESOLVED that the Storm Lake City Council formally approves the City's FY 2026-2030 5-Year Capital Improvement Plan as a planning document for the entire city organization.

PASSED AND APPROVED this 3rd day of March 2025.

Michael Porsch, Mayor

ATTEST:

Mayra A. Martinez, City Clerk

City Council Requested Items / City Council Updates. None

Adjourn - Moved by Council Member Ramos to adjourn at 5:27 pm. Seconded by Council Member McKinney. Vote: All ayes. Motion carried.

**REGULAR COUNCIL MEETING, CITY OF STORM LAKE, CITY HALL COUNCIL
CHAMBERS, MARCH 3, 2025, 5:00 PM**

Michael Porsch, Mayor

ATTEST:

Mayra A. Martinez, City Clerk

SPECIAL COUNCIL MEETING, CITY OF STORM LAKE, CITY HALL COUNCIL CHAMBERS, MARCH 4, 2025, 5:00 PM

CITY OF STORM LAKE, SPECIAL COUNCIL MEETING, CITY HALL COUNCIL CHAMBERS, MARCH 4, 2025, 5:00 PM

Present: Council Member Meg McKeon, Council Member Maggie Martinez, Council Member Kevin McKinney, Council Member Matt Ricklefs, Council Member Maria Ramos (arrived at 5:13pm)

Absent:

Open the Meeting

Staff Present: City Manager Keri Navratil, Assistant City Manager David Derragon, Police Chief Chris Cole, Fire Chief Glenn Schlessler, King's Pointe Manager Amy VonBank, Library Director Elizabeth Huff, Building and Code Compliance Director Scott Olesen, Communications Coordinator Dana Larsen, Public Services Superintendent Brandon Ripke, Public Works Director Matt Beckman, Development Services Specialist Lee Dutfield, City Treasurer Tyler Gibbins, and City Clerk Mayra Martinez.

Media Present: Allison Moore with the Storm Lake Times Pilot

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

Agenda- Moved by Council Member Martinez to approve consideration of Changes in Agenda and Setting the Agenda. Seconded by Council Member McKeon. Roll call vote: All ayes with Council Member Ramos absent. Motion carried.

Disclosure by City Council Members: None at this Time

New Business –

Exempt session - Moved by Council Member Ricklefs to approve Motion to Go In To Exempt session pursuant to Iowa Code section 20.17(3) "Negotiating sessions, strategy meetings of public employers, mediation, and the deliberative process of arbitrators shall be exempt from the provisions of chapter 21." Seconded by Council Member Martinez. Roll call vote: All ayes. With Council Member Ramos absent. Motion carried.

Those present are Mayor Porsch, Council Member Martinez, Ricklefs, McKeon, and Ramos (arrived 5:13 pm). Staff present are Derragon, Cole, Gibbins, and Martinez. Maria Ramos arrived at 5:13.

open session

Moved by Council Member Ricklefs to approve go open session at 5:36pm. Seconded by Council Member Martinez. Roll call vote: All ayes. Motion carried.

Fiscal Year 2025-2026 Budget Work Session

**SPECIAL COUNCIL MEETING, CITY OF STORM LAKE, CITY HALL COUNCIL
CHAMBERS, MARCH 4, 2025, 5:00 PM**

Adjourn - Moved by Council Member McKeon to adjourn at 08:43 PM. Seconded by Council Member Martinez. Roll call vote: All ayes. Motion carried.

ATTEST:

Michael Porsch, Mayor

Mayra A. Martinez, City Clerk



State of Iowa

Alcoholic Beverages Division

Applicant

NAME OF LEGAL ENTITY	NAME OF BUSINESS(DBA)	BUSINESS			
Mo's Tap Inc.	Mo's	(712) 732-3292			
ADDRESS OF PREMISES		PREMISES SUITE/APT NUMBER	CITY	COUNTY	ZIP
707 Lake Avenue			Storm Lake	Buena Vista	50588
MAILING ADDRESS	CITY	STATE	ZIP		
111 W 1st Street	Storm Lake	Iowa	50588		

Contact Person

NAME	PHONE	EMAIL
Marisa Olivarez	(712) 299-2969	cashmjm@gmail.com

License Information

LICENSE NUMBER	LICENSE/PERMIT TYPE	TERM	STATUS
LC0038268	Class C Retail Alcohol License	12 Month	In Progress

TENTATIVE EFFECTIVE DATE	TENTATIVE EXPIRATION DATE	LAST DAY OF BUSINESS
Apr 2, 2025	Apr 1, 2026	

SUB-PERMITS

Class C Retail Alcohol License

PRIVILEGES



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
Jean Cashman	Storm Lake	Iowa	50588	Vice President	0.00	Yes
Marisa Olivarez	Storm Lake	Iowa	50588	Owner	100.00	Yes

Insurance Company Information

INSURANCE COMPANY

Badger Mutual 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

Staff Summary

3/17/2025

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: **Resolution No. 56-R-2024-2025 BVU Request For Spring Events**

BACKGROUND: Requested approval for upcoming student and community events on BVU's campus
Buena Vista University is requesting that on the dates listed below, the City of Storm Lake approve noise variances.

Event Dates

Saturday, April 12th- Easter Extravaganza: Easter egg hunt, activities, & lunch for the Storm Lake Community

- They will be playing music via speakers near the Victory Bell
- 10am- 1pm

Thursday, April 24th- Buena-fication Day Post Celebration: BVU's Rock Ensemble & Doc Bullfrogs playing on the South Forum Lawn.

- 4pm-7pm

Saturday, April 26th- BVU's Student Activities Board Block Party

- 9am-10pm
- Music playing via speakers throughout the day
- Request to close Grand Ave on campus for event from 9am-5pm
- 8pm-10pm- Paint Rave Party in parking lot between Fieldhouse & Science Center

Attached is the request for a noise variance and road closure for the Student Activities Board Block Party as well as items for Buena-fication Day. I have also attached Safety Data Sheets for a Paint Rave to happen during the Block Party.

This request is similar to past requests and has not caused any issues.

FISCAL IMPACT: None

RECOMMENDATION: Approver Resolution No. 57-R-2024-2025 for BVU Spring events Request

ATTACHMENTS:

1. SDS-Fog-Haze
2. SDS-UV-Paint
3. Spring 2025 City Council Requests
4. Resolution No. 56-R-2024-2025 - BVU Spring Events

Safety Data Sheet

May be used to comply with

OSHA's Hazard Communication Standard,
29 CFR 1910.1200. Standard must be
consulted for specific requirements.

U.S. Department of Labor

Occupational Safety and Health
Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (As Used on Label and List) Chauvet Fog Fluid Item# FJU	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.
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Section I: Product and Company Identification

Manufactured exclusively for: Chauvet	Emergency Telephone Contact Number 954-577-4455
Address 5200 NW 108 th Avenue Sunrise, FL 33351	Telephone Number for Information 954-577-4455
Date Prepared August 2014	Signature of Preparer (optional)

Section II: Hazard(s) Identification

Hazardous Components (Specific Chemical Identity; Common Name(s)) 	OSHA PEL	ACGIH TLV	Other Limits Recommended
This product is a filtered blend of polyfunctional alcohol regularly used by the food and cosmetics industry. Main competent of the product is water. This material is not considered to be hazardous according to regulatory guidelines.			
Routes of Exposure: Eye contact, Skin Contact, Inhalation, Ingestion.			
Health Hazards (Acute and Chronic) May cause slight eye, skin and respiratory tract irritation.			
Carcinogenicity: Not listed	NTP: Not listed	IARC Monographs: Not listed	OSHA Regulated: Not listed
Signs and Symptoms of Exposure Prolonged exposure may cause flaking and softening of skin. Mist may cause irritation of upper respiratory tract.			
Medical Conditions Generally Aggravated by Exposure None known.			

Chauvet Fog Fluid Item# FJU

Section III – Composition / Information on Ingredients

No reportable Hazardous Substance(s) or Complex Substance(s).
Grignard company LLC withholds the specific chemical identity and/or exact percentages of the composition of our products due to this information being a part of our Intellectual Property.

Section IV: First Aid Measures

Eyes: Immediately flush eyes thoroughly with water at least for 15 minutes. If irritation occurs, get medical assistance
Inhalation: Move victim to fresh air. If symptoms persist, get medical attention.
Skin: Flush affected area with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention if irritation occurs.
Ingestion: If affected person is conscious, give water. Do not induce vomiting. Call for medical attention.

Section V: Fire – Fighting Measures

Flash Point (Method Used) Not Flammable by WHMIS/OSHA criteria	Flammable Limits NA	LEL N/D	UEL N/D
Extinguishing Media Use anti-alcohol foam, dry chemical powder, CO ₂ , water fog			
Special Fire Fighting Procedures Move container from fire area if you can do it without risk. Wear Self-contained breathing apparatus and full protective clothing			
Unusual Fire and Explosion Hazards None			

Section VI: Accidental Release Measures

Personal Precautions: Avoid contact with liquid and inhalation of vapors. Wear protective clothing described in section 8.
Environmental precautions: Avoid the spillages to sewer and drains. Avoid dispersion of product
Method for Clean Up: Ventilate area of spill or leak. Isolate and remove discharge material with absorbent dry sand.

Chauvet Fog Fluid Item# FJU

Section VII: Handling and Storage

Handling Wear appropriate protective clothing to avoid contact or inhalation of the product. Do not smoke, drink or eat. Wash hands using liquid detergent. Eliminate all sources of ignition from areas where the material is handled or used; no sparks or flames in hazard area.
Storing Store at room temperature in opaque, properly labelled and closed containers. Keep in well-ventilated area and protected from sunlight.

Section VIII: Exposure Controls/Personal Protection

Respiratory Protection (<i>Specify Type</i>) Normally not required. In presence of high concentrations of vapors, respiratory protective mask with filter against organic vapors is recommended.		
Ventilation	Local Exhaust Recommended	Special
	Mechanical (<i>General</i>)	Other
Protective Gloves: Impervious gloves.		Eye Protection Safety goggles to avoid splashes
Other Protective Clothing or Equipment Eye washers and showers in working area		
Work/Hygienic Practices: Handle in accordance with good industrial hygiene and safety practice. Do not drink or eat when using product. Wash hands before breaks and immediately after handling the product.		

Section IX: Physical and Chemical Properties

Boiling Point	N/A	Specific Gravity (H₂O = 1)	1.04
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water: Completely Miscible			
Physical State: Liquid			
Appearance: Transparent and clear			
Odor: Odorless			

Chauvet Fog Fluid Item# FJU

Section X: Stability and Reactivity

Stability:	Stable	Hazardous Polymerization:	Will Not Occur
Incompatibility (Materials to Avoid): Strong oxidizing agents, strong acids and strong bases.			
Conditions to Avoid: High temperatures and direct sunlight exposures.			
Possibility of Hazardous Reactions: Will not occur			
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide and water.			

Section XI: Toxicological Information

Toxicological Information: Skin: The LD50 for skin absorption in rabbits is > 5000mg/kg Ingestion: The oral LD50 for rats is 16,800 – 22,060 mg/kg Inhalation: The aerosol LC50 for rats is > 4.5mg/L
Acute and Chronic effects: Prolonged or repeated exposure may cause skin irritation. May cause more severe response if skin is abraded. Single dose oral toxicity is considered to be low. May cause stomach distress. If swallowed, seek medical attention.
Carcinogenicity/Other Information: None of the components are listed by: NTP, IARC, ACGIH, OSHA
Reproductive Toxicity: Non-hazardous by WHMIS/OSHA criteria

Section XII: Ecological Information

Toxicity: Not applicable
Biodegradability: Not applicable
Bio-accumulative potential: Not Applicable
Other Adverse Effects: Not Applicable

Chauvet Fog Fluid Item# FJU

Section XIII: Disposal Considerations

Disposal Recommendations:

Do not discharge into waterways, sewers, basements or confined areas. Follow federal, state, provincial and local government requirements for waste.

Section XIV: Transportation

Land (DOT): Not regulated for Land Transport

Land (TDG): Not regulated for Land Transport

Sea (IMDG): Not regulated for Sea Transport according to IMDG-Code

Air (IATA): Not regulated for Air Transport

Section XV: Regulatory Information

OSHA Hazard Communication Standard:

When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

EPCRA: This material contains no extremely hazardous substances.

SARA (311/312) Reportable Hazard Categories: None

SARA (313) Toxic Release Inventory: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The Following Ingredients are Cited on the Lists Below: None

Section XVI: Other Information

Other Special Considerations:

None

Disclaimer: This information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.

PurColour

12150 West 44th Ave, Unit 104 & 105
Wheat Ridge, CO 80033
303-704-2901
Fax 303.942.7278
celebrate@PurColour.com

Hazard rating at a glance

0-least, 1-slight, 2-moderate, 3-high, 4-extreme

Health: 1

Flammability: 0

Reactivity: 0

SAFETY DATA SHEET

1 Product Identification:

- 1.1 Product Name: PurColour AfterDark Paint Concentrate™
- 1.2 Product Number: PCPC; Blue, Pink, Green, Purple, Yellow, and Orange.
- 1.3 Company Name: PurColour
- 1.4 Company Address: 12150 West 44th Ave, Unit 104 & 105, Wheat Ridge, CO 80033
- 1.5 Telephone Number: 720-287-0057

2 Composition/Ingredient Information

- 2.1 It is our opinion that the above-named product does not meet the definition of a "Hazardous Chemical" as defined in the 21 CFR 1910.1200. This SDS is provided as general information for health and safety reasons.
- 2.2 Ingredient Statement: titanium dioxide, non-toxic pigments, soy lecithin, proprietary gel formulation, calcium, sodium, citric acid, sodium benzoate
- 2.3 Description of Product: A colored powder that is soluble in water and designed for entertainment and celebration functions. This product is not intended for human/food consumption.
- 2.4 Hazardous Components: Blue and Purple contain less than .1% free formaldehyde. Under some conditions (i.e. elevated temperatures) the product may off-gas formaldehyde. All other colors are formaldehyde free. Formaldehyde is a known carcinogen.

3 Health Hazard Data

- 3.1 Primary Route of Entry: Skin
- 3.2 Eye Contact: May be irritating to eyes.
- 3.3 Skin Contact: No data available.
- 3.4 Ingestion: Get medical advice.

4 First Aid Measures

4.1 Eye Contact Remove contact lenses and flush eyes with copious amount of water for at least fifteen minutes. Contact physician if irritation persists.

4.2 Skin Contact No significant health hazard. Wash exposed skin with soap and water for at least fifteen minutes. If irritation persists, consult a physician.

4.3 Ingestion Drink plenty of water and seek medical attention if it seems advisable.

5 Fire Fighting Measures

5.1 Flash Point (method used) Not determined.

5.2 Flammable Limits Not determined.

5.3 Usual Fire & Explosion Hazard Not determined.

5.4 Extinguishing Media Carbon dioxide, dry chemical, foam and water spray.

6 Spill, Leak and Waste Disposal

6.1 Wash area with soap and water. Area may be slippery; take precautions.

6.2 Waste Disposal. Sanitary land-fill in accordance with local, state and federal regulations.

6.3 RCRA Hazardous Waste: No

6.4 CERCLA: No

7 Handling and Storage

7.1 Store in a cool dry area. The wearing of rubber gloves and safety glasses to prevent skin and eye contact is recommended. Store in tightly closed containers in a well-ventilated area.

8 Exposure Protection

8.1 Respiratory No special equipment under normal conditions of use.

8.2 Skin Long sleeves and gloves may be worn.

8.3 Eye Safety glasses may be worn.

8.4 Hand Suitable gloves may be worn.

8.5 Other Evaluate need based on application. Slip proof shoes may be worn where spills may occur.

8.6 Work/Hygiene Practice Normal work and hygiene practices for handling non-hazardous material.

9 Physical / Chemical Characteristics

9.1 Appearance Liquid

9.2 Odor None

9.3 Color	Based on color: Blue, Pink, Green, Purple, Yellow, and Orange.
9.4 Boiling Point	Not established.
9.5 Vapor Point	Not established.
9.6 Specific Gravity	To be established.
9.7 Solubility in Water	Partial.

10 Stability and Reactivity

10.1	Stability	Stable.
10.2	Incompatibility	Avoid strong oxidizing agents.
10.3	Hazardous Decomposition	Oxides of carbon.
10.4	Hazardous Polymerization	Will Not Occur.

11 Toxicological Health Hazards

11.1	Signs and Symptoms of Exposure:	May be irritating to eyes and nose.
11.2	Toxicity Data:	No studies have been conducted on this product.
11.4	Reproductive Toxicity:	No studies have been conducted on this product.

12 Ecological Effects No studies have been conducted on this product.

13 Disposal Considerations

12.1 Incineration. Observe local, State and Federal regulations concerning health and the environment. Do not incinerate in sealed containers.

14 Transport Information

DOT Not Regulated

15 Regulatory Information

The information contained herein is based upon data considered accurate and reliable. Nevertheless, independent investigation and verification of this information should be made by the user. No warranty is made, expressed or implied, regarding the accuracy or correctness of this data. The use of this information and this product are beyond the control of PurColour. Therefore, it is the sole responsibility of the user to determine the conditions necessary for the use of this product.

No component of this color blend has been determined to be carcinogenic by FDA, OSHA, or California Proposition 65.

16 Other Information

This SDS document was revised 4/03/2018.

TO: Storm Lake City Council
FROM: Samantha Kay, Director of Community & Student Engagement
DATE: 2/19/2025

RE: Requested approval for upcoming student and community events on BVU's campus

Buena Vista University is requesting that on the dates listed below, the City of Storm Lake approve noise variances.

Event Dates

Saturday, April 12th- Easter Extravaganza: Easter egg hung, activities, & lunch for the Storm Lake Community

- Will be playing music via speakers near the Victory Bell
- 10am- 1pm

Thursday, April 24th- Buenafiction Day Post Celebration: BVU's Rock Ensemble & Doc Bullfrogs playing on the South Forum Lawn.

- 4pm-7pm

Saturday, April 26th- BVU's Student Activities Board Block Party

- 9am-10pm
- Music playing via speakers throughout the day
- Request to close Grand Ave on campus for event from 9am-5pm
- 8pm-10pm- Paint Rave Party in parking lot between Fieldhouse & Science Center

Thank you for your continued support and attention to this request. Please call me at 712-749-2444 or email at kays@bvuu.edu if you have any questions or concerns.

Sincerely,

Sami Kay
Director of Community & Student Engagement

RESOLUTION NO. 56-R-2023-2024

**RESOLUTION TEMPORARILY CLOSING PUBLIC WAYS OR GROUNDS IN
CONNECTION WITH A SPECIAL EVENT KNOWN AS “BUENA VISTA
UNIVERSITY SPRING EVENTS”**

WHEREAS, Iowa Code Section 364.12(2) states "a city shall keep all public grounds, streets, sidewalks, alleys, bridges, culverts, overpasses, underpasses, grade crossing separations and approaches, public ways, squares, and commons open, in repair and free from nuisance;" and

WHEREAS, Iowa Code Section 364.12(2)(a) states "public ways and grounds may be temporarily closed by resolution;" and

WHEREAS, Buena Vista University and the City finds it is necessary and in the best interests of the attendees and public to temporarily close the following streets and any associated parking spaces from 9:00 a.m. to 5:00 p.m. on the dates listed below, in conjunction with the special event known as “Buena Vista University Spring Events:”

A section of Grand Avenue from West 4th Street south to Peterson Drive, on April 26, 2025.

NOW, THEREFORE, BE IT RESOLVED, pursuant to Iowa Code Section 364.12(2)(a), the City Council of the City of Storm Lake, Iowa does hereby temporarily close the streets as stated above.

Dated this date: March 17th, 2025

Michael Porsch, Mayor

ATTEST:

Mayra A. Martinez, City Clerk

Staff Summary

3/17/2025

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: 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 Pointes' 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:

<u>BREAKOUT CALCULATED</u>	
	<u>EXPENSES</u>
Buena Vista	\$
County	163,854.18
Contract	
Agreement	192,309.97
Local	
	54,082.72
Non-Local	
	192,083.80
TOTAL	\$
EXPENSES:	746,845.20

RECOMMENDATION:

ATTACHMENTS:

1. 3/17/2025 Project Report

Summary

Project Summary							
Project Number	Project Name	Total Budget	Date Range Budget	Beginning Balance	Total Activity	Ending Balance	Budget Remaining
OP1.122814	Richland Street, Phase 2 Improvem...	174,107.75	0.00	174,095.25	0.00	174,095.25	12.50
OP1.126252	Comprehansive Plan & Zoning Code U...	125,880.00	0.00	125,824.50	0.00	125,824.50	55.50
OP1.131538	Memorial Road Street & Utility Impro...	4,126,579.75	4,126,579.75	4,199,902.90	1,751.50	4,201,654.40	-75,074.65
OT5.128791	Runway 17/35 Lighting Replacement	403,870.58	403,870.58	403,403.34	0.00	403,403.34	467.24
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	0.00	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	1,533,820.42	650.60	1,534,471.02	260,535.48
22-26815	W 6th Street Utilities Extension	314,241.49	0.00	318,517.58	0.00	318,517.58	-4,276.09
22-27926	Storm Lake WTP- Well #22	2,601,908.10	2,601,908.10	1,182,617.62	29,259.92	1,211,877.54	1,390,030.56
23-092	King's Pointe Remodel/Refresh	446,537.52	446,537.52	426,545.09	0.00	426,545.09	19,992.43
23-29446	WWTP UV Disinfection Building	275,138.00	0.00	191,768.00	0.00	191,768.00	83,370.00
23-29447	College & 3rd St Lift Station Replacem...	185,000.00	185,000.00	143,922.50	7,170.00	151,092.50	33,907.50
24-31153	WWTP Blower Project (EECBG)	129,600.00	129,600.00	70,245.00	1,770.00	72,015.00	57,585.00
24-31751	Storm Lake WTP- Well #23	74,000.00	74,000.00	63,565.00	8,027.50	71,592.50	2,407.50
24-31828	WTP Prelim Engineering Report	83,000.00	83,000.00	4,700.00	0.00	4,700.00	78,300.00
FEMA HMGP (HMA) 4483	FEMA HMGP (HMA) 4483	4,589,528.00	4,589,528.00	245,553.50	3,044.00	248,597.50	4,340,930.50
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	5,373,401.43	43,828.10	5,417,229.53	1,966,870.62
New	Lead Service Line Replacement Prelim...	15,500.00	0.00	0.00	0.00	0.00	15,500.00
New1	Apron Expansion Improvements	20,900.00	20,900.00	0.00	14,630.00	14,630.00	6,270.00
OP1.125106	BRIC	212,709.99	212,709.99	212,709.99	0.00	212,709.99	0.00
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...	4,776,040.38	1,491.46	5,105,090.89	1,981.00	5,107,071.89	-331,031.51
SP21122	SL Library CDBG- COVID (CV) Grant	634,285.27	0.00	634,285.27	0.00	634,285.27	0.00
Report Total:		34,319,087.62	22,054,232.05	26,389,798.28	112,112.62	26,501,910.90	7,817,176.72

Group Summary						
Group	Total Budget	Date Range Budget	Beginning Balance	Total Activity	Ending Balance	Budget Remaining
Airport Projects	424,770.58	424,770.58	403,403.34	14,630.00	418,033.34	6,737.24
ARPA Project	1,795,006.50	1,795,006.50	1,533,820.42	650.60	1,534,471.02	260,535.48
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	0.00	774,894.68	0.00	774,894.68	3,220.81
King's Pointe Resort Projects	446,537.52	446,537.52	426,545.09	0.00	426,545.09	19,992.43
Library Project	634,285.27	0.00	634,285.27	0.00	634,285.27	0.00
Sanitary Sewer Projects	7,712,586.00	4,904,128.00	3,206,089.96	11,984.00	3,218,073.96	4,494,512.04
Street Construction	11,603,161.86	4,128,071.21	11,992,423.32	3,732.50	11,996,155.82	-392,993.96
Water Project	10,711,914.41	10,143,008.25	7,205,626.21	81,115.52	7,286,741.73	3,425,172.68

Staff Summary

3/17/2025

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: Chris Cole, Police Chief
SUBJECT: SLPD City Code Enforcement Summary
BACKGROUND: 2/26/2025 to 3/11/2025

Accumulate Junk – 16
Accumulate Trash – 6
Bags of Leaves – 6
Junk Vehicle – 6
Snow Removal – 2
Total: 36
Citations : 0

White Summons: 134

FISCAL IMPACT: None

RECOMMENDATION: None

ATTACHMENTS:

None

Staff Summary

3/17/2025

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: Amy Von Bank, General Manager

SUBJECT: **Motion To Approve 2025 Outdoor Water Park and Sunrise Pointe Golf Season Pass Special**

BACKGROUND: King's Pointe General Manager Amy Von Bank will request Council to consider a special for the Outdoor Water Park and Sunrise Pointe Golf Course for the 2025 season.

Outdoor Water Park Special:

- Extend the Black Friday sale for water park punch cards, 50 punches for \$300, a \$100 savings.
- This request is for the Month of April, 2025.

Sunrise Pointe Golf Course:

- Offer the junior season pass for \$50, a \$25 savings.
- Offer a "refer a member" special: If an existing member refers a new member (someone not a member during the 2024 season), the existing member receives \$50 off their season pass AND the new member will receive \$50 off their season pass.
- These requests would begin March 22nd, when the early-bird registration begins, and end April 30th, 2025.

FISCAL IMPACT:

RECOMMENDATION: City Council will consider the request.

ATTACHMENTS:

None

Staff Summary

3/17/2025

Agenda Item # F.2.



REPORT TO: Honorable Mayor & Council

FROM: Tyler Gibbins, City Treasurer

SUBJECT: **Resolution No. 57-R-2024-2025 To Approve Sunrise Pointe Golf Course Reciprocal Policy**

BACKGROUND: This policy opens the access of participating courses, specifically only on " free golf" days, which is defined as when courses do not have league, tournament, or any other event utilizing the course. This Policy would waive the course green fees outlined in the fee resolution but would require reciprocal members to pay for a riding golf car.

This policy is a " Value Added" benefit to our current members and promotes members of other courses to come to Sunrise Pointe.

If approved, staff will provide participating courses a list of members. Each reciprocal player will be matched with an identification card which is required at the clubhouse prior to play.

FISCAL IMPACT: This policy is a " Value Added" benefit to members of Sunrise Pointe Golf Course.

There is a \$75 registration fee to become a member of the reciprocal policy. This fee is to offset the cost of membership cards our members receive from this program.

RECOMMENDATION: Adopt Resolution No. 57- R- 2024- 2025 approving the Reciprocal Policy for Midwest Iowa.

ATTACHMENTS:

1. 2025 RECIPROCAL GUIDELINES FOR IOWA
2. Resolution No. 57-R-2024-2025 - Golf Course Reciprocal Policy

2025 RECIPROCAL AGREEMENT FORM

These are the following guidelines for your course to join the Iowa Reciprocal GOLF Program. I fully believe and promote the reciprocal agreement as an “ADDED VALUE” to our members for buy a membership. I am also confident the reciprocal agreement between our clubs is a financial beneficial to your clubhouse and course.

-Sandy Boeckman, Iowa Golf Reciprocal Director 712-830-5115

GUIDELINES: Who qualifies to get a reciprocal card at your course? **Anyone who pays out of their own pocket for a membership.** Who does not qualify for a reciprocal card....? any CORPORATE MEMBERSHIPS. This program is to add VALUE to our “out of pocket” paid memberships. Any cards given to as a “favor” to anyone that has not paid and does not have a membership.... your course AND all your members will be omitted from the program.

1. Reciprocal players will be permitted to play during open golf times only. This does not include or give privileges to any of the club’s private leagues, fundraisers, tournaments or events. **IT IS FOR OPEN GOLF TIMES ONLY.**
2. Players traveling to other courses must have a membership card from their home course and a photo ID. This will ensure no one is passing their card to friends not with memberships. Cards will be provided to you to hand out so that we all have the same reciprocal card.
3. All players **MUST CALL** the course they are traveling to for a tee time.
4. Each player **MUST SIGN** the reciprocal sign in book at the clubhouse prior to golfing. I will provide this.
5. Green fees will be waived for reciprocal players. This does not include their guest if they do not have a membership card.
6. **EACH PLAYER must pay for a cart rental. One golfer must rent a full cart. NO ½ cart rentals. Two players can split a cart. If a golfer brings their own cart or plan to walk... a cart rental fee still must be charged.**
PLEASE DO NOT UP YOUR RATES JUST TOO RECIPROCAL GOLFERS FOR CART RENTAL FEE.
7. Reciprocal players are encouraged to use all club services including clubhouse dining and bar.
8. All rules affecting their own club members... apply to reciprocal golf players.
9. We expect nothing less than the upmost respect and care to any course that your members golf at.
10. We expect clubhouse managers/board members to do their very best in educating their members on the rules and regulations for this program.
11. **We expect clubhouse managers to train their staff** on following the steps when someone arrives to golf on the reciprocal program. That is to look at their reciprocal card, ID AND to have each golfer sign the sign in book that will be provided to you. We want the golf experience to be the same at all courses.
12. We suggest numbering your reciprocal cards. I will send a tracker sheet for you. This helps to be accountable for all cards you have possession of.
13. ★ It is the right of a course to limit the number of times a particular golfer can use their reciprocal player’s card to golf at the course if that individual bought a membership out of their area because it was cheaper or is abusing the program in anyway. ★ It is the right of a course to limit all golfers to the number of times any golfer can use their reciprocal player’s card at their course - it will be that course's responsibility to track that information. (Nothing new).
14. By signing this agreement, you are saying you agree and understand the guidelines for the program. If your course does not follow the guidelines or abuses the rules... please know that I will omit your course from the program and all other courses will be instructed to not accept reciprocal cards from your members. Following these guidelines is critical so that the reciprocal golf experience is the same experience at each course.
15. PLEASE go on your courses Facebook page and invite your members to like the IOWA RECIPROCAL GOLF page. You get to advertise your tournaments here, put any course equipment you may have for sale, members can sell golf clubs and golf carts here... and.... You can send me photos of your course and all the information you want to promote your course and I will do a COURSE SPOTLIGHT segment on that Facebook page. This is great FREE exposure!

Please, RETURN THIS PAGE and PAYMENT **TOGETHER** TO GET YOUR PLAYER CARDS.

Signature that you understand the guidelines from page 1.

X _____ Your Title: _____

Your phone number: _____

Course Name: _____

Course Address: _____ Mailing Address: _____

Course Town: _____ State: _____ Zip: _____

Course Phone Number: _____ Manager: _____

The name and a phone number of an active board member for a second person contact:

Please answer these questions and I will get your player cards mailed out ASAP.

1.) Number of cards you will need: _____

COST:

\$30 for 1 – 100 player cards

\$50 for 101 – 250 player cards

\$75 for 251 – 400 player cards

\$100 for 401 – and up for player cards

There is a \$10 fee if you need extra cards mailed to you during the year.

2.) Is there a limit on number of times a golfer can use reciprocal at your course? YES NO
If yes, how many times can a player play at your course? _____

3.) What is your cart fee per cart? This info will be shared on Facebook when we do the welcome to each course and on the poster with course name and phone number.

9 Holes _____ 18 holes _____

Please initial that you understand and follow the rule that 2 people can split the cart cost. _____

4.) Do you want your course to be on a list to swap golf certificates with other courses for your fundraisers and events? Example a certificate for 2 people, with cart- 9 holes.

Yes NO

You can mail a check made out to
Sandy Boeckman
PO BOX 193
Lake View, IA 51450

Please do not make it to Spring Lake Golf as some of you do. Also, reminder, I do not mail out 1099's.

Can't wait for 2025 season to begin! This is being sent out to 50+ courses. I have heard from a good handful of new courses that may join!

RESOLUTION NO. 57-R-2024-2025

**RESOLUTION APPROVING THE SUNRISE GOLF GOURSE RECIPROCAL POLICY
AND WAIVING GREEN FEES FOR THE RECIPROCAL MEMBERS.**

WHEREAS, the City of Storm Lake owns the Sunrise Golf Course; and

WHEREAS, the City of Storm Lake desires to increase the number of rounds of golf played annually at the course; and

WHEREAS, the City of Storm Lake welcomes the opportunity to showcase the golf course to players from other courses in the Midwest Iowa; and

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

To approve waiving fees for golfers from participating courses visiting Sunrise Pointe Golf Course covered in the Sunrise Golf Course Reciprocal Policy.

PASSED AND APPROVED this 17th day of March, 2025.

Michael Porsch, Mayor

ATTEST:

Mayra A. Martinez, City Clerk

Staff Summary

3/17/2025

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: Scott Olesen, Building Official

SUBJECT: **Public Hearing for A Text Amendment To The Post-Construction Stormwater Control Ordinance**

BACKGROUND: The State of Iowa has made changes to the regulations that cities enforce for storm water runoff created by new building construction and hard surfaces such as parking lots. The changes are in reference to the average amount of rainfall, the preservation of topsoil, and the pre-existing conditions which are utilized in calculations used during the engineering process to design methods to control storm water runoff on affected building sites.

Since we are an MS4 community, we are required to have these regulations in place to limit the amount of storm water that is sent to the City storm sewer system and ultimately, Storm Lake and Poor Farm Creek. These regulations help to keep the amount of storm water sent to the storm sewer system from overwhelming it and creating issues with the system becoming overloaded. It also serves to clean up the contaminants generated on hard surfaces from leaving the sites and being transported to the Lake or Creek.

We are required by State law to revise and update our Ordinance to be in compliance with these new regulations. Staff also reviewed the rest of the Ordinance and have made proposed editorial changes to make the document easier to understand and enforce. I have attached the current Ordinance, the Ordinance showing the strike through's and the inserted text, and a "clean" version showing how the document will read after the proposed changes are made. The proposed changes have been reviewed by the City Storm Water Engineer and the City Attorney.

FISCAL IMPACT: The cost of Engineering and Legal review is estimated at \$1,000.

RECOMMENDATION: Open the public hearing, receive public input, close the public hearing.

ATTACHMENTS:

1. Title 3 Post Construction Stormwater Control showing edits
2. Ordinance 05-O-2024-2025 - Ordinance Amending Title III Ch 3-13 Post Construction Stormwater Control

Title 3

PUBLIC HEALTH AND SANITATION

Chapters:

3-1	GARBAGE STORAGE AND COLLECTION
3-2	SANITARY SEWERS
3-3	SEWER RATES
3-4	WATERWORKS
3-5	WATER RATES
3-6	SOLID WASTE DISPOSAL
3-7	EXTENSIONS OF SEWER AND WATER LINES WITHIN THE CITY LIMITS
3-8	HAZARDOUS SUBSTANCES
3-9	COMBINED UTILITY DEPOSIT
3-10	STORM WATER DRAINAGE UTILITY
3-11	ILLICIT DISCHARGE TO STORM SEWER SYSTEM
3-12	PRIVATE WELLS
3-13	POST-CONSTRUCTION STORMWATER CONTROL

Chapter 3-13

POST-CONSTRUCTION STORMWATER CONTROL

Sections:

3-13-1	Findings of Fact
3-13-2	Purpose
3-13-3	Applicability
3-13-4	Compatibility with Other Requirements
3-13-5	Permit Procedures and Requirements
3-13-6	Stormwater Standards
3-13-7	Waivers
3-13-8	Approval of Stormwater Management Concept Plan
3-13-9	Approval of Stormwater Management Final Plan
3-13-10 (9)	Performance Security or Bond
3-13-11 (10)	Construction Inspection
3-13-12 (11)	Maintenance and Repair of Stormwater BMPS
3-13-13 (12)	Enforcement and Penalties
3-13-14 (13)	Appeal
3-13-15 (14)	Definitions

Section 3-13-1 Findings of Fact

1. The U.S. EPA's National Pollutant Discharge Eliminations System ("NPDES") permit program ("Program") administered by the Iowa Department of Natural Resources ("IDNR") requires that cities meeting certain demographic and environmental impact criteria obtain from the IDNR an NPDES permit for the discharge of stormwater from a Municipal Separate Storm Sewer System ("MS4") ("MS4 Permit"). The City of Storm Lake is subject to the Program and is required to obtain, and has obtained, an MS4 Permit; the City's MS4 permit is on file at the office of the City Clerk and is available for public inspection during regular office hours.
2. As a condition of the City's MS4 Permit, the City is obliged to adopt and enforce a POST-CONSTRUCTION STORMWATER CONTROL ordinance.
3. No state or Federal funds have been made available to assist the City in administering and enforcing the Program. Accordingly, the City shall fund its operations under this chapter entirely by charges imposed on the owners or developers of properties which are made subject to the Program by virtue of State and Federal law, and/or other sources of funding established by a separate ordinance.
4. Land development and associated increases in impervious cover alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition; this stormwater runoff contributes to increased quantities of water-borne pollutants; and stormwater runoff, soil erosion, and non-point source pollution can be controlled and minimized through the regulation of stormwater runoff from development sites.
5. Therefore, the City of Storm Lake establishes this set of City stormwater requirements to provide

reasonable guidance for the regulation of stormwater runoff for the purpose of protecting local water resources from degradation. It is determined that the regulation of stormwater runoff discharges from land development and other construction activities in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and non-point source pollution associated with stormwater runoff is in the public interest and will prevent threats to public health, safety, and property damage.

6. The "Iowa Stormwater Management Manual" published collaboratively by the Iowa Department of Natural Resources and The Center for Transportation Research and Education at Iowa State University establishes guidelines consisting of unified sizing criteria, stormwater management designs and specifications and Best Management Practices (BMP). City hereby finds and declares that the guidelines provided for in the Iowa Stormwater Management Manual, and in future editions thereof, should be and are hereby adopted as the stormwater management standards of the City. Any BMP installation that complies with the provisions of the Iowa Stormwater Management Manual, or future editions thereof, at the time of installation shall be deemed to have been installed in accordance with this ordinance.

(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-2 Purpose

The purpose of this chapter is to adopt as the City's standards and sizing criteria and BMPs to address said standards the Guidelines, Sizing Criteria, and BMPs proposed by the Iowa Stormwater Management Manual and as specifically identified above (hereinafter collectively "City stormwater requirements") in order to protect and safeguard the general health, safety, and welfare of the public within this jurisdiction. This chapter seeks to meet that purpose through the following objectives:

1. Minimize increases in stormwater runoff from development within the City limits and fringe area in order to reduce flooding, siltation, increases in stream temperature, and stream bank erosion and maintain the integrity of stream channels;
2. Minimize increases in non-point source pollution caused by stormwater runoff from development which would otherwise degrade local water quality;
3. Minimize the total annual volume of surface water runoff which flows from any specific development project site after completion to not exceed the pre-development hydrologic regime to the maximum extent practicable; and
4. Reduce stormwater runoff rates and volumes, soil erosion, and non-point source pollution, wherever possible, through establishment of appropriate minimum stormwater management standards and BMPs and to ensure that BMPs are properly maintained and pose no threat to public safety.

(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-3 Applicability

1. This chapter is applicable to all subdivision or site plan applications meeting the Minimum square foot applicability criteria of item 2 of this section, unless eligible for an exemption or granted a waiver by the City under Section 3-13-7 of this chapter. This chapter also applies to land disturbance activities that are smaller than the minimum square foot applicability criteria specified in subsection 2 if such activities are part of a larger common plan of development that meets the minimum square foot applicability criteria specified in subsection 2, even though multiple separate and distinct land development activities may take place at different times on different schedules. In addition, all plans must also be reviewed by

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City of Storm Lake officials to ensure that established water quality standards will be maintained during and after development of the site and that post-construction runoff levels are consistent with any local and regional watershed plans.

2. City stormwater requirements ~~must be met for development~~ **Insert “apply to Insert “any “Land disturbing activity” as defined in this Ordinance,”** ~~be approved. City stormwater requirements apply to any development~~ disturbing one acre (43,560 square feet) or more of land, and to any development disturbing less than one acre if the amount of impervious cover created exceeds 5,000 square feet. The following activities are exempt from this chapter:

A. Any logging and agricultural activity which is consistent with an approved soil conservation plan, or a timber management plan prepared or approved by the appropriate agency, as applicable.

B. Additions or modifications to existing single-family structures.

C. Developments that do not **Insert:”create a net increase of more than 5,000 square feet of new impervious surface, over the “pre-development condition” on previously developed sites as defined in this Ordinance”** ~~disturb more than one acre of land~~ **provided Insert “with the provision, that”** they are not part of a larger common development plan.

D. Repairs to any stormwater BMPs deemed necessary by the City.

3. When a site development plan is submitted that qualifies as a development, as defined in this chapter, decisions on permitting any appropriate on-site BMPs shall be guided by the Iowa Stormwater Management Manual. Issuance of a Construction Site Runoff Permit (CSR Permit) will be granted to development or redevelopment projects after review and approval of the site development plan by the City.

4. The site shall be designed using the Better Site Design process. Better Site Design involves techniques applied early in the design process to preserve natural areas, reduce impervious cover, distribute runoff and use pervious areas to more effectively treat stormwater runoff. Site design should address open space protection, impervious cover minimization, and runoff distribution and minimization, and runoff utilization through considerations such as:

A. Open space protection and restoration

- (1) Conservation of existing natural areas (upland and wetland)
- (2) Reforestation
- (3) Re-establishment of prairies
- (4) Restoration of wetlands
- (5) Establishment or protection of stream, shoreline and wetland buffers
- (6) Re-establishment of native vegetation into the landscape

B. Reduction of impervious cover

- (1) Reduce new impervious through redevelopment of existing sites and use of existing

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roadways, trails etc.

- (2) Minimize street width, parking space size, driveway length, sidewalk width
- (3) Reduce impervious surface footprint (e.g. two-story buildings, parking ramp)

C. Distribution and minimization of runoff

- (1) Utilize vegetated areas for stormwater treatment (e.g. parking lot islands, vegetated areas along property boundaries, front and rear yards, building landscaping)
- (2) Direct impervious surface runoff to vegetated areas or to designed treatment areas (roofs, parking, driveways drain to pervious areas, not directly to storm sewer or other conveyances)
- (3) Encourage infiltration and soil storage of runoff through grass channels, soil compost amendment, vegetated swales, raingardens, etc.
- (4) Plant vegetation that does not require irrigation beyond natural rainfall and runoff from the site

D. Runoff utilization

- (1) Capture and store runoff for use for irrigation in areas where irrigation is necessary

Information on the Better Site Design Process is available at www.cwp.org.

(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-4 Compatibility with Other Requirements

1. It is intended that this chapter be construed to be consistent with existing City Code.
2. The requirements of this chapter should be considered minimum requirements, and where any provision of this chapter imposes restrictions different from those imposed by any other chapter, rule or regulations, or other provision of law, whichever provisions are more restrictive or impose higher protective standards for human health or the environment shall be considered to take precedence.

(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-5 Permit Procedures and Requirements

1. Permit Required. No landowner or developer shall receive any of the building, grading, or other land development permits required for land disturbance activities without first meeting the requirements of this chapter prior to commencing the proposed activity.
2. Pre-application Meeting

A. Prior to the development of plans, the applicant ~~shall~~ **Insert: "may"** request a pre-application meeting which will be facilitated by the City between the applicant, City staff, and staff of partner agencies as applicable. The meeting shall be ~~mandatory~~ prior to submission of a permit application.

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The purposes of the meeting are to understand the general parameters of the proposed project; and to convey the requirement of meeting the provisions of this and other applicable ordinances.

3. Application Requirements.

A. Unless specifically exempted by this chapter, any landowner or developer desiring a permit for a land disturbance activity shall submit to the City a permit application on a form provided for that purpose.

B. Unless otherwise exempted by this chapter, a permit application must be accompanied by the following in order that the permit application be considered:

- (1) A copy of the stormwater management ~~concept~~ plan;
- (2) A copy of the maintenance agreement; and
- (3) A non-refundable permit review fee.

Materials shall be submitted in pdf ~~Insert: "and paper"~~ format for ease of distribution and review.

C. The stormwater management ~~concept~~ plan and maintenance agreement shall be prepared to meet the requirement ~~Add: "s"~~ of this chapter, and fees shall be those established by the City by separate resolution.

4. Application Procedure.

A. Applications for land disturbance activity permits must be filed for review with the office of the Building and Planning Department on any regular business day.

B. The City shall make a determination regarding the completeness of a permit application within ten (10) business days of the receipt of the application and notify the applicant in writing if the application is not complete, ~~include~~ ~~Insert "including"~~ the reasons the application was deemed incomplete.

C. Within fifteen (15) business days of the receipt of a complete permit application, including all documents as required by this chapter, the City shall inform the applicant whether the application, plan, and maintenance agreement are approved or disapproved by the enforcement officer.

D. If the permit application, stormwater management ~~concept~~ plan, or maintenance agreement are disapproved, the applicant may revise the stormwater management ~~concept~~ plan or agreement. If additional information is submitted, the City shall have ~~Insert "fifteen (15) business days from the date the additional information is received to inform the applicant that the stormwater management concept plan and maintenance agreement are either approved or disapproved."~~

E. If the permit application, stormwater management ~~final~~ plan, and maintenance agreement are approved by City, all appropriate land disturbance activity permits shall be issued.

5. Permit Duration. Permits issued under this section shall be valid from the date of issuance through the date City notifies the permit holder that all stormwater BMPs have passed the final inspection required under permit conditions.

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6. Application Review Fees. The fee for review of any land development application shall be based on the amount of land to be disturbed at the site; the fee structure shall be established by the City, and said fees shall be paid prior to the issuance of any applicable City permits. All such revenue shall be credited to a City budgetary category to support the administration of this chapter.
(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-6 Stormwater Standards

1. The following general criteria shall be incorporated into the site design for stormwater runoff to protect surface and ground water and other natural resources and other private and public property:

- A. Reduce impacts on water
- B. Decrease runoff volume
- C. Increase infiltration (groundwater recharge) add: "where possible"
- D. Decrease flow frequency, duration, and peak runoff rates
- E. Reduce time to peak flows by increasing the time of concentration to and through storm sewers.
- F. Store stormwater runoff on-site
- G. Maintain existing flow patterns
- H. Avoid natural channel and steep slope erosion as well as protect in stream habitats and channels
- I. Decrease erosion and sedimentation
- J. Preserve vegetation
- K. Preserve and replace existing topsoil in an uncompacted manner

2. ~~The site design shall provide on-site treatment during construction and post-construction to ensure no increase in offsite peak discharge for the 1-year, 24-hour storm event (2.61 inches), the 5-year, 24-hour storm event (7.81 inches).~~

3.(2) The site design shall provide on-site water quality treatment for the runoff resulting from a rainfall depth of 1.25 inches over the post-construction site area. ~~in order to reduce average annual post-development total suspended solids loadings by at least 80%.~~

4. ~~The site design shall retain on-site for recharge, a portion of the water quality treatment volume calculated as a soil specific recharge factor multiplied by the volumetric runoff coefficient multiplied by the area and all divided by 12. The soil specific recharge factor is given as 0.51 for Hydrologic Soil Group (HSG) A soils, 0.34 for HSG B soils, 0.17 for HSG C soils, and 0.08 for HSG D Soils. The volumetric runoff coefficient is calculated as $0.05 + 0.009$ multiplied by the site impervious percentage. See the Iowa Stormwater Management Manual for additional clarification on the calculation.~~

5. ~~Applicant shall fully attempt to comply with the standards in one through three above. For areas~~

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of the site where there is no feasible way to achieve the recharge requirement, other options may be considered by the City. Options considered and presented shall examine the merits of relocating project elements to address varying soil conditions and other constraints across the site. If full compliance is not possible, the following flexible treatment options shall be used:

A. Applicant shall document the flexible treatment options sequence starting with Alternative #1. If Alternative #1 cannot be met, then Alternative #2 shall be analyzed. If Alternative #2 cannot be met than Alternative #3 shall be met. When all of the conditions are fulfilled within an alternative, this sequence is completed.

B. Recharge techniques considered shall include infiltration, reuse & rainwater harvesting, and canopy interception & evapotranspiration and/or additional techniques included in the Iowa Stormwater Management Manual.

C. Higher priority shall be given to BMPs that include volume reduction. Secondary preference is to employ filtration techniques, followed by rate control BMPs.

D. Factors to be considered for each alternative will include:

- (1) Shallow bedrock
- (2) High groundwater
- (3) Hotspots or contaminated soils
- (4) Poor soils (infiltration rates that are too low or too high, problematic urban soils)
- (5) Excessive cost

E. Alternative #1: Applicant attempts to comply with the following conditions:

- (1) Achieve at least 0.625" volume reduction, and
- (2) Remove 75% of the annual TP (Total Phosphorous) load, and
- (3) Options considered and presented shall examine the merits of relocating project elements to address, varying soil conditions and other constraints across the site.

F. Alternative #2: Applicant attempts to comply with the following conditions:

- (1) Achieve volume reduction to the maximum extent practicable, and
- (2) Remove 60% of the annual TP load, and
- (3) Options considered and presented shall examine the merits of relocating project elements to address, varying soil conditions and other constraints across the site.

G. Alternative #3: Off-site Treatment. Off-site mitigation, as outlined in Section 3-13-7 Waivers, of the required treatment volume that cannot be provided onsite can be used to protect receiving waters.

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6(3). To protect channels, the site shall be designed to infiltrate or provide 24 hour extended detention of the channel protection volume, defined as the 1 year, 24-hour storm per NOAA Atlas 14 ~~Insert “the most recent version of the National Oceanic and Atmospheric Administration (NOAA) Precipitation-Frequency Atlas of the United States.~~

7(4). The site shall be designed to prevent the ~~Insert “100-year”~~ post-development rate of runoff from exceeding the ~~Insert “5-Year”~~ pre-development rate of runoff for a ~~five year to 100-year storm~~, 24-hour storm ~~to not exceed runoff rates equivalent to the five year predevelopment storm event per~~ ~~Insert “the most recent version of the National Oceanic and Atmospheric Administration (NOAA) Precipitation-Frequency Atlas of the United States”~~ ~~Atlas 14.~~ ~~Add: “The pre-development runoff rate shall be based on the “Pre-development condition” of the site at the time the construction commences, as defined in this Ordinance.”~~

8(5). The site shall be designed to provide an emergency spillway and designated overflow route for the 100-year, 24-hour storm as defined by the Iowa Stormwater Management Manual. The spillway and overflow route must be able to safely pass overflows through the structure without creating damaging conditions downstream of the facility.

9(6). Existing topsoil ~~must be preserved on site to be uniformly applied in an uncompacted manner to a minimum depth of four inches.~~ ~~Add: “from on-site must be preserved within areas that will remain pervious. The preserved topsoil shall be uniformly applied in an uncompacted manner. The City may require pre-construction borings to verify depths of topsoil prior to construction.”~~

10(7). The site shall be designed to provide vegetated buffers for water quality protection adjacent to receiving channels and waters. Buffers shall commence at the "ordinary high-water mark", or at the delineated boundary of the waterbody. ~~Buffer widths are based on a 0-10% slope* between the activity and the water body as determined by land use and are as follows;~~

Residential	35 Insert “30” feet
Industrial	50 feet
Mid/High Density Residential & Commercial	50 feet

~~*Buffer width shall increase 2 feet for each percent increase in slope above 10%.~~

- A. Access shall be provided on each side of the buffer for maintenance.
- B. The applicant shall maintain the buffer for the first year after completion of the project.
- C. Impervious surfaces shall not be allowed in the buffer area. ~~Add: “As an exception, stairs or sidewalks used to access the adjacent waterbody. Stairs and sidewalks shall be no more than 4 feet wide. Underground utilities, intakes, and manholes, and other similar items, may be permitted by the City if it is deemed to not interfere with the function of the buffer area after the completion of the installation.”~~
- D. Fences and structures shall not be allowed in the buffer area.
- E. Where land disturbing construction activity occurs within a buffer area, and where no impervious surface is present, adequate approved native vegetative cover of 70% shall be established and maintained. The native vegetative cover shall be sufficient to provide for bank stability from upslope overland flow areas under sheet flow conditions. Non-vegetative materials such as rock riprap, may be employed on the bank as necessary to prevent erosion. Such as on steep slopes of where high velocity flows occur.

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F. BMP's such as filter strips, swales, or wet detention basins may be located in the buffer area.

Add: "G. Redevelopment of infill parcels that are surrounded by existing development shall be considered on a case by case basis. The intent of this section is not to make existing lots undevelopable."

(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-7 Waivers

Every applicant shall provide for stormwater management as required by this chapter, unless a written request is filed to waive implementation of BMPs, in whole or in part, and such waiver is granted. Requests to waive implementation of BMPs in whole or in part shall be submitted to City for approval.

1. A waiver of BMPs required by this chapter may be granted provided that at least one of the following conditions is established by the applicant based on authoritative written evidence satisfactory to City:

A. The proposed development is not likely to impair attainment of the objectives of this chapter.

B. Alternative minimum requirements for on-site management of stormwater have been established in a stormwater management ~~final~~ plan that has been approved by City and fully implemented.

C. Provisions are made to manage stormwater by an off-site facility within the same watershed. The off-site facility is required to be in place, to be designed and adequately sized to provide a level of stormwater control that is equal to or greater than that which would be afforded by on-site practices, and there is, in the City's sole judgment, a responsible entity legally obligated to monitor the performance of and maintain the efficiency of stormwater BMPs in accordance with a written and recorded maintenance agreement.

D. In instances where one of the above conditions is established, the applicant must further establish by authoritative written evidence satisfactory to City that the partial waiver will not result in any of the following impacts to downstream waterways:

- (1) Deterioration of existing culverts, bridges, dams, and other structures; or
- (2) Degradation of biological functions or habitat; or
- (3) Accelerated stream bank or streambed erosion or siltation; or
- (4) Increased threat of flood damage to public health, life, property.

2. If the City finds that a waiver is appropriate because implementation of on-site stormwater BMPs is not feasible due to the natural or existing physical characteristics of a site, or that one of the conditions specified in subsection 1 above cannot be established to a certainty, or ~~that~~ Insert "or that" any Insert "one or more of the impacts to downstream waterways specified above cannot be entirely" averted, the applicant shall execute a binding written agreement to accomplish one or more of the following

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mitigation measures selected by City:

A. The purchase and donation of privately owned lands, or the grant of an easement to be dedicated for preservation and/or reconstruction of native ecosystems of lands strategically located in the watershed consistent with the purposes of this chapter, of a sufficient quantity to enable City or others to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver.

B. The creation of one or more stormwater BMPs on previously developed properties, public or private, that currently lack stormwater BMPs, having a capacity to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver.

C. Monetary contributions (fee in lieu) to fund stormwater management activities as identified in the City of Storm Lake's Comprehensive Stormwater Management Plan such as research and studies (e.g., regional wetland delineation studies, stream monitoring studies for water quality and macroinvertebrates, stream flow monitoring, threatened and endangered species studies, hydrologic studies, monitoring of stormwater BMPs, and stream corridor stabilization practices). The monetary contribution required shall be in accordance with a fee schedule (unless the developer and the City agree on a greater alternate contribution) established by City, based on the estimated cost savings to the developer resulting from the waiver and the estimated future costs to City to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver. All of the monetary contributions shall be credited to an appropriate capital improvements program project, and shall be made by the developer prior to the issuance of any building permit for the development.

D. Dedication of land or granting of an easement by the applicant of a value equivalent to the cost to City of the construction of an off-site stormwater management facility sufficient to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver. The agreement shall be entered into by the applicant and City prior to the recording of plats or, if no record plat is required, prior to the issuance of the building permit.

E. Factors that may generate waivers:

- (1) Shallow Bedrock
- (2) High Groundwater
- (3) Hotspots or contaminated soils
- (4) Excessive Cost

(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-8 Approval of Stormwater Management ~~Concept~~ Plan

~~No application for development will be accepted unless it includes a stormwater management concept plan detailing in concept how runoff and associated water quality impacts resulting from the development will be controlled or managed. The stormwater management concept plan shall:~~ **Insert:**

“No building, grading, or sediment control permit shall be issued until a satisfactory stormwater management plan detailing how runoff and associated water quality impacts resulting from the development will be controlled or managed (or a request for waiver thereof) shall have undergone a review and been approved by the City after determining that the plan or waiver is consistent with the requirements of this chapter.

After review of the stormwater management plan, and modifications to that plan as deemed necessary by City, an approved final stormwater management plan must be submitted to the City. The stormwater management plan shall:”

1. Be prepared by a licensed professional engineer or landscape architect or individual credentialed in a manner satisfactory to the City.
2. Indicate whether stormwater will be managed on site or off site and, if on site, the general location and type of practices, with clear citations to the Iowa Stormwater Management Manual.
3. Include a signed and dated certification ~~under penalty of perjury~~ by the preparer of the stormwater management ~~concept~~ plan that it complies with all requirements of this chapter, meets the design requirements outlined in the Iowa Stormwater Management Manual and is designed to achieve City stormwater requirements, and that the City is entitled to rely upon the certification as due diligence on the part of City.
4. Include sufficient information (e.g., maps, hydrologic calculations, etc.) to evaluate the environmental characteristics of the project site, the potential impacts of all proposed development of the site, ~~both present and future~~, on the water resources, and the effectiveness and acceptability of the stormwater BMPs proposed for managing stormwater generated at the project site. ~~The intent of this conceptual planning process is to determine the type of stormwater BMPs necessary for the proposed project, and ensure adequate planning for management of stormwater runoff from future development. To accomplish this goal, (T)~~ the following information shall also be included in the stormwater management ~~concept~~ plan.
 - A. A USDA soils map identifying soil types, hydrologic soil groups and hydric soils. Soil borings will be required where infiltration practices are proposed.
 - B. A map (or maps) indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural stormwater management and sediment and erosion BMPs. The map(s) will also clearly show proposed land use with tabulation of the percentage of surface area to be adapted to various uses; drainage patterns; locations of utilities, roads, and easements; and the limits of clearing and grading. A written description of the site plan and justification of proposed changes in natural conditions may also be required. A copy of the current SWPPP may satisfy this requirement.
 - C. Sufficient engineering analysis to show that the proposed BMPs are capable of achieving City stormwater requirements for the site in compliance with this chapter.

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D. A written or graphic inventory of the natural resources at the site and surrounding area as it exists prior to the commencement of the project and a description of the watershed and its relation to the project site. This description should include a discussion of forest cover, topography, wetlands, and other native vegetative areas on the site. Particular attention should be paid to environmentally sensitive areas that provide particular opportunities or constraints for development.

E. ~~_____ A written description of the required maintenance burden for any proposed BMPs.~~

F. ~~_____ The City may also require a concept plan to consider the maximum development potential of a site under existing zoning, regardless of whether the applicant presently intends to develop the site to its maximum potential.~~

G. ~~_____ For development occurring on a previously developed site, an applicant shall be required to include within the stormwater management concept plan BMPs for controlling existing stormwater runoff discharges from the site in accordance with this chapter.~~

5. ~~_____ The stormwater management concept plan shall be referred for comment to all other interested agencies, and any comments must be addressed in a stormwater management final plan.~~

(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-9 Approval of Stormwater Management Final Plan

~~No building, grading, or sediment control permit shall be issued until a satisfactory stormwater management final plan (or a waiver thereof) shall have undergone a review and been approved by the City after determining that the plan or waiver is consistent with the requirements of this chapter. After review of the stormwater management concept plan, and modifications to that plan as deemed necessary by City, a stormwater management final plan must be submitted to the City for approval. The stormwater management final plan, in addition to the information included in the stormwater management concept plan, shall:~~

1. ~~_____ Be prepared by a licensed professional engineer or landscape architect or individual credentialed in a manner satisfactory to the City.~~

~~_____ 2. _____ Indicate whether stormwater will be managed on site or off site and, if on site, the general location and type of practices, with clear citations to the Iowa Stormwater Management Manual.~~

3. ~~_____ Include a signed and dated certification under penalty of perjury by the preparer of the stormwater management final plan that it complies with all requirements of this chapter and the Iowa Stormwater Management Manual, meets the submittal requirements outlined in the Iowa Stormwater Management Manual designed to achieve City stormwater requirements, and that City is entitled to rely upon the certification as due diligence on the part of City.~~

4(5). **Insert: "Additionally,"** tThe stormwater management final plan shall also include:

A. A detailed summary of how and why the stormwater management final plan differs, if at all, from the stormwater management concept plan previously submitted.

B(A). Contact information, including but not limited to the name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel

number of the property or properties affected.

~~€(B).~~ Topographic base map, consisting of a 1"= 200' topographic base map the site which extends a minimum of ~~Insert:"100"~~ 300 feet beyond the limits of the proposed development and indicates existing surface water drainage including streams, ponds, culverts, ditches, and wetlands; current land use including all existing structures; locations of utilities, roads, and easements; and significant natural and manmade features not otherwise shown.

~~Đ(C).~~ Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in the Iowa Stormwater Management Manual. Such calculations shall include:

- (1) description of the design storm frequency, intensity and duration;
- (2) time of concentration;
- (3) soil curve numbers or runoff coefficients;
- (4) peak runoff rates and total runoff volumes for each watershed area;
- (5) infiltration rates, where applicable;
- (6) culvert capacities;
- (7) flow velocities;
- (8) ~~Add: "the most recent version of the National Oceanic and Atmospheric Administration (NOAA) Precipitation-Frequency Atlas of the United States."~~ ~~data on the increase in rate and volume of runoff for the design storms referenced as referenced in the NOAA Atlas 14, Volumes 8 and 9 (April 2013); and~~
- (9) documentation of sources for all computation methods and field test results.

~~E(D).~~ If a stormwater BMP depends on the hydrologic properties of soils (e.g., infiltration basins), then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles. The number and location of required soil borings or soil sites shall be determined based on what is needed to determine the suitability and distribution of soil types present at the location of the BMP. ~~Borings shall be a minimum of 5' below the subgrade of the practice for small practices and 20' below the subgrade of large infiltration basins.~~

~~F(E).~~ A maintenance and repair plan for all stormwater BMPs including detailed maintenance and repair procedures to ensure their continued efficient function. These plans will identify the parts or components of a stormwater BMP that need to be maintained and the equipment and skills or training necessary. Provisions for the periodic review and evaluation of the effectiveness of the maintenance program and the need for revisions or additional maintenance procedures shall be included in the plan.

~~G.~~ ~~A detailed landscaping plan for management of vegetation at the site after construction is finished, including who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetative cover is preserved. This plan must be prepared by a registered landscape architect, landscape designer, or by an individual credentialed in a manner satisfactory to the City.~~

~~H. — Proof of permanent recorded maintenance easements that will ensure access to all stormwater BMPs at the site for the purpose of inspection and repair. — These easements will be recorded with the stormwater management final plan and will remain in effect even with transfer of title to the property.~~

I(F). Add: "Provide" Proof of a recorded maintenance agreement binding on all subsequent owners of land served by stormwater BMPs to ensure maintenance and repair in accordance with the specifications of this chapter.

~~J. — Copies of all existing Stormwater Pollution Prevention Plans (SWPPP's) current as of the date of submission of the stormwater management final plan for all construction activities related to implementing any on-site stormwater BMPs.~~

~~K. — Proof that the applicant has acquired all other applicable environmental permits for the site, or that no other such permits are required, prior to submission of the stormwater management final plan to the City.~~

(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-10(9) Performance Security or Bond

1. The City shall require the submittal of an installation performance security or bond prior to issuance of a permit in order to ensure that the stormwater BMPs are installed by the permit holder as required by the approved stormwater management ~~final~~ plan.

2. The amount of the installation performance security or bond shall be the total estimated construction cost of the stormwater BMPs approved under the permit, plus 25%. The installation performance security or bond shall contain forfeiture provisions for failure to complete work specified in the stormwater management ~~final~~ plan.

3. The installation performance security or bond shall be released in full only upon submission of "as-built plans" of all stormwater BMPs specified in the stormwater management ~~final~~ plan and written certification by a professional engineer that the stormwater BMPs have been installed in accordance with the approved stormwater management ~~final~~ plan and other applicable provisions of this chapter. The City will make a final inspection of stormwater BMPs to ensure compliance with the approved stormwater management ~~final~~ plan and the provisions of this chapter. Provisions for a partial pro rata release of the installation performance security or bond based on the completion of various development stages can be made at the discretion of City.

4. The installation performance security or bond shall inure only to the benefit of the City for purposes of completing, modifying, or correcting the stormwater BMPs to comply with this chapter.

(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-11(10) Construction Inspection

1. The applicant must notify the City in advance before the commencement of construction. Regular inspections of construction of the stormwater BMPs shall be conducted by ~~Insert: "the"~~ City of ~~Insert: "or the"~~ City's designated representative. Inspections will be conducted before any land disturbing activity begins ~~Insert: "and "~~, at the time of footing inspections, at the completion of the project, and prior to the release of financial securities. ~~All inspections shall be documented and written reports prepared that contain the following information:~~

~~_____ A. _____ The date and location of the inspection; and~~

~~_____ B. _____ Whether construction is in compliance with the approved stormwater management concept plan; and~~

~~_____ C. _____ Variations, if any, from the approved stormwater management concept plan.~~

~~2. _____ If any violations are found, the applicant shall be notified in writing of the nature of the violation and the required corrective actions. No additional work shall proceed until any violations are corrected and all work previously completed has received approval by City.~~

~~3-(2). After construction is completed, applicants are required to submit actual "as-built" drawings satisfactory to City for any stormwater BMPs located on site. The drawings must show the final design specifications for all stormwater BMPs and must be certified by a professional engineer. A final inspection by the City is required before the release of the installation performance security or bond can occur.~~

~~4-(3). Landscaping and stabilization shall be accomplished to prevent violation of City stormwater requirements or impairment of BMPs. In addition, a landscaping plan must be submitted with the final as-built drawings describing the vegetative stabilization and management techniques to be used at a site after construction is completed. This plan will explain not only how the site will be stabilized after construction, but who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetative cover is preserved. This plan must be prepared by a registered landscape architect, landscape designer, or by an individual credentialed in a manner acceptable to the City.~~

~~(Ord. 13-O-2013-2014, Add, 07/21/2014)~~

Section 3-13-12(11) Maintenance and Repair of Stormwater BMPS

The applicant or owner of every site or an assignee qualified pursuant to Section 3-13-11(10) shall be responsible for providing as built drawings at the completion of the project and maintaining as-built stormwater BMPs in an effective state as determined in the sole judgment of City for 10 years from and after completion of construction.

1. Maintenance and Repair ~~Insert "Agreement"~~ Easement. Prior to the issuance of any permit for development involving any stormwater BMP, the applicant or owner of the site must execute a maintenance and repair ~~easement~~ agreement that shall be binding on all subsequent owners of land served by the stormwater BMP. The agreement shall provide for access to the BMP and the land it served at reasonable times for periodic inspection by City or City's designee and for regular or special assessments of property owners to ensure that the BMP is maintained in proper working condition to meet City stormwater requirements. The easement ~~Insert "maintenance and repair"~~ agreement shall be recorded by ~~Insert: "the"~~ City at the expense of the permit holder or property owners.

2. ~~—— Maintenance Covenants.~~

~~—— A. —— Maintenance of all stormwater BMPs shall be ensured through the creation of a formal maintenance covenant that must be approved by the City and recorded prior to the stormwater management final plan approval. —— As part of the covenant, a schedule shall be developed for when and how often maintenance will occur to ensure proper function of the stormwater BMPs. —— The covenant shall also include plans for periodic inspections to ensure proper performance of the BMPs between scheduled cleanouts.~~

~~—— B. —— The City, in lieu of a maintenance covenant, may at its discretion, accept dedication of any existing or future stormwater BMP to include City responsibility for maintenance and repair, provided that: —— the maintenance and repair of such element will not impose an undue burden on other City taxpayers who enjoy little if any benefit from the BMP; the BMP meets all the requirements of this chapter; and the dedication includes adequate and perpetual access and sufficient area, by easement or otherwise, of inspection and regular maintenance.~~

3. ~~Requirements for Maintenance Covenants. —— All stormwater BMPs must undergo, at the minimum, an annual inspection to document maintenance and repair needs and ensure compliance with the requirements of this chapter and accomplishment of its purposes. —— These needs may include (but are not limited to) removal of sediment build up, litter, and other debris from all stormwater treatment and conveyance facilities including ponds, infiltration basins, raingardens, catch basins, inlets, and drainage pipes, grass cutting and vegetation removal, and necessary replacement of landscape vegetation. —— Any maintenance or repair needs detected must be corrected by the developer or entity responsible under a written maintenance agreement in a timely manner, as determined by the City, and the inspection and maintenance requirements may be increased as deemed necessary to ensure proper functioning of the stormwater BMPs.~~

4(2). Inspection of Stormwater BMPs. Inspection programs may be established on any reasonable basis, including but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher than typical sources of sediment or other contaminants or pollutants, inspections of businesses or industries of a type associated with higher than usual discharges of contaminants or pollutants or with discharges of a type which are more likely than the typical discharge to cause violations of State or Federal water or sediment quality standards or the NPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include but are not limited to reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in stormwater BMPs, and evaluating the condition of stormwater BMPs.

5. ~~Right of Entry for Inspection. —— When any new stormwater BMP is installed on private property, or when any new connection is made between private property and a public stormwater management facility, sanitary sewer or combined sewer, the property owner shall grant to City the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. —— This includes the right to enter a property when City has a reasonable basis to believe that a violation of this chapter is occurring or has occurred, and to enter when necessary for abatement of a public nuisance or correction of a violation of this chapter.~~

6. ~~Records of Installation and Maintenance and Repair Activities. —— Parties responsible for the operation and maintenance of stormwater BMPs shall submit to the City Engineer an annual maintenance and inspection report including all records of the installation and of all maintenance and repairs conducted. —— At the completion of the 5th year, an updated as built drawing will be required. —— The~~

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~~responsible parties shall retain the records for at least five (5) years or longer if the City Inspector deems it necessary. These records shall be made available to City during inspection of the facility and at other reasonable times upon request.~~

7 (3). Failure to Maintain Stormwater BMPs. If a responsible party fails or refuses to meet the requirements of the maintenance ~~covenant~~ **Insert “and repair agreement”** or any provision of this chapter, the City, after reasonable notice, may correct a violation by performing all necessary work to place the BMP in proper working condition. In the event that the stormwater BMP becomes a danger to public safety or public health, the City shall notify the party responsible for maintenance of the stormwater BMP in writing. Upon receipt of that notice, the responsible person shall have thirty (30) days to effect maintenance and repair of the stormwater BMP in an approved manner. After proper notice, the City may assess, jointly and severally, the owners of the stormwater BMP or the property owners or the parties responsible for maintenance under any applicable written agreement for the cost of repair work and any penalties; and the cost of the work shall be a lien on the property, or prorated against the beneficial users of the property, and may be placed on the tax bill and collected as ordinary taxes.

~~The applicant or owner of every site or an assignee qualified pursuant to Section 3-13-12 shall be responsible for providing as-built drawings at the completion of the project and maintaining as-built stormwater BMPs in an effective state as determined in the sole judgment of City for 10 years from and after completion of construction.~~

1. ~~—— Maintenance and Repair Easement. Prior to the issuance of any permit for development involving any stormwater BMP, the applicant or owner of the site must execute a maintenance and repair easement agreement that shall be binding on all subsequent owners of land served by the stormwater BMP. The agreement shall provide for access to the BMP and the land it served at reasonable times for periodic inspection by City or City's designee and for regular or special assessments of property owners to ensure that the BMP is maintained in proper working condition to meet City stormwater requirements. The easement agreement shall be recorded by City at the expense of the permit holder or property owners.~~

2. ~~—— Maintenance Covenants.~~

~~—— A. Maintenance of all stormwater BMPs shall be ensured through the creation of a formal maintenance covenant that must be approved by the City and recorded prior to the stormwater management final plan approval. As part of the covenant, a schedule shall be developed for when and how often maintenance will occur to ensure proper function of the stormwater BMPs. The covenant shall also include plans for periodic inspections to ensure proper performance of the BMPs between scheduled cleanouts.~~

~~—— B. The City, in lieu of a maintenance covenant, may at its discretion, accept dedication of any existing or future stormwater BMP to include City responsibility for maintenance and repair, provided that: the maintenance and repair of such element will not impose an undue burden on other City taxpayers who enjoy little if any benefit from the BMP; the BMP meets all the requirements of this chapter; and the dedication includes adequate and perpetual access and sufficient area, by easement or otherwise, of inspection and regular maintenance.~~

3. ~~—— Requirements for Maintenance Covenants. All stormwater BMPs must undergo, at the minimum, an annual inspection to document maintenance and repair needs and ensure compliance with the requirements of this chapter and accomplishment of its purposes. These needs may include (but are not limited to) removal of sediment build up, litter, and other debris from all stormwater treatment and conveyance facilities including ponds, infiltration basins, raingardens, catch basins, inlets, and drainage pipes, grass cutting and vegetation removal, and necessary replacement of landscape vegetation. Any~~

~~maintenance or repair needs detected must be corrected by the developer or entity responsible under a written maintenance agreement in a timely manner, as determined by City, and the inspection and maintenance requirement may be increased as deemed necessary to ensure proper functioning of the stormwater BMPs.~~

~~4. — Inspection of Stormwater BMPs. — Inspection programs may be established on any reasonable basis, including but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher than typical sources of sediment or other contaminants or pollutants, inspections of businesses or industries of a type associated with higher than usual discharges of contaminants or pollutants or with discharges of a type which are more likely than the typical discharge to cause violations of State or Federal water or sediment quality standards or the NPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. — Inspections may include but are not limited to: — reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in stormwater BMPs, and evaluating the condition of stormwater BMPs.~~

~~5. — Right of Entry for Inspection. — When any new stormwater BMP is installed on private property, or when any new connection is made between private property and a public stormwater management facility, sanitary sewer or combined sewer, the property owner shall grant to City the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. — This includes the right to enter a property when City has a reasonable basis to believe that a violation of this chapter is occurring or has occurred, and to enter when necessary for abatement of a public nuisance or correction of a violation of this chapter.~~

~~6. — Records of Installation and Maintenance and Repair Activities. — Parties responsible for the operation and maintenance of stormwater BMPs shall submit to the City Engineer an annual maintenance and inspection report including all records of the installation and of all maintenance and repairs conducted. — At the completion of the 5th year, an updated as built drawing will be required. — The responsible parties shall retain the records for at least five (5) years or longer if the City Inspector deems it necessary. — These records shall be made available to City during inspection of the facility and at other reasonable times upon request.~~

~~7. — Failure to Maintain Stormwater BMPs. — If a responsible party fails or refuses to meet the requirements of the maintenance covenant or any provision of this chapter, the City, after reasonable notice, may correct a violation by performing all necessary work to place the BMP in proper working condition. — In the event that the stormwater BMP becomes a danger to public safety or public health, the City shall notify the party responsible for maintenance of the stormwater BMP in writing. — Upon receipt of that notice, the responsible person shall have thirty (30) days to effect maintenance and repair of the stormwater BMP in an approved manner. — After proper notice, the City may assess, jointly and severally, the owners of the stormwater BMP or the property owners or the parties responsible for maintenance under any applicable written agreement for the cost of repair work and any penalties; and the cost of the work shall be a lien on the property, or prorated against the beneficial users of the property, and may be placed on the tax bill and collected as ordinary taxes.~~

~~(Ord. 13-O-2013-2014, Add, 07/21/2014)~~

Section 3-13-13(12) Enforcement and Penalties

1. Violation of any provision of this chapter may be enforced by civil action including an action for injunctive relief. In any civil enforcement action, administrative or judicial, the City shall be entitled to recover its attorneys' fees and costs from a person who is determined by a court of competent jurisdiction to have violated this chapter.

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2. The City may issue a stop work order for violation of any provision of this chapter. The stop work order shall remain in effect until the violation is corrected and a subsequent inspection completed.
3. Violation of any provision of this chapter may also be enforced as a municipal infraction within the meaning of Section 364.22 of the Code of Iowa, pursuant to Chapter 4 of this Code of Ordinances.
4. Enforcement pursuant to this section shall be undertaken by the City upon the advice and consent of the City Attorney or other counsel employed by the City.
5. Any violator may be required to restore land to its undisturbed condition. In the event that restoration is not undertaken within a reasonable time after notice, the City may take necessary corrective action, the cost of which shall become a lien upon the property until paid.
6. Occupancy permits shall not be granted until all stormwater BMPs have been inspected and approved by the City.
(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-14(13) Appeal

Administrative decisions by City staff and enforcement actions may be appealed by the developer or property owner to the City Council pursuant to the following rules:

1. The appeal must be filed in writing with the City Clerk within five (5) business days of the decision or enforcement action.
2. The written appeal shall specify in detail the action appealed from, the errors allegedly made by the enforcement officer giving rise to the appeal, a written summary of all oral and written testimony the applicant intends to introduce at the hearing, including the names and addresses of all witnesses the applicant intends to call, copies of all documents the applicant intends to introduce at the hearing, and the relief requested.
3. The enforcement officer shall specify in writing the reasons for the enforcement action, a written summary of all oral and written testimony the enforcement officer intends to introduce at the hearing, including the names and addresses of all witnesses the enforcement officer intends to call, and copies of all documents the enforcement officer intends to introduce at the hearing.
4. The City Clerk shall notify the applicant and the enforcement officer by ordinary mail and shall give public notice, in accordance with Chapter 21 of the Code of Iowa, of the date, time, and place for the regular or special meeting of the City Council at which the hearing on the appeal shall occur. The hearing shall be scheduled for a date not less than four (4) or more than twenty (20) days after the filing of the appeal. The rules of evidence and procedure and the standard of proof to be applied shall be the same as provided by Chapter 17A, Code of Iowa. The applicant may be represented by counsel at the applicant's expense. The enforcement officer may be represented by the City Attorney or by an attorney designated by the City Council at City expense.
5. The decision of the City Council shall be rendered in writing and may be appealed to the Iowa District Court.
(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-15(14) Definitions

Terms in this chapter, other than those defined below, shall have the meanings set out in the Iowa Stormwater Management manual.

1. "Applicant" means a property owner or agent of a property owner who has filed an application for a stormwater management permit.
2. "Best Management Practice (BMP)" is a technique, measure, or structural control that is used for a given set of conditions to manage the quantity and improve the quality of stormwater runoff in the most cost-effective manner. BMPs can be either Non Structural (planning, watershed management, practice design, etc.) or Structural (Engineered and constructed) systems that are used to treat the stormwater.
3. "Buffer" is a vegetative area, including trees, shrubs, and herbaceous vegetation, which exists or is established to protect a stream system, lake, or reservoir area. Alteration of the natural area is strictly limited.
4. "Building" means any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal, or property, and occupying more than 100 square feet of area.
5. "City stormwater requirements" means the standards, sizing criteria, BMPs and other requirements established in this chapter.
6. "Dedication" means the deliberate appropriation of property by its owner for general public use.
7. "Developer" means a person, persons, or entity who undertakes land disturbance activities.
8. "Development" or "Redevelopment" means either:
 - A. Land disturbance activity exceeding one acre (43,560 square feet) on land previously vacant of buildings or largely free of previous land disturbance activity other than traditional agricultural activities; or
 - B. Land disturbance activity exceeding one acre (43,560 square feet) in areas where existing land use is high density commercial, industrial, institutional or multi-family residential (a.k.a. "redevelopment").
9. "Drainage easement" means a legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes. Public easements shall be maintained by the City of Storm Lake. Private easements shall be maintained by the private owners of the project.
10. "Enforcement officer" means that person designated by the City having responsibility for administration and enforcement of this chapter.
11. "Excessive Cost" means Practice cost greater than an amount as set by resolution of the City Council per impervious acre.
12. "Fee in lieu" means a payment of money in place of achieving or exceeding all or part of City stormwater requirements.
13. Infiltration Based Practices means that at a minimum the water quality volume moves through the soil media to provide filtration.

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14. "Iowa Stormwater Management manual" means the current Iowa Stormwater Management Manual publication, by whatever name, as amended from time to time by Iowa Department of Natural Resources in collaboration with Iowa Stormwater Education Program and other partners that recommends Stormwater Management Guidelines and Uniform Sizing Criteria and BMPs designed to address said Guidelines.
15. "Land disturbance activity" means any activity which changes the volume or peak flow discharge rate of rainfall runoff from the land surface. This may include the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, or any activity which bares soil or rock or involves the diversion or piping of any natural or man-made watercourse.
16. "Landowner" means the legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.
17. "Maintenance agreement" means a legally recorded document that acts as a property deed restriction, and which provides for long-term maintenance of stormwater BMPs.
18. "Native Vegetation" refers to vegetation originating naturally in this region of the state. Native vegetation is not to be confused with all existing vegetation.
19. "Predevelopment Condition" shall be considered the ~~Insert:" actual existing condition of the site prior to any construction, demolition, or earthwork commencing. Removal of any structures or impervious surfaces prior to construction will not affect the "predevelopment" status if construction is undertaken within 12 months of the removal of structures or impervious surfaces. If construction is not undertaken within 12 months, then the "predevelopment" condition of the site shall be as it exists at that time."~~ greater of the rainfall at which direct runoff begins using the curve number for a meadow in good condition, or the 1-year, 24-hour storm event per the Iowa Stormwater Management Manual.
20. "Stormwater management" means the use of BMPs that are designed in accordance with City stormwater requirements to reduce stormwater runoff pollutant loads, discharge volumes, peak flow discharge rates, and detrimental changes in stream temperature that affect water quality and habitat.
21. "Stormwater Pollution Prevention Plan" (SWPPP) means a plan that is designed to minimize the accelerated erosion, sediment, and other pollutant runoff at a site during construction activities.
22. "TP (Total Phosphorous) means the total concentration of all forms of phosphorus found in a water sample.
- (Ord. 13-O-2013-2014, Add, 07/21/2014)

ORDINANCE NO. 05-O-2024-2025

**AN ORDINANCE AMENDING TITLE III, CHAPTER 3, OF THE
1994 RECODIFICATION OF THE MUNICIPAL CODE OF THE
CITY OF STORM LAKE, IOWA, REGARDING POST-
CONSTRUCTION STORMWATER MANAGEMENT WITHIN THE
CORPORATE LIMITS OF STORM LAKE, IOWA**

WHEREAS, Title III, Chapter 3-13, Post-Construction Stormwater Control, of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa ("City Code") regulates the management of stormwater within the City of Storm Lake, Iowa, including stormwater runoff standards applicable to proposed land use and construction activities; and

WHEREAS, the Council hereby determines the provisions set out herein are in the public's best interests to adopt and enforce updated standards to comply with the City's state and federal environmental obligations and applicable permits.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, IOWA, THAT:

SECTION ONE. Title III of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa, is hereby amended by repealing and replacing Chapter 3-13, Post-Construction Stormwater Control, as follows:

Chapter 3-13

POST-CONSTRUCTION STORMWATER CONTROL

Sections:

3-13-1	Findings of Fact
3-13-2	Purpose
3-13-3	Applicability
3-13-4	Compatibility with Other Requirements
3-13-5	Permit Procedures and Requirements
3-13-6	Stormwater Standards
3-13-7	Waivers
3-13-8	Approval of Stormwater Management Plan
3-13-9	Performance Security or Bond
3-13-10	Construction Inspection
3-13-11	Maintenance and Repair of Stormwater BMPS
3-13-12	Enforcement and Penalties
3-13-13	Appeal
3-13-14	Definitions

Section 3-13-1 Findings of Fact

1. The U.S. EPA's National Pollutant Discharge Eliminations System ("NPDES") permit program ("Program") administered by the Iowa Department of Natural Resources ("IDNR") requires that cities

meeting certain demographic and environmental impact criteria obtain from the IDNR an NPDES permit for the discharge of stormwater from a Municipal Separate Storm Sewer System ("MS4") ("MS4 Permit"). The City of Storm Lake is subject to the Program and is required to obtain, and has obtained, an MS4 Permit; the City's MS4 permit is on file at the office of the City Clerk and is available for public inspection during regular office hours.

2. As a condition of the City's MS4 Permit, the City is obliged to adopt and enforce a POST-CONSTRUCTION STORMWATER CONTROL ordinance.

3. No state or Federal funds have been made available to assist the City in administering and enforcing the Program. Accordingly, the City shall fund its operations under this chapter entirely by charges imposed on the owners or developers of properties which are made subject to the Program by virtue of State and Federal law, and/or other sources of funding established by a separate ordinance.

4. Land development and associated increases in impervious cover alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition; this stormwater runoff contributes to increased quantities of water-borne pollutants; and stormwater runoff, soil erosion, and non-point source pollution can be controlled and minimized through the regulation of stormwater runoff from development sites.

5. Therefore, the City of Storm Lake establishes this set of City stormwater requirements to provide reasonable guidance for the regulation of stormwater runoff for the purpose of protecting local water resources from degradation. It is determined that the regulation of stormwater runoff discharges from land development and other construction activities in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and non-point source pollution associated with stormwater runoff is in the public interest and will prevent threats to public health, safety, and property damage.

6. The "Iowa Stormwater Management Manual" published collaboratively by the Iowa Department of Natural Resources and The Center for Transportation Research and Education at Iowa State University establishes guidelines consisting of unified sizing criteria, stormwater management designs and specifications and Best Management Practices (BMP). City hereby finds and declares that the guidelines provided for in the Iowa Stormwater Management Manual, and in future editions thereof, should be and are hereby adopted as the stormwater management standards of the City. Any BMP installation that complies with the provisions of the Iowa Stormwater Management Manual, or future editions thereof, at the time of installation shall be deemed to have been installed in accordance with this ordinance.

Section 3-13-2 Purpose

The purpose of this chapter is to adopt as the City's standards and sizing criteria and BMPs to address said standards the Guidelines, Sizing Criteria, and BMPs proposed by the Iowa Stormwater Management Manual and as specifically identified above (hereinafter collectively "City stormwater requirements") in order to protect and safeguard the general health, safety, and welfare of the public within this jurisdiction. This chapter seeks to meet that purpose through the following objectives:

1. Minimize increases in stormwater runoff from development within the City limits and fringe area in order to reduce flooding, siltation, increases in stream temperature, and stream bank erosion and maintain the integrity of stream channels;
2. Minimize increases in non-point source pollution caused by stormwater runoff from development which would otherwise degrade local water quality;
3. Minimize the total annual volume of surface water runoff which flows from any specific development project site after completion to not exceed the pre-development hydrologic regime to the maximum extent practicable; and
4. Reduce stormwater runoff rates and volumes, soil erosion, and non-point source pollution, wherever possible, through establishment of appropriate minimum stormwater management standards and BMPs and to ensure that BMPs are properly maintained and pose no threat to public safety.

Section 3-13-3 Applicability

1. This chapter is applicable to all subdivision or site plan applications meeting the Minimum square foot applicability criteria of item 2 of this section, unless eligible for an exemption or granted a waiver by the City under Section 3-13-7 of this chapter. This chapter also applies to land disturbance activities that are smaller than the minimum square foot applicability criteria specified in subsection 2 if such activities are part of a larger common plan of development that meets the minimum square foot applicability criteria specified in subsection 2, even though multiple separate and distinct land development activities may take place at different times on different schedules. In addition, all plans must also be reviewed by City of Storm Lake officials to ensure that established water quality standards will be maintained during and after development of the site and that post-construction runoff levels are consistent with any local and regional watershed plans.
2. City stormwater requirements apply to any "Land disturbing activity" as defined in this Ordinance, disturbing one acre (43,560 square feet) or more of land, and to any development disturbing less than one acre if the amount of impervious cover created exceeds 5,000 square feet. The following activities are exempt from this chapter:

- A. Any logging and agricultural activity which is consistent with an approved soil conservation plan, or a timber management plan prepared or approved by the appropriate agency, as applicable.
- B. Additions or modifications to existing single-family structures.
- C. Developments that do not create a net increase of more than 5,000 square feet of new impervious surface, over the “pre-development condition” on previously developed sites as defined in this Ordinance with the provision, that they are not part of a larger common development plan.
- D. Repairs to any stormwater BMPs deemed necessary by the City.

3. When a site development plan is submitted that qualifies as a development, as defined in this chapter, decisions on permitting any appropriate on-site BMPs shall be guided by the Iowa Stormwater Management Manual. Issuance of a Construction Site Runoff Permit (CSR Permit) will be granted to development or redevelopment projects after review and approval of the site development plan by the City.

4. The site shall be designed using the Better Site Design process. Better Site Design involves techniques applied early in the design process to preserve natural areas, reduce impervious cover, distribute runoff and use pervious areas to more effectively treat stormwater runoff. Site design should address open space protection, impervious cover minimization, and runoff distribution and minimization, and runoff utilization through considerations such as:

A. Open space protection and restoration

(1) Conservation of existing natural areas (upland and wetland)

(2) Reforestation

(3) Re-establishment of prairies

(4) Restoration of wetlands

(5) Establishment or protection of stream, shoreline and wetland buffers

(6) Re-establishment of native vegetation into the landscape

B. Reduction of impervious cover

(1) Reduce new impervious through redevelopment of existing sites and use of existing roadways, trails etc.

(2) Minimize street width, parking space size, driveway length, sidewalk width

(3) Reduce impervious surface footprint (e.g. two-story buildings, parking ramp)

C. Distribution and minimization of runoff

(1) Utilize vegetated areas for stormwater treatment (e.g. parking lot islands, vegetated areas along property boundaries, front and rear yards, building landscaping)

(2) Direct impervious surface runoff to vegetated areas or to designed treatment areas (roofs, parking, driveways drain to pervious areas, not directly to storm sewer or other conveyances)

(3) Encourage infiltration and soil storage of runoff through grass channels, soil compost amendment, vegetated swales, raingardens, etc.

(4) Plant vegetation that does not require irrigation beyond natural rainfall and runoff from the site

D. Runoff utilization

(1) Capture and store runoff for use for irrigation in areas where irrigation is necessary

Information on the Better Site Design Process is available at www.cwp.org.

Section 3-13-4 Compatibility with Other Requirements

1. It is intended that this chapter be construed to be consistent with existing City Code.

2. The requirements of this chapter should be considered minimum requirements, and where any provision of this chapter imposes restrictions different from those imposed by any other chapter, rule or regulations, or other provision of law, whichever provisions are more restrictive or impose higher protective standards for human health or the environment shall be considered to take precedence.

(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-5 Permit Procedures and Requirements

1. Permit Required. No landowner or developer shall receive any of the building, grading, or other land development permits required for land disturbance activities without first meeting the requirements of this chapter prior to commencing the proposed activity.
2. Pre-application Meeting
 - A. Prior to the development of plans, the applicant may request a pre-application meeting which will be facilitated by the City between the applicant, City staff, and staff of partner agencies as applicable. The meeting shall be prior to submission of a permit application. The purposes of the meeting are to understand the general parameters of the proposed project; and to convey the requirement of meeting the provisions of this and other applicable ordinances.
3. Application Requirements.
 - A. Unless specifically exempted by this chapter, any landowner or developer desiring a permit for a land disturbance activity shall submit to the City a permit application on a form provided for that purpose.
 - B. Unless otherwise exempted by this chapter, a permit application must be accompanied by the following in order that the permit application be considered:
 - (1) A copy of the stormwater management plan;
 - (2) A copy of the maintenance agreement; and
 - (3) A non-refundable permit review fee.

Materials shall be submitted in pdf and paper format for ease of distribution and review.

C. The stormwater management plan and maintenance agreement shall be prepared to meet the requirements of this chapter, and fees shall be those established by the City by separate resolution.

4. Application Procedure.

A. Applications for land disturbance activity permits must be filed for review with the office of the Building and Planning Department on any regular business day.

B. The City shall make a determination regarding the completeness of a permit application within ten (10) business days of the receipt of the application and notify the applicant in writing if the application is not complete, including the reasons the application was deemed incomplete.

C. Within fifteen (15) business days of the receipt of a complete permit application, including all documents as required by this chapter, the City shall inform the applicant whether the application, plan, and maintenance agreement are approved or disapproved by the enforcement officer.

D. If the permit application, stormwater management plan, or maintenance agreement are disapproved, the applicant may revise the stormwater management plan or agreement. If additional information is submitted, the City shall have fifteen (15) business days from the date the additional information is received to inform the applicant that the stormwater management plan and maintenance agreement are either approved or disapproved.

E. If the permit application, stormwater management plan, and maintenance agreement are approved by City, all appropriate land disturbance activity permits shall be issued.

5. Permit Duration. Permits issued under this section shall be valid from the date of issuance through the date City notifies the permit holder that all stormwater BMPs have passed the final inspection required under permit conditions.

6. Application Review Fees. The fee for review of any land development application shall be based on the amount of land to be disturbed at the site; the fee structure shall be established by the City, and said fees shall be paid prior to the issuance of any applicable City permits. All such revenue shall be credited to a City budgetary category to support the administration of this chapter.

Section 3-13-6 Stormwater Standards

1. The following general criteria shall be incorporated into the site design for stormwater runoff to protect surface and ground water and other natural resources and other private and public property:

- A. Reduce impacts on water
 - B. Decrease runoff volume
 - C. Increase infiltration (groundwater recharge) where possible
 - D. Decrease flow frequency, duration, and peak runoff rates
 - E. Reduce time to peak flows by increasing the time of concentration to and through storm sewers.
 - E. Store stormwater runoff on-site
 - F. Maintain existing flow patterns
 - G. Avoid natural channel and steep slope erosion as well as protect in stream habitats and channels
 - H. Decrease erosion and sedimentation
 - I. Preserve vegetation
 - J. Preserve and replace existing topsoil in an uncompacted manner
2. The site design shall provide on-site water quality treatment for the runoff resulting from a rainfall depth of 1.25 inches over the post-construction site area.
 3. To protect channels, the site shall be designed to infiltrate or provide 24 hour extended detention of the channel protection volume, defined as the 1 year, 24-hour storm per the most recent version of the National Oceanic and Atmospheric Administration (NOAA) Precipitation-Frequency Atlas of the United States.
 4. The site shall be designed to prevent the 100-year post-development rate of runoff from exceeding the 5-Year pre-development rate of runoff for a 24-hour storm per the most recent version of the National Oceanic and Atmospheric Administration (NOAA) Precipitation-Frequency Atlas of the United States. The pre-development runoff rate shall be based on the “Pre-development condition” of the site at the time the construction commences, as defined in this Ordinance.
 5. The site shall be designed to provide an emergency spillway and designated overflow route for

the 100-year, 24-hour storm as defined by the Iowa Stormwater Management Manual. The spillway and overflow route must be able to safely pass overflows through the structure without creating damaging conditions downstream of the facility.

6. Existing topsoil from on-site must be preserved within areas that will remain pervious. The preserved topsoil shall be uniformly applied in an uncompacted manner. The City may require pre-construction borings to verify depths of topsoil prior to construction.
7. The site shall be designed to provide vegetated buffers for water quality protection adjacent to receiving channels and waters. Buffers shall commence at the "ordinary high-water mark", or at the delineated boundary of the waterbody and are as follows;

Residential	30 feet
Industrial	50 feet
Mid/High Density Residential & Commercial	50 feet

- A. Access shall be provided on each side of the buffer for maintenance.
- B. The applicant shall maintain the buffer for the first year after completion of the project.
- C. Impervious surfaces shall not be allowed in the buffer area. As an exception, stairs or sidewalks used to access the adjacent waterbody. Stairs and sidewalks shall be no more than 4 feet wide. Underground utilities, intakes, and manholes, or other similar items may be permitted by the City if it is deemed to not interfere with the function of the buffer area after the completion of the installation.
- D. Fences and structures shall not be allowed in the buffer area.
- E. Where land disturbing construction activity occurs within a buffer area, and where no impervious surface is present, adequate approved native vegetative cover of 70% shall be established and maintained. The native vegetative cover shall be sufficient to provide for bank stability from upslope overland flow areas under sheet flow conditions. Non-vegetative materials such as rock riprap, may be employed on the bank as necessary to prevent erosion. Such as on steep slopes of where high velocity flows occur.
- F. BMP's such as filter strips, swales, or wet detention basins may be located in the buffer area.
- G. Redevelopment of infill parcels that are surrounded by existing development shall be considered on a case-by-case basis. The intent of this section is not to make existing lots undevelopable.

Section 3-13-7 Waivers

Every applicant shall provide for stormwater management as required by this chapter, unless a written request is filed to waive implementation of BMPs, in whole or in part, and such waiver is granted. Requests to waive implementation of BMPs in whole or in part shall be submitted to City for approval.

1. A waiver of BMPs required by this chapter may be granted provided that at least one of the following conditions is established by the applicant based on authoritative written evidence satisfactory to City:
 - A. The proposed development is not likely to impair attainment of the objectives of this chapter.
 - B. Alternative minimum requirements for on-site management of stormwater have been established in a stormwater management plan that has been approved by City and fully implemented.
 - C. Provisions are made to manage stormwater by an off-site facility within the same watershed. The off-site facility is required to be in place, to be designed and adequately sized to provide a level of stormwater control that is equal to or greater than that which would be afforded by on-site practices, and there is, in the City's sole judgment, a responsible entity legally obligated to monitor the performance of and maintain the efficiency of stormwater BMPs in accordance with a written and recorded maintenance agreement.
 - D. In instances where one of the above conditions is established, the applicant must further establish by authoritative written evidence satisfactory to City that the partial waiver will not result in any of the following impacts to downstream waterways:
 - (1) Deterioration of existing culverts, bridges, dams, and other structures; or
 - (2) Degradation of biological functions or habitat; or
 - (3) Accelerated stream bank or streambed erosion or siltation; or
 - (4) Increased threat of flood damage to public health, life, property.
2. If the City finds that a waiver is appropriate because implementation of on-site stormwater BMPs is not feasible due to the natural or existing physical characteristics of a site, or that one of the conditions specified in subsection 1 above cannot be established to a certainty, or that any one or more of the impacts to downstream waterways specified above cannot be entirely averted, the applicant shall execute a binding written agreement to accomplish one or more of the following mitigation measures selected by City:

- A. The purchase and donation of privately owned lands, or the grant of an easement to be dedicated for preservation and/or reconstruction of native ecosystems of lands strategically located in the watershed consistent with the purposes of this chapter, of a sufficient quantity to enable City or others to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver.
- B. The creation of one or more stormwater BMPs on previously developed properties, public or private, that currently lack stormwater BMPs, having a capacity to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver.
- C. Monetary contributions (fee in lieu) to fund stormwater management activities as identified in the City of Storm Lake's Comprehensive Stormwater Management Plan such as research and studies (e.g., regional wetland delineation studies, stream monitoring studies for water quality and macroinvertebrates, stream flow monitoring, threatened and endangered species studies, hydrologic studies, monitoring of stormwater BMPs, and stream corridor stabilization practices). The monetary contribution required shall be in accordance with a fee schedule (unless the developer and the City agree on a greater alternate contribution) established by City, based on the estimated cost savings to the developer resulting from the waiver and the estimated future costs to City to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver. All of the monetary contributions shall be credited to an appropriate capital improvements program project, and shall be made by the developer prior to the issuance of any building permit for the development.
- D. Dedication of land or granting of an easement by the applicant of a value equivalent to the cost to City of the construction of an off-site stormwater management facility sufficient to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver. The agreement shall be entered into by the applicant and City prior to the recording of plats or, if no record plat is required, prior to the issuance of the building permit.
- E. Factors that may generate waivers:
 - (1) Shallow Bedrock
 - (2) High Groundwater
 - (3) Hotspots or contaminated soils

(4) Excessive Cost

Section 3-13-8 Approval of Stormwater Management Plan

No building, grading, or sediment control permit shall be issued until a satisfactory stormwater management plan detailing how runoff and associated water quality impacts resulting from the development will be controlled or managed (or a request for waiver thereof) shall have undergone a review and been approved by the City after determining that the plan or waiver is consistent with the requirements of this chapter.

After review of the stormwater management plan, and modifications to that plan as deemed necessary by City, an approved final stormwater management plan must be submitted to the City. The stormwater management plan shall:

1. Be prepared by a licensed professional engineer or landscape architect or individual credentialed in a manner satisfactory to the City.
2. Indicate whether stormwater will be managed on site or off site and, if on site, the general location and type of practices, with clear citations to the Iowa Stormwater Management Manual.
3. Include a signed and dated certification by the preparer of the stormwater management plan that it complies with all requirements of this chapter, meets the design requirements outlined in the Iowa Stormwater Management Manual and is designed to achieve City stormwater requirements, and that the City is entitled to rely upon the certification as due diligence on the part of City.
4. Include sufficient information (e.g., maps, hydrologic calculations, etc.) to evaluate the environmental characteristics of the project site, the potential impacts of all proposed development of the site, on the water resources, and the effectiveness and acceptability of the stormwater BMPs proposed for managing stormwater generated at the project site. The following information shall also be included in the stormwater management plan.
 - A. A USDA soils map identifying soil types, hydrologic soil groups and hydric soils. Soil borings will be required where infiltration practices are proposed.
 - B. A map (or maps) indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural stormwater management and sediment and erosion BMPs. The map(s) will also clearly show proposed land use with tabulation of the percentage of surface area to be adapted to various uses; drainage patterns; locations of utilities, roads, and easements; and the limits of clearing and grading. A written description of the site plan and justification of proposed changes in natural conditions may also be required. A copy of the current SWPPP may satisfy this requirement.

- C. Sufficient engineering analysis to show that the proposed BMPs are capable of achieving City stormwater requirements for the site in compliance with this chapter.
- D. A written or graphic inventory of the natural resources at the site and surrounding area as it exists prior to the commencement of the project and a description of the watershed and its relation to the project site. This description should include a discussion of forest cover, topography, wetlands, and other native vegetative areas on the site. Particular attention should be paid to environmentally sensitive areas that provide particular opportunities or constraints for development.

5. Additionally, the stormwater management plan shall also include:

- A. Contact information, including but not limited to the name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel number of the property or properties affected.
- B. Topographic base map, consisting of a 1"= 200' topographic base map the site which extends a minimum of 100 feet beyond the limits of the proposed development and indicates existing surface water drainage including streams, ponds, culverts, ditches, and wetlands; current land use including all existing structures; locations of utilities, roads, and easements; and significant natural and manmade features not otherwise shown.
- C. Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in the Iowa Stormwater Management Manual. Such calculations shall include:
 - (1) description of the design storm frequency, intensity and duration;
 - (2) time of concentration;
 - (3) soil curve numbers or runoff coefficients;
 - (4) peak runoff rates and total runoff volumes for each watershed area;
 - (5) infiltration rates, where applicable;
 - (6) culvert capacities;

(7) flow velocities;

(8) the most recent version of the National Oceanic and Atmospheric Administration (NOAA) Precipitation-Frequency Atlas of the United States.

(9) documentation of sources for all computation methods and field test results.

D. If a stormwater BMP depends on the hydrologic properties of soils (e.g., infiltration basins), then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles. The number and location of required soil borings or soil sites shall be determined based on what is needed to determine the suitability and distribution of soil types present at the location of the BMP.

E. A maintenance and repair plan for all stormwater BMPs including detailed maintenance and repair procedures to ensure their continued efficient function. These plans will identify the parts or components of a stormwater BMP that need to be maintained and the equipment and skills or training necessary. Provisions for the periodic review and evaluation of the effectiveness of the maintenance program and the need for revisions or additional maintenance procedures shall be included in the plan.

F. Provide a recorded maintenance agreement binding on all subsequent owners of land served by stormwater BMPs to ensure maintenance and repair in accordance with the specifications of this chapter.

Section 3-13-9 Performance Security or Bond

1. The City shall require the submittal of an installation performance security or bond prior to issuance of a permit in order to ensure that the stormwater BMPs are installed by the permit holder as required by the approved stormwater management plan.
2. The amount of the installation performance security or bond shall be the total estimated construction cost of the stormwater BMPs approved under the permit, plus 25%. The installation performance security or bond shall contain forfeiture provisions for failure to complete work specified in the stormwater management plan.
3. The installation performance security or bond shall be released in full only upon submission of "as-built plans" of all stormwater BMPs specified in the stormwater management ~~final~~ plan and written certification by a professional engineer that the stormwater BMPs have been installed in accordance with the approved stormwater management plan and other applicable provisions of this chapter. The City will make a final inspection of stormwater BMPs to ensure compliance with the approved stormwater management plan and the provisions of this chapter. Provisions for a partial pro rata release of the installation performance security or bond based on the completion of various development stages can be made at the discretion of City.

4. The installation performance security or bond shall inure only to the benefit of the City for purposes of completing, modifying, or correcting the stormwater BMPs to comply with this chapter.

Section 3-13-10 Construction Inspection

1. The applicant must notify the City in advance before the commencement of construction. Regular inspections of construction of the stormwater BMPs shall be conducted by the City or the City's designated representative. Inspections will be conducted before any land disturbing activity begins and at the completion of the project, and prior to the release of financial securities.
2. After construction is completed, applicants are required to submit actual "as-built" drawings satisfactory to the City for any stormwater BMPs located on site. The drawings must show the final design specifications for all stormwater BMPs and must be certified by a professional engineer.
3. Landscaping and stabilization shall be accomplished to prevent violation of City stormwater requirements or impairment of BMPs. In addition, a landscaping plan must be submitted with the final as-built drawings describing the vegetative stabilization and management techniques to be used at a site after construction is completed.—This plan must be prepared by a registered landscape architect, landscape designer, or by an individual credentialed in a manner acceptable to the City.

Section 3-13-11 Maintenance and Repair of Stormwater BMPS

The applicant or owner of every site or an assignee qualified pursuant to Section 3-13-10 shall be responsible maintaining as-built stormwater BMPs in an effective state as determined in the sole judgment of City from and after completion of construction.

1. Maintenance and Repair Agreement. Prior to the issuance of any permit for development involving any stormwater BMP, the applicant or owner of the site must execute a maintenance and repair agreement that shall be binding on all subsequent owners of land served by the stormwater BMP. The maintenance and repair agreement shall be recorded by the City at the expense of the permit holder or property owners.
2. Inspection of Stormwater BMPs. Inspection programs may be established on any reasonable basis, including but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher than typical sources of sediment or other contaminants or pollutants, inspections of businesses or industries of a type associated with higher than usual discharges of contaminants or pollutants or with discharges of a type which are more likely than the typical discharge to cause violations of State or Federal water or sediment quality standards or the

NPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include but are not limited to reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in stormwater BMPs, and evaluating the condition of stormwater BMPs.

3. Failure to Maintain Stormwater BMPs. If a responsible party fails or refuses to meet the requirements of the maintenance and repair agreement or any provision of this chapter, the City, after reasonable notice, may correct a violation by performing all necessary work to place the BMP in proper working condition. In the event that the stormwater BMP becomes a danger to public safety or public health, the City shall notify the party responsible for maintenance of the stormwater BMP in writing. Upon receipt of that notice, the responsible person shall have thirty (30) days to effect maintenance and repair of the stormwater BMP in an approved manner. After proper notice, the City may assess, jointly and severally, the owners of the stormwater BMP or the property owners or the parties responsible for maintenance under any applicable written agreement for the cost of repair work and any penalties; and the cost of the work shall be a lien on the property, or prorated against the beneficial users of the property, and may be placed on the tax bill and collected as ordinary taxes.

Section 3-13-12 Enforcement and Penalties

1. Violation of any provision of this chapter may be enforced by civil action including an action for injunctive relief. In any civil enforcement action, administrative or judicial, the City shall be entitled to recover its attorneys' fees and costs from a person who is determined by a court of competent jurisdiction to have violated this chapter.
2. The City may issue a stop work order for violation of any provision of this chapter. The stop work order shall remain in effect until the violation is corrected and a subsequent inspection completed.
3. Violation of any provision of this chapter may also be enforced as a municipal infraction within the meaning of Section 364.22 of the Code of Iowa, pursuant to Chapter 4 of this Code of Ordinances.
4. Enforcement pursuant to this section shall be undertaken by the City upon the advice and consent of the City Attorney or other counsel employed by the City.
5. Any violator may be required to restore land to its undisturbed condition. In the event that restoration is not undertaken within a reasonable time after notice, the City may take necessary corrective action, the cost of which shall become a lien upon the property until paid.
6. Occupancy permits shall not be granted until all stormwater BMPs have been inspected and approved by the City.

Section 3-13-13 Appeal

Administrative decisions by City staff and enforcement actions may be appealed by the developer or property owner to the City Council pursuant to the following rules:

1. The appeal must be filed in writing with the City Clerk within five (5) business days of the decision or enforcement action.
2. The written appeal shall specify in detail the action appealed from, the errors allegedly made by the enforcement officer giving rise to the appeal, a written summary of all oral and written testimony the applicant intends to introduce at the hearing, including the names and addresses of all witnesses the applicant intends to call, copies of all documents the applicant intends to introduce at the hearing, and the relief requested.
3. The enforcement officer shall specify in writing the reasons for the enforcement action, a written summary of all oral and written testimony the enforcement officer intends to introduce at the hearing, including the names and addresses of all witnesses the enforcement officer intends to call, and copies of all documents the enforcement officer intends to introduce at the hearing.
4. The City Clerk shall notify the applicant and the enforcement officer by ordinary mail and shall give public notice, in accordance with Chapter 21 of the Code of Iowa, of the date, time, and place for the regular or special meeting of the City Council at which the hearing on the appeal shall occur. The hearing shall be scheduled for a date not less than four (4) or more than twenty (20) days after the filing of the appeal. The rules of evidence and procedure and the standard of proof to be applied shall be the same as provided by Chapter 17A, Code of Iowa. The applicant may be represented by counsel at the applicant's expense. The enforcement officer may be represented by the City Attorney or by an attorney designated by the City Council at City expense.
5. The decision of the City Council shall be rendered in writing and may be appealed to the Iowa District Court.

Section 3-13-14 Definitions

Terms in this chapter, other than those defined below, shall have the meanings set out in the Iowa Stormwater Management manual.

1. "Applicant" means a property owner or agent of a property owner who has filed an application for a stormwater management permit.
2. "Best Management Practice (BMP)" is a technique, measure, or structural control that is used for a given set of conditions to manage the quantity and improve the quality of stormwater runoff in the most cost-effective manner. BMPs can be either Non Structural (planning, watershed management, practice design, etc.) or Structural (Engineered and constructed) systems that are used to treat the stormwater.

3. "Buffer" is a vegetative area, including trees, shrubs, and herbaceous vegetation, which exists or is established to protect a stream system, lake, or reservoir area. Alteration of the natural area is strictly limited.
4. "Building" means any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal, or property, and occupying more than 100 square feet of area.
5. "City stormwater requirements" means the standards, sizing criteria, BMPs and other requirements established in this chapter.
6. "Dedication" means the deliberate appropriation of property by its owner for general public use.
7. "Developer" means a person, persons, or entity who undertakes land disturbance activities.
8. "Development" or "Redevelopment" means either:
 - A. Land disturbance activity exceeding one acre (43,560 square feet) on land previously vacant of buildings or largely free of previous land disturbance activity other than traditional agricultural activities; or
 - B. Land disturbance activity exceeding one acre (43,560 square feet) in areas where existing land use is high density commercial, industrial, institutional or multi-family residential (a.k.a. "redevelopment").
9. "Drainage easement" means a legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes. Public easements shall be maintained by the City of Storm Lake. Private easements shall be maintained by the private owners of the project.
10. "Enforcement officer" means that person designated by the City having responsibility for administration and enforcement of this chapter.
11. "Excessive Cost" means Practice cost greater than an amount as set by resolution of the City Council per impervious acre.
12. "Fee in lieu" means a payment of money in place of achieving or exceeding all or part of City stormwater requirements.
13. Infiltration Based Practices means that at a minimum the water quality volume moves through the soil media to provide filtration.

14. "Iowa Stormwater Management manual" means the current Iowa Stormwater Management Manual publication, by whatever name, as amended from time to time by Iowa Department of Natural Resources in collaboration with Iowa Stormwater Education Program and other partners that recommends Stormwater Management Guidelines and Uniform Sizing Criteria and BMPs designed to address said Guidelines.
15. "Land disturbance activity" means any activity which changes the volume or peak flow discharge rate of rainfall runoff from the land surface. This may include the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, or any activity which bares soil or rock or involves the diversion or piping of any natural or man-made watercourse.
16. "Landowner" means the legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.
17. "Maintenance agreement" means a legally recorded document that acts as a property deed restriction, and which provides for long-term maintenance of stormwater BMPs.
18. "Native Vegetation" refers to vegetation originating naturally in this region of the state. Native vegetation is not to be confused with all existing vegetation.
19. "Predevelopment Condition" shall be considered the actual existing condition of the site prior to any construction, demolition, or earthwork commencing. Removal of any structures or impervious surfaces prior to construction will not affect the "predevelopment" status if construction is undertaken within 12 months of the removal of structures or impervious surfaces. If construction is not undertaken within 12 months, then the "predevelopment" condition of the site shall be as it exists at that time.
20. "Stormwater management" means the use of BMPs that are designed in accordance with City stormwater requirements to reduce stormwater runoff pollutant loads, discharge volumes, peak flow discharge rates, and detrimental changes in stream temperature that affect water quality and habitat.
21. "Stormwater Pollution Prevention Plan" (SWPPP) means a plan that is designed to minimize the accelerated erosion, sediment, and other pollutant runoff at a site during construction activities.
22. "TP (Total Phosphorous)" means the total concentration of all forms of phosphorus found in a water sample.

SECTION TWO. 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 THREE. Repealer. All ordinances or parts of ordinances in conflict with the provisions of this Ordinance are hereby repealed.

SECTION FOUR. 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 FIVE. 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 _____, 2025.

PASSED on its second consideration the _____ day of _____, 2025.

Requirement of consideration and vote at two (2) prior Council meetings suspended the _____ day of _____, 2025.

PASSED AND APPROVED on its third consideration this _____ day of _____, 2025.

CITY OF STORM LAKE, IOWA

By: _____
Michael Porsch, Mayor

_____ No action taken by Mayor.

_____ Vetoed this _____ day of _____, 2025.

Michael Porsch, Mayor
ATTEST:

Mayra A, Martinez, City Clerk

_____ Repassed and adopted over the veto this _____ day of _____, 2025.

_____ Veto affirmed this _____ day of _____, 2025 by failure of vote taken to repass.

_____ Veto affirmed no timely vote taken to repass over veto.

ATTEST:

Mayra A. Martinez, City Clerk

4898-0312-5540-1\11149-1000

Staff Summary

3/17/2025

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: Scott Olesen, Building Official

SUBJECT: **Ordinance No. 05-O-2024-2025 Text Amendment To The Post-Construction Stormwater Control Ordinance - 1st Reading**

BACKGROUND: The State of Iowa has made changes to the regulations that cities enforce for storm water runoff created by new building construction and hard surfaces such as parking lots. The changes are in reference to the average amount of rainfall, the preservation of topsoil, and the pre-existing conditions which are utilized in calculations used during the engineering process to design methods to control storm water runoff on affected building sites.

Since we are an MS4 community, we are required to have these regulations in place to limit the amount of storm water that is sent to the City storm sewer system and ultimately, Storm Lake and Poor Farm Creek. These regulations help to keep the amount of storm water sent to the storm sewer system from overwhelming it and creating issues with the system becoming overloaded. It also serves to clean up the contaminants generated on hard surfaces during rain events from leaving the sites and being transported to the Lake or Creek.

We are required by State law to revise and update our Ordinance to be in compliance with these new regulations. Staff also reviewed the rest of the Ordinance and have made proposed editorial changes to make the document easier to understand and enforce. I have attached the current Ordinance, the Ordinance showing the strike through's and the inserted text, and a "clean" version showing how the document will read after the proposed changes are made. The proposed changes have been reviewed by the City Storm Water Engineer and the City Attorney.

FISCAL IMPACT: The cost of Engineering and Legal review is estimated at \$1,000.

RECOMMENDATION: Review the attached documents and approve the amended Ordinance on the: First reading, March 17th, 2025.

Second reading, April 7th, 2025

Third reading, April 21st, 2025

ATTACHMENTS:

1. 0520242025 - Ordinance Amending Title III Ch 3-13 Post Construction Stormwater Control

ORDINANCE NO. 05-O-2024-2025

**AN ORDINANCE AMENDING TITLE III, CHAPTER 3, OF THE
1994 RECODIFICATION OF THE MUNICIPAL CODE OF THE
CITY OF STORM LAKE, IOWA, REGARDING POST-
CONSTRUCTION STORMWATER MANAGEMENT WITHIN THE
CORPORATE LIMITS OF STORM LAKE, IOWA**

WHEREAS, Title III, Chapter 3-13, Post-Construction Stormwater Control, of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa ("City Code") regulates the management of stormwater within the City of Storm Lake, Iowa, including stormwater runoff standards applicable to proposed land use and construction activities; and

WHEREAS, the Council hereby determines the provisions set out herein are in the public's best interests to adopt and enforce updated standards to comply with the City's state and federal environmental obligations and applicable permits.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, IOWA, THAT:

SECTION ONE. Title III of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa, is hereby amended by repealing and replacing Chapter 3-13, Post-Construction Stormwater Control, as follows:

Chapter 3-13

POST-CONSTRUCTION STORMWATER CONTROL

Sections:

3-13-1	Findings of Fact
3-13-2	Purpose
3-13-3	Applicability
3-13-4	Compatibility with Other Requirements
3-13-5	Permit Procedures and Requirements
3-13-6	Stormwater Standards
3-13-7	Waivers
3-13-8	Approval of Stormwater Management Plan
3-13-9	Performance Security or Bond
3-13-10	Construction Inspection
3-13-11	Maintenance and Repair of Stormwater BMPS
3-13-12	Enforcement and Penalties
3-13-13	Appeal
3-13-14	Definitions

Section 3-13-1 Findings of Fact

1. The U.S. EPA's National Pollutant Discharge Eliminations System ("NPDES") permit program ("Program") administered by the Iowa Department of Natural Resources ("IDNR") requires that cities

meeting certain demographic and environmental impact criteria obtain from the IDNR an NPDES permit for the discharge of stormwater from a Municipal Separate Storm Sewer System ("MS4") ("MS4 Permit"). The City of Storm Lake is subject to the Program and is required to obtain, and has obtained, an MS4 Permit; the City's MS4 permit is on file at the office of the City Clerk and is available for public inspection during regular office hours.

2. As a condition of the City's MS4 Permit, the City is obliged to adopt and enforce a POST-CONSTRUCTION STORMWATER CONTROL ordinance.

3. No state or Federal funds have been made available to assist the City in administering and enforcing the Program. Accordingly, the City shall fund its operations under this chapter entirely by charges imposed on the owners or developers of properties which are made subject to the Program by virtue of State and Federal law, and/or other sources of funding established by a separate ordinance.

4. Land development and associated increases in impervious cover alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition; this stormwater runoff contributes to increased quantities of water-borne pollutants; and stormwater runoff, soil erosion, and non-point source pollution can be controlled and minimized through the regulation of stormwater runoff from development sites.

5. Therefore, the City of Storm Lake establishes this set of City stormwater requirements to provide reasonable guidance for the regulation of stormwater runoff for the purpose of protecting local water resources from degradation. It is determined that the regulation of stormwater runoff discharges from land development and other construction activities in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and non-point source pollution associated with stormwater runoff is in the public interest and will prevent threats to public health, safety, and property damage.

6. The "Iowa Stormwater Management Manual" published collaboratively by the Iowa Department of Natural Resources and The Center for Transportation Research and Education at Iowa State University establishes guidelines consisting of unified sizing criteria, stormwater management designs and specifications and Best Management Practices (BMP). City hereby finds and declares that the guidelines provided for in the Iowa Stormwater Management Manual, and in future editions thereof, should be and are hereby adopted as the stormwater management standards of the City. Any BMP installation that complies with the provisions of the Iowa Stormwater Management Manual, or future editions thereof, at the time of installation shall be deemed to have been installed in accordance with this ordinance.

Section 3-13-2 Purpose

The purpose of this chapter is to adopt as the City's standards and sizing criteria and BMPs to address said standards the Guidelines, Sizing Criteria, and BMPs proposed by the Iowa Stormwater Management Manual and as specifically identified above (hereinafter collectively "City stormwater requirements") in order to protect and safeguard the general health, safety, and welfare of the public within this jurisdiction. This chapter seeks to meet that purpose through the following objectives:

1. Minimize increases in stormwater runoff from development within the City limits and fringe area in order to reduce flooding, siltation, increases in stream temperature, and stream bank erosion and maintain the integrity of stream channels;
2. Minimize increases in non-point source pollution caused by stormwater runoff from development which would otherwise degrade local water quality;
3. Minimize the total annual volume of surface water runoff which flows from any specific development project site after completion to not exceed the pre-development hydrologic regime to the maximum extent practicable; and
4. Reduce stormwater runoff rates and volumes, soil erosion, and non-point source pollution, wherever possible, through establishment of appropriate minimum stormwater management standards and BMPs and to ensure that BMPs are properly maintained and pose no threat to public safety.

Section 3-13-3 Applicability

1. This chapter is applicable to all subdivision or site plan applications meeting the Minimum square foot applicability criteria of item 2 of this section, unless eligible for an exemption or granted a waiver by the City under Section 3-13-7 of this chapter. This chapter also applies to land disturbance activities that are smaller than the minimum square foot applicability criteria specified in subsection 2 if such activities are part of a larger common plan of development that meets the minimum square foot applicability criteria specified in subsection 2, even though multiple separate and distinct land development activities may take place at different times on different schedules. In addition, all plans must also be reviewed by City of Storm Lake officials to ensure that established water quality standards will be maintained during and after development of the site and that post-construction runoff levels are consistent with any local and regional watershed plans.
2. City stormwater requirements apply to any "Land disturbing activity" as defined in this Ordinance, disturbing one acre (43,560 square feet) or more of land, and to any development disturbing less than one acre if the amount of impervious cover created exceeds 5,000 square feet. The following activities are exempt from this chapter:

- A. Any logging and agricultural activity which is consistent with an approved soil conservation plan, or a timber management plan prepared or approved by the appropriate agency, as applicable.
- B. Additions or modifications to existing single-family structures.
- C. Developments that do not create a net increase of more than 5,000 square feet of new impervious surface, over the “pre-development condition” on previously developed sites as defined in this Ordinance with the provision, that they are not part of a larger common development plan.
- D. Repairs to any stormwater BMPs deemed necessary by the City.

3. When a site development plan is submitted that qualifies as a development, as defined in this chapter, decisions on permitting any appropriate on-site BMPs shall be guided by the Iowa Stormwater Management Manual. Issuance of a Construction Site Runoff Permit (CSR Permit) will be granted to development or redevelopment projects after review and approval of the site development plan by the City.

4. The site shall be designed using the Better Site Design process. Better Site Design involves techniques applied early in the design process to preserve natural areas, reduce impervious cover, distribute runoff and use pervious areas to more effectively treat stormwater runoff. Site design should address open space protection, impervious cover minimization, and runoff distribution and minimization, and runoff utilization through considerations such as:

A. Open space protection and restoration

(1) Conservation of existing natural areas (upland and wetland)

(2) Reforestation

(3) Re-establishment of prairies

(4) Restoration of wetlands

(5) Establishment or protection of stream, shoreline and wetland buffers

(6) Re-establishment of native vegetation into the landscape

B. Reduction of impervious cover

(1) Reduce new impervious through redevelopment of existing sites and use of existing roadways, trails etc.

(2) Minimize street width, parking space size, driveway length, sidewalk width

(3) Reduce impervious surface footprint (e.g. two-story buildings, parking ramp)

C. Distribution and minimization of runoff

(1) Utilize vegetated areas for stormwater treatment (e.g. parking lot islands, vegetated areas along property boundaries, front and rear yards, building landscaping)

(2) Direct impervious surface runoff to vegetated areas or to designed treatment areas (roofs, parking, driveways drain to pervious areas, not directly to storm sewer or other conveyances)

(3) Encourage infiltration and soil storage of runoff through grass channels, soil compost amendment, vegetated swales, raingardens, etc.

(4) Plant vegetation that does not require irrigation beyond natural rainfall and runoff from the site

D. Runoff utilization

(1) Capture and store runoff for use for irrigation in areas where irrigation is necessary

Information on the Better Site Design Process is available at www.cwp.org.

Section 3-13-4 Compatibility with Other Requirements

1. It is intended that this chapter be construed to be consistent with existing City Code.

2. The requirements of this chapter should be considered minimum requirements, and where any provision of this chapter imposes restrictions different from those imposed by any other chapter, rule or regulations, or other provision of law, whichever provisions are more restrictive or impose higher protective standards for human health or the environment shall be considered to take precedence.

(Ord. 13-O-2013-2014, Add, 07/21/2014)

Section 3-13-5 Permit Procedures and Requirements

1. Permit Required. No landowner or developer shall receive any of the building, grading, or other land development permits required for land disturbance activities without first meeting the requirements of this chapter prior to commencing the proposed activity.
2. Pre-application Meeting
 - A. Prior to the development of plans, the applicant may request a pre-application meeting which will be facilitated by the City between the applicant, City staff, and staff of partner agencies as applicable. The meeting shall be prior to submission of a permit application. The purposes of the meeting are to understand the general parameters of the proposed project; and to convey the requirement of meeting the provisions of this and other applicable ordinances.
3. Application Requirements.
 - A. Unless specifically exempted by this chapter, any landowner or developer desiring a permit for a land disturbance activity shall submit to the City a permit application on a form provided for that purpose.
 - B. Unless otherwise exempted by this chapter, a permit application must be accompanied by the following in order that the permit application be considered:
 - (1) A copy of the stormwater management plan;
 - (2) A copy of the maintenance agreement; and
 - (3) A non-refundable permit review fee.

Materials shall be submitted in pdf and paper format for ease of distribution and review.

C. The stormwater management plan and maintenance agreement shall be prepared to meet the requirements of this chapter, and fees shall be those established by the City by separate resolution.

4. Application Procedure.

A. Applications for land disturbance activity permits must be filed for review with the office of the Building and Planning Department on any regular business day.

B. The City shall make a determination regarding the completeness of a permit application within ten (10) business days of the receipt of the application and notify the applicant in writing if the application is not complete, including the reasons the application was deemed incomplete.

C. Within fifteen (15) business days of the receipt of a complete permit application, including all documents as required by this chapter, the City shall inform the applicant whether the application, plan, and maintenance agreement are approved or disapproved by the enforcement officer.

D. If the permit application, stormwater management plan, or maintenance agreement are disapproved, the applicant may revise the stormwater management plan or agreement. If additional information is submitted, the City shall have fifteen (15) business days from the date the additional information is received to inform the applicant that the stormwater management plan and maintenance agreement are either approved or disapproved.

E. If the permit application, stormwater management plan, and maintenance agreement are approved by City, all appropriate land disturbance activity permits shall be issued.

5. Permit Duration. Permits issued under this section shall be valid from the date of issuance through the date City notifies the permit holder that all stormwater BMPs have passed the final inspection required under permit conditions.

6. Application Review Fees. The fee for review of any land development application shall be based on the amount of land to be disturbed at the site; the fee structure shall be established by the City, and said fees shall be paid prior to the issuance of any applicable City permits. All such revenue shall be credited to a City budgetary category to support the administration of this chapter.

Section 3-13-6 Stormwater Standards

1. The following general criteria shall be incorporated into the site design for stormwater runoff to protect surface and ground water and other natural resources and other private and public property:

- A. Reduce impacts on water
 - B. Decrease runoff volume
 - C. Increase infiltration (groundwater recharge) where possible
 - D. Decrease flow frequency, duration, and peak runoff rates
 - E. Reduce time to peak flows by increasing the time of concentration to and through storm sewers.
 - E. Store stormwater runoff on-site
 - F. Maintain existing flow patterns
 - G. Avoid natural channel and steep slope erosion as well as protect in stream habitats and channels
 - H. Decrease erosion and sedimentation
 - I. Preserve vegetation
 - J. Preserve and replace existing topsoil in an uncompacted manner
2. The site design shall provide on-site water quality treatment for the runoff resulting from a rainfall depth of 1.25 inches over the post-construction site area.
 3. To protect channels, the site shall be designed to infiltrate or provide 24 hour extended detention of the channel protection volume, defined as the 1 year, 24-hour storm per the most recent version of the National Oceanic and Atmospheric Administration (NOAA) Precipitation-Frequency Atlas of the United States.
 4. The site shall be designed to prevent the 100-year post-development rate of runoff from exceeding the 5-Year pre-development rate of runoff for a 24-hour storm per the most recent version of the National Oceanic and Atmospheric Administration (NOAA) Precipitation-Frequency Atlas of the United States. The pre-development runoff rate shall be based on the “Pre-development condition” of the site at the time the construction commences, as defined in this Ordinance.
 5. The site shall be designed to provide an emergency spillway and designated overflow route for

the 100-year, 24-hour storm as defined by the Iowa Stormwater Management Manual. The spillway and overflow route must be able to safely pass overflows through the structure without creating damaging conditions downstream of the facility.

6. Existing topsoil from on-site must be preserved within areas that will remain pervious. The preserved topsoil shall be uniformly applied in an uncompacted manner. The City may require pre-construction borings to verify depths of topsoil prior to construction.
7. The site shall be designed to provide vegetated buffers for water quality protection adjacent to receiving channels and waters. Buffers shall commence at the "ordinary high-water mark", or at the delineated boundary of the waterbody and are as follows;

Residential	30 feet
Industrial	50 feet
Mid/High Density Residential & Commercial	50 feet

- A. Access shall be provided on each side of the buffer for maintenance.
- B. The applicant shall maintain the buffer for the first year after completion of the project.
- C. Impervious surfaces shall not be allowed in the buffer area. As an exception, stairs or sidewalks used to access the adjacent waterbody. Stairs and sidewalks shall be no more than 4 feet wide. Underground utilities, intakes, and manholes, or other similar items may be permitted by the City if it is deemed to not interfere with the function of the buffer area after the completion of the installation.
- D. Fences and structures shall not be allowed in the buffer area.
- E. Where land disturbing construction activity occurs within a buffer area, and where no impervious surface is present, adequate approved native vegetative cover of 70% shall be established and maintained. The native vegetative cover shall be sufficient to provide for bank stability from upslope overland flow areas under sheet flow conditions. Non-vegetative materials such as rock riprap, may be employed on the bank as necessary to prevent erosion. Such as on steep slopes of where high velocity flows occur.
- F. BMP's such as filter strips, swales, or wet detention basins may be located in the buffer area.
- G. Redevelopment of infill parcels that are surrounded by existing development shall be considered on a case-by-case basis. The intent of this section is not to make existing lots undevelopable.

Section 3-13-7 Waivers

Every applicant shall provide for stormwater management as required by this chapter, unless a written request is filed to waive implementation of BMPs, in whole or in part, and such waiver is granted. Requests to waive implementation of BMPs in whole or in part shall be submitted to City for approval.

1. A waiver of BMPs required by this chapter may be granted provided that at least one of the following conditions is established by the applicant based on authoritative written evidence satisfactory to City:
 - A. The proposed development is not likely to impair attainment of the objectives of this chapter.
 - B. Alternative minimum requirements for on-site management of stormwater have been established in a stormwater management plan that has been approved by City and fully implemented.
 - C. Provisions are made to manage stormwater by an off-site facility within the same watershed. The off-site facility is required to be in place, to be designed and adequately sized to provide a level of stormwater control that is equal to or greater than that which would be afforded by on-site practices, and there is, in the City's sole judgment, a responsible entity legally obligated to monitor the performance of and maintain the efficiency of stormwater BMPs in accordance with a written and recorded maintenance agreement.
 - D. In instances where one of the above conditions is established, the applicant must further establish by authoritative written evidence satisfactory to City that the partial waiver will not result in any of the following impacts to downstream waterways:
 - (1) Deterioration of existing culverts, bridges, dams, and other structures; or
 - (2) Degradation of biological functions or habitat; or
 - (3) Accelerated stream bank or streambed erosion or siltation; or
 - (4) Increased threat of flood damage to public health, life, property.
2. If the City finds that a waiver is appropriate because implementation of on-site stormwater BMPs is not feasible due to the natural or existing physical characteristics of a site, or that one of the conditions specified in subsection 1 above cannot be established to a certainty, or that any one or more of the impacts to downstream waterways specified above cannot be entirely averted, the applicant shall execute a binding written agreement to accomplish one or more of the following mitigation measures selected by City:

- A. The purchase and donation of privately owned lands, or the grant of an easement to be dedicated for preservation and/or reconstruction of native ecosystems of lands strategically located in the watershed consistent with the purposes of this chapter, of a sufficient quantity to enable City or others to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver.
- B. The creation of one or more stormwater BMPs on previously developed properties, public or private, that currently lack stormwater BMPs, having a capacity to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver.
- C. Monetary contributions (fee in lieu) to fund stormwater management activities as identified in the City of Storm Lake's Comprehensive Stormwater Management Plan such as research and studies (e.g., regional wetland delineation studies, stream monitoring studies for water quality and macroinvertebrates, stream flow monitoring, threatened and endangered species studies, hydrologic studies, monitoring of stormwater BMPs, and stream corridor stabilization practices). The monetary contribution required shall be in accordance with a fee schedule (unless the developer and the City agree on a greater alternate contribution) established by City, based on the estimated cost savings to the developer resulting from the waiver and the estimated future costs to City to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver. All of the monetary contributions shall be credited to an appropriate capital improvements program project, and shall be made by the developer prior to the issuance of any building permit for the development.
- D. Dedication of land or granting of an easement by the applicant of a value equivalent to the cost to City of the construction of an off-site stormwater management facility sufficient to achieve City stormwater requirements with respect to a number of cubic feet of annual stormwater equivalent to the estimated number of cubic feet of annual stormwater that will not achieve City stormwater requirements as a consequence of the waiver. The agreement shall be entered into by the applicant and City prior to the recording of plats or, if no record plat is required, prior to the issuance of the building permit.
- E. Factors that may generate waivers:
 - (1) Shallow Bedrock
 - (2) High Groundwater
 - (3) Hotspots or contaminated soils

(4) Excessive Cost

Section 3-13-8 Approval of Stormwater Management Plan

No building, grading, or sediment control permit shall be issued until a satisfactory stormwater management plan detailing how runoff and associated water quality impacts resulting from the development will be controlled or managed (or a request for waiver thereof) shall have undergone a review and been approved by the City after determining that the plan or waiver is consistent with the requirements of this chapter.

After review of the stormwater management plan, and modifications to that plan as deemed necessary by City, an approved final stormwater management plan must be submitted to the City. The stormwater management plan shall:

1. Be prepared by a licensed professional engineer or landscape architect or individual credentialed in a manner satisfactory to the City.
2. Indicate whether stormwater will be managed on site or off site and, if on site, the general location and type of practices, with clear citations to the Iowa Stormwater Management Manual.
3. Include a signed and dated certification by the preparer of the stormwater management plan that it complies with all requirements of this chapter, meets the design requirements outlined in the Iowa Stormwater Management Manual and is designed to achieve City stormwater requirements, and that the City is entitled to rely upon the certification as due diligence on the part of City.
4. Include sufficient information (e.g., maps, hydrologic calculations, etc.) to evaluate the environmental characteristics of the project site, the potential impacts of all proposed development of the site, on the water resources, and the effectiveness and acceptability of the stormwater BMPs proposed for managing stormwater generated at the project site. The following information shall also be included in the stormwater management plan.
 - A. A USDA soils map identifying soil types, hydrologic soil groups and hydric soils. Soil borings will be required where infiltration practices are proposed.
 - B. A map (or maps) indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural stormwater management and sediment and erosion BMPs. The map(s) will also clearly show proposed land use with tabulation of the percentage of surface area to be adapted to various uses; drainage patterns; locations of utilities, roads, and easements; and the limits of clearing and grading. A written description of the site plan and justification of proposed changes in natural conditions may also be required. A copy of the current SWPPP may satisfy this requirement.

- C. Sufficient engineering analysis to show that the proposed BMPs are capable of achieving City stormwater requirements for the site in compliance with this chapter.
- D. A written or graphic inventory of the natural resources at the site and surrounding area as it exists prior to the commencement of the project and a description of the watershed and its relation to the project site. This description should include a discussion of forest cover, topography, wetlands, and other native vegetative areas on the site. Particular attention should be paid to environmentally sensitive areas that provide particular opportunities or constraints for development.

5. Additionally, the stormwater management plan shall also include:

- A. Contact information, including but not limited to the name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel number of the property or properties affected.
- B. Topographic base map, consisting of a 1"= 200' topographic base map the site which extends a minimum of 100 feet beyond the limits of the proposed development and indicates existing surface water drainage including streams, ponds, culverts, ditches, and wetlands; current land use including all existing structures; locations of utilities, roads, and easements; and significant natural and manmade features not otherwise shown.
- C. Hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in the Iowa Stormwater Management Manual. Such calculations shall include:
 - (1) description of the design storm frequency, intensity and duration;
 - (2) time of concentration;
 - (3) soil curve numbers or runoff coefficients;
 - (4) peak runoff rates and total runoff volumes for each watershed area;
 - (5) infiltration rates, where applicable;
 - (6) culvert capacities;

(7) flow velocities;

(8) the most recent version of the National Oceanic and Atmospheric Administration (NOAA) Precipitation-Frequency Atlas of the United States.

(9) documentation of sources for all computation methods and field test results.

D. If a stormwater BMP depends on the hydrologic properties of soils (e.g., infiltration basins), then a soils report shall be submitted. The soils report shall be based on on-site boring logs or soil pit profiles. The number and location of required soil borings or soil sites shall be determined based on what is needed to determine the suitability and distribution of soil types present at the location of the BMP.

E. A maintenance and repair plan for all stormwater BMPs including detailed maintenance and repair procedures to ensure their continued efficient function. These plans will identify the parts or components of a stormwater BMP that need to be maintained and the equipment and skills or training necessary. Provisions for the periodic review and evaluation of the effectiveness of the maintenance program and the need for revisions or additional maintenance procedures shall be included in the plan.

F. Provide a recorded maintenance agreement binding on all subsequent owners of land served by stormwater BMPs to ensure maintenance and repair in accordance with the specifications of this chapter.

Section 3-13-9 Performance Security or Bond

1. The City shall require the submittal of an installation performance security or bond prior to issuance of a permit in order to ensure that the stormwater BMPs are installed by the permit holder as required by the approved stormwater management plan.
2. The amount of the installation performance security or bond shall be the total estimated construction cost of the stormwater BMPs approved under the permit, plus 25%. The installation performance security or bond shall contain forfeiture provisions for failure to complete work specified in the stormwater management plan.
3. The installation performance security or bond shall be released in full only upon submission of "as-built plans" of all stormwater BMPs specified in the stormwater management ~~final~~ plan and written certification by a professional engineer that the stormwater BMPs have been installed in accordance with the approved stormwater management plan and other applicable provisions of this chapter. The City will make a final inspection of stormwater BMPs to ensure compliance with the approved stormwater management plan and the provisions of this chapter. Provisions for a partial pro rata release of the installation performance security or bond based on the completion of various development stages can be made at the discretion of City.

4. The installation performance security or bond shall inure only to the benefit of the City for purposes of completing, modifying, or correcting the stormwater BMPs to comply with this chapter.

Section 3-13-10 Construction Inspection

1. The applicant must notify the City in advance before the commencement of construction. Regular inspections of construction of the stormwater BMPs shall be conducted by the City or the City's designated representative. Inspections will be conducted before any land disturbing activity begins and at the completion of the project, and prior to the release of financial securities.
2. After construction is completed, applicants are required to submit actual "as-built" drawings satisfactory to the City for any stormwater BMPs located on site. The drawings must show the final design specifications for all stormwater BMPs and must be certified by a professional engineer.
3. Landscaping and stabilization shall be accomplished to prevent violation of City stormwater requirements or impairment of BMPs. In addition, a landscaping plan must be submitted with the final as-built drawings describing the vegetative stabilization and management techniques to be used at a site after construction is completed.—This plan must be prepared by a registered landscape architect, landscape designer, or by an individual credentialed in a manner acceptable to the City.

Section 3-13-11 Maintenance and Repair of Stormwater BMPS

The applicant or owner of every site or an assignee qualified pursuant to Section 3-13-10 shall be responsible maintaining as-built stormwater BMPs in an effective state as determined in the sole judgment of City from and after completion of construction.

1. Maintenance and Repair Agreement. Prior to the issuance of any permit for development involving any stormwater BMP, the applicant or owner of the site must execute a maintenance and repair agreement that shall be binding on all subsequent owners of land served by the stormwater BMP. The maintenance and repair agreement shall be recorded by the City at the expense of the permit holder or property owners.
2. Inspection of Stormwater BMPs. Inspection programs may be established on any reasonable basis, including but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher than typical sources of sediment or other contaminants or pollutants, inspections of businesses or industries of a type associated with higher than usual discharges of contaminants or pollutants or with discharges of a type which are more likely than the typical discharge to cause violations of State or Federal water or sediment quality standards or the

NPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include but are not limited to reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in stormwater BMPs, and evaluating the condition of stormwater BMPs.

3. Failure to Maintain Stormwater BMPs. If a responsible party fails or refuses to meet the requirements of the maintenance and repair agreement or any provision of this chapter, the City, after reasonable notice, may correct a violation by performing all necessary work to place the BMP in proper working condition. In the event that the stormwater BMP becomes a danger to public safety or public health, the City shall notify the party responsible for maintenance of the stormwater BMP in writing. Upon receipt of that notice, the responsible person shall have thirty (30) days to effect maintenance and repair of the stormwater BMP in an approved manner. After proper notice, the City may assess, jointly and severally, the owners of the stormwater BMP or the property owners or the parties responsible for maintenance under any applicable written agreement for the cost of repair work and any penalties; and the cost of the work shall be a lien on the property, or prorated against the beneficial users of the property, and may be placed on the tax bill and collected as ordinary taxes.

Section 3-13-12 Enforcement and Penalties

1. Violation of any provision of this chapter may be enforced by civil action including an action for injunctive relief. In any civil enforcement action, administrative or judicial, the City shall be entitled to recover its attorneys' fees and costs from a person who is determined by a court of competent jurisdiction to have violated this chapter.
2. The City may issue a stop work order for violation of any provision of this chapter. The stop work order shall remain in effect until the violation is corrected and a subsequent inspection completed.
3. Violation of any provision of this chapter may also be enforced as a municipal infraction within the meaning of Section 364.22 of the Code of Iowa, pursuant to Chapter 4 of this Code of Ordinances.
4. Enforcement pursuant to this section shall be undertaken by the City upon the advice and consent of the City Attorney or other counsel employed by the City.
5. Any violator may be required to restore land to its undisturbed condition. In the event that restoration is not undertaken within a reasonable time after notice, the City may take necessary corrective action, the cost of which shall become a lien upon the property until paid.
6. Occupancy permits shall not be granted until all stormwater BMPs have been inspected and approved by the City.

Section 3-13-13 Appeal

Administrative decisions by City staff and enforcement actions may be appealed by the developer or property owner to the City Council pursuant to the following rules:

1. The appeal must be filed in writing with the City Clerk within five (5) business days of the decision or enforcement action.
2. The written appeal shall specify in detail the action appealed from, the errors allegedly made by the enforcement officer giving rise to the appeal, a written summary of all oral and written testimony the applicant intends to introduce at the hearing, including the names and addresses of all witnesses the applicant intends to call, copies of all documents the applicant intends to introduce at the hearing, and the relief requested.
3. The enforcement officer shall specify in writing the reasons for the enforcement action, a written summary of all oral and written testimony the enforcement officer intends to introduce at the hearing, including the names and addresses of all witnesses the enforcement officer intends to call, and copies of all documents the enforcement officer intends to introduce at the hearing.
4. The City Clerk shall notify the applicant and the enforcement officer by ordinary mail and shall give public notice, in accordance with Chapter 21 of the Code of Iowa, of the date, time, and place for the regular or special meeting of the City Council at which the hearing on the appeal shall occur. The hearing shall be scheduled for a date not less than four (4) or more than twenty (20) days after the filing of the appeal. The rules of evidence and procedure and the standard of proof to be applied shall be the same as provided by Chapter 17A, Code of Iowa. The applicant may be represented by counsel at the applicant's expense. The enforcement officer may be represented by the City Attorney or by an attorney designated by the City Council at City expense.
5. The decision of the City Council shall be rendered in writing and may be appealed to the Iowa District Court.

Section 3-13-14 Definitions

Terms in this chapter, other than those defined below, shall have the meanings set out in the Iowa Stormwater Management manual.

1. "Applicant" means a property owner or agent of a property owner who has filed an application for a stormwater management permit.
2. "Best Management Practice (BMP)" is a technique, measure, or structural control that is used for a given set of conditions to manage the quantity and improve the quality of stormwater runoff in the most cost-effective manner. BMPs can be either Non Structural (planning, watershed management, practice design, etc.) or Structural (Engineered and constructed) systems that are used to treat the stormwater.

3. "Buffer" is a vegetative area, including trees, shrubs, and herbaceous vegetation, which exists or is established to protect a stream system, lake, or reservoir area. Alteration of the natural area is strictly limited.
4. "Building" means any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal, or property, and occupying more than 100 square feet of area.
5. "City stormwater requirements" means the standards, sizing criteria, BMPs and other requirements established in this chapter.
6. "Dedication" means the deliberate appropriation of property by its owner for general public use.
7. "Developer" means a person, persons, or entity who undertakes land disturbance activities.
8. "Development" or "Redevelopment" means either:
 - A. Land disturbance activity exceeding one acre (43,560 square feet) on land previously vacant of buildings or largely free of previous land disturbance activity other than traditional agricultural activities; or
 - B. Land disturbance activity exceeding one acre (43,560 square feet) in areas where existing land use is high density commercial, industrial, institutional or multi-family residential (a.k.a. "redevelopment").
9. "Drainage easement" means a legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes. Public easements shall be maintained by the City of Storm Lake. Private easements shall be maintained by the private owners of the project.
10. "Enforcement officer" means that person designated by the City having responsibility for administration and enforcement of this chapter.
11. "Excessive Cost" means Practice cost greater than an amount as set by resolution of the City Council per impervious acre.
12. "Fee in lieu" means a payment of money in place of achieving or exceeding all or part of City stormwater requirements.
13. Infiltration Based Practices means that at a minimum the water quality volume moves through the soil media to provide filtration.

14. "Iowa Stormwater Management manual" means the current Iowa Stormwater Management Manual publication, by whatever name, as amended from time to time by Iowa Department of Natural Resources in collaboration with Iowa Stormwater Education Program and other partners that recommends Stormwater Management Guidelines and Uniform Sizing Criteria and BMPs designed to address said Guidelines.
15. "Land disturbance activity" means any activity which changes the volume or peak flow discharge rate of rainfall runoff from the land surface. This may include the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, or any activity which bares soil or rock or involves the diversion or piping of any natural or man-made watercourse.
16. "Landowner" means the legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.
17. "Maintenance agreement" means a legally recorded document that acts as a property deed restriction, and which provides for long-term maintenance of stormwater BMPs.
18. "Native Vegetation" refers to vegetation originating naturally in this region of the state. Native vegetation is not to be confused with all existing vegetation.
19. "Predevelopment Condition" shall be considered the actual existing condition of the site prior to any construction, demolition, or earthwork commencing. Removal of any structures or impervious surfaces prior to construction will not affect the "predevelopment" status if construction is undertaken within 12 months of the removal of structures or impervious surfaces. If construction is not undertaken within 12 months, then the "predevelopment" condition of the site shall be as it exists at that time.
20. "Stormwater management" means the use of BMPs that are designed in accordance with City stormwater requirements to reduce stormwater runoff pollutant loads, discharge volumes, peak flow discharge rates, and detrimental changes in stream temperature that affect water quality and habitat.
21. "Stormwater Pollution Prevention Plan" (SWPPP) means a plan that is designed to minimize the accelerated erosion, sediment, and other pollutant runoff at a site during construction activities.
22. "TP (Total Phosphorous)" means the total concentration of all forms of phosphorus found in a water sample.

SECTION TWO. 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 THREE. Repealer. All ordinances or parts of ordinances in conflict with the provisions of this Ordinance are hereby repealed.

SECTION FOUR. 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 FIVE. 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 _____, 2025.

PASSED on its second consideration the _____ day of _____, 2025.

Requirement of consideration and vote at two (2) prior Council meetings suspended the _____ day of _____, 2025.

PASSED AND APPROVED on its third consideration this _____ day of _____, 2025.

CITY OF STORM LAKE, IOWA

By: _____
Michael Porsch, Mayor

_____ No action taken by Mayor.

_____ Vetoed this _____ day of _____, 2025.

Michael Porsch, Mayor
ATTEST:

Mayra A, Martinez, City Clerk

_____ Repassed and adopted over the veto this _____ day of _____, 2025.

_____ Veto affirmed this _____ day of _____, 2025 by failure of vote taken to repass.

_____ Veto affirmed no timely vote taken to repass over veto.

ATTEST:

Mayra A. Martinez, City Clerk

4898-0312-5540-1\11149-1000

Staff Summary

3/17/2025

Agenda Item # F.5.



REPORT TO: Honorable Mayor & Council

FROM: Tyler Gibbins, City Treasurer

SUBJECT: **Motion Setting Public Hearing on Setting Tax Levy Rate and Maximum Property Tax Dollars**

BACKGROUND: This agenda item will set a Public Hearing for Setting the Tax Levy Rate and establishing the Maximum Property Tax Dollars as required by State Code stated in HF 718.

The Public Hearing will be Monday, April 7th, 2025 at 4:30 P.M. during a required separate City Council Meeting in City Council Chambers. Notice of the Public Hearing will be published in the newspaper and added to the City's website and social media accounts as required by law.

A resolution to set the Tax Levy Rate can only take place after this Special Meeting, and can only take place after taxpayers receive the required Levy Notification. After these items happen can we have a public hearing on the Budget and have an approved budget.

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

RECOMMENDATION: Set the Public Hearing for April 7th, 2025 at 4: 30 p.m. in Council Chambers.

ATTACHMENTS:

1. Proposed Tax Notice

CITY NAME: NOTICE OF PUBLIC HEARING - CITY OF STORM LAKE - PROPOSED PROPERTY TAX LEVY **CITY #:** 11-091
STORM LAKE Fiscal Year July 1, 2025 - June 30, 2026

The City Council will conduct a public hearing on the proposed Fiscal Year City property tax levy as follows:

Meeting Date: 4/7/2025 **Meeting Time:** 04:30 PM **Meeting Location:** City Council Chambers City Hall 620 Erie Street Storm Lake, IA 50588

At the public hearing any resident or taxpayer may present objections to, or arguments in favor of the proposed tax levy. After the hearing of the proposed tax levy, the City Council will publish notice and hold a hearing on the proposed city budget.

City Website (if available)
 www.stormlake.org

City Telephone Number
 (712) 732-8000

Iowa Department of Management	Current Year Certified Property Tax 2024 - 2025	Budget Year Effective Property Tax 2025 - 2026	Budget Year Proposed Property Tax 2025 - 2026
Taxable Valuations for Non-Debt Service	355,092,610	365,335,664	365,335,664
Consolidated General Fund	2,885,557	2,885,557	2,939,399
Operation & Maintenance of Public Transit	0	0	0
Aviation Authority	0	0	0
Liability, Property & Self Insurance	112,376	112,376	248,830
Support of Local Emergency Mgmt. Comm.	0	0	0
Unified Law Enforcement	0	0	0
Police & Fire Retirement	342,398	342,398	404,869
FICA & IPERS (If at General Fund Limit)	304,382	304,382	328,521
Other Employee Benefits	926,632	926,632	1,144,092
Capital Projects (Capital Improv. Reserve)	0	0	0
Taxable Value for Debt Service	452,961,932	461,047,968	461,047,968
Debt Service	329,000	329,000	603,281
CITY REGULAR TOTAL PROPERTY TAX	4,900,345	4,900,345	5,668,992
CITY REGULAR TAX RATE	13.60000	13.22632	15.17441
Taxable Value for City Ag Land	753,731	762,589	762,589
Ag Land	2,264	2,264	2,291
CITY AG LAND TAX RATE	3.00375	2.96883	3.00375
Tax Rate Comparison-Current VS. Proposed			
Residential property with an Actual/Assessed Valuation of \$100,000/\$110,000	Current Year Certified 2024/2025	Budget Year Proposed 2025/2026	Percent Change
City Regular Residential	630	792	25.71
Commercial property with an Actual/Assessed Valuation of \$300,000/\$330,000	Current Year Certified 2024/2025	Budget Year Proposed 2025/2026	Percent Change
City Regular Commercial	2,781	3,538	27.22

Note: Actual/Assessed Valuation is multiplied by a Rollback Percentage to get to the Taxable Valuation to calculate Property Taxes. Residential and commercial properties have the same rollback percentage through \$150,000 of actual/assessed valuation.

Reasons for tax increase if proposed exceeds the current:

Insurance rates increase of 10.2% for general property insurance and liability insurance. Employee health benefits increased 9.03% and 3.01% for life, disability, dental, and vision insurance. New fire truck bond added to the debt levy.

Staff Summary

3/17/2025

Agenda Item # F.6.



REPORT TO: Honorable Mayor & Council

FROM: Tyler Gibbins, City Treasurer

SUBJECT: **Resolution No. 58-R-2024-2025 Setting the FY2025-2026 Fee Resolution**

BACKGROUND: Following the budget workshops on the FY2025-2026 budget, concurrence was made on adjusting/adding fees to the fee resolution. The considered fee adjustments include:

Airport:

- Increasing hangar rent for all hangars by \$50 per month.
- The Commission also approved an additional \$1.00 increase to the fuel cost but will also be increasing the discount rate for hangar tenants from \$0.10 to \$0.20 per gallon. The Airport Manager's discount remains the same, \$0.10 over cost.

Building Department:

- Increase the building moving permit fee to \$150.00.
- Increase the demolition permit fee to \$100.00
- Increase both the rental re-inspection fee and no-show fees to \$75.00 per inspection
- Increase the annual rental registration fee to \$20 for the base unit and \$10 per unit in excess of 1 unit (per unit). In addition to the rental registration fee increase, an increase to the late fee is also \$75.00 per license per unit.
- Increase the base building permit fee to \$30.00
- This resolution will also remove the new construction and rebate incentives as we have not had participation in the rebate incentive.

Golf Course:

- Increase the single season pass to \$350.00.
- Increase the junior season pass to \$75.00.
- Increase the electric cart storage for the season to \$350.00.
- Increase the gas cart storage for the season to \$325.00
- Add a new off-season cart storage fee of \$100.00
- Increase golf club rental fee to \$15.00
- Increase the daily trail fee to \$15.00
- Increase the annual trail fee to \$185.00
- Increase pull cart rental fee per round to \$5.00
- Increase the annual pull cart rental fee to \$75.00
- Increase the 10-rounds of golf punch card fee to \$130.00
- Increase each of the weekday and weekend golf fees by \$2.50.
- Increase the cart rental fee by \$1.00 for 9 and 18 holes.
- Increase the event hall rental fee to \$350.00.

Police Department:

- Increase the Administrative Fee to \$50.00.
- Increase the police escort fee for both buildings and general escort to \$100.00 per hour per unit.
- Increase emergency response and/or cleanup of material fee to \$100.00 per hour per unit.
- Increase the annual cat and dog licenses to \$30.00 if not neutered/spayed and \$20.00 for neutered/spayed.
- Increase fingerprinting to \$20.00
- Increase the daily impound/storage fee to \$65.00
- Increase the parking fine to \$25.00

King's Pointe Outdoor Aquatic Center:

- Add an individual season pass for \$150.00
- Increase the cost to add additional family members, over 6 total, but a max of 10 to \$75.00 for members 7-10.
- Increase the Adult BV Resident Daily Pass (ages 12+) to \$9.00.
- Increase the Child BV Resident Daily Pass (ages 5-11) to \$8.00.
- Add a child BV Resident Daily Pass (ages 0-4) of \$2.00.
- Increase the Adult Standard Daily Pass (ages 12+) to \$17.00.
- Increase the Child Standard Daily Pass (ages 5-11) to \$13.00.
- Add a Child Standard Daily Pass (ages 0-4) of \$3.00
- Removes the age group of 4 and under for free.

- Removes the twilight pricing options.
- Increases land lovers pass to \$8.00
- Increases the Daily Punch cards:
 - 10 Punches \$100.00 to \$110.00
 - 20 Punches \$180.00 to \$190.00
 - 30 Punches \$250.00 to \$260.00
 - 50 Punches \$400.00 to \$450.00
- Increase Lap Swimming punch card to \$65.00 for 20 punches.

All of the proposed fees will begin July 1st, 2025 except the proposed golf course and King's Pointe Outdoor Aquatic Center. These two departments' fees will begin upon approval because they include annual season passes for the 2025 season.

FISCAL IMPACT: All of these proposed fee changes are directly related to the general fund.

RECOMMENDATION: Approve Resolution No. 58-R-2024-2025 Setting the FY2025-2026 Fee Resolution.

ATTACHMENTS:

1. [Resolution No. 58-R-2024-2025 - Fee Resolution](#)

RESOLUTION NO. 58-R-2024-2025

RESOLUTION SETTING FINES AND FEES

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, IOWA that the following schedule of fees are approved and effective as of July 1, 2025 with the exception of Outdoor Water Park and Golf Course fees that are effective April 1, 2025.

<u>Administration</u>	<u>Fee</u>	<u>Code Section</u>
Administrative Fee	\$30.00	
Dock Fee	\$25.00	
Dock Per Hoist	\$10.00	
Garbage Truck Permits (per business)	\$100.00	3-1-5
Insufficient Check Fee	\$30.00	
Mobile Food & Beverage, Peddlers, Solicitor Or Transient Merchant Permit (1 Day)	\$25.00	4-3-4, 4-3-6, 4-10-4
Mobile Food & Beverage, Peddlers, Solicitor or Transient Merchant Permit (7 Day)	\$75.00	
Mobile Food & Beverage, Peddlers, Solicitor or Transient Merchant Permit (28 Day)	\$150.00	
Investigation Fee (main contact)	\$25.00	
Investigation Fee (each additional Person)	\$5.00	
Taxi Permit (Business)	\$100.00	4-5-3
Taxi Permit (per vehicle)	\$10.00	4-5-3
Cancel Permit Fee	\$25.00	
Freedom of Information Requests (FOIA Request)		
Single Sided Copy 8.5x11	\$.30/page	
Duplex copy 8.5x11	\$.40/page	
Single Sided Legal	\$.35/page	
Duplex Legal copy	\$.45/page	
Single Sided Ledger (11x17)	\$.70/page	
Single Sided Ledger with Color Print	\$.90/page	
Duplex Ledger (11x17)	\$.80/page	
Duplex Ledger with Color Print	\$1.00/page	
Large Format Prints (one side only and in color)	\$8.00/page	
USB Storage Device	\$15/64gb storage	
Research Hourly Rate – per hour/per person	\$25.00	
Mailing Costs – 3 pages	\$2.00 Plus Current Postage Cost	
Mailing Costs – 50 pages	\$6.00 Plus Current Postage Cost	
Mailing Costs – 100 pages	\$11.00 Plus Current Postage Cost	
Special City Council Meeting	\$250.00	

Airport Hangar Rent (monthly fees)

Hangar A	\$75.00	\$125.00
12 Month Lease Discount Rate	\$65.00	\$115.00
Hangar B	\$75.00	\$125.00
12 Month Lease Discount Rate	\$65.00	\$115.00

Hangar C (VT)	\$400.00	\$450.00
Hangar D	\$92.00	\$142.00
12 Month Lease Discount Rate	\$80.00	\$130.00
Hangar E	\$110.00	\$160.00
12 Month Lease Discount Rate	\$95.00	\$145.00
Hangar F	\$156.00	\$206.00
12 Month Lease Discount Rate	\$135.00	\$185.00
FBO Stall	\$173.00	\$223.00
12 Month Lease Discount Rate	\$150.00	\$200.00

Daily Inside Storage/per night \$30.00

Building Official

Public sidewalk right away cafés, retail sales, or benches	\$0	
Driveway (Curb) Cut, Inspection & Marking Residential	\$150.00	
Driveway (Curb) Cut, Inspection & Marking Commercial	\$200.00	
ROW Temp Closure Permit	\$25.00	
Building Moving Permit (Per Bldg)	\$100.00 5-1-1	\$150.00
Demolition Permit	\$50.00	\$100.00
Pool Inspection	\$20.00 8-8-11	
Re-inspection Fee (after 1 per inspection)	\$35.00	\$ 75.00
No Show Fee (per event)	\$50.00	\$ 75.00
Rental Registration Fee – Yearly (July 1st – June 30th)		
Base Registration Fee (per parcel and 1 unit)	\$10.00 5-8-9	\$ 20.00
Additional unit in excess of 1 (per unit)	\$5.00 5-8-9	\$ 10.00
Late Registration Fee - Per Landlord License	\$50.00 5-8-9	\$ 75.00
Additional unit in excess of 1 (up to 6 units)	\$50.00	\$ 75.00
Property Maintenance Ordinance Appeal	\$150.00	Zoning Ord.
Variance Request	\$150.00	Zoning Ord.
Zoning Request	\$200.00 Zoning Ord.	\$300.00
Conditional Use	\$300.00	Zoning Ord.
Sub-Division Application Fee	\$300.00	
Sidewalk Repair Permit Fee	\$0	
Pigeons Permit Fee (Per Unit)	\$100.00	8-1-1(A)(18)
New Construction Incentive		
Single Family Attached and Single Family Detached Dwelling Building Permit		
100% Water Meter Current Cost		
\$300 for homes that have construction costs under \$199,999		
\$600 for homes that have construction costs for \$200,000 and above		

Incentive

Rebate all the permit fee with the exception of the water meter if 50% of all costs related to construction, including flooring and appliances if purchased within City limits of Storm Lake. Itemized proof of receipts would be required to be submitted to City Hall.

Building & Sign Permit Fees

Building & Sign Permit <\$1,200	\$22.02 5-2-2	\$30.00
Building & Sign Permit \$1,200-2,000		5-2-2

	\$22.02 \$30.00 + \$2.88 for each additional \$100.00 over \$1,200	
Building & Sign Permit \$2,001-25,000		5-2-2
	\$45.06 \$53.04 + \$9.16 for each additional \$1,000.00 over \$2,000	
Building & Sign Permit \$25,001-50,000		5-2-2
	\$255.74 \$263.72 + \$6.22 for each additional \$1,000.00 over \$25,000	
Building & Sign Permit \$50,001-100,000		5-2-2
	\$411.24 \$419.22 + \$4.15 for each additional \$1,000.00 over \$50,000	
Building & Sign Permit \$100,001 or more		5-2-2
	\$618.74 \$626.72 + \$3.61 for each additional \$1,000.00 over \$100,000	
Portable Sign Permit (14 days)	\$30.00	Zoning Ord.

Electrical Fees

For New Residences		5-4-9
Single Dwelling	\$38.00	
Duplex Dwelling	\$56.75	
Triplex Dwelling	\$75.50	
4-Plex Dwelling	\$113.00	
Multi Units Between 5 and 12	\$156.75	
Over 12 Units	\$156.75 plus \$38.00 each over 12	
For New Commercial or Industrial Buildings		
First \$5,000.00 at \$8.00 per/\$1,000.00 of cost		
Second \$5,000.00 at \$6.75 per /\$1,000.00 of cost		
Third \$5,000.00 at \$5.50 per/\$1,000.00 of cost		
Fourth \$5,000.00 at \$4.25 per/\$1,000.00 of cost		
Fifth \$5,000.00 at \$3.00 per/\$1,000.00 of cost		
All over \$25,000.00 at \$1.50 per/\$1,000.00 of cost		

For Rewiring, Repairs or Alterations on Residence, Commercial and Industrial Buildings

\$100.00 to \$150.00 electric contract	\$6.75
\$151.00 to \$200.00 electric contract	\$8.00
\$201.00 to \$250.00 electric contract	\$9.25
\$251.00 to \$300.00 electric contract	\$10.50
\$301.00 to \$350.00 electric contract	\$11.75
\$351.00 to \$400.00 electric contract	\$13.00
\$401.00 to \$450.00 electric contract	\$14.25
\$451.00 to \$500.00 electric contract	\$15.50
\$501.00 to \$1,000.00 electric contract	\$23.00
\$1,001.00 to \$2,000.00 electric contract	\$28.00
All over \$2,001.00	\$28.00 plus \$1.50 per \$100.00

Plumbing Fees

For New Residences		5-3-10
Single Dwelling	\$38.00	
Duplex Dwelling	\$56.75	
Triplex Dwelling	\$75.50	
4-Plex Dwelling	\$113.00	

Multi Units Between 5 and 12	\$156.75
Over 12 Units	\$156.75 plus \$38.00 each over 12

For New Commercial or Industrial Buildings

First \$5,000.00 at \$8.00 per/\$1,000.00 of cost
Second \$5,000.00 at \$6.75 per /\$1,000.00 of cost
Third \$5,000.00 at \$5.50 per/\$1,000.00 of cost
Fourth \$5,000.00 at \$4.25 per/\$1,000.00 of cost
Fifth \$5,000.00 at \$3.00 per/\$1,000.00 of cost
All over \$25,000.00 at \$1.75 per/\$1,000.00 of cost

For Repairs or Alterations on Residence, Commercial and Industrial Buildings

\$100.00 to \$150.00 plumbing contract \$6.75
\$151.00 to \$200.00 plumbing contract \$8.00
\$201.00 to \$250.00 plumbing contract \$9.25
\$251.00 to \$300.00 plumbing contract \$10.50
\$301.00 to \$350.00 plumbing contract \$11.75
\$351.00 to \$400.00 plumbing contract \$13.00
\$401.00 to \$450.00 plumbing contract \$14.25
\$451.00 to \$500.00 plumbing contract \$15.50
\$501.00 to \$1,000.00 plumbing contract \$23.00
\$1,001.00 to \$2,000.00 plumbing contract \$28.00
All over \$2,001.00 \$28.00 plus \$1.50 per \$100.00

Campground

Class A Site	\$30.00
(Lake View, Patio, Water, Sewer, Electric, Cable TV, Fire Pit)	
Class C Site	\$28.00
(Lake View, Patio, Water, Sewer, Electric, Fire Pit)	
Class E Site	\$25.00
(Water, Sewer, Electric)	
Class F Site	\$20.00
(Electric)	
Glass G Site	\$12.00
(Tent)	
Extra Vehicle Parking (if space available)	\$5.00
Non-Campers Dump Station (per event)	\$5.00
Non-Camper Shower (per shower)	\$5.00
Early check in prior to noon	\$20.00
Early check in after 12pm prior to 3pm	\$10.00
Late check out after 1pm per hour charge	\$10.00

Fire Department

Liquor License Inspection Fee	\$50.00
Fireworks Display (Mortar sizes from 1-3 inches)	\$150.00
Fireworks Display (Mortar size larger than 3 inches)	\$300.00
Emergency Response and/or Cleanup of Material	See Chart
Rate set by the Iowa Fire Service Annual Hazardous material response fee structure for the current calendar year.	

Safety Trailer Use Fee	
Buena Vista County	\$150.00
Non Buena Vista County	\$150.00 plus \$6 A Mile One Way

<u>Golf Course</u>	<u>Proposed</u>
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Single Season Pass	\$325.00	\$350.00
Family Season Pass - Family: Two or more persons (one of whom is the householder) related by birth, marriage, or adoption, living together and sharing common living, sleeping, cooking, and eating facilities within and individual housing unit as defined by the Storm Lake Zoning Code.)	\$600.00	
Junior Season Pass (17 and Under)	\$50.00	\$ 75.00
Electric Cart Storage	\$300.00	\$350.00
Gas Cart Storage	\$285.00	\$325.00
Off Season Cart Storage	\$100.00	
Locker Rent/yr	\$20.00	
Golf Club Rental	\$10.00	\$ 15.00
Trail Fee (per day)	\$10.00	\$ 15.00
Pull Cart Rental	\$3.00	\$ 5.00
Pull Cart (year)	\$65.00	\$ 75.00
Trail Fee (year)	\$170.00	\$185.00
10 Round Punch Card	\$125.00	\$130.00
Discount Tickets – per 9 holes (sold in advance with minimum quantity of 50)	\$10.00	
Weekday 9 Holes	\$15.00	\$ 17.50
Weekday 18 Holes	\$20.00	\$ 22.50
Weekend 9 Holes	\$20.00	\$ 22.50
Weekend 18 Holes	\$25.00	\$ 27.50
Cart Rental 9 Holes	\$16.00	\$ 17.00
Cart Rental 18 Holes	\$26.00	\$ 27.00
Yearly Cart Rental	\$350.00	
Hall Rental	\$250.00	\$350.00
Hall Rental - Friday Setup Fee (Valid only after 5:00 pm Friday with following Sat. rental)	\$100.00	
Hall Rental (weekday 4hrs or less)	\$100.00	
Bar Setup Fee (Event Center Only)	\$100.00	
9-Hole Course Rental Fee (Minimum 25 participants)	\$250.00	
18-Hole Course Rental Fee (Minimum 25 participants)	\$400.00	
*Course Rental Fees are due at the time of booking.		
*Cancellations require a 72 hour advanced notice.		
*If cancelled inside the 72 hour period, only 50% of the rental Fee will be refunded.		
Group Cart Rental Fee (25 Carts)	\$350.00	

<u>Police</u>	<u>Proposed</u>
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Administrative Fee	\$30.00	\$50.00
Alarm Business Permit Application	\$75.00	4-7-6
Alarm Business Permit Renewal	\$75.00	4-7-9

False Alarm Equip Malfunction (after 3)	\$75.00	4-7-16	
False Alarm	\$75.00	4-7-16	
Building Escorts (per car)	\$75.00	5-1-3	\$100.00
Cat License – Not Neutered/Spayed (per year)	\$20.00	8-4-2	\$ 30.00
Neutered/Spayed (per year)	\$10.00		\$ 20.00
Dog License – Not Neutered/Spayed (per year)	\$20.00	8-3-2	\$ 30.00
Neutered/Spayed (per year)	\$10.00		\$ 20.00
Animal License Handling Fee	Current USPS Cost		
Fingerprinting	\$10.00		\$ 20.00
Impound/Storage Fee (per day)	\$30.00	8-6-5	\$ 50.00
Impound Storage Fee – felony related (per day)	\$50.00		
Parking Fine	\$15.00	9-11-4	\$ 25.00
Report Copies	\$5.00		
Police Escort Fee – per hour, per unit	\$75.00	5-1-3	\$100.00
Emergency Response and/or Cleanup of Material (per hour)			
Police Vehicle (per vehicle)	\$75.00		\$100.00

King's Pointe Outdoor Aquatic Center

Individual Season Pass		\$150.00
Family Season Pass	\$350.00	
(up to 6 family members can be included on Pass, Children 4 and under need not be on pass, as they are free.)		
Up to 4 additions of children 50-12 years old @ \$55 each		\$ 75.00
Adult BV Resident Daily Pass (Age 12+)	\$8.00	\$ 9.00
Child BV Resident Daily Pass (Age 5-11)	\$5.00	\$ 8.00
Child BV Resident Daily Pass (Age 0-4)		\$ 2.00
Adults (Age 12+) Standard Pricing	\$15.00	\$ 17.00
Children (Age 5-11) Standard Pricing	\$12.00	\$ 13.00
Children (Age 0-4) Standard Pricing		\$ 3.00
4 and under	free	
Twilight Pricing (after 3:00)		
Age 12+	\$7.50	
Age 5-11	\$6.00	
Age 0-4	free	
Land Lovers	\$5.00	\$ 8.00
Daily Pass Punch Cards:		
10 Punches	\$100.00	\$110.00
20 Punches	\$180.00	\$190.00
30 Punches	\$250.00	\$260.00
50 Punches	\$400.00	\$450.00
Swim Lessons	\$40.00	
Lap Swimming (per time)	\$4.00	
Lap Swimming Punch Card:		
10 Punches	\$35.00	
20 Punches	\$60.00	\$ 65.00
30 Punches	\$80.00	

Roadway Maintenance

Street Cuts & Replacement - Half Street	\$800.00
Street Cuts & Replacement Full Street	\$1600.00

Sewer

Sewer Svc Permit & Connection Fee	\$150.00	3-2-4
Private Wastewater System Permit	\$50.00	3-2-3
Sanitary Sewer Dump Fee (Per Load)	\$75.00	
Industrial FOG (Fat, Oil, Grease) Per Load	\$300.00	

Shelter House

Rental Fee - per side	\$110.00
Damage Deposit – per side	\$200.00
AWAYSIS Pavilions – per time slot (3 times available)	\$25.00
Frank Starr Park Open Shelter – per time slot (2 times available)	\$50.00
Campground Open Shelter – per time slot (2 time slots available)	\$50.00
AWAYSIS Great Lawn – per day	\$200.00
Band Shell – per day	\$50.00

Water

Door Tag Fee	\$20.00	3-5-3
Meter Testing Fee (within 2%)	\$50.00	3-4-20
Shut Off Fee	\$30.00	3-5-3
Turn On Fee	\$30.00	3-5-3
Water Svc Permit & Connect Fee	\$150.00	3-4-5
Water Tapping Fee (per inch)	\$65.00	3-4-5
Outside City Limits Hook-up Fee	\$1,500.00	3-4-6
Combined Utility Deposit	\$160.00	
Bulk Water Sales (Minimum)	\$15.00	
Bulk Water Sales per 1,000 Gallons	Commercial Rate	3-5-1
Urgent/Elective Shut Off Fee	\$500.00	

PASSED AND APPROVED this 17th Day of March, 2025.

Michael Porsch, Mayor

ATTEST:

Mayra A. Martinez, City Clerk

Staff Summary

3/17/2025

Agenda Item # F.7.



REPORT TO: Honorable Mayor & Council

FROM: Scott Olesen, Building Official

SUBJECT: **Public Hearing for the Plans, Specifications, Form of Contract, and Engineer's Estimate for the College and 3rd Lift Station Project.**

BACKGROUND: The existing College and 3rd Lift Station, which serves Buena Vista University and the surrounding residential neighborhood, has exceeded its useful life and is beyond rehabilitation. The city previously rejected bids for this improvement project on October 7, 2024, since the bids were over the project budget. ISG made corrosive coating as a bid alternate and the city held a bid letting for the revised project on March 4, 2025.

FISCAL IMPACT: There is no fiscal impact on holding the public hearing.

RECOMMENDATION: Open Public Hearing
Accept Oral or Written Comments
Close Public Hearing

ATTACHMENTS:

None

Staff Summary

3/17/2025

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: Scott Olesen, Building Official

SUBJECT: **Resolution No. 59-R-2024-2025 Approving the Plans, Specifications, Form of Contract, and Engineer's Estimate of Cost for the College and 3rd Lift Station Project.**

BACKGROUND: As stated in the public hearing, this project includes the replacement of the lift station at the intersection of College and 3rd. This resolution will approve the plans, specifications, form of contracts and engineer's estimate of cost for the College and 3rd Lift Station Project.

FISCAL IMPACT: The engineer's estimate of cost for the project is \$1,114,340.00 and the City will utilize local enterprise funds to finance the project.

RECOMMENDATION: Approve Resolution No. 59-R-2024-2025 Approving the Plans, Specifications, Form of Contract, and Engineer's Estimate of Cost for the College and 3rd Lift Station Project.

ATTACHMENTS:

1. 29447 College and 3rd Project Manual and Planset - 2025-03-11 Conformed Set
2. Resolution No. 59-R-2024-2025 Resolution Approving Plans, Specs, Form of Contract Follege and 3rd Lift Station

City of Storm Lake

College & 3rd Lift Station

August 2024—Project No. 23-29447



Architecture
Engineering
Environmental
Planning
ISGInc.com

CITY OF STORM LAKE

620 Erie St
Storm Lake, IA 50588
PH:712.732.800.

Addendum No. 2

The ISG logo is located in the top right corner of the page. It consists of the letters "ISG" in a white, sans-serif font, centered within a dark gray square.

Date: February 27, 2025

Project Name: College & 3rd Lift Station

Project location: 331 College Avenue + Storm Lake, Iowa 50588

Project Number: 23-29447

Bid Date + Time: March 04, 2025, + 10:00 a.m.

Architect/Engineer: ISG, 1725 N Lake Avenue, Storm Lake, Iowa 50588

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.

APPROVED EQUALS

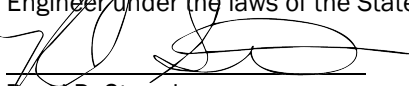
1. Specification Section 26 3213 – Engineer Generators & Section 26 3600 – Transfer Switches
 - a. Kohler Power Systems is an approved equal generator manufacturer.

ATTACHMENTS

1. Current Plan Holders List

End of Addendum No. 2

CERTIFICATIONS PAGE
FOR
COLLEGE & 3RD LIFT STATION
CITY OF STORM LAKE
STORM LAKE, IA
FEBRUARY 2025
PROJECT NO. 23-29447

	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 _____ 02/27/25 Date License Number: P26593 My License Renewal Date is 12/31/2026 Pages or sheets covered by this seal: <u>ADDENDUM #2</u>
---	---

ISG
1725 N LAKE AVE
STORM LAKE, IA 50588

END OF CERTIFICATION PAGE

<u>Company Name & Address</u>	<u>Contact Name/Email Address</u>	<u>Phone/Fax</u>	<u>Bus. Cert</u>	<u>Bus. Desig</u>	<u>Entry Date</u>	<u>Doc Type</u>	<u>Comments</u>
H&W Contracting LLC 3416 W Hovland Ave, Sioux Falls, SD-57107	John Rennich john@h-wcontracting.com	605-339-8834 605-339-9175		Prime Bidder	02/14/2025	eBidDoc	
Core and Main LP 1830 Craig Park Ct, St Louis, MO-63146	Vanessa Squires vanessa.squires@coreandmain.com	3144324700		Supplier	02/14/2025	eBidDoc	
GCC Ready Mix 351 W Maple Dr, Hartley, IA-51346	Steve Struck steven.struck@gcc.com	712-541-0976		Supplier	02/14/2025	eBidDoc	
Core & Main 235 2355 16th Ave SW, Cedar Rapids, IA-52404	Michael Loffer michael.loffer@coreandmain.com	319-362-1698		Supplier	02/14/2025	eBidDoc	
Vander Windt and Sons 31144 C-12, LeMars, IA-51031	Mike Vander Windt mikevanderwindt@yahoo.com	712-548-8702 712-548-8702		Subcontractor	02/14/2025	eBidDoc	
Barcon Inc 1602 W 29th St, South Sioux City, NE-68776	Miles Gebel miles.gebel@barcon.biz	712-371-3852		Subcontractor	02/17/2025	eBidDoc	
Core and Main LP 1830 Craig Park Ct, St Louis, MO-63146	Matthew Kolbow matthew.kolbow@coreandmain.com	3144324700		Supplier	02/18/2025	eBidDoc	
Thompson Solutions Group 2300 7th Street, Sioux City, IA-51105	Tom Hermann tom.hermann@thompsonsolutionsgroup.com	712-224-3800	TGB	Subcontractor	02/18/2025	eBidDoc	
Construction League Plan Room 3900 Stadium Drive, Sioux City, IA-51106	Grant Thompson office@scaplanroom.com	712-255-9730 712-255-3915		Plan Room	02/18/2025	eBidDoc	
Sioux Falls Builders Exchange 1418 C Avenue, Sioux Falls, SD-57104	Brody Hansen info@sfbx.com	605-357-8687 605-357-8655		Plan Room	02/18/2025	eBidDoc	
Bert Gurney & Associates 4428 South 108th Street, Omaha, NE-68137	Chris Johnson chrisj@bgagurney.com	402-551-7995 402-553-5879	SBE	Supplier	02/18/2025	eBidDoc	
American Underground Supply LLC 3008 Morningside Rd, fremont, NE-68025	David Tafolla bids@ausupply.com	4027042290	WOSB,WBE Supplier		02/18/2025	eBidDoc	
Excel Fluid Group 5350 West 137th Street, Brook Park, OH-44142	Carl Wootten carl.wootten@excelfluidgroup.com	216-941-1500		Supplier	02/19/2025	eBidDoc	
Diamond Edge Construction 812 14th Circle NE, Sioux Center, IA-51250	Trevin Hulstein Trevinh@diamond-ec.com	712-441-7717		Subcontractor	02/19/2025	eBidDoc	
Superior Ind. Equip. 1609 Afton Road, Sycamore, IL-60178	Dalton Royer droyer@superiorpumps.com	515-815-8900 515-815-8898		Subcontractor	02/20/2025	eBidDoc	
Graff Excavating Inc. 803 East State Street, Toledo, IA-52342	Mike Graff mcgexcavating@yahoo.com	641-750-5988 641-484-7569		Prime Bidder	02/21/2025	eBidDoc	
Tom's Backhoe Service Inc. 323 Woodland Hills Ln, Brainerd, MN-56401	Tom Thompson info@tomsbackhoe.net	218-828-4232 218-829-3746		Prime Bidder	02/24/2025	eBidDoc	
Rinker Materials 30622 Forest Blvd, Stacy, MN-55079	Kevin Dingeman kevin.dingeman@rinkerpipe.com	(651) 462-2130		Supplier	02/25/2025	eBidDoc	
Iowa Pump Works, Inc.dba Minnesota	Projects Team projects@iowapumpworks.com	5156350025		Supplier	02/26/2025	eBidDoc	

<u>Company Name & Address</u>	<u>Contact Name/Email Address</u>	<u>Phone/Fax</u>	<u>Bus. Cert</u>	<u>Bus. Desig</u>	<u>Entry Date</u>	<u>Doc Type</u>	<u>Comments</u>
Pump Works 825 SW Ordinance Road, Ankeny, IA- 50023							
Otter Creek Mechanical, Inc. 58854 8685 Rd., Waterbury, NE- 68785	Rick Stewart rickstewartocmi@nntc.net	7128989105 402-638-2333	SBE	Prime Bidder	02/26/2025	eBidDoc	
Autumn Custom Seeding, LLC P.O. Box 465, Dakota City, NE- 68731	Daniel Heinemann Estimating@autumncustomseeding.com	7122044354		Subcontractor	02/26/2025	eBidDoc	
ALLIED SYSTEMS, INC. 2200 EAST DOUGLAS AVE, DES MOINES, IA- 50313	Larry Landphair larry@asidsm.com	515-246-9999		Supplier	02/27/2025	eBidDoc	
Northern Dewatering Inc. 14405 Northdale Blvd, Rogers, MN- 55374	Von Bergstrom vonb@northerndewatering.com	763-428-2616 763-428-2671		Subcontractor	02/27/2025	eBidDoc	

Date: February 26, 2025

Project Name: College & 3rd Lift Station

Project location: 331 College Avenue + Storm Lake, Iowa 50588

Project Number: 23-29447

Bid Date + Time: March 04, 2025, + 10:00 a.m.

Architect/Engineer: ISG, 1725 N Lake Avenue, Storm Lake, Iowa 50588

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. Funding Sources and Compliance
 - a. This project is City funded and does **NOT** require compliance with American Iron and Steel (AIS) or Build America, Buy America (BABA).
2. Bid Form Attachment
 - a. This is a typo and there is no Bid Form Attachment.
3. Plan Set Page Order
 - a. Plan sheets were compiled out of order. Project manual and plan set have been reuploaded with the correct page order. Please note any revised plan sheets listed below have **NOT** been integrated into the reuploaded plan set. Any revised plan sheets listed in this addendum and others will be integrated into a conformed set for construction.

REFER TO PLAN SHEETS

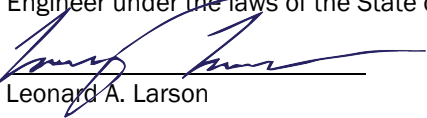
4. Revised Plan Sheet C3-30A
 - a. Revised callout of existing PVC force main to align with C2-10, C3-20A, and C3-20B.
5. Revised Plan Sheet C3-31A
 - a. Revised callout of existing PVC force main to align with C2-10, C3-20A, and C3-20B.
6. Revised Plan Sheet C3-30B
 - a. Revised callout of existing PVC force main to align with C2-10, C3-20A, and C3-20B.
7. Revised Plan Sheet C3-31B
 - a. Revised callout of existing PVC force main to align with C2-10, C3-20A, and C3-20B.

ATTACHMENTS

1. Revised Plan Sheet C3-30A
2. Revised Plan Sheet C3-31A
3. Revised Plan Sheet C3-30B
4. Revised Plan Sheet C3-31B
5. Current Plan Holders List

End of Addendum No. 1

CERTIFICATIONS PAGE
FOR
COLLEGE & 3RD LIFT STATION
CITY OF STORM LAKE
STORM LAKE, IA
FEBRUARY 2025
PROJECT NO. 23-29447

	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.  Leonard A. Larson <u>02/26/25</u> Date License Number: 24128 My License Renewal Date is 12/31/2026 Pages or sheets covered by this seal: <u>ADDENDUM #1</u>
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ISG
1725 N LAKE AVE
STORM LAKE, IA 50588

END OF CERTIFICATION PAGE

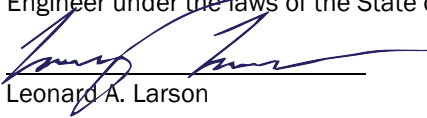
Storm Lake College & 3rd Lift Station Replacement

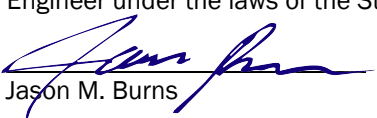
Quest eBidDoc™ Number: 9535654**Closing Date:** Tue, 03/04/2025 10:00 AM CST **Posting Type:** Construction Project **Owner Name:** City of Storm Lake **Solicitor Name:** ISGInc - Mankato**Provider Account** **Contact:** Arie Hoekstra **Phone:** 605.274.6401 **Email:** arie.hoekstra@isginc.com

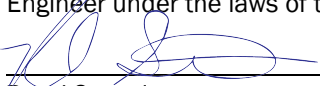
Company Name & Address	Contact Name/Email Address	Phone/Fax	Bus. Cert	Bus. Desig	Entry Date	Doc Type	Comments
ALLIED SYSTEMS, INC. 2200 EAST DOUGLAS AVE, DES MOINES, IA-50313	Josh Luecht josh@asidsm.com	515-246-9999		Supplier	02/13/2025	eBidDoc	
Minnesota Builders Exchange 1123 Glenwood Ave, Minneapolis, MN-55405	David Siegel addenda@mbex.org	612-381-2625		Plan Room	02/13/2025	eBidDoc	
Plains Builders Exchange, Inc 220 N Kiwanis Ave, Sioux Falls, SD-57104	Andrea Pudwill info@plainsbuilders.com	605-334-8886 605-334-0112		Plan Room	02/13/2025	eBidDoc	
Mellen CBIA 3404 S. 11th Street, Council Bluffs, IA-51501	Eric Deters edeters@melleninc.com	712-322-9333		Supplier	02/13/2025	eBidDoc	
Electric Pump/Mc2 4280 E 14th Street, Des Moines, IA-50313	Kyle Zaegel kzaegel@electricpump.com	800-383-7867		Supplier	02/13/2025	eBidDoc	
Pollution Control Systems 102 e 4 th st, vinton, IA-52349	mark vogt markvogt1983@gmail.com	319-472-4082 319-472-5898	SBE	Supplier	02/13/2025	eBidDoc	
Reding's Gravel & Excavating 2001 East Oak St, Algona, IA-50511	Joe Roach joe.roach@rgealgona.com	Algona (515) 295-3661; Storm Lake (712) 732-4059 Algona (515) 295-9422; Storm Lake (712) 732-2839		Unknown	02/13/2025	eBidDoc	
Christiansen Construction Company 1138 Mill Rd., Pender, NE-68047	Forrest Kramer fk@cccpende.biz	402-385-3027 402-385-3020	SBE	Prime Bidder	02/13/2025	eBidDoc	
Oldcastle Infrastructure 1601 E. 39th St. North, Sioux Falls, SD-57104	Douglas Schmidgall Douglas.Schmidgall@oldcastle.com	320-424-1638 none		Supplier	02/13/2025	eBidDoc	
King Construction PO Box 369, Wall Lake, IA-51466	Marcus Stoltenberg info@kingconstruction.net	712-664-2918 712-664-2920		Prime Bidder	02/13/2025	eBidDoc	
Cleveringa Excavating LLC 1201 3rd Ave, Alton, IA-51003	Chad chadcleveringa@hotmail.com	7127564534 7127564535		Prime Bidder	02/13/2025	eBidDoc	
Master Builders Of Iowa 221 Park Street, Des Moines, IA-50309	Cindy Adams mbiplanroom-dsm@mbionline.com	515-288-7339 515-288-8718		Plan Room	02/14/2025	eBidDoc	
EES-Engineered Equipment Solutions 203 E. Main St, State Center, IA-50247	Jim Streeter jim@e-equipmentsolutions.com	641-483-2904 888-421-2856		Supplier	02/14/2025	eBidDoc	
Holmes Murphy & Associates 2727 Grand Prairie Parkway, Waukee, IA-50263	Grace Dickinson gdickinson@holmesmurphy.com	5152236971	WBE	Bonding/Surety	02/14/2025	eBidDoc	
H&W Contracting LLC 3416 W Hovland Ave, Sioux Falls, SD-57107	John Rennich john@h-wcontracting.com	605-339-8834 605-339-9175		Prime Bidder	02/14/2025	eBidDoc	
Core and Main LP 1830 Craig Park Ct, St Louis, MO-63146	Vanessa Squires vanessa.squires@coreandmain.com	3144324700		Supplier	02/14/2025	eBidDoc	
GCC Ready Mix 351 W Maple Dr, Hartley, IA-51346	Steve Struck steven.struck@gcc.com	712-541-0976		Supplier	02/14/2025	eBidDoc	

<u>Company Name & Address</u>	<u>Contact Name/Email Address</u>	<u>Phone/Fax</u>	<u>Bus. Cert</u>	<u>Bus. Desig</u>	<u>Entry Date</u>	<u>Doc Type</u>	<u>Comments</u>
Core & Main 235 2355 16th Ave SW, Cedar Rapids, IA-52404	Michael Loffer michael.loffer@coreandmain.com	319-362-1698		Supplier	02/14/2025	eBidDoc	
Vander Windt and Sons 31144 C-12, LeMars, IA-51031	Mike Vander Windt mikevanderwindt@yahoo.com	712-548-8702 712-548-8702		Subcontractor	02/14/2025	eBidDoc	
Barcon Inc 1602 W 29th St, South Sioux City, NE-68776	Miles Gebel miles.gebel@barcon.biz	712-371-3852		Subcontractor	02/17/2025	eBidDoc	
Core and Main LP 1830 Craig Park Ct, St Louis, MO-63146	Matthew Kolbow matthew.kolbow@coreandmain.com	3144324700		Supplier	02/18/2025	eBidDoc	
Thompson Solutions Group 2300 7th Street, Sioux City, IA-51105	Tom Hermann tom.hermann@thompsonsolutionsgroup.com	712-224-3800	TGB	Subcontractor	02/18/2025	eBidDoc	
Sioux City Construction League Plan Room 3900 Stadium Drive, Sioux City, IA-51106	Grant Thompson office@scaplanroom.com	712-255-9730 712-255-3915		Plan Room	02/18/2025	eBidDoc	
Sioux Falls Builders Exchange 1418 C Avenue, Sioux Falls, SD-57104	Brody Hansen info@sfbx.com	605-357-8687 605-357-8655		Plan Room	02/18/2025	eBidDoc	
Bert Gurney & Associates 4428 South 108th Street, Omaha, NE-68137	Chris Johnson chrisj@bgagurney.com	402-551-7995 402-553-5879	SBE	Supplier	02/18/2025	eBidDoc	
American Underground Supply LLC 3008 Morningside Rd, fremont, NE-68025	David Tafolla bids@ausupply.com	4027042290	WOSB,WBE	Supplier	02/18/2025	eBidDoc	
Excel Fluid Group 5350 West 137th Street, Brook Park, OH-44142	Carl Wootten carl.wootten@excelfluidgroup.com	216-941-1500		Supplier	02/19/2025	eBidDoc	
Diamond Edge Construction 812 14th Circle NE, Sioux Center, IA-51250	Trevin Hulstein Trevinh@diamond-ec.com	712-441-7717		Subcontractor	02/19/2025	eBidDoc	
Superior Ind. Equip. 1609 Afton Road, Sycamore, IL-60178	Dalton Royer droyer@superiorpumps.com	515-815-8900 515-815-8898		Subcontractor	02/20/2025	eBidDoc	
Graff Excavating Inc. 803 East State Street, Toledo, IA-52342	Mike Graff mcgexcavating@yahoo.com	641-750-5988 641-484-7569		Prime Bidder	02/21/2025	eBidDoc	
Tom's Backhoe Service Inc. 323 Woodland Hills Ln, Brainerd, MN-56401	Tom Thompson info@tomsbackhoe.net	218-828-4232 218-829-3746		Prime Bidder	02/24/2025	eBidDoc	
Rinker Materials 30622 Forest Blvd, Stacy, MN-55079	Kevin Dingeman kevin.dingeman@rinkerpipe.com	(651) 462-2130		Supplier	02/25/2025	eBidDoc	
Iowa Pump Works, Inc.dba Minnesota Pump Works 825 SW Ordnance Road, Ankeny, IA-50023	Projects Team projects@iowapumpworks.com	5156350025		Supplier	02/26/2025	eBidDoc	
Otter Creek Mechanical, Inc. 58854 8685 Rd., Waterbury, NE-68785	Rick Stewart rickstewartocmi@nntc.net	7128989105 402-638-2333	SBE	Prime Bidder	02/26/2025	eBidDoc	

CERTIFICATIONS PAGE
FOR
COLLEGE & 3RD LIFT STATION
CITY OF STORM LAKE
STORM LAKE, IA
FEBRUARY 2025
PROJECT NO. 23-29447

	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.  Leonard A. Larson <u>02/07/25</u> Date License Number: 24128 My License Renewal Date is 12/31/2026 Pages or sheets covered by this seal: <u>Divisions 00; Division 01 exception 01 3510 and 01 3510.a; Division 33, and Division 44.</u>
---	---

	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.  Jason M. Burns <u>02/07/25</u> Date License Number: P26658 My License Renewal Date is 12/31/2026 Pages or sheets covered by this seal: <u>Sections 01 3510 and 01 351.a, Division 03, and Division 08.</u>
---	--

	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.  <u>Royal Streed</u> <u>02/07/25</u> Date License Number: P26593 My License Renewal Date is 12/31/2026 Pages or sheets covered by this seal: <u>Division 26</u>
---	--

ISG
1725 N LAKE AVE
STORM LAKE, IA 50588

END OF CERTIFICATION PAGE

TABLE OF CONTENTS

College & 3rd Lift Station
Storm Lake, IA
Project No. 23-29447

PROCUREMENT AND CONTRACTING REQUIREMENTS

1.01 DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

- A. Notice of Public Hearing
- B. Notice to Bidders
- C. C-200 Instructions to Bidders South
- D. C-410 Bid Form
- E. Bid Form Attachment
- F. C-430 Bid Bond
- G. Bidder Status Form
- H. C-510 Notice of Award
- I. C-520 Form of Agreement
- J. C-550 Notice to Proceed
- K. C-610 Performance Bond
- L. C-612 Warranty Bond
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3.01 GEOTECHNICAL REPORT

- A. Geotechnical Report

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NOTE: Applicable portions of the Statewide Urban Design and Specifications (SUDAS), 2024 Edition, with all latest revisions and the Recommended Standards for Water Works (10 States Standards), 2012 Edition shall apply to this project.

Where there may be a variation between the plans, procurement and contracting requirements, specifications, and the referenced SUDAS and 10 States Standards, the order of procedure shall be:

1. Detailed Plans
2. Procurement and Contracting Requirements, and Specifications
3. Recommended Standards for Wastewater Facilities (10 States Standards), 2014
4. Statewide Urban Design and Specifications (SUDAS), 2024

END OF TABLE OF CONTENTS

Division 00: Procurement and Contracting Requirements

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 COLLEGE & 3RD LIFT STATION

Notice is hereby given that the City Council of Storm Lake, Iowa, will meet at 620 Erie St, Storm Lake, Iowa on the **17th day of March, 2025, at 5:00 p.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 the College & 3rd Lift Station, 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 general description of types of construction and their limits for which bids will be received shall be as follows:

Base Bid

1. Demolition and abandonment of several sanitary sewer structures including the existing lift station.
2. Capping and abandonment of several sanitary sewer lines including the existing force main.
3. Construction of several sanitary sewer structures.
4. Miscellaneous work to complete project including but not limited to tree removal, site lighting construction, natural fencing establishment, and bollard placement.

Alternate A – HDPE Wet Well and Integral Valve Vault

1. Construction an HDPE lift station.

Alternate B – Precast Wet Well and Valve Vault

1. Construction of a precast lift station

The project is located at 331 College Avenue, Storm Lake, IA 50588.

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 Clerk

NOTICE TO BIDDERS

FOR THE CONSTRUCTION OF COLLEGE & 3RD LIFT STATION FOR STORM LAKE, IOWA

Sealed bids will be received by the City of Storm Lake, Iowa at 620 Erie St, Storm Lake, Iowa before **10:00 a.m.** on the **4th day of March 2025**, for the construction of the College & 3rd Lift Station 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 **March 17, 2025, at 5:00 p.m.**, at 620 Erie St, 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

1. Demolition and abandonment of several sanitary sewer structures including the existing lift station.
2. Capping and abandonment of several sanitary sewer lines including the existing force main.
3. Construction of several sanitary sewer structures.
4. Miscellaneous work to complete project including but not limited to tree removal, site lighting construction, natural fencing establishment, and bollard placement.

Alternate A – HDPE Wet Well and Integral Valve Vault

1. Construction an HDPE lift station.

Alternate B – Precast Wet Well and Valve Vault

1. Construction of a precast lift station.

The project is located at 331 College Avenue, Storm Lake 50588.

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, 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.

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 **April 14, 2026**, and final completion by May 14, 2026, 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.

Bidders shall be expected to comply with Chapters 91C Code of Iowa and IAC Chapter 875.150 concerning the registration and bonding of construction contractors and the successful bidder shall be required to supply City of Storm Lake with proof of said compliance at time of submitting bid with a completed Contractor Eligibility form."

The Contractor shall observe the laws of the State of Iowa with reference to "Occupational Safety and Health Standards".

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.

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 Clerk

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

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.

4. **Deleted**

- 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.

- 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

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 DELETED.

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 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 60 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 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.

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.
- 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 for the base Bid and include a separate price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate.
- B. In the comparison of Bids, alternates will be applied in the same order of priority as listed 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 – COLLEGE & 3RD LIFT STATION.**" A mailed Bid shall be addressed to

KERI NEVRATIL

CITY OF STORM LAKE 620 ERIE ST, STORM LAKE, IA 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 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. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner shall announce to all bidders a “Base Bid” budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.
- 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.

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)

BID FORM

COLLEGE & 3RD LIFT STATION

Storm Lake, Iowa

Project No. 23-29447

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

**City of Storm Lake
Attn: Keri Navratil
620 Erie St
Storm Lake, IA 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:

<u>Addendum No.</u>	<u>Addendum, Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

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

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

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.

ARTICLE 5 – BASIS OF BID

- 5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Lump Sum Bid Price For Base Bid	\$
Alternate A [Add]	\$
Alternate B [Add]	
Total Of Lump Sum Bid Price For Base Bid + Alternate A	\$
Total Of Lump Sum Bid Price For Base Bid + Alternate B	

- A. Bidder acknowledges that the Bid Lump Sum Price plus the alternate chosen includes an amount considered by Bidder to be adequate to cover Bidder’s overhead and profit.
- B. Contract will be awarded to the lowest responsible bidder and no tied bids will be permitted.

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete on or before **April 14,2026**, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before **May 14, 2026**.
- 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.

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]

[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.:

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

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:_____

City, State, Zip: _____

You may attach additional sheet(s) if needed.

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:_____

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.

NOTICE OF AWARD

Date of Issuance:

Owner:

Owner's Contract No.:

Engineer:

Engineer's Project No.:

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 on or before _____.
- 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

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 \$_____ 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 \$_____ 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:

Lump Sum Bid Price For Base Bid	\$
Alternate ____	\$
Total Of Lump Sum Bid Price For Base Bid + Alternate ____	\$

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 [] 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.

ARTICLE 7 – INTEREST

- 7.01 All amounts not paid when due shall bear interest at the rate of [] 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.

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: COLLEGE & 3RD LIFT STATION.
8. Addendums: Addendum No. 1 (_____ -2025) (not attached but incorporated by reference)
9. Exhibits to this Agreement (enumerated as follows):
 - 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:
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.: _____

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

NOTICE TO PROCEED

Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
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

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

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
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.

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.

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:

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)

Contractor's Name and Corporate Seal

(seal)

Surety's Name and Corporate Seal

By: _____

Signature

By: _____

Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____

Signature

Attest: _____

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.

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.

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:

Contractor's Application for Payment No. _____

Application Period:		Application Date:
To (Owner):	From (Contractor):	Via (Engineer):
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

Application For Payment

Change Order Summary

Approved Change Orders			1. ORIGINAL CONTRACT PRICE.....	\$ _____
Number	Additions	Deductions	2. Net change by Change Orders.....	\$ _____
			3. Current Contract Price (Line 1 ± 2).....	\$ _____
			4. TOTAL COMPLETED AND STORED TO DATE	
			(Column F total on Progress Estimates).....	\$ _____
			5. RETAINAGE:	
			a. 5% X _____ Work Completed.....	\$ _____
			b. 5% X _____ Stored Material.....	\$ _____
			c. Total Retainage (Line 5.a + Line 5.b).....	\$ _____
			6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c).....	\$ _____
			7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application).....	\$ _____
			8. AMOUNT DUE THIS APPLICATION.....	\$ _____
			9. BALANCE TO FINISH, PLUS RETAINAGE	
			(Column G total on Progress Estimates + Line 5.c above).....	\$ _____
TOTALS				
NET CHANGE BY				
CHANGE ORDERS				

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 and is not defective.

Contractor Signature

By:	Date:
-----	-------

Payment of: \$ _____
(Line 8 or other - attach explanation of the other amount)

is recommended by: _____
(Engineer) (Date)

Payment of: \$ _____
(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):						Application Number:		
Application Period:						Application Date:		
		B	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				
	Totals							

Progress Estimate - Unit Price Work

Contractor's Application

[illegible]

Stored Material Summary

Contractor's Application

[illegible]

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer:	Engineer's Project No.:
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: _____

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.

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.

By: _____

Title: _____ Project Manager

Dated: _____

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



Issued and Published Jointly by



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1420 King Street, Alexandria, VA 22314-2794
(703) 684-2882
www.nspe.org

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(202) 347-7474
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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

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.

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.

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.

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.

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

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

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,

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.

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.

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.

- 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

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.

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,

- 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

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.

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.

- 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.

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

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).

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

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.

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).

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.

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

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

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.

- 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 consider 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

- 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.

- 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.

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

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;

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

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

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.

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.

- 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

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.

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.

- 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.

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

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.

- 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

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

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

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.

- 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

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

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

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, expeditors, 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.

- 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.

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

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.

- 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

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:

- 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

- 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

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.

- 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

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,

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.

- 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,

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

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.

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.

SUPPLEMENTARY 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 March 27, 2024, prepared by Certified Testing Services, Inc., Sioux City, IA., entitled: "Geotechnical Engineering Report for College Avenue and 3rd Street Lift Station Storm Lake, Iowa", consisting of 22 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.
- D.** The following drawings of physical conditions relating to existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities) are known to Owner:
 - 1.** No drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to Owner.
- E.** Contractor may examine copies of reports and drawings identified in SC 5.03.C and SC 5.03.D that were not included with the Bidding Documents at ISG, Inc. 1725 N Lake Ave, Storm Lake, IA during regular business hours, or may request copies from Engineer.

- F. The reports and drawings identified above are not part of the Contract Documents, but the “technical data” contained therein upon which Contractor may rely, as expressly identified and established above, are incorporated in the Contract Documents by reference. Contractor is not entitled to rely upon any other information and data known to or identified by Owner or Engineer.

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.

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-6.01 Add the following paragraphs immediately after 6.01.B:

- A. The correction period specified as on year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be 2 years after Substantial Completion.

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:	<u>Statutory</u>
---------------	------------------

Federal, if applicable (e.g., Longshoreman's):	<u>Statutory</u>
---	------------------

Jones Act coverage, if applicable:

Bodily injury by accident, each accident	\$ <u>1,000,000</u>
---	----------------------------

Bodily injury by disease, aggregate	\$ <u>1,000,000</u>
--	----------------------------

Employer's Liability:

Bodily injury, each accident	\$ <u>1,000,000</u>
-------------------------------------	----------------------------

Bodily injury by disease, each employee	\$ <u>1,000,000</u>
--	----------------------------

Bodily injury/disease aggregate	\$ <u>2,000,000</u>
--	----------------------------

For work performed in monopolistic states, stop-gap liability coverage shall be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	\$ <u>1,000,000</u>
---	----------------------------

Foreign voluntary worker compensation	<u>Statutory</u>
--	------------------

- 2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:**

General Aggregate	\$ <u>2,000,000</u>
--------------------------	----------------------------

Products - Completed Operations Aggregate	\$ <u>2,000,000</u>
--	----------------------------

Personal and Advertising Injury	\$ <u>1,000,000</u>
--	----------------------------

Each Occurrence (Bodily Injury and Property Damage)	\$ <u>1,000,000</u>
--	----------------------------

- 3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:**

Bodily Injury:

Each person	\$ <u>1,000,000</u>
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EJCDC® C-800, Supplementary Conditions.

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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

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

EJCDC® C-800, Supplementary Conditions.

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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.

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.
 - 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.**
- 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 8 –OTHER WORK AT THE SITE

SC-8.02 Coordination

- A. Owner intends to coordinate with other for the performance of other work at or adjacent to the Site.**
 - 1. The Owner shall have authority and responsibility for coordination of the various contractors and work forces at the Site;**
 - 2. The following specific matters are to be covered by such authority and responsibility: ;**
 - 3. The extent of such authority and responsibilities is:**

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.
 - 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, 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.
- 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 14 – TESTS AND INSPECTIONS, CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC-14.02 Tests, Inspections and Approvals

SC-14.02 Amend Paragraph 14.02.B to read as follows:

- A. Contractor 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 Contractor, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provision of Paragraph 15.05

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

SC-17.01 Methods and Procedures

SC-17.01 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 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.

Date of Issuance:

Effective Date:

PROJECT:	ENGINEER'S PROJECT NUMBER:
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
(Increase) (Decrease) from previously approved Change Orders Number to	Substantial Completion (day or dates): Ready for Final Payment (day or dates):
.....	(Increase) (Decrease) from previously approved Change Orders Number to
Contract Price prior to this Change Order: \$0.00	Substantial completion (day or dates): Ready for Final Payment (day or dates):
(Increase) (Decrease) of this Change Order: \$0.00	Contract Times prior to this Change Order: Substantial Completion (day or dates): Ready for Final Payment (day or dates):
Contract Price Incorporating this Change Order: \$0.00	(Increase) (Decrease) of this Change Order: Substantial Completion (day or dates): Ready for Final Payment (day or dates):
	Contract Times with all approved Change Orders: Substantial Completion (day or dates): Ready for Final Payment (day or dates):
RECOMMENDED: I +S GROUP	ACCEPTED: 0
By: Engineer (Authorized Signature)	By: Owner (Authorized Signature)
Date:	Date:
	ACCEPTED: 0
	By: Contractor (Authorized Signature)
	Date:

EJCDC® C-941, Change Order.

Prepared and published 2013 by the Engineers Joint Contract Documents Committee.

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					Amount	
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	Increase	Decrease

TOTALS
NET CHANGE IN CONTRACT PRICE
INCREASE (DECREASE) IN CONTRACT TIME, days

\$0.00	\$0.00
\$0.00	

Justification For Changes:

Division 01: General Requirements

SECTION 01 1000 SUMMARY

PART 1 GENERAL

1.01 PROJECT

- A. Project Name: 29447 College and 3rd Lift Station
- B. Owner's Name: City of Storm Lake.
- C. Engineer's Name: ISG, Inc (I & S Group).
- D. The Project consists of the construction of a 34-foot-deep high-density polyethylene (HDPE) packaged lift station; several sewer structures; gravity main and force main. Additionally, it includes the demolition, capping and abandonment of several sanitary sewer structures including the existing lift station, and force main. Other miscellaneous work including but not limited to tree removal, site lighting construction, natural living fence establishment, and odor control and bollard placement is included to complete the project.
- E. Sales Tax:
 - 1. Owner is exempt from Iowa Sales and Use Tax and the following shall apply:
 - a. Owner will issue an "Iowa Sales Tax Exemption Certificate" and authorization letter to the Contractor.
 - b. Contractor shall include "Iowa Sales Tax Exemption Certificate" and authorization with all subcontractors for project.
 - c. Contractor and subcontractor shall not therefore include sales and use tax in bidding and contract amounts.

1.02 CONTRACT DESCRIPTION

- A. Contract Type: A single prime contract based on a Stipulated Price as described in Document EJCDC C-520 - Agreement Between Contractor and Owner.

1.03 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 49-division format and CSI/CSC's "Master Format" numbering system.
 - 1. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate, Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates. Abbreviated or outlined type includes incomplete sentences.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. Omission of words or phrases, such as; "the Contractor shall", "in conformance with", "shall be", "shall comply with", "as noted on the plans", "according to the plans", "a", "an", "the", and "all", are intentional and depending on the context, are implied.
 - b. Supply omitted words or phrases by inference.
 - c. Part numbers are not intended to be consecutive but represent standard specification titles.

1.04 OWNER OCCUPANCY

- A. Owner of Property, not to be confused with Owner of Project, intends to continue to occupy adjacent portions of the property during the entire construction period to conduct normal operation.

- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
 - 1. Bypass system will be required to continue serving the surrounding properties.
- C. Schedule the Work to accommodate Owner occupancy.

1.05 CONTRACTOR USE OF SITE AND PREMISES

- A. Construction Operations: Limited to areas noted on Drawings.
 - 1. Owner has been granted a temporary construction easement to allow Contractor to store products and complete work.
 - 2. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, the public, and emergency vehicles at all times. Do not use area outside of temporary construction easement for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 - c. Access to the remainder of property shall be maintained at all times.
- B. Provide access to and from site as required by law and by Owner:
 - 1. Do not obstruct roadways, sidewalks, or other public ways without permit.
- C. Utility Outages and Shutdown:
 - 1. Limit shutdown of utility services to Owner-specified hours at a time, arranged at least 24 hours in advance with Owner.
 - 2. Prevent accidental disruption of utility services to other facilities.

1.06 WASTE MATERIAL AND DISPOSAL

- A. Arrange for disposal of waste materials as required.
- B. Stockpile or dispose of salvageable items as directed by Engineer.
- C. Salvageable items remain property of Owner.

1.07 BARRICADES AND LIGHTS

- A. Erect and maintain barricades and lights and/or watchmen for protection and warning of pedestrians and vehicles, prevent access of unauthorized persons to portions of site where work is in progress.

1.08 CONSTRUCTION FACILITIES

- A. Storage:
 - 1. Arrange for storage space to suit needs.
 - 2. Store materials and equipment in manner which will preserve their quality and fitness; provide temporary storage buildings as required.
 - 3. Location of construction facilities, including construction plant and yard on site, shall be subject to approval by Engineer; remove upon completion of work.
- B. Service: arrange for water, electrical energy, compressed air, and other services to meet own requirements.
- C. Sanitary: provide suitable sanitary facilities for construction personnel.

1.09 HISTORICAL OR ARCHEOLOGICAL DISCOVERY

- A. If during the course of construction, evidence of deposits of historical or archaeological interest is found, the Contractor shall cease operations affecting the find and shall notify the Owner who shall notify the Iowa Department of Natural Resources and the Director and Historic Preservation Officer, State Historical Department, E. 12th and Grand, Des Moines, Iowa 50319. No further disturbance of the deposits shall ensue until the Contractor has been notified by the Owner that he may proceed. The Owner will issue a Notice to Proceed only after the State official has surveyed the find and made a determination to this department and the Owner. 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.

1.10 ENGINEERING SERVICES

- A. Engineer will furnish line and grade required to construct the work.
- B. Contractor shall preserve all monuments, benchmarks, reference points and stakes established by the Engineer. In case of willful or careless destruction of the same, the Contractor will be charged with the resulting expense of replacement and shall be responsible for any mistakes or loss of time that may result from their unnecessary loss or disturbance.
- C. It shall be the duty of the Contractor to call to the attention of the Engineer any reference lines, points, or benchmarks which may have been disturbed or which seem to be off line or grade.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

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**SECTION 01 3000.1
SHOP DRAWING SUBMITTAL FORM**

ENGINEER'S PROJECT NO: 23-29447

PROJECT NAME: COLLEGE & 3RD LIFT STATION

SHOP DRAWING #: _____

DATE: _____

ITEM: _____

SUBCONTRACTOR OR SUPPLIER APPROVAL:	GENERAL CONTRACTOR APPROVAL:
ARCHITECT / ENGINEER REVIEW:	OTHER REVIEWS AND COMMENTS:

END OF SECTION

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**SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General administrative requirements.
- B. Electronic document submittal service.
- C. Preconstruction meeting.
- D. Progress meetings.
- E. Number of copies of submittals.
- F. Requests for Interpretation (RFI) procedures.
- G. Submittal procedures.

1.02 RELATED REQUIREMENTS

- A. Section 01 6000 - Product Requirements: General product requirements.
- B. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.
- C. 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.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

- A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.
 - 1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
 - 2. Contractor and Engineer are required to use this service.
 - 3. It is Contractor's responsibility to submit documents in allowable format.
 - 4. Subcontractors, suppliers, and Engineer's consultants are to be permitted to use the service at no extra charge.
 - 5. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided by the service provider.
 - 6. Paper document transmittals will not be reviewed; emailed electronic documents will not be reviewed.
 - 7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.
- B. Cost: The cost of the service is to be paid by Contractor; include the cost of the service in the Contract Sum.
- C. Project Closeout: Engineer will determine when to terminate the service for the project and is responsible for obtaining archive copies of files for Owner.

3.02 PRECONSTRUCTION CONFERENCE

- A. Engineer will schedule a meeting after Notice of Award.
- B. Attendance Required:
 - 1. Owner.
 - 2. Engineer.
 - 3. Contractor.
 - 4. Subcontractors.
 - 5. Safety Representatives.
 - 6. Representatives of Governmental or other Regulatory Agencies.
 - 7. Utility Companies
 - 8. Equipment Manufacturer's Technical Representatives (As Needed)
- C. Minimum Agenda:
 - 1. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
 - 2. Tentative time and payment schedule.
 - 3. Critical work sequencing.
 - 4. Designation of personnel representing the parties to Contract, Owner and Engineer.
 - 5. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 6. Adequacy of distribution of Contract Documents.
 - 7. Procedures for maintaining Record Documents.
 - 8. Use of Premises:
 - a. Office and storage areas.
 - b. Owner's requirements.
 - 9. Major equipment deliveries and priorities.
 - 10. Safety and first-aid procedures.
 - 11. Security procedures.
 - 12. Housekeeping procedures.

3.03 PROGRESS MEETINGS

- A. Progress meetings will be scheduled on a need basis.
 - 1. Engineer will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- B. Attendance Required:
 - 1. Contractor.
 - 2. Owner.
 - 3. Engineer.
 - 4. Contractor's superintendent.
 - 5. Major subcontractors.
- C. 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. Coordination of projected progress.
 - 10. Maintenance of quality and work standards.
 - 11. Effect of proposed changes on progress schedule and coordination.
 - 12. Other business relating to work.

3.04 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.

3.05 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.

3.06 NUMBER OF COPIES OF SUBMITTALS

- A. Electronic Documents: Submit one electronic copy in PDF format; an electronically marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

3.07 SUBMITTAL PROCEDURES

- A. General Requirements:
 1. Use a single transmittal for related items.
 2. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
 3. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
 4. 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.
 5. 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.
 6. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
 7. When revised for resubmission, identify all changes made since previous submission.
 8. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
 9. Submittals not requested will not be recognized or processed.

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 2018 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 2018 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 2018 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 Specification for Agencies Performing Nondestructive Testing.
- C. ASTM C1077-17 - 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 the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- F. AISC Steel Construction Manual 15th Edition (2017)
- G. 2018 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 2018 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. Provide special inspector with approved design drawings, specifications and approved shop drawings.
 - b. Provide special inspectors and testing agencies with full access to site at all times.
 - c. 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 2018 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 2018 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. Contractor shall directly employ and pay for services of the special inspectors to perform required Structural Testing and Special Inspection.
- B. Contractor 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 be responsible 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 completed 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 2018 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 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 150 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

Structural Testing and Special Inspection Program Summary Schedule

Project Name: City of Storm Lake College & 3RD Lift Station Replacement

Project No. 23-29447

Location: Storm Lake, Iowa

Permit No. _____ (1)

Technical (2)		Description (3)	Type of Inspector (4)	Specific Report Frequency (5)	Assigned Firm (6)
Section	Article				
31 2200	1705.6	Soils	TA	IBC Table 1705.6	
03 3000	1705.3	Cast-In-Place Concrete	TA	IBC Table 1705.3	

Note: This schedule shall be filled out and included in a Special Structural Testing and Inspection Program.
(If not otherwise specified, assumed program will be "Guidelines for Special Inspection & Testing".)

- (1) Permit No. to be provided by the Building Official
- (2) Referenced to the specific technical scope section in the program.
- (3) Use descriptions per IBC Chapter 17.
- (4) Special Inspector – Technical (SIT); Special Inspector – Structural (SIS)
- (5) Weekly, monthly, per test/inspection, per floor, etc. Per section 01 3510 of spec book.
- (6) Name of Firm contracted to perform services.

ACKNOWLEDGEMENTS (Each appropriate representative shall sign below)

Owner: _____	Firm: _____	Date: _____
Contractor: _____	Firm: _____	Date: _____
Architect: _____	Firm: _____	Date: _____
SER: 	Firm: ISG	Date: 06/10/2024
SI-T: _____	Firm: _____	Date: _____
SI-S: _____	Firm: _____	Date: _____
TA: _____	Firm: _____	Date: _____
F: _____	Firm: _____	Date: _____

If requested by engineer/architect of record or building official, the individual names of all prospective special inspectors and the work they intend to observe shall be identified as an attachment.

Legend: SER = Structural Engineer of Record SI-T = Special Inspector - Technical TA = Testing Agency
 SI-S = Special Inspector - Structural F = Fabricator

Accepted for the Building Department By _____ Date _____

**SECTION 01 4000
QUALITY REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittals.
- B. Quality assurance.
- C. References and standards.
- D. Testing and inspection agencies and services.
- E. Control of installation.
- F. Manufacturers' field services.
- G. Defect Assessment.

1.02 RELATED REQUIREMENTS

- A. Section 01 3000 - Administrative Requirements: Submittal procedures.
- B. Section 01 6000 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCE STANDARDS

- A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2023).
- B. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation; 2024.
- C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2023.
- D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2023.
- E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2023.
- F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2021.
- G. ASTM E699 - Standard Specification for Agencies Involved in Testing, Quality Assurance, and Evaluating of Manufactured Building Components; 2016.
- H. IAS AC89 - Accreditation Criteria for Testing Laboratories; 2021.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Design Data: Submit for Engineer's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.
- C. Test Reports: After each test/inspection, promptly submit two copies of report to Engineer and to Contractor.
 - 1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name of inspector.
 - d. Date and time of sampling or inspection.
 - e. Identification of product and specifications section.
 - f. Location in the Project.
 - g. Type of test/inspection.
 - h. Date of test/inspection.
 - i. Results of test/inspection.
 - j. Compliance with Contract Documents.
 - k. When requested by Engineer, provide interpretation of results.

2. Test report submittals are for Engineer's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.
- D. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Engineer, in quantities specified for Product Data.
 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- E. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.05 QUALITY ASSURANCE

- A. Testing Agency Qualifications:
 1. Prior to start of work, submit agency name, address, and telephone number, and names of full-time registered Engineer and responsible officer.
 2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
 3. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.
- B. Designer Qualifications: Where professional engineering design services and design data submittals are specifically required of Contractor by Contract Documents, provide services of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.06 REFERENCES AND STANDARDS

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference otherwise in any reference document.

1.07 TESTING AND INSPECTION AGENCIES AND SERVICES

- A. Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.
- B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- C. Contractor Employed Agency:
 1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, ASTM E699, ASTM C1021, ASTM C1077, ASTM C1093, and ASTM D3740.
 2. Inspection agency: Comply with requirements of ASTM D3740 and ASTM E329.
 3. Laboratory Qualifications: Accredited by IAS according to IAS AC89.
 4. Laboratory: Authorized to operate in the State in which the Project is located.
 5. Laboratory Staff: Maintain a full-time registered Engineer on staff to review services.

6. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TESTING AND INSPECTION

- A. Testing Agency Duties:
 1. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
 2. Perform specified sampling and testing of products in accordance with specified standards.
 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 4. Promptly notify Engineer and Contractor of observed irregularities or non-compliance of Work or products.
 5. Perform additional tests and inspections required by Engineer.
 6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
 1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Agency may not approve or accept any portion of the Work.
 3. Agency may not assume any duties of Contractor.
 4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:
 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
 2. Cooperate with laboratory personnel and provide access to the Work and to manufacturers' facilities.
 3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
 4. Notify Engineer and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
 5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

- 6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Engineer.
- E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.03 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance equipment as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.04 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.
- B. If, in the opinion of Engineer, it is not practical to remove and replace the work, Engineer will direct an appropriate remedy or adjust payment.

END OF SECTION

**SECTION 01 5000
TEMPORARY FACILITIES AND CONTROLS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary utilities.
- B. Temporary Controls: Barriers, enclosures, and fencing.
- C. Vehicular access and parking.

1.02 TEMPORARY UTILITIES

- A. Provide and maintained required temporary bypass system equipment during construction operations as needed.
- B. Maintain site daily in clean and sanitary conditions.

1.03 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Provide protection for plants designated to remain. Replace damaged plants.
- D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.
- E. Traffic Controls: See Plan Sheets J1-10 and J1-11.

1.04 FENCING

- A. Provide 6 foot high fence around construction site.

1.05 VEHICULAR ACCESS AND PARKING

- A. See Plan Sheet C0-22 for extents of temporary easement.
- B. Provide and maintain access to fire hydrants, free of obstructions.
- C. Provide means of removing mud from vehicle wheels before entering streets.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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**SECTION 01 6000
PRODUCT REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General product requirements.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations.
- E. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

- A. Section 01 4000 - Quality Requirements: Product quality monitoring.

1.03 REFERENCE STANDARDS

- A. NEMA MG 1 - Motors and Generators; 2021.
- B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by Contract Documents.
- B. See Section 01 4000 - Quality Requirements, for additional source quality control requirements.

2.02 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.03 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.02 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Arrange storage of materials and products to allow for visual inspection for the purpose of determination of quantities, amounts, and unit counts.
- E. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
- F. For exterior storage of fabricated products, place on sloped supports above ground.
- G. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- H. Comply with manufacturer's warranty conditions, if any.
- I. Do not store products directly on the ground.
- J. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- K. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- L. Prevent contact with material that may cause corrosion, discoloration, or staining.
- M. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- N. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

**SECTION 01 7000
EXECUTION AND CLOSEOUT REQUIREMENTS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Cleaning and protection.
- C. Starting of systems and equipment.
- D. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.
- E. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

- A. Section 01 1000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
- B. Section 01 3000 - Administrative Requirements: Submittals procedures, Electronic document submittal service.
- C. Section 01 4000 - Quality Requirements: Testing and inspection procedures.
- D. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.04 PROJECT CONDITIONS

- A. Use of explosives is not permitted.
- B. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- C. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- D. Perform dewatering activities, as required, for the duration of the project.
- E. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- F. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
 - 1. Provide dust-proof enclosures to prevent entry of dust generated outdoors.
 - 2. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.
- G. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
 - 1. Minimize amount of bare soil exposed at one time.
 - 2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
 - 3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
 - 4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- H. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
 - 1. At All Times: Excessively noisy tools and operations will not be tolerated inside the building at any time of day; excessively noisy includes jackhammers.

2. Outdoors: Limit conduct of especially noisy exterior work to hours specified by Owner during Preconstruction Meeting.
- I. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

1.05 COORDINATION

- A. See Section 01 1000 for occupancy-related requirements.
- B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- C. Notify affected utility companies and comply with their requirements.
- D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- E. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- G. Coordinate completion and clean-up of work of separate sections.
- H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS- NOT USED

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.04 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.05 SYSTEM STARTUP

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Engineer and Owner at least seven days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify that wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.06 FINAL CLEANING

- A. Use cleaning materials that are nonhazardous.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains, and foreign substances, polish transparent and glossy surfaces,
- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean site: sweep paved areas, rake clean landscaped surfaces.
- F. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.07 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
- B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
- C. Notify Engineer when work is considered ready for Engineer's Substantial Completion inspection.
- D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Engineer's Substantial Completion inspection.

- E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Engineer's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Engineer.
- F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
- G. Notify Engineer when work is considered finally complete and ready for Engineer's Substantial Completion final inspection.
- H. Complete items of work determined by Engineer listed in executed Certificate of Substantial Completion.

3.08 MAINTENANCE

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

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. EJCDC C-700 - Standard General Conditions and EJCDC C-800 - Supplementary Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.
- B. Section 01 3000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- C. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.
- D. Individual Product Sections: Specific requirements for operation and maintenance data.
- E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Project Record Documents: Submit documents to Engineer with claim for final Application for Payment.
- B. Operation and Maintenance Data:
 - 1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
 - 2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Engineer comments. Revise content of all document sets as required prior to final submission.
 - 3. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. 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. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Changes made by Addenda and modifications.
- F. 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.

3.02 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. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- B. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- C. Additional information as specified in individual product specification sections.
- D. 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.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

- A. For Each Item of Equipment and Each System:
 1. Description of unit or system, and component parts.
 2. Identify function, normal operating characteristics, and limiting conditions.
 3. Include performance curves, with engineering data and tests.
 4. Complete nomenclature and model number of replaceable parts.
- B. 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.
- C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- D. Include color coded wiring diagrams as installed.
- E. 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.
- F. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- G. Provide servicing and lubrication schedule, and list of lubricants required.
- H. Include manufacturer's printed operation and maintenance instructions.
- I. Include sequence of operation by controls manufacturer.
- J. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- K. Provide control diagrams by controls manufacturer as installed.
- L. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.
- M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

- N. Include test and balancing reports.
- O. Additional Requirements: As specified in individual product specification sections.

3.05 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.
- J. Arrange content by systems under section numbers and sequence of Table of Contents in this Project Manual
 - 1. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
 - a. PART 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, Subcontractors, and major equipment suppliers.
 - b. PART 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and supplier. Identify the following:
 - 1) Significant design criteria.
 - 2) List of equipment.
 - 3) Parts list for each component.
 - 4) Operating instructions.
 - 5) Maintenance instructions for equipment and systems.
 - 6) Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - c. PART 3: Project documents and certificates, including the following:
 - 1) Shop drawings and product data.
 - 2) Air and water balance reports.
 - 3) Certificates.
 - 4) Photocopies of warranties and bonds.

3.06 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 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.
- E. Manual: Bind in commercial quality 8-1/2 by 11 inch three D side ring binders with durable plastic covers.
- F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.
- G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.
- H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets, as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

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 reinforcement.
- D. Miscellaneous concrete elements, including equipment pads.
- E. Concrete curing.
- F. Concrete finishing.
 - 1. Floor surfaces to be left exposed.

1.02 RELATED REQUIREMENTS

- A. Section Division 26 - Grounding and Bonding for Electrical Systems: Electrical items for casting into concrete. Coordinate location with electrical contractor.

1.03 REFERENCE STANDARDS

- A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).
- B. ACI PRC-207.1 - Mass Concrete - Guide; 2021.
- C. ACI PRC-211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.
- D. ACI PRC-302.1 - Guide to Concrete Floor and Slab Construction; 2015.
- E. ACI PRC-304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
- F. ACI PRC-305 - Guide to Hot Weather Concreting; 2020.
- G. ACI PRC-306 - Guide to Cold Weather Concreting; 2016.
- H. ACI PRC-308 - Guide to External Curing of Concrete; 2016.
- I. ACI PRC-347 - Guide to Formwork for Concrete; 2014 (Reapproved 2021).
- J. ACI SPEC-301 - Specifications for Concrete Construction; 2020.
- 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; 2022.
- M. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2023.
- N. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2023.
- O. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2024.
- P. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- Q. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2020.
- R. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2023.
- S. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
- T. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.
- U. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019, with Editorial Revision (2022).

- V. ASTM C595/C595M - Standard Specification for Blended Hydraulic Cements; 2021.
- W. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2023, with Editorial Revision.
- X. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2017.
- Y. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures; 2020.
- Z. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2022.
- AA. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers; 2020.
- BB. 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.
- CC. 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. Test Reports: Submit report for each test or series of tests specified.
- E. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.
- F. 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 SPEC-301 and ACI CODE-318.
- B. Follow recommendations of ACI PRC-305 when concreting during hot weather.
- C. Follow recommendations of ACI PRC-306 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, Type II - Moderate, Portland type; or ASTM C595/C595M, Type IL - Portland-Limestone Cement Type.
 - 1. Acquire cement for entire project from same source.
- B. 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, visible locations, and locations exposed to water.
- C. Fly Ash: ASTM C618, Class C or F.
- D. Calcined Pozzolan: ASTM C618, Class N.
- E. Silica Fume: ASTM C1240, proportioned in accordance with ACI PRC-211.1.
- F. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

- A. Chemical Admixture:
 - 1. Manufacturers by concrete supplier:
 - a. Euclid Chemical Company: www.euclidchemical.com/#sle.
 - b. Fritz-Pak: www.fritzpak.com/#sle.
 - c. GCP Applied Technologies: www.gcpat.com/#sle.
 - d. Mapei Corporation: www.mapei.com/#sle.
 - e. Master Builders Solutions: www.master-builders-solutions.com/#sle.
 - f. Sika Corporation U.S.: www.usa.sika.com/#sle.
 - 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/C494M.
- D. Air Entrainment Admixture: ASTM C260/C260M.

2.05 CURING MATERIALS

- A. Liquid Membrane Curing Compound: ASTM C309, 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.

2.06 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI PRC-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 SPEC-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 PRC-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.

2.07 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 SPEC-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. 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.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

- A. Comply with requirements of ACI SPEC-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 PRC-304.
- B. Place concrete for floor slabs in accordance with ACI PRC-302.1.
- C. Ensure reinforcement, inserts, and other similar items will not be disturbed during concrete placement.
- D. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 FLOOR FLATNESS AND LEVELNESS TOLERANCES

- A. Refer to structural notes on the drawings.

3.06 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 PRC-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 PRC-302.1 and as follows:
 - 1. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.
- 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.

3.07 CURING AND PROTECTION

- A. Comply with requirements of ACI PRC-308. 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 14 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.

3.08 MASS CONCRETE

- A. Unless otherwise noted, any concrete member with least dimension greater than 29 inches is defined as Mass Concrete; ACI PRC-207.1. 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.

3.09 FIELD QUALITY CONTROL

- A. Provide free access to concrete operations at project site and cooperate with appointed firm.
- B. Submit proposed mix design of each class of concrete to Engineer for review prior to commencement of concrete operations.

- C. For testing requirements refer to structural notes on the drawings and, where applicable, as indicated below.

3.10 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.

3.11 PROTECTION

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

Division 08: Openings

**SECTION 08 3100
ACCESS DOORS AND PANELS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Floor-mounted access door and frame units, exterior.

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 FLOOR-MOUNTED ACCESS UNITS

- A. Basis of Design: BILCO Type J-AL flush mount frame, 300psf load rating with Type-FPG grating fall protection safety grating.
- 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 Company: www.bilco.com/#sle.
 - 5. Cendrex, Inc: www.cendrex.com/#sle.
 - 6. Dur-Red Products: www.dur-red.com.
 - 7. Halliday Products: www.hallidayproducts.com.
 - 8. Karp Associates, Inc : www.karpinc.com.
 - 9. Milcor, Inc : www.milcorinc.com.
 - 10. Nystrom, Inc: www.nystrom.com/#sle.
 - 11. Substitutions: See Section 01 6000 - Product Requirements.
- C. Floor-Mounted Access Units: Factory fabricated, 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. Size: As indicated on drawings.
 - 2. Hardware: Stainless steel, Type 316.
 - a. Hinges: Removable pin.
 - b. Lock: Cylinder lock with latch, two keys for each unit.
- D. Exterior Floor-Mounted Access Units: Aluminum, minimum 1/4 inch thick.
 - 1. Design Load: Design to support live load of 300 psf with deflection not to exceed 1/180 of span.
 - 2. Operation: Manual opening, and manual closing.
 - 3. Frame Configuration: Drainage channel with drain coupling.
 - 4. Cover Pattern: Diamond tread plate, with custom lettering.
 - 5. Lift Handle: Removable.
 - 6. Finish: Mill finish.
 - 7. Locking: Padlock Bar.
 - 8. Fall Protection: Permanently mounted hinged grating system under access door cover, factory installed; painted metal with stainless steel hardware; hinged with automatic hold open arm to maintain upright position. Manufacturers that do not offer grating options shall submit for approved equivalent with additional comparable grating product for prior approval.

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

Division 26: Electrical

SECTION 26 0010
BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

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 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 AND PATCHING:

- 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.

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 underground 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 Lift Station Process 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. 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.
- J. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

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. Wiring connectors.
- D. Electrical tape.
- E. Heat shrink tubing.
- F. Wire pulling lubricant.
- G. Cable ties.

1.02 RELATED REQUIREMENTS

- A. Section 26 0526 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.
- B. 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; 2023.
- 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. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.
- L. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.
- M. UL 267 - Outline of Investigation for Wire-Pulling Compounds; Current Edition, Including All Revisions.
- N. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.
- O. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.
- P. UL 486D - Sealed Wire Connector Systems; Current Edition, Including All Revisions.
- Q. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.
- R. UL 1277 - Electrical Power and Control Tray Cables with Optional Optical-Fiber Members; Current Edition, Including All Revisions.
- S. UL 1569 - Metal-Clad Cables; 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.
- G. Metal-clad 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. 208Y/120 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - 4) Neutral/Grounded: White.
 - b. Equipment Ground, All Systems: Green.
 - c. 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: Solid.
 - 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 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.

2.06 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. Install conductors with a minimum of 12 inches of slack at each outlet.
- I. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- J. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- K. 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 contaminants. Do not use wire brush on plated connector surfaces.
 5. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.

- L. 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.
- M. Insulate ends of spare conductors using vinyl insulating electrical tape.
- N. 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.
- O. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.
- P. 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. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- B. 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.
- C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- D. 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

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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.
- H. Communications Systems Grounding and Bonding:
1. Provide intersystem bonding termination at service equipment or metering equipment enclosure and at disconnecting means for any additional buildings or structures in accordance with NFPA 70.
 2. 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.

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. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 4. 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.
- G. UL 5B - Strut-Type Channel Raceways and Fittings; Current Edition, Including All Revisions.

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. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel, stainless steel, or approved equivalent unless otherwise indicated.
 - b. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - c. 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/Strut Used as Raceway, Where Indicated: Listed and labeled as complying with UL 5B.
 4. Channel Material:
 - a. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel or 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. Steel: Use beam clamps, machine bolts, or welded threaded studs.
 5. Sheet Metal: Use sheet metal screws.
 6. Wood: Use wood screws.
 7. Plastic and lead anchors are not permitted.
 8. 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.
 9. 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 roof deck.

- F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- G. 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.
- H. Preset Concrete Inserts: Use manufacturer provided closure strips to inhibit concrete seepage during concrete pour.
- I. Secure fasteners in accordance with manufacturer's recommended torque settings.
- J. 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. Liquidtight flexible metal conduit (LFMC).
- C. Rigid polyvinyl chloride (PVC) conduit.
- D. High-density polyethylene (HDPE) conduit.

1.02 RELATED REQUIREMENTS

- A. Section 26 0526 - Grounding and Bonding for Electrical Systems.
 - 1. Includes additional requirements for fittings for grounding and bonding.
- B. Section 26 0529 - Hangers and Supports for Electrical Systems.
- C. 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. ASTM F2160 - Standard Specification for Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD); 2016.
- C. ASTM F2176 - Standard Specification for Mechanical Couplings Used on Polyethylene Conduit, Duct and Innerduct; 2017.
- D. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- E. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2020.
- F. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC); 2017.
- G. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.
- H. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Metal Conduit and Intermediate Metal Conduit; 2018.
- I. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit; 2020.
- J. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; 2021.
- K. NEMA TC 7 - Solid-Wall Coilable and Straight Electrical Polyethylene Conduit; 2021.
- L. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- M. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.
- N. UL 360 - Liquid-Tight Flexible Metal Conduit; Current Edition, Including All Revisions.
- O. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.
- P. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings; Current Edition, Including All Revisions.
- Q. UL 651A - Schedule 40 and 80 High Density Polyethylene (HDPE) Conduit; Current Edition, Including All Revisions.
- R. UL 746C - Polymeric Materials – Use in Electrical Equipment Evaluations; Current Edition, Including All Revisions.
- S. UL 1203 - Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations; Current Edition, Including All Revisions.
- T. UL 2419 - Outline of Investigation for Electrically Conductive Corrosion Resistant Compounds; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

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- 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 QUALITY ASSURANCE

- A. Product Listing Organization Qualifications: Organization recognized by OSHA as Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.06 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, rigid PVC conduit, or high-density polyethylene (HDPE) conduit.
 - 2. Exterior, Direct-Buried: Use galvanized steel rigid metal conduit, rigid PVC conduit, or high-density polyethylene (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) where emerging from underground.
 - 4. Where rigid polyvinyl (PVC) or HDPE conduit larger than 2-inch (53 mm) trade size is provided, use galvanized steel rigid metal conduit (RMC) 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) or HDPE conduit is provided, transition to galvanized steel rigid metal conduit (RMC) where emerging from concrete.
- E. Exposed Exterior: Use galvanized steel rigid metal conduit (RMC).
- F. Hazardous/Classified Locations: Use galvanized steel rigid metal conduit (RMC).
- G. Flexible Connections to Luminaires Above Accessible Ceilings: Use flexible metal conduit (FMC).
 - 1. Maximum Length: 6 feet.
- H. Flexible Connections to Vibrating Equipment:
 - 1. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit (LFMC).
 - 2. Maximum Length: 6 feet unless otherwise indicated.

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. Hazardous/Classified Locations: Use fittings listed and labeled as complying with UL 1203 for classification of installed location.
 - 4. Material: Use steel or malleable iron.
 - 5. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.04 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.

2.05 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.

2.06 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.

2.07 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. Adhesive for HDPE and RTRC Conduit:
 - 1. Specifically designed for bonding dissimilar materials in lieu of transition fittings, including but not limited to polyethylene, fiberglass, PVC, aluminum, and steel; UL 746C recognized.
 - 2. Approved by adhesive manufacturer for use with materials to be joined.
- D. Sealing Compound for Hazardous/Classified Location Sealing Fittings: Listed for use with particular fittings to be installed.
- E. 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.

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 rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.
- E. 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 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.
 - 5. Arrange conduit to maintain adequate headroom, clearances, and access.
 - 6. Arrange conduit to provide no more than equivalent of four 90-degree bends between pull points.
 - 7. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
 - 8. Maintain minimum clearance of 6 inches between conduits and piping for other systems.
 - 9. Maintain minimum clearance of 12 inches between conduits and hot surfaces.
 - 10. Group parallel conduits in same area on common rack.
- F. 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. 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.
 4. Use metal channel/strut with accessory conduit clamps to support multiple parallel surface-mounted conduits.
 5. Use conduit clamp to support single conduit from beam clamp or threaded rod.
 6. Use of wire for support of conduits is not permitted.
- G. 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.
- H. 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.
- I. 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.
- J. 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.
- K. 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.
- L. 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. Boxes for hazardous (classified) locations.
- D. Underground boxes/enclosures.

1.02 RELATED REQUIREMENTS

- A. Section 08 3100 - Access Doors and Panels: Panels for maintaining access to concealed boxes.
- B. Section 26 0529 - Hangers and Supports for Electrical Systems.
- C. Section 26 0533.13 - Conduit for Electrical Systems:
 - 1. Conduit bodies and other fittings.
 - 2. Additional requirements for locating boxes to limit conduit length and/or number of bends between pulling points.
- 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. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. SCTE 77 - Specifications for Underground Enclosure Integrity; 2023.
- H. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.
- I. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.
- J. UL 508A - Industrial Control Panels; Current Edition, Including All Revisions.
- K. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.
- L. UL 1203 - Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations; 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. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
 4. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
 5. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
 6. 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:
 - a. Outdoor Locations: Type 4X, stainless steel.
 3. Junction and Pull Boxes Larger Than 100 cubic inches:
 - a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
 4. Cabinets and Hinged-Cover Enclosures, Other Than Junction and Pull Boxes:
 - a. Provide lockable hinged covers, all locks keyed alike unless otherwise indicated.
 - b. Back Panels: Painted steel, removable.

- c. Terminal Blocks: Provide voltage/current ratings and terminal quantity suitable for purpose indicated, with 25 percent spare terminal capacity.
- 5. Finish for Painted Steel Enclosures: Manufacturer's standard grey unless otherwise indicated.
- D. Boxes for Hazardous (Classified) Locations: Listed and labeled as complying with UL 1203 for the classification of the installed location.
- E. 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. Depth: As required to extend below frost line to prevent frost upheaval, but not less than 12 inches.
 - 3. Provide logo on cover to indicate type of service.
 - 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. Parking Lots, in Areas Subject Only To Occasional Nondeliberate Vehicular Traffic: Use polymer concrete enclosures, with minimum SCTE 77 Tier 15 load rating.
 - c. 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. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.
- F. 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. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
 - 4. Locate junction and pull boxes as indicated, and as required to facilitate installation of conductors, and to limit conduit length and/or number of bends between pulling points in accordance with Section 26 0533.13.
- G. 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.
- H. Install boxes plumb and level.
 - I. Install boxes as required to preserve insulation integrity.
 - J. Underground Boxes/Enclosures:
 1. Install enclosure on gravel base, minimum 6 inches deep.
 2. Flush-mount enclosures located in concrete or paved areas.
 3. Install additional bracing inside enclosures in accordance with manufacturer's instructions to minimize box sidewall deflections during backfilling. Backfill with cover bolted in place.
 - K. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
 - L. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.
 - M. Close unused box openings.
 - N. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.
 - O. Provide grounding and bonding in accordance with Section 26 0526.
 - P. 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. 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. Enclosed switches:
 - 1) Identify voltage power source and circuit number. Include location when not within sight of equipment.
 - 2) Identify load(s) served. Include location.
 - d. 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.
 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.
- B. 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.
- C. 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. Arc flash and shock risk assessment.
 - 1. Includes arc flash hazard warning labels.
- C. 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.

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.
 - 2. Existing Installations:
 - a. Collect data on existing electrical distribution system necessary for completion of studies, including field verification of available existing data (e.g. construction documents, previous studies). Include actual settings for field-adjustable devices.
- 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. 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).
- F. 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. 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 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) Study preparer, report reference, and 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

**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 2100
LOW-VOLTAGE ELECTRICAL SERVICE ENTRANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Electrical service requirements.

1.02 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.

1.03 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.

1.04 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.

1.05 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.

1.06 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. Pad-Mounted Utility Transformers:
 - a. Transformer Vaults and Pads: Furnished and installed by Contractor per Utility Company requirements.
 - b. Transformers: Furnished and installed by Utility Company.
 - c. Transformer Grounding Provisions: Furnished and installed by Contractor per Utility Company requirements.
 - d. Primary:
 - 1) Trenching and Backfilling: Provided by Contractor.
 - 2) Conduits: Furnished and installed by Contractor.
 - 3) Conductors: Furnished and installed by Utility Company.
 - e. Secondary:
 - 1) Trenching and Backfilling: Provided by Contractor.
 - 2) Conduits: Furnished and installed by Contractor.
 - 3) Conductors: Furnished and installed by Contractor (Service Point at transformer).
 - 2. 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).
 - 3. Terminations at Service Point: Provided by Utility Company.
 - 4. Metering Provisions:
 - a. Meter Bases: 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

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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.

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 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. 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 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 -20 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. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.
- E. Branch Overcurrent Protective Devices: Replaceable without disturbing adjacent devices.
- F. 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.
- G. Conductor Terminations: Suitable for use with the conductors to be installed.
- H. 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 4X, stainless steel.
 - 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. Finish for Painted Steel Fronts: Manufacturer's standard grey unless otherwise indicated.
 - 4. Lockable Doors: All locks keyed alike unless otherwise indicated.
- I. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.
- J. 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: Aluminum, suitable for terminating aluminum or copper conductors.
 - 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 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.
 - 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. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.
 - 6. 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.
 - 7. Do not use tandem circuit breakers.
 - 8. 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. 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.
- H. Provide grounding and bonding in accordance with Section 26 0526.
- I. Install all field-installed branch devices, components, and accessories.

- J. 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 7.6.1.1 for 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. Receptacles.
- B. Wall plates and covers.

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. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- C. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.
- D. NEMA WD 1 - General Color Requirements for Wiring Devices; 1999 (Reaffirmed 2020).
- E. NEMA WD 6 - Wiring Devices - Dimensional Specifications; 2021.
- F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.
- H. UL 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.
- I. 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 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 498 and 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.

2.04 WALL PLATES AND COVERS

- 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 Receptacle 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. Receptacles: 46 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 are installed at the same location and at the same mounting height, gang devices together under a common wall plate.
- 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. Install vertically mounted receptacles with grounding pole on bottom and horizontally mounted receptacles with grounding pole on left.
- L. 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.
- M. 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 2813 FUSES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fuses.

1.02 RELATED REQUIREMENTS

- A. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- B. Section 26 2816.16 - Enclosed Switches: Fusible switches.

1.03 REFERENCE STANDARDS

- A. NEMA FU 1 - Low Voltage Cartridge Fuses; 2012.
- B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. UL 248-1 - Low-Voltage Fuses - Part 1: General Requirements; Current Edition, Including All Revisions.
- D. UL 248-12 - Low-Voltage Fuses - Part 12: Class R Fuses; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate fuse clips furnished in equipment provided under other sections for compatibility with indicated fuses.
 - 2. Coordinate fuse requirements according to manufacturer's recommendations and nameplate data for actual equipment to be installed.
 - 3. 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 data sheets including voltage and current ratings, interrupting ratings, time-current curves, and current limitation curves.
- C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 6000 - Product Requirements, for additional provisions.
 - 2. Extra Fuses: One set(s) of three for each type and size installed.
 - 3. Fuse Pullers: One set(s) compatible with each type and size installed.

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 MANUFACTURERS

- A. Bussmann, a division of Eaton Corporation: www.cooperindustries.com/#sle.
- B. Littelfuse, Inc: www.littelfuse.com/#sle.

2.02 APPLICATIONS

- A. Service Entrance:
 - 1. Fusible Switches up to 600 Amperes: Class RK1, time-delay.

2.03 FUSES

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Unless specifically indicated to be excluded, provide fuses for all fusible equipment as required for a complete operating system.
- C. Provide fuses of the same type, rating, and manufacturer within the same switch.
- D. Comply with UL 248-1.
- E. Unless otherwise indicated, provide cartridge type fuses complying with NEMA FU 1, Class and ratings as indicated.
- F. Voltage Rating: Suitable for circuit voltage.
- G. Class R Fuses: Comply with UL 248-12.
- H. Provide the following accessories where indicated or where required to complete installation:
 - 1. Fuseholders: Compatible with indicated fuses.
- I. Provide 3 spare fuses.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that fuse ratings are consistent with circuit voltage and manufacturer's recommendations and nameplate data for equipment.
- B. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

- A. Do not install fuses until circuits are ready to be energized.
- B. Install fuses with label oriented such that manufacturer, type, and size are easily read.

END OF SECTION

**SECTION 26 2816.16
ENCLOSED SWITCHES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Enclosed safety switches.
- B. General use snap 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. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- D. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.
- E. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.
- F. UL 98 - Enclosed and Dead-Front Switches; Current Edition, Including All Revisions.
- G. 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: Provide enclosed switches and associated components produced by same manufacturer as other electrical distribution equipment used for project and obtained from 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 insulated, groundable fully rated solid neutral assembly where a neutral connection is required, with a suitable lug for terminating each neutral conductor.
- L. Provide solidly bonded equipment ground bus in each enclosed safety switch, with a suitable lug for terminating each equipment grounding conductor.
- M. 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 4X, stainless steel.
 - 2. Finish for Painted Steel Enclosures: Manufacturer's standard, factory applied grey unless otherwise indicated.
- N. Provide safety interlock to prevent opening the cover with the switch in the ON position with capability of overriding interlock for testing purposes.
- O. Heavy Duty Switches:
 - 1. 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 where installed in locations that are unsecured or are accessible to the public.
- P. Provide the following features and accessories where indicated or where required to complete installation:
 - 1. Hubs: As required for environment type; sized to accept conduits to be installed.
 - 2. Integral fuse pullers.

2.03 GENERAL USE SNAP SWITCHES

- A. For use on stationary motors 2HP or less and 300 volts or less.
- B. General use snap switch with ampere rating not less than twice the full-load current rating of the motor or on AC circuits a general use snap switch suitable for use on AC only where motor full-load current rating is not more than 80 percent of the ampere rating of the switch.
- C. Switch handle shall be lockable in the OFF position, capable of accepting at least one padlock.
- D. Provide means for locking switch handle in the ON position where installed in locations that are unsecured or are accessible to the public.

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 motor controllers for low-voltage (600 V and less) AC motor applications.

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.

1.03 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.
- B. NEMA ICS 5 - Industrial Control and Systems: Control Circuit and Pilot Devices; 2017.
- C. NEMA ICS 7 - Industrial Control and Systems: Adjustable-Speed Drives; 2020.
- D. NEMA ICS 7.1 - Safety Standards for Construction and Guide for Selection, Installation, and Operation of Adjustable-Speed Drive Systems; 2022.
- E. NEMA ICS 7.2 - Application Guide for AC Adjustable Speed Drive Systems; 2021.
- F. 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.
- 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. UL 508A - Industrial Control Panels; Current Edition, Including All Revisions.
- K. 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 to avoid placement of ductwork, piping, equipment, and other obstructions within dedicated equipment spaces and working clearances required by NFPA 70.
 - 2. Coordinate work to provide motor controllers suitable for use with motors.
 - 3. Coordinate work to provide controllers and associated wiring suitable for interface with control devices.
 - 4. Coordinate arrangement of electrical equipment with dimensions and clearance requirements.
 - 5. Verify with manufacturer that conductor terminations are suitable for use with conductors.
 - 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 manufacturer's standard catalog pages and data sheets for motor controllers, enclosures, overcurrent protective devices, and other installed components and accessories.
- C. Shop Drawings: Indicate dimensions, voltage, controller sizes, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.

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 - Basis of Design: Rockwell Automation, Inc.; Allen-Bradley PowerFlex 400 or 523 Series Drive: ab.rockwellautomation.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.
- C. Source Limitations: Provide variable-frequency motor controllers and associated components produced by single manufacturer and obtained from 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: Nonpackaged controller.
 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 as recommended by the manufacturer.
 - 2. Reactor Impedance: 3 percent, unless otherwise indicated or required.
- J. 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.
- K. 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.
- L. Conductor Terminations: Suitable for use with conductors to be installed.

2.03 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.

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 mounting surfaces are ready to accept controllers.
- 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 controllers in accordance with NECA 1 (general workmanship).
- C. Install in accordance with NEMA ICS 7.1 and manufacturer's instructions.
- D. Do not exceed manufacturer's recommended maximum cable length between controller and motor.
- E. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- F. Provide required support and attachment in accordance with Section 26 0529.
- G. Install controllers plumb and level.
- H. Provide grounding and bonding in accordance with Section 26 0526.
- I. Install field-installed devices, components, and accessories.
- J. Where accessories are not self-powered, provide control power source as indicated or as required to complete installation.
- K. Set field-adjustable settings of controllers and associated components according to installed motor requirements, in accordance with recommendations of manufacturers of controller and load.
- L. Tighten accessible connections and mechanical fasteners after placing controller.
- M. Identify 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. Insulation-resistance test on control wiring listed as optional is not required.
- C. Correct deficiencies and replace damaged or defective controllers or associated components.

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. Provide minimum of two hours of training.
3. Instructor: Manufacturer's authorized representative.
4. Location: At project site.

3.07 PROTECTION

- A. Protect installed controllers from subsequent construction operations.

END OF SECTION

**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 26 3600 - Transfer Switches.

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. Manufacturer's factory emissions certification.

- E. Source quality control test reports.
- F. Manufacturer's detailed field testing procedures.
- G. Field quality control test reports.
- H. Operation and Maintenance Data: Include detailed information on system operation, equipment programming and setup, replacement parts, and recommended maintenance procedures and intervals.

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 Power Generation Inc.
- 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: Thermal magnetic.
 - b. Trip Rating: As indicated on drawings.

- 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.
 - a. Do not exceed 65 dBA when measured at property line.

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.
 - 6) Leak detection switch; located within secondary containment interstitial space for detection of primary tank fuel leak.
- 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. 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.
 3. Exhaust Silencer: Provide residential grade or better exhaust silencer with sound attenuation not less than basis of design; select according to manufacturer's recommendations to meet sound performance requirements, where specified.

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).
 - 6) Fuel tank leak (warning), where applicable.
- 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.
 - b. Communications Capability: Compatible with system indicated. Provide all accessories necessary for proper interface.

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. Utilize an upward discharging radiator hood.
- J. Exhaust Silencers: Where exhaust silencers are mounted within enclosure in main engine compartment, insulate silencer to minimize heat dissipation as necessary for operation at rated load under worst case ambient temperature.

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. Use manufacturer's recommended oil and coolant, suitable for the worst case ambient temperatures.
- H. Provide diesel fuel piping and venting in accordance with Section 23 1113, where not factory installed.
- I. 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.
- J. Install exhaust silencer in accordance with Section 23 5100, where not factory installed.
- 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. Sound Level Tests: Measure sound levels for compliance with specified requirements. Identify and report ambient noise conditions.

- L. Correct defective work, adjust for proper operation, and retest until entire system complies with Contract Documents.
- M. 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.

3.06 PROTECTION

- A. Protect installed engine generator system from subsequent construction operations.

END OF SECTION

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 03 3000 - Cast-in-Place Concrete: Concrete equipment pads.
- B. Section 26 3213 - Engine Generators: For interface with transfer switches.

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. 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. ASCO Power Technologies: www.ascopower.com.
 - 2. Same as manufacturer of engine generator(s) used for this project.
- B. 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. Applications:
 - 1. Utilize open transition transfer unless otherwise indicated or required.
- D. Construction Type: Only "contactor type" (open contact) transfer switches are acceptable. Do not use "breaker type" (enclosed contact) transfer switches.
- E. Automatic Transfer Switch:
 - 1. Transfer Switch Type: Automatic transfer switch.
 - 2. Transition Configuration: Open-transition (no neutral position), utilizing in-phase monitor.
 - 3. Voltage: As indicated on the drawings.
 - 4. Ampere Rating: As indicated on the drawings.
 - 5. Neutral Configuration: Solid neutral (unswitched), except as indicated.
- F. 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).
- G. Do not use double throw safety switches or other equipment not specifically designed for power transfer applications and listed as transfer switch equipment.
- H. 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.
- I. Switching Methods:
 - 1. Open Transition:
 - a. Provide break-before-make transfer without a neutral position that is not connected to either source, and with interlocks to prevent simultaneous connection of the load to both sources.
 - b. Where in-phase transfer is indicated, utilize in-phase monitor to initiate transfer when phase angle difference between sources is near zero to limit in-rush currents.
 - 2. Obtain control power for transfer operation from line side of source to which the load is to be transferred.
- J. Service Conditions: Provide transfer switches suitable for continuous operation at indicated ratings under the service conditions at the installed location.
- K. Enclosures:
 - 1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
 - a. Outdoor Locations: Type 3R or Type 4.

2. Provide lockable door(s) for outdoor locations.
 3. Finish: Manufacturer's standard unless otherwise indicated.
- L. 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.
- M. 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. In-Phase Monitor (Open Transition Transfer Switches): Monitors phase angle difference between sources for initiating in-phase 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. Other Features:
 - a. Communications Capability: Compatible with system indicated. Provide all accessories necessary for proper interface.
 - b. Heater for outdoor enclosures to prevent condensation, powered from line side of transfer switch.
 - c. Manufacturer recommended accessories for enclosure installed outdoors at project location.
 - d. All outdoor equipment or features shall be secured/lockable with Padlock to prevent unauthorized access.
 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.

END OF SECTION

**SECTION 26 4300
SURGE PROTECTIVE DEVICES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surge protective devices for distribution locations.

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.
- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

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 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.
 - 2. Delta Systems: L-G, L-L.
 - 3. Single Split Phase Systems: L-N, L-G, N-G, L-L.
 - 4. High Leg Delta 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. Outdoor locations: Type 3R.
- H. Provide integral disconnect switch where installed at service entrance locations.
 - 1. Shall have optional NEMA compliant safety interlocked integral disconnect switch with an externally mounted metal manual operator.
 - 2. The switch shall disconnect all ungrounded conductors from the distribution system to enable testing and maintenance without interruption to the facilities distribution system.
 - 3. The switch shall be rated for 600 VAC.
 - 4. The disconnect switch shall be capable of withstanding, without failure, the published maximum surge current magnitude without failure or damage to the switch.
 - 5. The line side of the disconnect switch shall be blocked off so that when the SPD is opened there is no direct access to the voltage present on the line side of the disconnect.
- I. Furnish and install conductors recommended by manufacturer.
- J. Where overcurrent protection device is noted or required, size overcurrent device as recommended by the manufacturer.
- K. Short Circuit Current Rating (SCCR): Not less than the available fault current at the installed location as indicated on the drawings.

2.02 SURGE PROTECTIVE DEVICES FOR DISTRIBUTION LOCATIONS

- A. Basis of Design: Current Technology, a company of ABB; TG3 Series
- B. For use at distribution equipment locations other than the main panel.
- C. Surge current rating requirement
 - 1. 50 kA per mode
 - a. 200 A source current rating, without upstream surge protection.
 - b. 200-800 A source current rating, with upstream surge protection.
 - 2. 80 kA
 - a. 400-600 A source current rating, without upstream surge protection.
 - b. 1000-1600 A source current rating, with upstream surge protection.
 - 3. 100 kA per mode
 - a. 800 A source current rating, without upstream surge protection.
 - b. 2000 A source current rating, with upstream surge protection.
 - 4. 125 kA per mode
 - a. 1000-1200 A source current rating, without upstream surge protection.
 - b. 2500 A source current rating, with upstream surge protection.

5. 150 kA per mode
 - a. 1600 A source current rating, without upstream surge protection.
 - b. 3000 A (and above) source current rating, with upstream surge protection.
6. 200 kA per mode
 - a. 2000 A source current rating, without upstream surge protection.
7. 250 kA per mode
 - a. 2500 A source current rating, without upstream surge protection.
8. 300 kA per mode
 - a. 3000 A (and above) source current rating, without upstream surge protection.
- D. Voltage and phase: Refer to plans.
- E. Monitoring:
 1. LED/Phase, audible alarm, dry relay contacts, surge counter.
 2. Advanced monitoring, character display, and Modbus RTU communication.
- F. Filter.
 1. EMI/RFI Filtering: Provide EMI/RFI filter to attenuate electrical noise; listed as complying with UL 1283 for Type 2 SPDs (UL 1283 listing not available for Type 1 SPDs).
 - a. Noise Attenuation: Not less than 40 dB at 100 kHz using MIL-STD-220 insertion loss test method.

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

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**SECTION 26 5600
EXTERIOR LIGHTING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Exterior luminaires.
- B. 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 0529 - Hangers and Supports 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. 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.
- 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 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.

- b. Dead Load: Include weight of proposed luminaire(s) and associated supports and accessories.
- 3. Mounting: Install on concrete foundation, height as indicated on the drawings, unless otherwise indicated.
- 4. 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.

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. Install products in accordance with manufacturer's instructions.
- B. Install luminaires in accordance with NECA/IESNA 501.
- C. Provide required support and attachment in accordance with Section 26 0529.
- D. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- E. 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.
 - e. Install anchor base covers or anchor bolt covers as indicated.
 - 2. Grounding:
 - a. Bond luminaires, metal accessories, metal poles, and foundation reinforcement to branch circuit equipment grounding conductor.
 - 3. Install separate service conductors, 12 AWG copper, from each luminaire down to handhole for connection to branch circuit conductors.
- F. Install accessories furnished with each luminaire.
- G. Bond products and metal accessories to branch circuit equipment grounding conductor.
- H. Install lamps in each luminaire.
- I. 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 3211
FIELD-ERECTED WASTEWATER PUMPING STATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pump application schedule.

1.02 RELATED REQUIREMENTS

- A. Section 01 5000-Temporary Facilities and Controls: Temporary Utilities, Controls and Vehicular Access.
- B. Section 03 3000 - Cast-in-Place Concrete: Concrete for bases.
- C. Section 08 3100 - Access Doors and Panels: Access Hatches for Wet Well and Valve Vault
- D. Section 33 3213 - Packaged Wastewater Pumping Station: Pump and Process Controls.

1.03 SUBMITTALS

- A. See Section 01 3000-Administrative Requirements for submittal procedures.

1.04 QUALITY ASSURANCE

1.05 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. The pump manufacturer shall warrant the units (pumps, motors, panels, and guide system) against defects in materials and workmanship for a period of twenty-four (24) months, under normal use, operation, and service in accordance with a published submersible pump warranty, from the date of initial startup. This warranty shall be delivered, in writing, to the Owner and shall include, as a minimum, 100 percent full payment coverage by Manufacturer/Vendor for all parts and all labor during the warranty period.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Each unit shall have manufacturer's name, address, catalogue or model number, pump capacity, pump head, speed of rotation, and direction of rotation permanently marked and readily visible.
- B. Refer to the following parts of Section 33 3213:
 - 1. Part 2.01 - Manufacturers
 - 2. Part 2.03 - Pumps
 - 3. Part 2.04.B. - Rail Assembly
 - 4. Part 2.04.D. - Access Ladder
 - 5. Part 2.05 - Valves and Device
 - 6. Part 2.06 - Piping and Supports
 - 7. Part 2.07 - Accessory Components
 - 8. Part 2.08 - Process Controls
 - 9. Part 2.09 - Instrumentation

2.02 PUMP APPLICATIONS

- A. Pump No. 1: Submersible centrifugal type (non-self-priming):
 - 1. Pump Location: College & 3rd Lift Station.
 - 2. Pump Service: Raw sewage.
 - 3. Design Operating Point: 200 gallons per minute flow, 35 feet head, 58 percent efficiency.
 - 4. Impeller Type: Semi- Open Channel.
 - 5. Operating Speed: 1730 rpm.
 - 6. Minimum Submergence: 1.53 feet.
 - 7. Motor Type: Explosion proof, Class 1, Division 1 Group C & D,Squirrel cage induction motor..
 - 8. Electrical Characteristics: 208 volts ac, 3 phase, 60 Hz.
 - 9. Size: Within rated load driving pump at specified rpm.
 - 10. Pump Control: Variable Frequency Drive..

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install as indicated and in accordance with manufacturer's instructions.
- B. Prior to applying electrical power to any motor driven equipment, rotate drive train by hand to demonstrate free operation of all mechanical parts.
- C. Provide the services of manufacturer's technical representative to supervise installation, adjustment, demonstration, testing, and startup.

3.02 FIELD QUALITY CONTROL - PRIOR TO STARTUP

- A. Demonstrate proper operation of each pump, motor driver, actuator (if any), and controls; that each is mechanically, electrically, and structurally sound; meets specified operating characteristics; and has no leaks in seals or piping.
- B. Correct deficiencies and re-test.

3.03 OWNER PERSONNEL TRAINING

- A. Content: For each pump include control sequences, actuating sensors, and interconnections between pumps in sets.
- B. Operating & Maintenance Personnel Training:
 - 1. Sessions: One.
 - 2. Trainees: Two.
 - 3. Training Hours: 4, minimum, for each pump and pump set.

3.04 FIELD QUALITY CONTROL - AFTER STARTUP

- A. Demonstrate proper operation in conjunction with process control system demonstration.

**SECTION 33 3213
PACKAGED WASTEWATER PUMPING STATIONS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pre-engineered, prefabricated assemblies comprising valve(s), internal piping, and controls.
- B. Pumps for raw sewage.
- C. Wet well and valve vault construction.
- D. Control functions and instrumentation.
- E. Control panel

1.02 RELATED REQUIREMENTS

- A. Section 01 5000 - Temporary Facilities and Controls: Temporary Utilities, Controls, and Vehicular Access
- B. Section 03 3000-Cast-in-Place Concrete: Concrete for bases.

1.03 REFERENCE STANDARDS

- A. ANSI/AWWA C115/A21.51 - Cast/Ductile Iron Pipe with Threaded Flanges.
- B. ANSI/IEEE Std 100 - Standard Dictionary of Electrical Terms.
- C. ANSI/IEEE Std 112 - Test Procedure for Polyphase Induction Motors.
- D. ANSI B16.1 – Cast Iron Pipe Flanges and Flanged Fittings.
- E. ANSI 253.1 - Safety Color Code for Marking Physical Hazards.
- F. ANSI B40.1 - Gauges, Pressure and Vacuum.
- G. ASTM A36 – Structural Steel.
- H. ASTM A48 - Gray Iron Castings.
- I. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings; 2004 (Reapproved 2023).
- J. ASTM A307 - Carbon Steel Bolts and Studs.
- K. ASTM D3350 – Standard Specification for Polyethylene Plastic Pipe and Fittings Materials.
- L. ASTM F714 – Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter.
- M. ASTM F894 – Standard Practice for Underground Installation of Thermoplastics Pipe for Sewers and Other Gravity Flow Applications.
- N. HI M100 - HI Pump Standards Set; 2018.
- O. IEEE Std 242 - Protection of Industrial and Control Power Systems.
- P. ISO 9001:2008 – Quality Systems, Model for Quality Assurance in Production And Installation.
- Q. NEC – National Electric Code.
- R. NEC 701 – National Electric Code article 701.
- S. NEMA MG 1 - Motors and Generators; 2021.
- T. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- U. NFPA 82 - Standard on Incinerators and Waste and Linen Handling Systems and Equipment; 2024.
- V. NFPA 820 - Standard for Fire Protection in Wastewater Treatment and Collection Facilities; 2020.
- W. NMTBA/JIC Std.
- X. Ten-State Standards Recommended Standards for Sewage Works; 2014.
- Y. UL 1449 - Standard for Surge Protective Devices; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Submit a listing of product installations similar to the package lift station being installed.
 - 2. Pump station manufacturer shall be registered and certified to ISO 9001:2015 international standards and have a quality management system for pump station design, manufacturing, installation, commissioning and on-going service of pump stations.
 - 3. Pump station manufacturer shall have in-house HDPE fabrication facilities, and in-house UL certified electrical control panel production facilities; HDPE welding certificates and UL508A/UL698A certificates available upon request of the engineer of record.
- B. Factory System Test:
 - 1. All internal components including pumps, motors, valves, piping and controls shall be tested as a complete working system at the manufacturer's facility. Tests shall be conducted in accordance with Hydraulic Institute Standards at the specified head, capacity, rates speed, and horsepower. Factory operational test shall simulate actual performance anticipated for the complete station. A certified pump performance test is required.
- C. Manufacturer's Start-up Services:
 - 1. The manufacturer's technical representative shall inspect the completed installation, correct, or supervise the correction of any defect or malfunction, and instruct operating personnel in the proper operation and maintenance of the equipment as described in Part 3 of this section.
- D. Training:
 - 1. Train Owner's personnel on operation and maintenance of system .
 - 2. Training Reference: Operation and maintenance manual and additional training materials.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. See Section 01 6000 - Product Requirements for additional requirements.

1.07 WARRANTY

- A. Warranty: The pump station manufacturer shall warrant all equipment to be of quality construction, free of defects in material and workmanship. A written warranty shall include specific details described below.
 - 1. The pump and motor shall have a minimum of twenty-four (24) month full (all parts and labor) manufacturer's warranty which shall begin upon final acceptance of Owner.
 - 2. The HDPE wet-well and valve-vault structure shall have a twenty-four (24) month full manufacturer's warranty and a 100-year design life and shall conform to ASTM F894 and ASTM D3350.
 - 3. All other equipment, apparatus, and parts furnished shall have a twenty-four (24) month warranty, excepting only those items that are normally consumed in service, such as light bulbs, grease, etc. The pump station manufacturer shall be solely responsible for the warranty of the station and all components. The warranty period shall be upon final acceptance by Owner.
- B. Components failing to perform as specified by the Engineer, or as represented by the manufacturer or as proven defective in service during the warranty period, shall be replaced, repaired or satisfactorily modified by the manufacturer.
- C. A start-up report completed by an authorized manufacturer's representative must be received by an authorized representative of the owner within thirty (30) days of the initial date the unit is placed into service. The warranty shall become effective on the date of acceptance by the Owner.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Packaged Wastewater Pumping Station:

1. Excel Fluid Group, LLC.
 2. Infrapipe Solutions, LTD.
 3. Old Castle Precast Inc.
 4. Engineer Approved Equal.
- B. Pumps:
1. Xylem.
 2. Barnes.
 3. Engineer Approved Equal.
- C. Plug and Check Valves:
1. Milliken Valve.
 2. Engineer Approved Equal.
- D. Flow Meters:
1. Toshiba.
 2. Engineer Approved Equal.
- E. Duckbill Check Valve
1. Red Valve Company.
 2. Engineer Approved Equal.

2.02 PACKAGED WASTEWATER PUMPING STATIONS, GENERAL

- A. Packaged Wastewater Pumping Stations: Pre-engineered duplex sewage pump station, with a high density polypropylene (HDPE) wet well with and integrated valve vault as indicated on the project drawings, herein specified, as necessary for proper and complete performance for continuous, unattended, automatic operation.
1. Basis of Design: EXCEL Weholite HDPE Wet Well with Integrated Valve Vault.
 - a. Should Contractor elect to provide a packaged wastewater pumping station from any of the other approved manufacturers, the Contractor shall be responsible for the following:
 - 1) Submitting all available documentation regarding the pump station which shall be subject to review by the Engineer.
 - 2) Any costs associated with any rework required to integrate the pump station into the final product including but not limited to engineering fees, permitting and testing fees.
 - b. Basis of Design manufacturer does not intend to supply upper guiderail positioning bracket and break-away fitting if they are also not the pump supplier. Contractor should ensure all piping, fitting and other components are acquired for complete installation.
 2. Furnish all components factory-assembled to greatest extent possible; where field installation is required, provide piping, wiring, and other components as required for a complete installation.
 3. Configuration: Wet well and access way, with pump(s) submerged in wet well, surface hatch; no above grade components.
 4. Pumping Capacity: 200 gallons per minute, minimum; each pump.
 5. Total Head: 35 feet.
 6. Finish all components in accordance with manufacturer's standard practice for sewage resistance.
- B. Dimensions:
1. Wet well and valve vault inside diameter: As indicated on drawings.
 2. Inlet and discharge sizes and elevations as indicated on drawings.
- C. Pump Lifting Assembly: Factory-assembled, mounted in wet well, designed to allow each pump to be independently raised to ground level for maintenance and returned to position without entering wet well; vertical rails, pump support assembly sliding on rails, integral guide bracket on pump, pump quick disconnect with hydraulic sealing flange, discharge pipe supports, and lifting chain; all metal parts stainless steel.
- D. Anchors and Fasteners: Stainless steel.

- E. Identification: For each item of equipment, provide the manufacturer's name or trademark and model number on corrosion-resistant identification plate, cast integrally, stamped, or otherwise permanently marked in conspicuous place; for pumps, include pump capacity in gallons per second and liters per minute, pump head in feet and meters, speed of rotation, and direction of rotation.

2.03 PUMPS

- A. Pumps may be provided by a separate supplier from the pump station manufacturer. The following specifications listed are applicable to the pumps provided regardless of the supplier and the pump station alternative chosen.
- B. Sewage Solids-Handling Pumps: Non-clogging submersible centrifugal pump designed to pump unscreened sewage and capable of passing 3 inch solids.
 - 1. Basis of Design: Xylem NP3102 MT 3 ~ Adaptive 463
 - 2. Capable of operating in partially submerged condition.
 - 3. Rated Capacity: As indicated on drawings.
- C. Sewage Grinder Pumps: Non-clogging submersible centrifugal pump capable of grinding all materials found in normal domestic sewage including plastics, rubber, sanitary napkins, disposable diapers, and wooden articles, into finely ground slurry with particle dimensions no greater than 1/4 inch.
 - 1. Capable of operating in partially submerged condition.
 - 2. Rated Capacity: As indicated.
- D. Pump Construction:
 - 1. Body: Cast iron, designed to permit easy replacement of parts; internal passageways permitting smooth flow of sewage and free from sharp turns and projections; cleanout plates in suction line and drain plugs; all joints gasketed.
 - 2. Impellers: Cast iron, cast steel, or other alloy suitable for sewage service; free flowing, with necessary clearance to permit objects in sewage to pass; keyed, splined, or threaded onto shaft and locked in such manner that lateral movement is prevented and reverse rotation cannot cause loosening.
 - 3. Shafts: Stainless steel, of size and strength required.
 - 4. Provide pump seal failure indication.
- E. Motors: Motor shall be explosion proof, Class 1, Division 1 Group C & D, Squirrel-cage induction,
 - 1. Capacity: Not less than pump at any point on pump performance curve.
 - 2. Voltage, Phase and Frequency: 208V, 3 PH, 60 Hz.
 - 3. Speed: 1800 RPM Maximum.
 - 4. Motor Efficiency – 85% Minimum.
 - 5. Oil filled for lubrication and cooling.
 - 6. 5 HP Maximum.

2.04 WET WELL AND INTEGRAL VALVE VAULT CONSTRUCTION

- A. Construction: High density polyethylene meeting the requirement of cell classification as defined in ASTM D3350. All HDPE materials shall be resistant to corrosion resulting from the presence of hydrogen sulfide and pH values between 2 and 13.
 - 1. Material: High Density Polyethylene (HDPE) Weholite Panel and Pipe
 - 2. Dimensions: As indicated on drawings.
 - 3. Inlet Pipe Opening: Elevation and direction as indicated on drawings. Open fitted with water tight seal to prevent infiltration.
 - 4. Outlet Pipe Opening: Elevation and direction as indicated on drawing.
 - 5. Valve vault shall have a drain with a duckbill check valve intended to drain into the wet well.
- B. Rail Assembly: Slide rails, support brackets, and pipe/pump connection hardware. Must be factory-plumbed for pump and motor installation and removal by Owner from the surface, with no "confined space" entry required
 - 1. Material: Stainless steel suitable for resisting sanitary sewer corrosivity.

- C. Access Hatch Covers & Safety Grate: Aluminum Channel-Frame Access Cover with lockable dual hatch doors, 300 PSF load rates, stainless steel hinges and hardware; included Aluminum "I" bar construction safety guide with safety orange power-coated finish.
 - 1. Live Load Capacity: 300 pounds per square foot.
 - 2. Hatch shall have a drain provided or installed by contractor. Install per manufacturer's recommendation.
- D. Access Ladder: Stainless steel construction.

2.05 VALVES AND DEVICES

- A. Valves: Provide one plug valve and one check valve on each pump discharge line and a plug valve connecting the bypass port to the discharge lines.
 - 1. Plug Valves:
 - a. Rated Working Pressure: 175 psi.
 - b. ASME Class: A126 Class B in accordance with ASME B16.34.
 - c. Type: (3) Eccentric plug valves.
 - d. Body: Cast Iron A126 Class B conforming to AWWA C504.
 - e. Plug: Rubber-coated, ductile iron.
 - f. Ports: Full bore.
 - g. Seats: Greater than 90% Nickel. Serrated, plated or screwed-in seats not acceptable.
 - h. Stem Bearings: Lubricates, stainless steel.
 - i. End Connections: Flanged; Flange diameter, thickness and drilling conform to ANSI B16.1 Class 125.
 - j. Coating: Epoxy
 - k. Operator for Valves: Stainless Steel Extended Handles.
 - 2. Check Valves:
 - a. Rated Working Pressure: 175 psi.
 - b. ASME Class:
 - c. Type: (2) Lever & weight swing check valves.
 - d. Body: Cast Iron A126 Class Bbody conforming to AWWA C508.
 - e. Body Seat; Stainless Steel
 - f. Disc: ASTM A536 Ductile Iron.
 - g. Disc Seat: Buna-N-Rubber
 - h. Closure Type: Lever and Weight
 - i. End Connections: Flanged
 - j. Coating: Epoxy
 - k. Removable cover for inspection.
- B. Air Release Valves:
 - 1. Function: Automatically exhaust air during filling of a piping system; 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. End Connections:
 - a. Size 2" or smaller: Threaded inlet and outlet, ASME B1.20.1 (ASME B1.20.2M) threading.
 - 5. Provide blow off valve, quick disconnect couplings ,and minimum 6 feet of hose to permit back flushing after installation without dismantling valve

2.06 PIPING AND SUPPORTS

- A. Inlet and Outlet Piping: Same type of pipe and jointing as specified for sanitary sewer to which pump station will be connected. As indicated on drawings.
 - 1. Wet well piping and fittings shall comply with ANSI/AWWA A21.51/C115.
 - 2. Bypass port complete with cam-loc quick disconnect fittings shall be included in the valve vault connected to the two discharge lines.
- B. Inlet and Outlet Piping: See Plan Sheet C0-30 and PP5-10.
- C. Use flanged connections for exposed piping and mechanical connections for buried piping.

- D. Discharge lines shall terminate outside perimeter of valve vault, where the contractor shall connect it to the force main shown on the drawings.
- E. Internal Piping: Ductile iron as specified in drawings.
 - 1. Manufacturer's standard jointing system.
 - 2. Fittings of pressure rating not less than that of pipe.
 - 3. Separate piping of dissimilar metals with rubber gasket or other approved type of insulating joint or dielectric coupling to effectively prevent metal-to-metal contact between adjacent sections of piping.
- F. Accessories: Provide fittings, flanges, connecting pieces, transition glands, transition sleeves, and other adapters as required.
- G. Support and Braces: Piping system shall be connected to the wet well and enclosure in a sturdy fashion designed to prevent pipe static and dynamic loads from being transmitted to pumps. Pipe supports for valves and piping inside valve vault shall also be provided.
- H. Flexible Flanged Couplings: As indicated.
 - 1. Rated Working Pressure: 350 psi.

2.07 ACCESSORY COMPONENTS

- A. Inlet Wall Mounted Trash Basket
- B. Ventilation:
 - 1. 4" DIP passive vent with stainless steel No.24 mesh screen.
 - 2. 4" DIP odor control port to connect to active odor control system.

2.08 PROCESS CONTROLS

- A. Quality Assurance
 - 1. Conform to requirements of NFPA 70.
 - 2. All equipment shall be furnished by a single supplier if possible with the exception of the HMI/SCADA. The supplier shall be responsible for the correct operation of the equipment as specified. The control panel supplier shall be the same as the pump supplier.
 - a. 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". 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.
 - b. The City of Storm Lake's HMI/SCADA contractor shall be used for all associated Human to Machine Interface (HMI) programming at the proposed lift station pump control panel (PCP), and at the existing SCADA system at the existing wastewater facility.

All costs associated with this work shall be included in the contract. Contractor shall be Thompson Solutions Group, located in Sioux City, IA
Contact: Michael Kelly,
Office: 712-224-3886, Mobile: 712-635-1139, Email:
Michael.Kelly@thompsonsolutionsgroup.com
 - c. HMI/SCADA graphics and operation shall be uniform and shall match existing standards. Coordinate PLC and HMI/SCADA programming to make a complete working system.
 - 3. Products: Furnish products listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and indicated.
 - 4. Contractor shall guarantee system operation and workmanship for a period of one year from date the system was accepted by the owner.
- B. Warranty
 - 1. Provide minimum 24-month manufacturer warranty covering repair or replacement of components due to defective materials or workmanship from date lift station is put in operation.
- C. General Requirements

1. 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.
 2. 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.
 3. 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.
 4. Process Control System: Provide a system that monitors and automatically controls operation of process equipment and instrumentation using programmable controllers.
 - a. 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.
 - b. Provide end-to-end process control loop accuracy from sensor to display and final control element.
 - c. Use sequences of operation, setpoints, settings and alarm limits as indicated.
 - d. Provide for operator interaction, set-points, settings, and alarm limits as indicated.
 - e. 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.
 - 1) Provide network and control hardware that can be replaced by similar control equipment from other equipment manufacturers without loss of system functionality.
 - f. Provide all software, programming, and configuration required for a complete operating Supervisory Control and Data Acquisition (SCADA) system.
 - g. Access to view and edit programmable controller programs and operator interface programs shall not be password protected or locked.
- D. Process Control Network
1. Network Design: Ethernet; as required to connect all process control devices and equipment.
 2. Provide all network drivers, components, and configuration to make a fully functional control network.
 - a. Provide managed or unmanaged switches as recommended by the equipment manufacturer or as otherwise required.
 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. Control network(s) shall be isolated from all other networks.
 5. Segregate traffic from Motor Control Centers, Variable Frequency Motor Controllers, Programmable Controllers, Input/Output devices, and Operator Interface devices as recommended by the Programmable Controller manufacturer.
 - a. Configure Virtual Local Area Networks (VLANs) as required.
 6. Network Access Jacks and Connections:
 - a. Provide wall mounted jacks where required outside control panel enclosures or devices.
 - 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.
 - e. Provide connections to type of media indicated in plans and specifications. Coordinate fiber optic cable termination type with contractor.
- E. 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.
- F. Major work items include but are not limited to:
1. Provide new control system to control and monitor lift station equipment including but not limited to; wet well pumps, level sensors, and flow meter.
 2. Pump Control Panel (PCP)
 - a. Incoming power shall be 208 VAC, 3 phase, 60 Hz and shall accept a minimum 100 amp supply.
 - b. Main Disconnect: Single panel power disconnect with overcurrent protection shall be provided. Shall be lockable in the Open position.
 - c. Minimum 35 KAIC rating.
 - d. Provide circuit breaker for short-circuit and ground-fault protection for each pump. Circuit breaker or disconnecting means shall be operable from control panel door.
 - e. Variable Frequency Drives shall be provided for each pump.
 - 1) Refer to Section 26 2923 Variable-Frequency Motor Controllers.
 - (a) Provide panel door mounted HIM module for each VFD.
 - 2) Disable associated VFD when local or field installed disconnects are in the open position.
 - f. Odor Control Fan
 - 1) Provide motor starter and overload protection for odor control fan.
 - 2) Fan motor: 120V, 1/3HP motor. Verify voltage and horsepower of actual fan motor provided and adjust equipment size as needed.
 - 3) Provide means to disconnect and lockout odor control fan via rotary disconnect or equal at control panel door.
 - g. Programmable controller.
 - h. Operator interface.
 - i. Selector switches, push buttons, and pilot lights:
 - 1) Provide Hand-Off-Auto selector switches panel mounted in door for each submersible pump. Hand shall operate independent from the programmable controller.
 - 2) Provide Hand-Off selector switch panel mounted in door for odor control fan operation.
 - 3) Provide amber illuminated Reset pushbutton for backup level control mode. Button shall be illuminated when in backup control mode.
 - 4) Alarm reset pushbutton.
 - 5) Alarm acknowledge pushbutton.
 - 6) Green pilot light for each pump running status.
 - 7) Red pilot light for each pump faulted status.
 - 8) Red pilot light for each pump protective status (overtemp and seal failure) failed status indication.
 - 9) Red pilot light for lowest level float.
 - 10) Red pilot light for highest level float.
 - j. Provide elapsed time meter for each submersible pump.
 - k. Provide elapsed time meter for combined submersible pump operation.
 - l. Provide a minimum of 4 discrete outputs connected to relays for alarm/monitoring by others.
 - m. Provide connection and configuration for system to communicate to existing wastewater facility through owners private Ethernet network. Provide CAT5/6 network connection to owner network. System shall be configured to be remotely monitored and controlled from the existing wastewater facility.
 - 1) Coordinate network configuration requirements with Rebnord Technologies. Refer to plans for contact information.

G. General Control System Requirements

1. Devices supplied shall be of the latest field proven models, unless otherwise specified to match existing equipment.
 2. Instruments and devices performing similar operations shall be of the same type and model, and shall be from a single manufacturer.
 3. 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.
 4. Surge Protection:
 - a. 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.
 - b. 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:
 - 1) A waveform with 8-microsecond rise time, 20-microsecond decay time and peak current of 500 amps.
 - c. Equipment Connected to Network Media or Communications Cables Installed Outdoors: Provide surge and lightning protection; provide protection meeting requirements of IEC 61643-21.
 5. Unless otherwise specified, provide products rated for continuous operation under following conditions:
 - a. Products Installed Indoors: Ambient temperatures in range of 32 to 122 degrees F.
 - b. Products Installed Outdoors or in Unconditioned Indoor Spaces: Ambient temperatures in range of minus 35 to plus 151 degrees F.
 - c. Air Pressure: Conditions normally encountered in installed locations.
 - d. Vibration: Conditions normally encountered in the installed locations.
 - e. Humidity: 10 to 95 percent relative humidity, non-condensing.
- H. Control Panels
1. General.
 - a. Control Station Enclosures: NEMA ICS 6.
 - b. Relay Enclosures: NEMA ICS 6.
 - c. Fabrication: Shop fabricate control panels to NEMA ICS 1, using cabinets and terminal blocks furnished in accordance with Section 26 0533.16.
 - d. All components shall be mounted to the enclosure back panel. Components shall not be mounted to the enclosure sides.
 - e. All components inside enclosure shall be readily accessible.
 - f. 25% free space shall be maintained within enclosure back panels for future components.
 - g. Shall have engraved label identifying panel name on panel door.
 - h. Panel mounted components shall have matching style and appearance.
 - i. Panel mounted components with digital displays installed outdoors shall be protected from direct sunlight.
 - j. Elevation of panel mounted components.
 - 1) Operator interface centerline shall be 54-60 inches above finished floor elevation.
 - 2) Devices other than operator interface; centerline of device shall be a minimum of 48 inches above finished floor elevation.
 - 3) Free standing enclosures; Coordinate with installing contractor for final installed location and account for any house keeping pads that may increase elevation of enclosure.
 - 4) Wall mounted enclosures: Coordinate elevation requirements with installing contractor.
 - k. Penetrations through the top of the enclosure are not permissible for field installed conduits and conductors. Shall be design to accept side or bottom entry of conduit and conductors from the field.
 - l. Interior Light: Inside panel, provide linear LED light automatically operated when panel door is open, on same circuit as convenience receptacle if available.

- m. NFPA 70E Article 130 Shock Protection Boundaries.
 - 1) Isolate exposed conductors or circuit parts rated 50 VAC/VDC or greater from exposed conductors or circuit parts rated less than 50 VAC/VDC within same enclosure or provide dedicated enclosure.
 - 2) Include terminations from field devices rated 50 VAC/VDC or greater.
 - 3) Enclosures shall be permanently attached and shall be connected by appropriately sized raceways.
- n. Where control system is monitoring or controlling devices located in hazardous areas; Provide and install intrinsic safety barriers to devices as recommended by the device manufacturer.
 - 1) Verify non-incendive field wiring conductor type and distance to ensure adequate circuit protection is provided.
- 2. Enclosure environment and type:
 - a. Panels shall be rated for environment of installed location.
 - 1) Outdoor Locations: Type 4X 316 stainless steel.
 - b. Provide removable stainless steel vented skirt around space below the enclosure.
 - c. Provide strain relief cord connectors at enclosure bottom for installation of field device cables.
 - d. Provide space in bottom and sides of enclosure for conduit connections.
 - e. Enclosures installed outdoors containing operator devices shall utilize door-indoor type construction. All operator devices shall be installed at inner door. No operator devices shall be installed at outer door.
 - f. Enclosures installed outdoors or in areas subject to public access shall have doors with 3-point latching mechanism with padlocking handles.
 - g. Enclosures containing motor controllers shall be free standing type with floor stands.
 - h. All equipment installed in hazardous or classified areas shall be suitable for use in the area.
- 3. Terminal blocks
 - a. Shall be furnished, installed, and wired to each I/O point of a chassis or rack mounted I/O module.
 - b. Shall be provided and connected to each unused I/O point.
 - c. Shall be provided for all field connections terminating inside enclosure.
 - d. Enclosures shall have 25% spare terminal blocks for future connection.
 - e. Terminal blocks shall not be required for connection of distributed I/O modules. Field wires shall directly terminate to distributed I/O terminal bases.
 - f. 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.
 - g. All terminal blocks shall be labeled, and labels shall be by terminal manufacturer with electronic print.
- 4. Control wiring
 - a. Single conductors shall be flexible stranded copper type MTW, and shall be rated for 600 volts.
 - b. Signal cables shall be minimum #20 AWG shielded twisted pair or triad cables with tinned copper conductors.
 - c. Wire numbers shall be marked using plastic coated cloth type labels with black text printed on white background.
 - d. Circuit breaker shall be provided in control panel for incoming power source overcurrent protection and disconnecting means unless noted otherwise.
 - e. Individual fuse protection with disconnecting means shall be provided for each I/O module, and each electrical component that consumes power.
 - f. Individual fuse protection with disconnecting means shall be provided for each field installed device that consumes power.
 - g. Disconnect and/or fuse protection with disconnecting means shall be provided at primary and secondary of all power supplies.
 - h. Fuse blocks and disconnecting means shall be labeled.
- 5. Control Voltage
 - a. Provide step down transformers as required.

- b. Provide power supplies as required.
- 6. Three-phase Power Monitor Relay: Shall disable and lockout pumps if power problem is detected.
- 7. Convenience Receptacle
 - a. Provide receptacle for enclosures containing programmable devices to support programming computer/device.
 - b. 120 volt AC, minimum 15 amp, ground fault interruption (GFI), duplex convenience receptacle. Energize from dedicated control panel fuse or circuit breaker with a minimum rating of 3 amps.
 - c. Label for programming use only.
 - d. Mounting
 - 1) Install at back panel unless enclosure is equipped with an inner door.
 - 2) If inner door is available install receptacle at inner door along with an Ethernet jack. Ethernet jack shall be connected to control panel network switch for programming use. Shall be rated Type 12.
- 8. Uninterruptible Power Supply (UPS)
 - a. Uninterruptible Power Supply (UPS): UPS system 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.
 - 1) Shall provide backup power supply to all electronic controllers and network devices.
 - 2) Sized to operate connected load for a minimum of 10 minutes.
 - 3) Visual indication of normal power operation, UPS operation, abnormal operation and visual and audible indication of low battery power.
 - 4) Relay contact for indication of alarm condition.
 - 5) Comply with 47 CFR 15, Part A for radio noise emissions.
 - 6) Battery shall be hot swappable without interrupting normal device operation.
- 9. Pump/Equipment Protection:
 - a. 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.
 - 1) Provide a minimum of one normally open and one normally closed contact for each condition being monitored.
 - 2) Status indication by LEDs.
- 10. Alarm Light.
 - a. Provide alarm strobe light at control panels containing an operator interface.
 - b. Outdoor Locations; Rigid Metal Conduit mounted through side of control panel.
- I. Products
 - 1. Programmable Logic Controller (PLC)
 - a. Basis of Design Make/Model:
 - 1) Allen Bradley; CompactLogix.
 - b. Ethernet Communications.
 - c. Conformal Coating.
 - d. PLC shall be configured as required to perform the specified operations.
 - 2. Operator Interface
 - a. Basis of Design Make/Model:
 - 1) Allen-Bradley; PanelView Plus 7, Performance Series.
 - b. Minimum 10" display.
 - c. Color Touch Screen.
 - d. Conformal Coating.
 - e. Ethernet Communications.
 - f. Shall be panel mounted in door of control panel.
 - 3. 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.

- J. Control panel components
1. Manufacturers.
 - a. Allen-Bradley/Rockwell Automation; www.rockwellautomation.com/en-us.html.
 - b. Eaton Corporation; www.eaton.com/#sle.
 - c. Schneider Electric; Square D Products; www.schneider-electric.us/#sle.
 - d. Phoenix Contact; www.phoenixcontact.com/en-us/.
 - e. Substitutions: See Section 01 6000 - Product Requirements.
 2. Circuit breakers.
 - a. Shall be Allen Bradley 1492-SP series or equal.
 3. Fuse holders.
 - a. Shall be Allen Bradley 1492-H series with blown fuse indicator or 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 equal in dry areas.
 - 2) Allen-Bradley Bulletin 800H or 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 Type HB or Type HL, or 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 SPDT. Provide DPDT as required. If more than two poles are required, relays shall be paralleled.
 - d. Mechanical flag indicator or LED 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.
- K. Installation
1. Install products in accordance with manufacturer's instructions.
 2. Furnish a complete working system by a competent manufacturer's representative and include instruction to the Owner on proper operation and maintenance.
 3. Follow manufacturers' installation instructions for all materials and equipment, unless otherwise indicated or directed by Engineer.
 4. Wiring connected to components and assemblies, including power wiring in accordance with requirements of Section 26.

5. Electrical raceways as specified in Section 26.
 6. Identification as specified in Section 26.
 7. Process Control Network.
 - a. Install network wiring without splices between control devices and in accordance with NFPA 70.
 - b. 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.
 - c. Install wiring that is outside of enclosures in raceways.
 - d. Tag wiring at both ends with identifier shown on shop drawings.
- L. Field Quality Control - Prior to Startup
1. Adjust, calibrate, measure, program, configure, and otherwise perform all necessary actions to ensure that process control system will function as required by Contract Documents.
 2. Physical Inspection:
 - a. 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.
 - b. Verify that instruments without built-in transceivers are correctly connected to their transceiver.
 - c. Verify that instruments are correctly installed in the manner necessary to sense the variables they are intended for
 3. Shutdown Condition Demonstration: Set all controller Hand-Off-Auto switches to OFF.
 - a. Verify that power and air, where required, are available.
 4. 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.
 5. Functional Testing:
 - a. Prior to facility startup and performance evaluation period, inspect, test, and document that all equipment is ready for operation.
 - b. Test all control related network media, devices, configuration, and operation.
 6. Correct deficiencies and replace damaged or defective equipment.
 7. Owner reserves the right to reject installed equipment if performance appears to be unachievable with installed equipment.
- M. Field Quality Control - After Startup
1. 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.
 - a. Adjust proportional, integral, and derivative settings to provide stable closed-loop control.
 - 1) Make controlled variables settle out at a new setpoint with no more than two oscillations above and below setpoint with steady output.
 - 2) With the exception of naturally slow processes, make controllers settle out at new setpoints within five minutes.
 - b. Set controllers to correct setpoints and record final PID configuration setting on project record Parameter Schedule and submit with O&M data.
 2. Performance Evaluation: Demonstrate compliance of process control system with Contract Documents, using approved test plans.
 - a. Coordinate functional testing with Owner and Engineer. Notify Owner and Engineer two weeks prior to the start of performance testing.
 - b. 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.
 - c. Demonstrate all physical and functional requirements of system.
 - d. Show, step-by-step, the actions and results for each sequence of operation.
 - e. Demonstrate that all alarms work correctly.

3. If test results are unsatisfactory or equipment cannot be adjusted to perform properly, modify, repair, or replace, and retest.
 - a. When new units are installed, restart testing from beginning.
 - b. Owner reserves the right to reject installed equipment if performance appears to be unachievable with installed equipment.
 - c. Prior to retesting, obtain Owner's approval of retesting schedule.
- N. Closeout Activities
1. Functional Tests must be completed and approved as described in specification.
 2. Provide As-Built drawings of all systems.
 3. Provide Operation and Maintenance manuals of all systems.
 4. Training: Train Owner's personnel on operation, adjustment, and maintenance of all systems.
 - a. Provide an integrated training program for Owner's personnel to meet the specific needs of the Owner's personnel.
 - b. Including training sessions in a classroom setting and in the field. Train managers, engineers, operators, and maintenance personnel.
 - c. Provide instruction on two working shifts to accommodate the Owner's personnel schedule.
 - d. The Owner reserves the right to record and reuse training sessions.
 - e. Location: At project site or classroom as determined by the owner.
- O. Warranty Period Work
1. During the warranty period defined in the Conditions of the Contract, correct all deficiencies in process control system upon notification by Owner.
- P. Description of Operation
1. Overview: Provide automatic control of lift station.
 2. General:
 - a. If motor or device is called to run or change state and does not achieve expected result within 10 seconds, lock out device and alarm.
 - b. If motor or device fails during operation, lock out device and alarm.
 - c. Automatically stage on equipment after power loss to limit electrical demand on system.
 - d. Limit pump or motor number of starts per hour based on manufacturers recommendation. If limit is reached; disable pump or motor for period of time recommended by the manufacturer and alarm. Allow operation of pump or motor after designated period of time has expired.
 - e. Pump/Equipment Protection Devices; Monitor protection devices. Alarm and lockout associated equipment as recommended by the manufacturer.
 - f. Automatic pump/motor rotation for standby equipment
 - 1) For equipment that operates intermittently; automatically rotate lead pump/motor after lead pump stops.
 - 2) For equipment that operates continuously; automatically rotate lead pump/motor after operator adjustable time (hours).
 - 3) Automatically rotate lead pump/motor if lead pump/motor fails.
 - g. Where communications is used between controllers for the purpose of motor control, if communications is lost, stop associated motor.
 - h. Selector switch operation.
 - 1) Hand: The associated pump or motor shall run regardless of control system operations and shall run independent from electronic controller. Alarms shall not shut down the motor except for motor overload and other alarms that would void the pump manufacturers warranty.
 - 2) Off: The associated pump or motor shall remain off.
 - 3) Auto: The associated pump or motor shall automatically start and stop based on the control scheme described in this document.
 - 4) Monitor Hand and Auto position of each switch. Alarm
 - 5) Generate alarm if a pump switch is left in Hand or Off position for operator adjustable period of time.

- 6) Generator alarm if odor control fan is left in Off position for operator adjustable period of time.
- i. Operator Interface:
 - 1) Provide troubleshooting screen(s) with status and value of every available I/O point and communication node.
 - 2) Each I/O point shall be identified by designated tag number. Provide short description where applicable. Status shall be shown on process screen(s).
 - 3) Provide overview screen showing entire process using process flow diagram.
 - (a) Provide graphical indication of equipment status.
 - (b) Display flow rates and liquid levels.
 - 4) Provide sub screens with expanded process flow diagram for each process or area.
 - (a) Provide detailed graphical indication of all equipment associated with the process.
 - (b) Provide means for operator to adjust process/equipment.
 - 5) Provide Hand-Off-Auto operation on operator interface for each output.
 - 6) Provide Action Confirmation pop-up menu for buttons located in close proximity to one another, and for operations that could drastically affect the process if accidentally pressed.
 - 7) Provide operator adjustable parameters for scaling of analog inputs and analog outputs at operator interface..
 - (a) Scaling parameters shall be secured and shall not be adjustable by standard user. Higher level permissions user shall be required to adjust scaling parameters.
 - 8) Set-point entry limits shall be provided for all operator adjustable settings within feasible operating range of equipment to prevent entry of extreme set-points.
 - 9) All values and operator adjustable set-points shall be displayed and adjusted to the nearest tenth decimal place, at a minimum.
 - 10) Operator interface user security: Provide as required by the owner.
3. Normal control mode.
 - a. The PCP shall automatically start and stop lead and lag pumps to maintain wet well level, and shall have operator adjustable lead and lag pump start and stop level setpoints. Utilize wet well level transducer for primary control.
 - b. Provide automatic pump alternator to alternate lead/lag pump after each time the lead pump has shut off.
 - 1) Do not rotate lead pump unless lag pump is in Auto.
 - 2) Automatically rotate lead pump if lead pump fails.
 - c. Provide low and high level alarm setpoints.
 - d. Provide other setpoints and functions as required to meet existing owner HMI/SCADA standards.
4. Level float switches
 - a. Low level float: shall stop pumps no matter mode of operation.
 - b. Medium level float: Turn on lead pump in backup control mode.
 - c. High level float: Turn on lag pump in backup control mode.
 - d. High high level float: Initiate backup control mode and signal alarm.
5. Backup control mode
 - a. If level reaches high high level float, automatically enter backup control mode.
 - b. Pumps to automatically operate independent from electronic controller.
 - c. Backup mode to stay enabled until operator resets mode at pump control panel via reset push button.
 - d. Refer to Level Float Switches paragraph for assigned operation during backup mode.
6. Submersible pumps:
 - a. Upon detection of either over temperature or seal failure in a pump, the associated pump shall be locked out and generate an alarm.
7. Odor control fan:
 - a. Utilize Hand-Off selector switch for means of control.
 - b. Control shall be independent from electronic controller.

8. Alarms
 - a. Signal local alarm device in the event of alarm.
 - b. Signal existing remote alarm monitoring system at the wastewater facility.

2.09 INSTRUMENTATION

A. Float Switch Level Sensors:

1. The Control Panel Supplier shall furnish; Contractor shall install, and wire the float switches for control as shown on the drawings.
2. Each float shall have molded polyethylene body, internal redundant polyurethane foam flotation, non-mercury switch and cable connections and fine-stranded AWG #16 cable with heavy-duty synthetic rubber jacket in lengths as required to run un-spliced to the control panel. The floats shall include internal weight allowing suspended operation without the use of special pipe or suspension mounting systems.
3. The control panel shall include a UL Listed intrinsic safety barrier that has been UL tested with the specific level switch furnished for this application to render the float switch suitable for use in Class 1, Division 1 or 2, Groups A, B, C and D; Class II, Division 1 or 2, Groups E, F and G; and Class III, hazardous locations (which includes a sewage wet well).
4. Pre-Approved Manufacturers:
 - a. Anchor Scientific.
 - b. Substitutions: See Section 01 6000 - Product Requirements.

B. Radar Level Transducer:

1. The liquid level of the wet well shall be sensed by a non-contact radar transducer. The transducer shall be a 2-wire type to operate from a regulated supply voltage and produce an instrumentation signal in direct proportion to the measured level of the wet well.
2. The transducer shall be of the solid-state type, and shall be installed in accordance with manufacturer's instructions. The sensor shall be installed approximately 12 inches below the top of the wet well. Stainless steel support bracket shall be provided and installed by the contractor to support the sensor. The sensor assembly shall be installed in a location recommended by the manufacturer and connected with other system elements and placed in successful operation.
3. The control panel shall include a UL Listed intrinsic safety barrier that has been UL tested with the specific transducer furnished for this application to render the transducer suitable for use in Class 1, Division 1 or 2, Groups A, B, C and D; Class II, Division 1 or 2, Groups E, F and G; and Class III, hazardous locations (which includes a sewage wet well).
4. Pre-Approved Manufacturers:
 - a. VEGA
 - b. Substitutions: See Section 01 6000 - Product Requirements.

C. Magnetic Flow Meter

1. Manufacturers:
 - a. Toshiba
 - b. Endress Hauser
 - c. Substitutions: See Section 01 6000 - Product Requirements.
2. General:
 - a. Mounting: Easily removed for periodic maintenance.
 - 1) For Liquids: Mount sensors in vertical or horizontal piping, unless otherwise indicated or otherwise recommended by manufacturer.
 - b. Straight Run Piping Requirements: Provide unit designed for zero pipe diameters of upstream and downstream pipe runs.
 - c. Flow Transmitters:
 - 1) Power supply: 120 volts AC, single phase, 60Hz.
 - 2) Display: Digital readout of volumetric flow rate to 4 significant figures.
 - 3) Output Signal: 4 to 20 mA DC, proportional to measured parameter and pulse output. All outputs shall be programmable.
 - 4) Accuracy: Plus/minus 0.5 percent of full scale reading with output error not exceeding Plus/minus 0.25 percent of the calibrated measurement.
 - 5) Mounting: Remote mounted.

3. Flowmeters, Magnetic: Non-intrusive type, measuring fluid flow through use of self-generated magnetic field; encapsulated in type 300 stainless steel; metering tube of type 316 stainless steel.
 - a. Flow Velocity: Capable of measuring clean or dirty flow up to 10 feet per second.
 - b. Pressure Drop: 5 psi, across meter and appurtenances, at maximum flow rate.
 - c. Shall be rated for use with sanitary sewer wastewater.
 - d. Flow tube shall be rated for installation in Class I Division 2 space.
 - e. Flow tube and connections shall be submersible rated.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify inlet and discharge piping connection match size, location, and elevation shown on drawings.
- B. Off-load equipment, using pump station manufacturer's written instructions for proper handling, at installation site using equipment of sufficient size and design to prevent injury and damage.
 1. Inspect complete pump station and appurtenances for shipping damage or missing parts immediately after off-loading.
 2. Prior to accepting delivery, note any damage or discrepancy in a written claim with shipper.
 3. Validate all station serial numbers and parts lists with shipping documentation.
 4. Notify the manufacturer's representative of any unacceptable conditions noted with shipper.
- C. Check motor and control data plates for compatibility to site voltage.

3.02 INSTALLATION

- A. Install, level, align and seal pump station as indicated on project drawings.
- B. Installation shall be in accordance with written instructions provided by the pump station manufacturer. Comprehensive instructions supplied at time of shipment shall enable personnel to properly operate and maintain all equipment supplied.
- C. Install and test the station ground prior to connecting line voltage to station control panel.

3.03 MANUFACTURER FIELD SERVICES

- A. Provide the services of equipment manufacturer's technical representative to direct startup of station and instruct Owner's personnel in startup, operation, and maintenance procedures.
 1. A start-up report completed by an authorized manufacturer's representative must be received by the Engineer within thirty (30) days of the initial date the unit is placed into service. The warranty shall become effective on the date of acceptance by the Owner.
- B. Provide the services of equipment manufacturer's technical representative to inspect the completed installation, calibrate and adjust instrumentation, correct or supervise the correction of any defect or malfunction, and instruct operating personnel in the proper operation and maintenance of the equipment as described in within this specification.

3.04 FIELD QUALITY CONTROL

- A. After installation but before backfilling or connecting to sewer piping, test pump, valve, and piping assemblies under test pressure equal to 50 percent more than pump discharge pressure or total dynamic head, whichever is greater, using clean water.
 1. Simulate varying water level conditions to show that pump controls are working properly.
 2. Activate each control function to check for proper operation and indication.
 3. Include alarm conditions to show that alarms are correctly connected and functioning.
- B. Consult geotechnical report and structural drawings and specification before backfilling. Backfill per pump station manufacturer's guidelines.
- C. All operational tests shall demonstrate that all equipment is electrically, mechanically, structurally and otherwise acceptable; it is safe and in optimum working conditions; and conforms to the drawings and specifications.
- D. After connecting to sewer piping, monitor operation for 10 days and submit report.

Division 44: Pollution and Waste Control Equipment

**SECTION 44 3100
ODOR TREATMENT EQUIPMENT**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Drum Scrubber.
- B. Blower
- C. Chemical Media

1.02 RELATED REQUIREMENTS

- A. Section 33 3213: Port required for wet well to connect to drum scrubber . Also includes process control for odor control fan..

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Purafil, Inc.
- B. Engineer Approved Equal..
- C. Substitutions: See Section 01 6000 - Product Requirements.
- D. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.

2.02 GENERAL

- A. Drum Scrubber Systems: Pre-engineered, self-contained vent control system designed to purify small-flow odor air streams consisting polyethylene drum filled with layered beds of chemical media with a blower-motor assembly mounted on top.
- B. Basis of Design: Purafil Inc's DS-100 Scrubber with Centrifugal Aluminum Blower and Explosion Proof Motor.
- C. Gas Removal Efficiencies: Equal to or greater than 99.5%
- D. Airflow Capacity: 100 CFM at 6 iwg, including 2 iwg of external static pressure.
 - 1. Unit shall include an outlet damper to vary the airflow.
- E. Configuration: Vertical airflow; such that air shall flow into the bottom inlet and be drawn upwards through the media bed. Treated air shall discharge out the top of the vessel through a centrifugal air ventilator.

2.03 DRUM

- A. Construction Material: Linear, medium to high density, UV stabilized polyethylene.
- B. Drum shall be equipped with stainless steel and rubber latches. All fasteners shall be stainless steel. Drum shall also have a 0.75" diameter drain pipe. Additionally, drum shall be equipped with media supporting system.
- C. Capacity: 55 gallons.
- D. Inlet: 4" flexible coupling.

2.04 BLOWER

- A. Construction Material: Cast aluminum housing with wheel that are natural non-sparking and meet AMCA Type B resistant construction.
- B. Shall consist of a direct drive motor-fan assembly.
- C. Maximum operating temperature: 150 deg F.
- D. Coating: Epoxy
- E. Motor: As indicated on drawings.
 - 1. Shall be pre-wired with a 6 feet UL approved grounded power cord.

- F. Accessories:
 - 1. Motor weather cover for outdoor service.
 - 2. Under-vessel skid(s).

2.05 CHEMICAL MEDIA

- A. Drum shall be filled with two or more types of media provided by the drum scrubber manufacturer. If other media are used, the unit must be appropriate sized and media configuration and volume determined and Contractor shall be responsible for testing verification for media not listed and previously approved.
- B. Media must be Non-Hazardous before and after it is spent.
- C. One type of media shall have the following properties and be capable of absorbing and removing odorous gases through the entire pellet:
 - 1. Moisture content: 35% maximum.
 - 2. Average crush strength: 35% minimum-70% maximum.
 - 3. Average abrasion: 4.5% maximum.
 - 4. Hydrogen sulfide removal capacity: 0.30 g/cc minimum.
 - 5. Nominal pellet diameter: 1/16"-1/4"
 - 6. Bulk density: 40 lbs/cu.ft.
 - 7. UL Classified Class 2
- D. Second type of media shall be UL Classified Class 1 with a bulk density with the following properties:
 - 1. Bulk Density: 40 lbs/cu.ft. plus or minus 5%
 - 2. Mixture of powdered activated aluminum and binder impregnated with sodium permanganate and premium grade, activated carbon with a high surface area.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify blower, motor and inlet pipe connection match size as shown on approved shop drawing submittals.
- B. Off-load equipment, using manufacturer's written instructions for proper handling, at installation site using equipment of sufficient size and design to prevent injury and damage.
 - 1. Inspect complete drum scrubber assembly for shipping damage or missing parts immediately after off-loading.
 - 2. Prior to accepting delivery, note any damage or discrepancy in a written claim with shipper.
 - 3. Validate all serial numbers and parts lists with shipping documentation.
 - 4. Notify the manufacturer's representative of any unacceptable conditions noted with shipper.

3.02 PREPARATION

- A. Establish minimum clearance of 32" from the drum scrubber.
- B. Establish minimum separation of 10 feet from electrical equipment in accordance with the NEC.

3.03 INSTALLATION

- A. Install, level, and align as indicated, in accordance with drawings and manufacturer's instructions.

3.04 MANUFACTURER'S FIELD SERVICES

- A. Provide the services of equipment manufacturer's technical representative to direct startup of drum scrubber and instruct Owner's personnel in startup, operation, and maintenance procedures.
- B. Provide the services of equipment manufacturer's technical representative to inspect the completed installation, calibrate and adjust instrumentation, and correct or supervise the correction of any defect of malfunction.

3.05 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements for additional requirements.

- B. All operational tests shall demonstrate that all equipment is electrically, mechanically, structurally, and otherwise acceptable; it is safe and in optimum working conditions; and conforms to the drawings and specifications.

3.06 CLOSEOUT ACTIVITIES

- A. Training: Train Owner's personnel on operation and maintenance of system.
 - 1. Training Reference: Operation and maintenance manual and additional training materials as required.
 - 2. Provide minimum of one day of training.

END OF SECTION

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Attachments

Geotechnical Report



Certified Testing Services, Inc.

GEOTECHNICAL ENGINEERING REPORT

**College Avenue and 3rd Street Lift Station
Storm Lake, Iowa**

Prepared For:

ISG
Storm Lake, IA

CTS Project No. G7326
ISG Project No. 23-29447



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.

Signature:

Matthew R. Dailey 3-27-2024

Name: Matthew R. Dailey, P.E. (date)

License Number: 19700

My license renewal date is December 31, 2025.

Pages or sheets covered by this seal:

This bound report contains 22 pages, including this page.
CTS File Number G7326



Certified Testing Services, Inc.

419 W. 6th Street • P.O. Box 1193 • Sioux City, Iowa 51102 • Phone (712) 252-5132

March 27, 2024

Attn: Ms. Guadalupe Munoz Rocha
ISG
1725 Lake Avenue N
Storm Lake, Iowa 50588

Re: Geotechnical Engineering Report
College Avenue and 3rd Street Lift Station
Storm Lake, Iowa
ISG Project No. 24387
CTS Job No. G7326

Dear Ms. Munoz Rocha:

Certified Testing Services, Inc. is pleased to transmit our Geotechnical Engineering Report for the referenced project. This report includes the results of field and laboratory testing, recommendations for support of the lift station and groundwater information.

We appreciate the opportunity to perform this Geotechnical Study and look forward to continued participation during the design and construction phases of this project. If you have any questions pertaining to this report or if we may be of further service, please contact our office.

Respectfully submitted,
CERTIFIED TESTING SERVICES, INC.

James A. Bertsch, P.E. IA 12121
Senior Geotechnical Engineer

Matthew R. Dailey, P.E. IA 19700
Geotechnical Department Manager

JAB/MRD/jb

GEOTECHNICAL ENGINEERING REPORT

**COLLEGE AVENUE AND 3RD STREET LIFT STATION
STORM LAKE, IOWA**

**ISG PROJECT NO. 23-29447
CTS PROJECT NO. G7326**

PREPARED FOR

**ATTN: MS. GUADALUPE MUNOZ ROCHA
ISG
1725 NORTH LAKE AVENUE
STORM LAKE, IOWA 50588**

MARCH 27, 2024

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PROJECT INFORMATION

Project Authorization

Certified Testing Services, Inc. has completed a subsurface exploration for the Proposed College Avenue and 3rd Street Lift Station project in Storm Lake, Iowa. Mr. Lenny Larson, P.E., Water/Wastewater Group Leader for ISG, authorized our work by signing our proposal on March 12, 2024. This work was performed in accordance with CTS Proposal Number 6717 dated March 6, 2024.

Project Description

Ms. Guadalupe Munoz Rocha, Graduate Engineer for ISG, provided project information in an email on March 5, 2024. The email included an RFP that was dated March 1, 2024, and included Sheet 1 that was titled, "Boring Location". CTS understands that project will consist of a lift station located on the southeast of the intersection of College Avenue and 3rd Street on the south side of 3rd Street in Storm Lake, Iowa. The following is our understanding of the project.

Lift Station

- 7 feet diameter and 34 feet deep sanitary lift station
- Report is based on an assumed maximum mat foundation loading of 1,000 PSF
- Report is also based on less than 2 feet of cut/fill being required to bring the site around the lift station to grade

The geotechnical recommendations presented in this report are based on the available project information, lift station location and the subsurface materials described in this report. If the noted information is incorrect, please inform CTS in writing so that we may amend the recommendations presented in this report if appropriate. CTS will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

Purpose and Scope of Services

The purpose of this study was to explore the subsurface conditions at the site to prepare recommendations for the construction of the lift station and provide groundwater information. Our scope of services included drilling two soil test borings to depths of 60 feet below the existing grade at the locations indicated in the RFP. The scope of work also included select laboratory testing, and preparation of this geotechnical report. This report briefly outlines the testing procedures, presents available project information, describes the site and subsurface conditions, provides recommendations for the design and construction of the lift station and groundwater information. The scope of services did not include an environmental assessment of the site.

SITE AND SUBSURFACE CONDITIONS

Site Location and Description

The proposed lift station project is southeast of the intersection of College Avenue and 3rd Street on the south side of 3rd Street in Storm Lake, Iowa. The site was bordered by W. 3rd Street to the north, residence to the east, parking lot to the south, and school to the west. The surface material at the boring locations was firm at the time of our site visit and the drill rig did not experience difficulty moving around the site.

Subsurface Conditions

The subsurface conditions at the site were explored with two soil test borings sampled to depths of 60 feet below the existing ground surface at the locations specified on Sheet 1 of the RFP. ISG personnel selected the boring locations, boring depths, and provided elevations for the borings in the RFP. CTS personnel adjusted the boring locations in the field to provide access for the drill rig due to tree canopies. The approximate locations of the borings are shown on the "Boring Location Plan" in the Appendix, which is a modified copy of Sheet 1 that was provided in the RFP.

The borings were advanced utilizing hollow stem auger drilling methods and soil samples were routinely obtained during the drilling process. Select soil samples were later tested in the laboratory to determine the material's engineering properties for our evaluation. Drilling, soil sampling and the laboratory testing were accomplished generally in accordance with ASTM procedures. The borings were backfilled with on-site material after performing our work; however, it should be noted that some settlement of the backfill material may occur and it is the client's responsibility to backfill the borings once we have left the site.

The subsurface conditions encountered in the borings generally consisted of lean clay fill, lean clay with sand glacial sediment, lean clay glacial sediment, clayey sand glacial outwash, lean clay with sand weathered glacial till, lean clay with sand glacial till, and sandy silt glacial till. These materials are described in more detail in the following table.

Material	Moisture Content (%)	Dry Density (PCF)	Saturation (%)	Hand Penetrometer (TSF)	Standard Penetration Test (BPF)	Unconfined Compressive Strength (TSF)
Lean Clay Fill	20-30	81	83	3.0	5-11	-
Lean Clay Glacial Sediment	15-19	109-111	98	1.5-2.5	3-11	1.1-1.8
Clayey Sand Glacial Outwash	23	101	98	2.5	-	-
Lean Clay Weathered Glacial Till	17-20	115	99	4.5	8	3.3
Sandy Silt Glacial Till	17-20	109-115	97-98	2.5	-	2.9
Lean Clay with Sand Glacial Till	15-21	-	-	-	16-25	-

The boring logs included in the Appendix should be reviewed for specific information at the individual boring locations. The boring logs include soil/rock descriptions, stratifications, penetration resistances, and locations of the samples and laboratory test data. The stratifications shown on the boring logs represent the conditions only at the actual boring locations. Variations may occur and should be expected at locations other than the locations drilled. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual. Water level information obtained during field operations is also shown on the boring logs. Samples that were not altered by laboratory testing will be retained for 30 days from the date of this report and then will be discarded.

Water Level Measurements

Free groundwater was encountered in Boring B1 at a depth of 25 feet below the existing grade at the time of drilling. Based on the relatively impervious material encountered it would take a long monitoring time to determine the static water level, which was beyond our scope of work. It should be noted that water is typically encountered at the top of the glacial till material. Water levels should be expected to fluctuate with changes in climatic conditions. The water level measurements presented in this report are the levels that were measured at the time of our field activities.

EVALUATIONS AND RECOMMENDATIONS

Geotechnical Discussion

CTS has several concerns for the site from a geotechnical standpoint. The first concern for the lift station is for buoyancy forces due to the potential for a high water table to be encountered at the site. The lift station may need to be designed to resist buoyancy forces, if buoyancy forces are a problem. A method often used for resisting buoyancy forces consists of providing a wider mat foundation extending beyond the base of the lift station area and using the weight of the soil above the footings to resist the buoyancy force. A wet density of 55 PCF should be used for compacted fill material below the water table and a wet density of the 115 PCF should be used for compacted fill material above the water table to resist the buoyancy force. If buoyancy forces are an issue the lift station should be dewatered until the lift station is backfilled.

The second concern would be for water bearing sand to be encountered in the glacial till that could cause an unsafe condition. In order to minimize safety concerns, the potential water bearing sand should be dewatered prior to excavating into the water bearing sand.

The existing materials encountered in the borings are suitable for support of utilities; however, it should be noted that CTS did not perform borings in the utility trench areas. It should also be noted that the lean clay fill materials are very moist and would need to be moisture conditioned, dried, prior to being used as structural fill and trench and lift station backfill. CTS recommends that the pipe manufacturer's and SUDAS recommendations for bedding the utilities, if applicable, should be followed.

The seismic site classification for the site soils, in accordance with ASCE 7, Chapter 20, is a Class D. Due to the low seismic activity in the area, we are not aware of special designs or details for foundation structures due to seismic action.

Site Preparation

CTS recommends that topsoil, vegetation, roots, soft material, organic material, material containing frost, or unsuitable soils in the construction areas be stripped from the site and either wasted or stockpiled for later use in landscaping. The existing site soils are suitable for use as backfill; however, as previously discussed, the lean clay fill is very moist and would need to be moisture conditioned, dried, prior to being used as structural fill and backfill. A representative of the geotechnical engineer should determine the depth of removal at the time of construction.

Backfill materials should be granular or lean clay material free of organic or other deleterious materials, have a maximum particle less than 3 inches and have a liquid limit less than 45 and plasticity index less than 22. Close moisture content control of the lean clay will be required to achieve the recommended degree of compaction. CTS does not recommend alternating layers of granular material and lean clay material in order to prevent a perched water condition, which may affect the integrity of the backfill material in structural areas.

Backfill should be placed in maximum loose lifts of 4 inches for hand compaction equipment and 8 inches for riding compaction equipment and compacted to at least 93 percent of the material's standard Proctor maximum dry density with the exception of structural areas under pavement, sidewalks and other structural areas, which should be compacted to a minimum of 95 percent of ASTM D698. The lean clay materials should be compacted to within a minus 3 to a plus 3 percent of the optimum moisture content as determined in general accordance with ASTM D 698 procedures. Every other lift of compacted-engineered fill should be tested by a representative of the geotechnical engineer prior to placement of subsequent lifts.

Mat Foundation Recommendations

The lift station may be supported on a mat foundation supported the undisturbed existing glacial till material. The subgrade would have a modulus of subgrade reaction, k value of 144 kips cubic foot (kcf), based on approximately 1/2-inch of settlement, friction factor of 0.35 for the glacial till material, and net allowable bearing capacity of 2,000 PSF that may be used in the mat design.

Below Grade Wall Design and Construction

The below grade walls will need to be designed to resist lateral earth pressures. Based on the types of subsurface materials encountered by the borings, equivalent fluid pressures of 75 PSF may be used as the horizontal components of the at-rest earth pressure on the below grade walls. An equivalent fluid pressure of 50 PSF may be used as the horizontal components of the active earth pressure on the freestanding below grade walls, which are permitted to rotate slightly and an equivalent fluid pressure of 240 PSF may be used as the horizontal components of the passive earth pressure. A friction factor for the base of the

structures is presented in the “Mat Foundation Recommendations” section of this report. These pressures are limited to a horizontal grade above the foundation wall, no additional pressures at the surface and an undrained condition. The following coefficients were used to determine the equivalent fluid pressures:

Internal friction angle	10 to 15 degrees
At-Rest K_o	0.75
Active Pressure K_a	0.6
Passive Pressure, K_p	1.7

However, if coarse sand or gravel is used to backfill the below grade wall and a minimum of 2 feet of sand is used between the natural material and the wall, the below grade walls, such as retaining walls, and exterior basement walls may be designed for equivalent fluid pressures of 55 PSF/FT may be used as the horizontal components of the at-rest earth pressure on the below grade walls, an equivalent fluid pressure of 35 PSF/FT may be used as the horizontal components of the active earth pressure on the freestanding below grade walls, which are permitted to rotate slightly and an equivalent fluid pressure of 400 PSF/FT may be used as the horizontal components of the passive earth pressure above the water table. A friction factor for the base of 0.3 may be used for the base of below grade walls. These pressures are limited to a horizontal grade above the foundation wall and no additional pressures at the surface. The following coefficients were used to determine the equivalent fluid pressures:

Internal friction angle	30 - 34 degrees
At-Rest K_o	0.45
Active Pressure K_a	0.3
Passive Pressure, K_p	3.25

If surface loads are placed near the walls, such as traffic loads, they should be designed to resist an additional uniform lateral load of one-half of the vertical surface loads. If footing drains are not installed then the above loads should be increased by the weight of water (62.4 PCF) for the portion of the wall that will be below the water table.

CTS recommends that below-grade walls be provided with drains, if possible. The drainage system should include a 4-inch or 6-inch diameter heavy walled perforated drintile at the bottom of the backfill to collect seepage water with the tile connected to a suitable means of disposal. A clean 1½-inch or 1-inch gravel classified as "GW" and containing less than 5 percent passing a #200 sieve should surround the drintile and either extending to two feet above the drintile with drainage matting consisting of filter fabric being installed against the wall or the granular material should extend to within 2 feet of the surface. A non-woven 4-ounce per square yard geotextile should be installed between the drainage material and the on-site soils to prevent infiltration of fine-grained soils into the drintile, granular drainage blanket, or granular backfill. A 2 feet thick clay cap should be placed at the surface to minimize infiltration of surface water.

The lift station wall excavations should be benched or stepped in horizontal and vertical surfaces to prevent the wall backfill from slipping along the interface of the existing subsoil and the backfill material. The backfill material should be compacted to a minimum density of

93 percent of the maximum laboratory density as determined by ASTM D698 in non-structural areas and to at least 95 percent in structural areas. Care should be exercised during the backfilling operation to prevent overstressing and damaging the walls.

CONSTRUCTION CONSIDERATIONS

CTS should be retained to provide observation and testing of construction activities involved in the foundation, earthwork, and related activities of this project. CTS cannot accept responsibility for conditions that deviate from those described in this report, nor for the performance of the subgrade if not engaged to also provide construction observation and testing for this project.

Moisture Sensitive Soils and Weather Related Concerns

The fine-grained soils encountered at this site will be sensitive to disturbances caused by construction activity and to changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork and pavement construction activities during dry weather.

Drainage and Groundwater Considerations

Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the structure during construction. The grades should be sloped away from the structure and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill. The mat foundation subgrade should be inspected prior to placing of reinforcing steel and concrete.

Free groundwater was encountered in Boring B1 at 25 feet below the existing grade at the time the field exploration was conducted and is anticipated to be encountered at other locations. It is anticipated that the groundwater will affect the construction of the project, particularly if sand lenses are encountered in the glacial till material. It is anticipated that pumps can be used to remove groundwater based on the material encountered in the boring, drawdown wells would not work on this site. The contractor should have suitable sized pumps available to remove groundwater. It is possible that seasonal variations will cause fluctuations or a water table to be present in the upper soils.

Excavations

In Federal Register, Volume 54, Number 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better enhance the safety of workers entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavation or footing excavations, be constructed in accordance with the new OSHA guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. The clay materials are a Class B material and the sand material is a Class C material in accordance with OSHA criteria.

We are providing this information solely as a service to our client. CTS does not assume responsibility for construction site safety or the contractor's or other party's compliance with local, state, and federal safety or other regulations.

REPORT LIMITATIONS

The recommendations submitted are based on the available subsurface information obtained by CTS and design details furnished by Ms. Guadalupe Munoz Rocha, Graduate Engineer for ISG. If deviations from the subsurface conditions noted in this report are encountered during construction, CTS should be notified immediately to determine if changes in the recommendations are required. If CTS is not retained to perform these functions, CTS will not be responsible for the impact of those conditions on the project.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

After the plans and specifications are more complete, the geotechnical engineer should be retained and provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated into the design documents. At that time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of ISG and the City of Storm Lake and their consultants for the specific application to the College Avenue and 3rd Street Lift Station in Storm Lake, Iowa.

APPENDIX

BORING LOCATION PLAN

BORING LOGS



LOG OF EXPLORATORY BORING

Sheet 1 of 1

Job Number: **G7326**
 Project: **Storm Lake Lift Station**
 Date Started: **3/22/24**
 Date Completed: **3/22/24**

Boring No.: **B-1**
 Boring Location: **Storm Lake, IA**
 Drill Type: **Hollow Stem**
 Ground Elev.: **101.1**

Depth in Feet	Graphic Log	Sample Type	USCS	Blow Counts SPT (N) Blows/Foot	Moisture Content, %	Dry Density (PCF)	% Saturation	Hand Penetrometer (TSF)	Unconfined Comp. Strength (TSF)	Liquid Limit %	Plastic Limit %	Plasticity Index %	Cone Penetrometer (Blows/ 1-3/4")
		Shelby Tube Standard Split Spoon Modified California Grab Sample Water Level ATD Water Level After 7 Days											
		SOIL DESCRIPTION											
		7-Inch Concrete Layer											
		4-Inch Gravel Layer											
5		FILL, Lean Clay, Dark Gray, Very Moist		2-2-3 N= 5	29								
		LEAN CLAY, Medium Gray and Yellow	CL		33	81	83	3.00					
		Brown, Very Moist, Glacial Sediment		2-1-2 N= 3	20								
10		LEAN CLAY WITH SAND, Grayish Yellow	CL		19	111	98	2.50	1.10				
		Brown, Very Moist, Stiff, Glacial Sediment											
15		LEAN CLAY WITH SAND, Grayish Yellow	CL	2-4-4 N= 8	20								
		Brown, Very Moist, Stiff to Very Stiff, Weathered Glacial Till											
20		(Medium Gray)			17	115	99	4.50	3.30				
25		LEAN CLAY WITH SAND, Medium Gray, Very Moist, Very Stiff, Glacial Till	CL	6-9-11 N= 20	17								
30				4-7-11 N= 18	15								
35		(Sand Lense)		8-7-11 N= 18	13								
40				4-6-10 N= 16	17								
45				4-6-11 N= 17	16								
50				6-8-11 N= 19	16								
55				7-8-11 N= 19	16								
60		END OF BORING AT 60 FEET FREE WATER WAS ENCOUNTERED AT 25 FEET AT TIME OF DRILLING		6-8-9 N= 17	17								

LOG OF BORING G7326.GPJ CERTIFIED TESTING.GDT 3/26/24



LOG OF EXPLORATORY BORING

Sheet 1 of 1

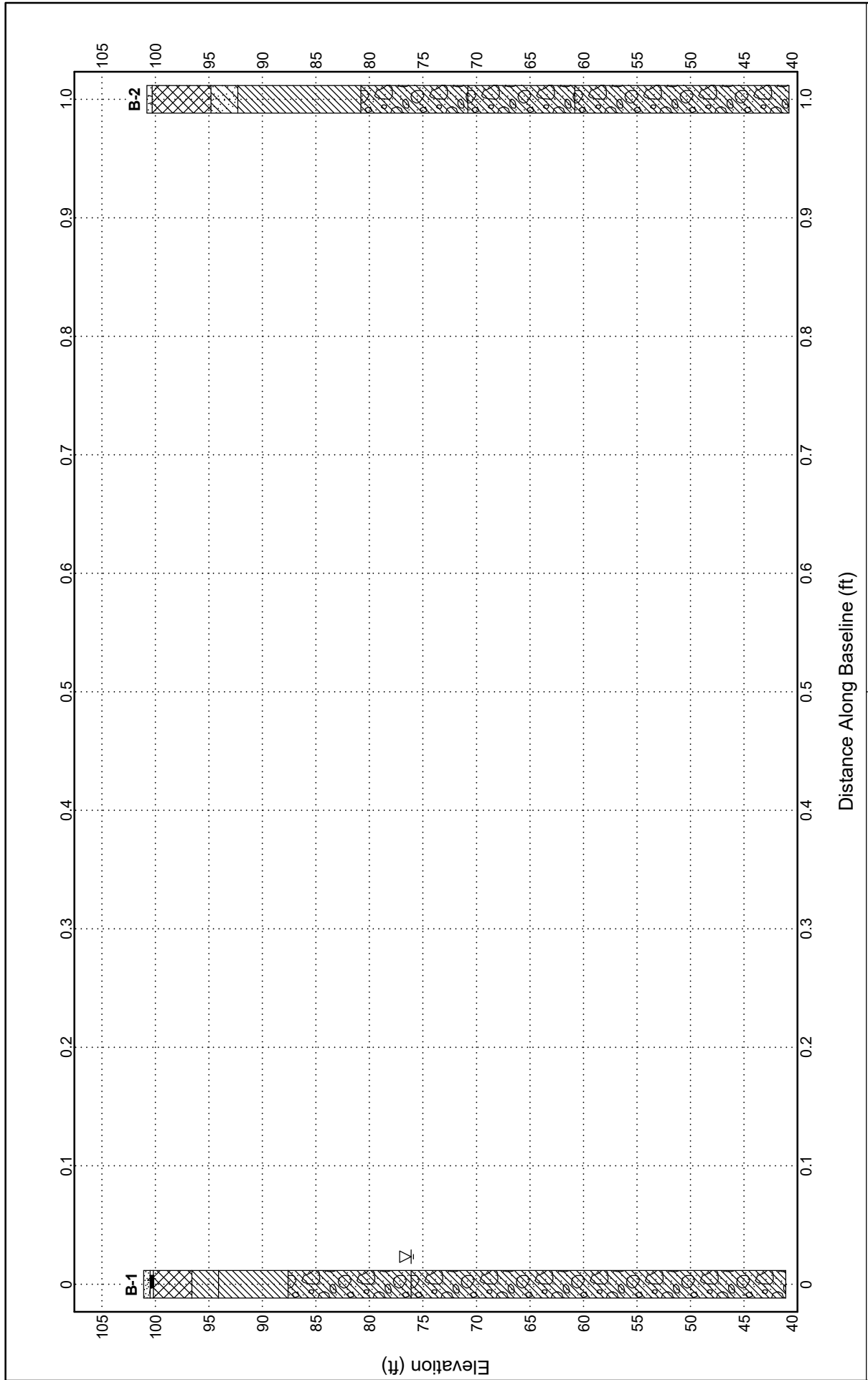
Job Number: **G7326**
Project: **Storm Lake Lift Station**
Date Started: **3/22/24**
Date Completed: **3/22/24**

Boring No.: **B-2**
Boring Location: **Storm Lake, IA**
Drill Type: **Hollow Stem**
Ground Elev.: **100.8**

Depth in Feet	Graphic Log	Sample Type	 Shelby Tube	 Standard Split Spoon	 Water Level ATD	USCS	Blow Counts SPT (N) Blows/Foot	Moisture Content, %	Dry Density (PCF)	% Saturation	Hand Penetrometer (TSF)	Unconfined Comp. Strength (TSF)	Liquid Limit %	Plastic Limit %	Plasticity Index %	Cone Penetrometer (Blows/ 1-3/4")
			 Modified California	 Grab Sample	 Water Level After 7 Days											
			SOIL DESCRIPTION													
5 10 15 20 25 30 35 40 45 50 55 60			6-Inch Root Zone				4-4-5 N= 9	30								
			FILL, Lean Clay, Dark Gray, Very Moist				5-5-6 N= 11	20								
			(Dark Gray and Yellow Brown)													
			CLAYEY SAND, Grayish Yellow Brown, Very Moist, Glacial Outwash			SC		23	101	98	2.50					
			LEAN CLAY WITH SAND, Grayish Yellow Brown, Very Moist, Stiff, Glaical Sediment			CL	4-5-6 N= 11	15								
								19	109	99	0.50	1.80				
			LEAN CLAY WITH SAND, Medium Gray, Very Moist, Very Stiff, Glacial Till			CL	7-11-12 N= 23	17								
							3-7-9 N= 16	15								
			SANDY SILT, Medium Gray, Very Moist, Very Stiff, Glacial Till			ML		17	115	97	3.50	2.90				
								20	109	98	2.50					
			LEAN CLAY WITH SAND, Medium Gray, Very Moist, Very Stiff, Glacial Till			CL	5-11-14 N= 25	19								
							5-12-13 N= 25	21								
				4-11-12 N= 23	20											
				6-12-13 N= 25	21											
				7-11-12 N= 23	18											
			END OF BORING AT 60 FEET FREE WATER WAS NOT ENCOUNTERED AT TIME OF DRILLING													

LOG OF BORING G7326.GPJ CERTIFIED TESTING.GDT 3/26/24

BORING PROFILES





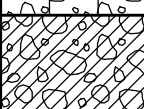
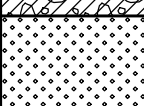
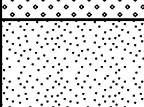
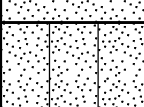
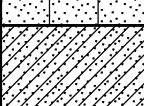
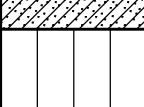
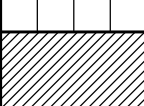
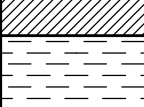
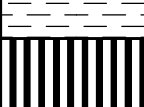
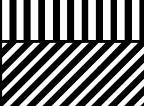
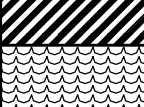
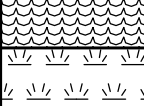
Certified Testing Services, Inc.
 419 W. 6th Street, PO Box 1193
 Sioux City, Iowa 51102
 Telephone: 712-252-5132
 Fax: 712-252-0110

Storm Lake Lift Station
Storm Lake, IA

Project Number: G7326

SOIL CLASSIFICATION CHART AND GENERAL NOTES

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

GENERAL NOTES

SAMPLING SYMBOLS:

	STANDARD PENETRATION TEST – 1 3/8" I.D., 2" O.D.
	SHELBY THIN-WALLED TUBE – 3" O.D. UNDISTURBED SAMPLE
	GRAB SAMPLE
	ROCK CORE
	AUGER SAMPLE
	NO RECOVERY

WATER LEVEL MEASUREMENT SYMBOLS:

	WATER LEVEL AT TIME OF DRILLING
	WATER LEVEL AFTER 7 DAYS

CONSISTENCY OF FINE-GRAINED SOILS	
UNCONFINED COMPRESSIVE STRENGTH, QU, PSF	CONSISTENCY
< 500	VERY SOFT
500 - 1,000	SOFT
1,001 - 2,000	MEDIUM
2,001 - 4,000	STIFF
4,001 - 8,000	VERY STIFF
8,001 - 16,000	HARD
> 16,000	VERY HARD

RELATIVE DENSITY OF COARSE GRAINED SOILS	
N-BLOWS/FT.	RELATIVE DENSITY
0 - 3	VERY LOOSE
4 - 9	LOOSE
10 - 29	MEDIUM DENSE
30 - 49	DENSE
50 - 80	VERY DENSE
80 +	EXTREMELY DENSE

RELATIVE PROPORTIONS OF SAND AND GRAVEL	
DESCRIPTIVE TERM(S) (OF COMPONENTS ALSO PRESENT IN SAMPLE)	PERCENT OF DRY WEIGHT
WITH	15 - 29
MODIFIER	> 30

RELATIVE PROPORTIONS OF FINES	
DESCRIPTIVE TERM(S) (OF COMPONENTS ALSO PRESENT IN SAMPLE)	PERCENT OF DRY WEIGHT
WITH	15 - 29
MODIFIER	> 30

GRAIN SIZE TERMINOLOGY	
MAJOR COMPONENT OF SAMPLE	SIZE RANGE
BOULDERS	OVER 12 IN. (300MM)
COBBLES	12 IN. TO 3 IN. (300 MM TO 75 MM)
GRAVEL	3 IN. TO #4 SIEVE (75MM TO 4.75MM)
SAND	#4 TO #200 SIEVE (4.75MM TO 0.075 MM)
SILT OR CLAY	PASSING #200 SIEVE (0.075MM)



Plan Set

CITY OF STORM LAKE COLLEGE AND 3RD LIFT STATION

STORM LAKE, IOWA

FOR AGENCY REVIEW

ISG PROJECT # 23-29447



LOCATION MAP

0 350 700

SCALE IN FEET

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C0-12	DETAILS
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C0-22	TEMPORARY EASEMENT
C0-30	UTILITY SCHEDULES
C1-10	EROSION CONTROL NOTES
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C1-30	EROSION CONTROL PLAN
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PP5-30A	SECTION VIEWS - LIFT STATION - ALT A
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PP5-30B	SECTION VIEWS - LIFT STATION - ALT B
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PROJECT

**CITY OF STORM
LAKE**

**COLLEGE & 3RD
LIFT STATION**

STORM LAKE

IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO
02/07/25	AGENCY REVIEW AND BIDDING	AJH

PROJECT NO.	23-29447
FILE NAME	29447 G1-GENERAL
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

TITLE

TITLE

SHEET

G1-10

PROJECT INDEX:

OWNER:

**CITY OF STORM LAKE
610 W 4TH ST
STORM LAKE, IA 50588
PH: 712-732-8000**

**PROJECT
ADDRESS / LOCATION:
331 COLLEGE AVENUE
STORM LAKE, IA 50588**

**SECTION 3
HAYES TWP (T90N, R37W)**

MANAGING OFFICE:



**STORM LAKE OFFICE
1725 LAKE AVE. NORTH
STORM LAKE, IA 50588
PHONE: 712.732.7745**

**PROJECT MANAGER: ARIE HOEKSTRA
EMAIL: ARIE.HOEKSTRA@ISGINC.COM**



LOCATION MAP



CIVIL PLAN ABBREVIATIONS:

AC	ACRE	CMP	CORRUGATED METAL PIPE	FDN	FOUNDATION	HR	HOUR
ADA	AMERICANS WITH DISABILITIES ACT	CO	CLEANOUT	FES	FLARED END SECTION	HWL	HIGH WATER LEVEL
ADD	ADDENDUM	CONC	CONCRETE	FFE	FINISHED FLOOR ELEVATION	HWY	HIGHWAY
AFF	ABOVE FINISHED FLOOR	CONST	CONSTRUCTION	FPM	FEET PER MINUTE	HYD	HYDRANT
AGG	AGGREGATE	CONT	CONTINUOUS	FPS	FEET PER SECOND	I	INCH
APPROX	APPROXIMATE	CY	CUBIC YARD	FT	FOOT, FEET	ID	INSIDE DIAMETER
ARCH	ARCHITECT, ARCHITECTURAL	C&G	CURB AND GUTTER	FTG	FOOTING	IN	INCH
BFE	BASEMENT FLOOR ELEVATION	DEMO	DEMOLITION	GA	Gauge	INV	INVERT
BIT	BITUMINOUS	DIA	DIAMETER	GAL	GALLON	IP	IRON PIPE
BM	BENCHMARK	DIM	DIMENSION	GALV	GALVANIZED	IPS	IRON PIPE SIZE
CAD	COMPUTER-AIDED DESIGN	DS	DOWNSPOUT	GC	GENERAL CONTRACTOR	J-BOX	JUNCTION BOX
CB	CATCH BASIN	EA	EACH	GFE	GARAGE FLOOR ELEVATION	JT	JOINT
CFS	CUBIC FEET PER SECOND	ELEC	ELECTRICAL	GL	GUTTER LINE	LF	LINEAR FEET
CF	CUBIC FOOT	ELEV	ELEVATION	GPM	GALLONS PER MINUTE	LIN	LINEAR
CIP	CAST IRON	EOF	EMERGENCY OVERFLOW	GV	GATE VALVE	LPS	LOW PRESSURE STEAM
CIP	CAST IRON PIPE	EQ	EQUAL	HDPE	HIGH DENSITY POLYETHYLENE	LS	LUMP SUM
CIPC	CAST IN PLACE CONCRETE	EX	EXISTING	HD	HEAVY DUTY	LSO	LOWEST STRUCTURAL OPENING
CJ	CONTROL JOINT	F/G	FORM GRADE	HH	HANDHOLE	MAX	MAXIMUM
CL	CENTERLINE	FDC	FIRE DEPARTMENT CONNECTION	HORIZ	HORIZONTAL	MB	MAIL BOX

MECH	MECHANICAL	QTY	QUANTITY	THRU	THROUGH
MH	MANHOLE	R	RIM	TNHF	TOP NUT OF FIRE HYDRANT
MIN	MINIMUM	RAD	RADIUS	TRANS	TRANSFORMER
MISC	MISCELLANEOUS	RCP	REINFORCED CONCRETE PIPE	TV	TELEVISION
NO	NUMBER	RD	ROOF DRAIN	T/W	TOP OF WALL
NTS	NOT TO SCALE	REBAR	REINFORCING BAR	TYP	TYPICAL
NWL	NORMAL WATER LEVEL	REB	REMOVE	UT	UTILITY, UNDERGROUND
OC	ON CENTER	ROW	RIGHT OF WAY	VCP	VEHICLE CLAY PIPE
OCEW	ON CENTER EACH WAY	R/W	RIGHT OF WAY	W/O	WITHOUT
OH	OVERHEAD	SAN	SANITARY	W/	WITH
OHD	OVERHEAD DOOR	SCH	SCHEDULE	YD	YARD
OZ	OUNCE	SF	SQUARE FOOT	YR	YEAR
PED	PEDESTAL, PEDESTRIAN	SPEC	SPECIFICATION		
PERF	PERFORATED	SQ	SQUARE		
PL	PROPERTY LINE	STA	STATION		
PP	POLYPROPYLENE	SY	SQUARE YARD		
PSI	POUNDS PER SQUARE INCH	T/C	TOP OF CURB		
PVC	POLYVINYL CHLORIDE	TEL	TELEPHONE		
PVMT	PAVEMENT	TEMP	TEMPORARY		

THRU	THROUGH
TNHF	TOP NUT OF FIRE HYDRANT
TRANS	TRANSFORMER
TV	TELEVISION
T/W	TOP OF WALL
TYP	TYPICAL
UT	UTILITY, UNDERGROUND
VCP	VEHICLE CLAY PIPE
W/O	WITHOUT
W/	WITH
YD	YARD
YR	YEAR

PROJECT GENERAL NOTES

- 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 OF ALL DISCIPLINES AND ALL ADDENDA, MODIFICATIONS, AND CLARIFICATIONS ISSUED BY ARCHITECT/ENGINEER.
- 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.
- WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
- FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
- DETAILS SHOWN ARE INTENDED TO BE INDICATIVE OF THE PROFILES AND TYPE OF DETAILING REQUIRED THROUGHOUT THE WORK. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO DETAILS SHOWN. WHERE SPECIFIC DIMENSIONS, DETAILS, OR DESIGN INTENT CANNOT BE DETERMINED, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
- ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, CLEANED, AND CONDITIONED ACCORDING TO MANUFACTURERS' INSTRUCTIONS. IN CASE OF DISCREPANCIES BETWEEN MANUFACTURERS' INSTRUCTIONS AND THE CONTRACT DOCUMENTS, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
- ALL DISSIMILAR METALS SHALL BE EFFECTIVELY ISOLATED FROM EACH OTHER TO AVOID GALVANIC CORROSION.
- THE LOCATION AND TYPE OF ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY AND ARE ACCURATE AND COMPLETE TO THE BEST OF THE KNOWLEDGE OF I & S GROUP, INC. (ISG). NO WARRANTY OR GUARANTEE IS IMPLIED. THE CONTRACTOR SHALL VERIFY THE SIZES, LOCATIONS, AND ELEVATIONS OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM PLAN.
- THE CONTRACTOR IS TO CONTACT "IOWA ONE CALL" FOR UTILITY LOCATIONS A MINIMUM OF 2 BUSINESS DAYS PRIOR TO ANY EXCAVATION / CONSTRUCTION (1-800-292-8989).

SPECIFICATIONS REFERENCE

ALL CONSTRUCTION SHALL COMPLY WITH THE CITY OF STORM LAKE REQUIREMENTS, THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES (10 STATES STANDARDS 2014), AND WITH THE 2024 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), ZONE 4, ON THE IOWA REGIONAL COORDINATE SYSTEM, 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.

TOPOGRAPHIC SURVEY

THIS PROJECT'S TOPOGRAPHIC SURVEY CONSISTS OF DATA COLLECTED IN SEPTEMBER 2023 BY ISG.

B.M. ELEVATION=1424.30

TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON SE CORNER OF COLLEGE AVE AND THIRD ST INTERSECTION

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

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1-800-292-8989

www.iowaonecall.com



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PROJECT

CITY OF STORM LAKE COLLEGE & 3RD LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO
02/07/25	AGENCY REVIEW AND BIDDING	AJH

PROJECT NO.	23-29447
FILE NAME	29447 G1-GENERAL
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

TITLE

SITE DATA

SHEET

G1-11

CONSTRUCTION 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. ALL PROPERTY PINS SHALL BE PROTECTED FROM GRADING OR OTHER OPERATIONS. ANY PINS DISTURBED SHALL BE RESET AT THE CONTRACTOR'S EXPENSE.
5. THE 2024 EDITION OF THE STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) AND THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES (10 STATE STANDARDS), 2014 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.COM.
6. THE WORK TO BE ACCOMPLISHED FOR THE CONSTRUCTION OF THIS PROJECT WILL OCCUR ON OWNER'S PROPERTY AND WITHIN EASEMENTS. THE CONTRACTOR SHOULD CONFINES OPERATION, PEOPLE, AND EQUIPMENT TO THE OWNER'S PROPERTY AND EASEMENTS.
7. 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.).
8. 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.
9. 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.
10. 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.
11. 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.
12. ALL EXISTING TREES AND BUSHES SHALL BE MAINTAINED AND PROTECTED UNLESS NOTED OTHERWISE. AREAS OF HAND FORMING MAY BE REQUIRED TO PROTECT TREES.
13. 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.
14. EXISTING STORM SEWERS, SANITARY SEWERS, AND WATER MAINS ARE LOCATED BASED ON CITY RECORDS AND ACTUAL LOCATION MAY VARY GREATLY FROM THAT SHOWN.
15. ELEVATIONS GIVEN ON THE PLAN AND PROFILE SHEETS ARE TO CENTERLINE UNLESS OTHERWISE NOTED.
16. CONTRACTOR(S) SHALL BE RESPONSIBLE FOR SECURING THE SERVICES OF AN INDEPENDENT TESTING LABORATORY FOR ALL MATERIAL TESTING FOR THIS PROJECT.
17. AT ALL SEWER AND WATER MAIN CROSSEOVERS, 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 CROSSEOVER.
18. THRUST BLOCKS SHALL BE POURED CONCRETE, INSTALLED BEHIND ALL BENDS, TEES AND DEAD ENDS IN ACCORDANCE WITH SPECIFICATIONS.
19. GRANULAR BEDDING IS REQUIRED FOR GRAVITY SEWER PIPE AND FORCEMAIN. BEDDING CLASS SHALL BE F-3 FOR GRAVITY SEWER AND P-2 FOR FORCEMAIN.

20. A NEAT VERTICAL EDGE WILL BE REQUIRED FOR ALL JOINTS BETWEEN THE NEW PAVEMENT SURFACE AND EXISTING PAVING AS SHOWN IN THE PLANS. SAW CUTTING OR OTHER TECHNIQUES MAY BE USED TO PROVIDE THIS EDGE. COST OF THE SAW CUT IS TO BE CONSIDERED INCIDENTAL. ADDITIONAL REMOVAL AND REPLACEMENT DUE TO THE CONTRACTOR'S OPERATION WILL NOT BE MEASURED SEPARATELY BUT WILL BE THE CONTRACTOR'S RESPONSIBILITY.
21. ANY DEWATERING NECESSARY FOR CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO INDIVIDUAL CONSTRUCTION ITEM. PLEASE REFER TO SUBSURFACE EXPLORATION REPORT FOR ANTICIPATED SITE CONDITIONS. REPORT IS FOR INFORMATIONAL PURPOSES ONLY AND DOES NOT GUARANTEE CONDITIONS TO BE EXPERIENCED. CONTRACTOR SHALL ANTICIPATE THE USE OF TRENCH BOXES TO FACILITATE INSTALLATION OF THE GRAVITY SEWER AND THE LIFT STATION. PER THE GEOTECHNICAL REPORT, CONTRACTOR SHALL TAKE SPECIAL CARE TO OBSERVE THE SITE DURING THE EXCAVATION FOR ANY SAND LENSES THAT COULD LEAD TO TRENCH COLLAPSE.
22. 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 THAT 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 ENCOUNTERED DURING CONSTRUCTION.
23. CONCRETE AND GROUT WASHOUT AREA SHALL REMAIN WITHIN CONFINES OF PROJECT AREA AND SHALL BE PROPERLY REMOVED UPON PROJECT COMPLETION.
24. PROJECT ITEMS TO BECOME PROPERTY OF CONTRACTOR FOR PROPER DISPOSAL UNLESS OTHERWISE NOTED ON PLANS OR CITY/ENGINEER NOTIFIES CONTRACTOR OTHERWISE.
25. 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.

SUDAS DETAILS	
3010.101	TRENCH BEDDING AND BACKFILL ZONES
3010.103	FLEXIBLE GRAVITY PIPE TRENCH BEDDING
3010.104	PRESSURE PIPE TRENCH BEDDING
5010.101	THRUST BLOCKS
5010.105	TRACER SYSTEM
6010.301	CIRCULAR SANITARY SEWER MANHOLE
6010.307	EXTERNAL DROP CONNECTION FOR SANITARY SEWER MANHOLE
6010.601	CASTINGS FOR SANITARY SEWER MANHOLES
7010.101	JOINTS
7010.102	PCC CURB DETAILS
7010.103	MANHOLE BOXOUTS IN PCC PAVEMENT
7010.901	PCC PAVEMENT JOINTING
7040.102	FULL DEPTH PCC PATCHES GREATER THAN 15' LONG
8030.101	TEMPORARY TRAFFIC CONTROL GENERAL INFORMATION
8030.116	STREET OR ROAD CLOSURE
8030.117	SIDEWALK DETOUR

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.

UTILITY CONTACTS:

ALLIANT ENERGY
CONTACT NAME: ALLIANT ENERGY FIELD ENGINEER
CONTACT PHONE: 800-255-4268
CONTACT EMAIL: LOCATE_IPL@ALLIANTENERGY.COM

CENTURYLINK
CONTACT NAME : SADIE HULL
CONTACT PHONE: 918-547-0147
CONTACT EMAIL: SADIE.HULL@LUMEN.COM

IOWA COMMUNICATIONS NETWORK
CONTACT NAME: SHANNON MARLOW
CONTACT PHONE: 800-572-3940
CONTACT EMAIL: ICNOUTSIDEPLANTIOWAONECALL@IOWA.GOV

LONG LINES BROADBAND
CONTACT NAME: MILES PATTON
CONTACT PHONE: 712-271-5550
CONTACT EMAIL: MILES.PATTON@LONGLINES.BIZ

MIDAMERICAN-ELEC
CONTACT NAME: MARK WITTROCK
CONTACT PHONE: 712-749-7116
CONTACT EMAIL: MARK.WITTROCK@MIDAMERICAN.COM

MIDAMER-GAS
CONTACT NAME: BRIAN SEWELL
CONTACT PHONE: 515-574-5042
CONTACT EMAIL: BJSEWELL@MIDAMERICAN.COM

STORM LAKE, CITY OF
CONTACT NAME: MATTHEW BECKMAN
CONTACT PHONE: 712-732-8000
CONTACT EMAIL: BECKMAN@STORMLAKE.ORG

MEDIACOM
CONTACT NAME: MIKE LAWLER
CONTACT PHONE: 515-571-2183
CONTACT EMAIL: MLAWLER@MEDIACOMCC.COM

TEKSTAR COMMUNICATIONS INC
CONTACT NAME: STEVE HOFFMAN
CONTACT PHONE: 218-346-8887
CONTACT EMAIL: STEVE.HOFFMAN@ARVIG.COM



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PROJECT

CITY OF STORM LAKE
COLLEGE & 3RD
LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO

PROJECT NO.	23-29447
FILE NAME	29447 CO-DETAILS
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

TITLE

CONSTRUCTION
NOTES AND
DETAILS

SHEET

C0-10



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PROJECT

CITY OF STORM
LAKE
COLLEGE & 3RD
LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
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TITLE

ESTIMATE
REFERENCE

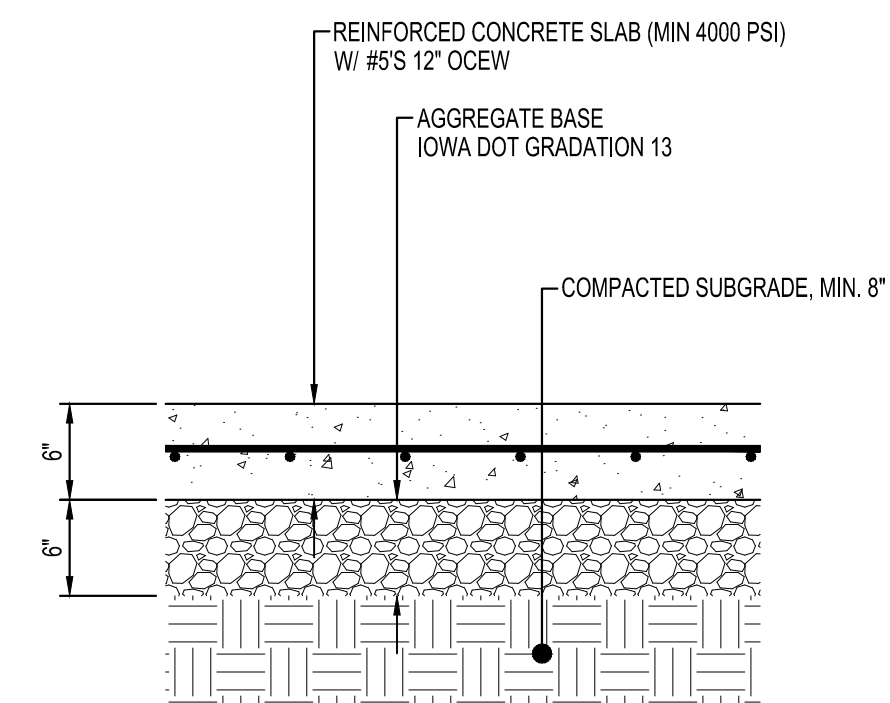
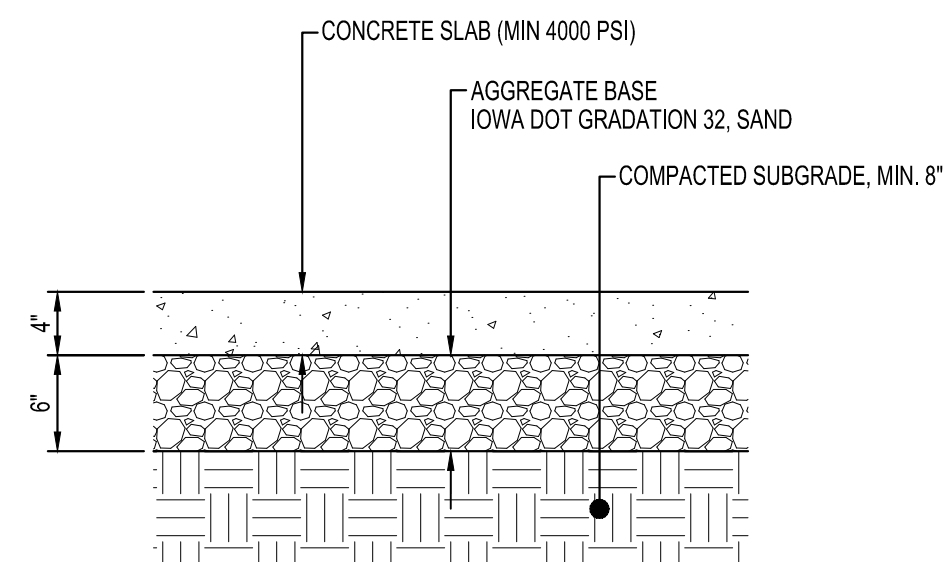
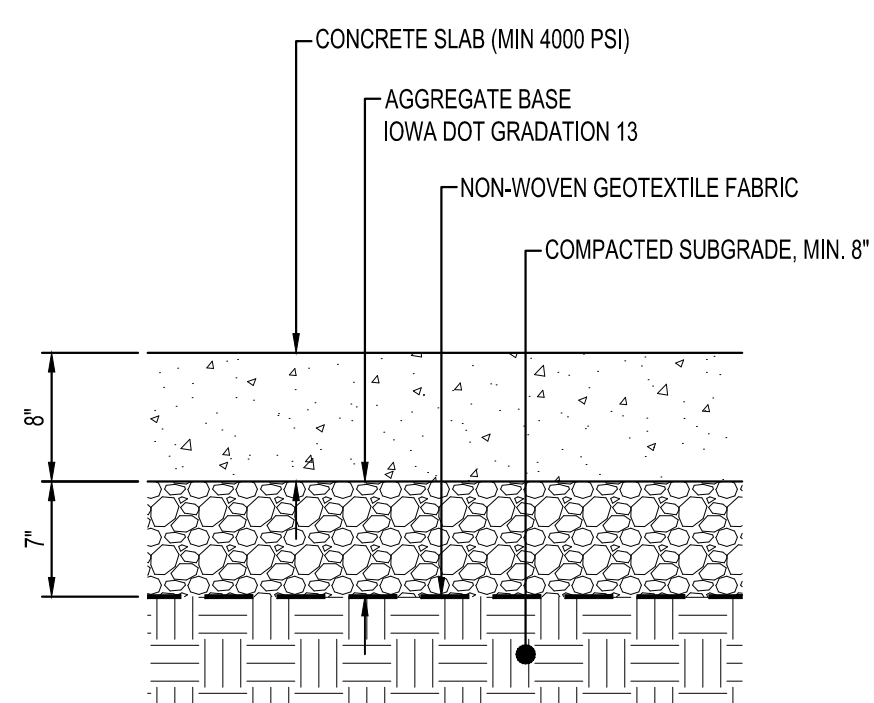
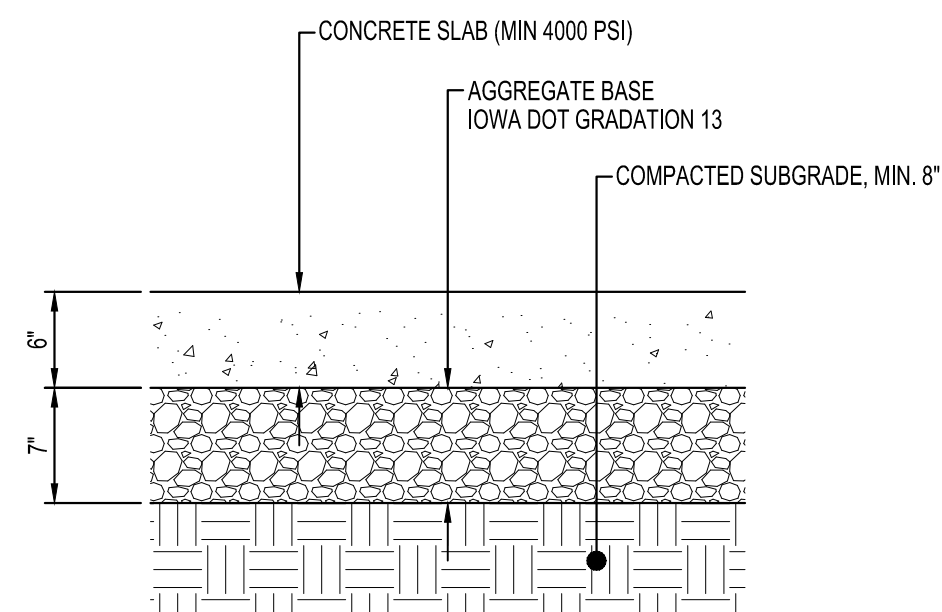
SHEET

C0-11

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2010-G	SUBGRADE PREPARATION INCLUDES SCARIFICATION AND RECOMPACTION OF EXISTING SUBGRADE TO A DEPTH OF 12" BELOW PAVEMENT INDICATED FOR REPLACEMENT. SUBBASE IS TO BE PROOF ROLLED. COST OF PROOF ROLLING AND ANY OTHER ADDITIONAL COMPACTION TESTING IS CONSIDERED INCIDENTAL. CONTRACTOR SHALL NOTIFY ENGINEER 48 HOURS PRIOR TO COMPLETING PROOF ROLL.
2	4010-A-1	SANITARY SEWER GRAVITY MAIN, TRENCHED, 8" SDR-26 INCLUDES TRENCH EXCAVATION, DEWATERING, FURNISHING AND INSTALLING PIPE, BEDDING AND BACKFILL MATERIAL, FITTINGS, PIPE CONNECTIONS, TESTING, AND INSPECTION.
3	4010-A-1	SANITARY SEWER GRAVITY MAIN, TRENCHED, 10" SDR-26 INCLUDES TRENCH EXCAVATION, DEWATERING, FURNISHING AND INSTALLING PIPE, BEDDING AND BACKFILL MATERIAL, FITTINGS, PIPE CONNECTIONS, TESTING, AND INSPECTION.
4	4010-C-1	SANITARY SEWER FORCE MAIN, TRENCHED, 6" DIP INCLUDES INSTALLING DIP FORCEMAIN AND ALL BENDS, TRACER WIRE, TRACER WIRE STATION, AND ALL OTHER MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE ITEM. INSTALLED BY OPEN CUT. NO ADDITIONAL COMPENSATION WILL BE GIVEN IF ANY OBSTRUCTIONS ARE ENCOUNTERED. CONTRACTOR SHALL FIELD VERIFY UTILITY LOCATION AND ELEVATIONS.
5	4010-H	REMOVAL OF SANITARY SEWER INCLUDES THE REMOVAL AND DISPOSAL OF ALL SANITARY SEWER MARKED IN THE PROJECT PLANS FOR REMOVAL. INCLUDES FURNISH AND INSTALLATION OF ANY BACKFILL MATERIAL.
6	4010-K	SANITARY SEWER ABANDONMENT, PLUG INCLUDES ALL EQUIPMENT, LABOR, AND MATERIALS NECESSARY FOR PLUGGING OF PIPE NOTED IN THE PROJECT PLANS. INCLUDES FURNISH AND INSTALLATION OF ANY BACKFILL MATERIAL.
7	4050-G-3	BYPASS PUMPING INCLUDES ALL BYPASS PUMPING REQUIRED TO CONSTRUCT SANITARY SEWER SYSTEM AS SHOWN IN PROJECT PLANS. CONTRACTOR SHALL SUBMIT BYPASS PUMPING PLAN TO ENGINEER AND CITY STAFF FOR REVIEW PRIOR TO COMMENCING CONSTRUCTION OPERATIONS.
8	6010-A	MANHOLE, SW-301, 48" ITEM INCLUDES BACKFILL, INFILTRATION BARRIERS, CHIMNEY SEALS, CASTINGS, CONNECTION TO EXISTING SANITARY SEWER (INCLUDES ANY ADDITIONAL PIPE AND CONNECTION MATERIAL NECESSARY), AND COVERS ON ALL SANITARY MANHOLES. INCLUDES FURNISHING AND INSTALLING CHIMNEY SEALS ON ALL SANITARY MANHOLES. COVER SHALL HAVE WORDS "SANITARY SEWER" WRITTEN ON IT. MANHOLES LOCATED IN PAVEMENT SHALL HAVE A SW-601 TYPE B CASTING AND MANHOLES LOCATED OUTSIDE OF PAVEMENT SHALL HAVE A SW-601 TYPE A CASTING. IF PIPE CONNECTION IS MADE WITH ALTERNATE PIPE TYPE, MANHOLE SHALL BE CONSTRUCTED TO HAVE CORRECT PENETRATION SEAL. ALL JOINTS SHALL BE RUBBER GASKETED TONGUE AND GROOVE. ALL PIPE OPENINGS SHALL HAVE INTEGRAL CAST WATER TIGHT SEAL. MANHOLES SHALL BE EPOXY LINED.
9	6010-X	PRECAST LIFT STATION, VALVE VAULT & COMPONENTS, 72" ITEM INCLUDES BACKFILL, SUBBASE, PRECAST STRUCTURES, TOP SLAB, HATCHES, AND ALL COMPONENTS SHOWN ON S, PP, AND E SHEETS ALL JOINTS SHALL BE RUBBER GASKETED TONGUE AND GROOVE. ALL PIPE OPENINGS SHALL HAVE INTEGRAL CAST WATER TIGHT SEAL. WET WELL STRUCTURE SHALL BE LINED WITH EPOXY OR AN ENGINEER APPROVED ALTERNATIVE.
10	6010-C-2	EXTERNAL DROP CONNECTION, 8" INCLUDES CONNECTION TO MANHOLE AND EXISTING PIPE, PIPE, FITTINGS, CONCRETE ENCASEMENT, AND BEDDING AND BACKFILL MATERIAL. ITEM INCLUDES ALL NECESSARY MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLETE THIS BIT ITEM. DUCTILE IRON PIPE SHALL BE USED BETWEEN MANHOLE AND EXISTING PIPE CONNECTION.
11	6010-G-1	CONNECTION TO EXISTING MANHOLE INCLUDES CORING OR CUTTING INTO THE EXISTING MANHOLE, PIPE CONNECTIONS, GROUT, AND WATERSTOP (WHEN REQUIRED). FORCE MAIN SHALL NOT ENTER MANHOLE MORE THAN 2 FEET ABOVE INVERT.
12	6010-H-1	REMOVE MANHOLE INCLUDES VARIOUS SIZED STORM SEWER MANHOLES AND INTAKES. CASTINGS AND COVERS SHALL BECOME PROPERTY OF OWNER AND ALL OTHER MATERIAL REMOVED SHALL BECOME PROPERTY OF CONTRACTOR. INCLUDES REMOVAL AND REPLACEMENT OF SOIL NECESSARY FOR STRUCTURE REMOVAL. ITEM SHALL INCLUDE COMPACTION REQUIREMENTS AND TESTING SAME AS NEW STRUCTURE CONSTRUCTION.
13	7010-A	PAVEMENT, PCC USE C MIX WITH CLASS 3 COARSE AGGREGATE DURABILITY. COARSE AGGREGATE SHALL BE LIMESTONE. M MIX CONCRETE SHALL BE ALLOWED AS A SUBSTITUTE FOR CLASS C CONCRETE AT NO ADDITIONAL COST TO THE OWNER. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE AIR TESTS, SLUMP TESTS, AND CASTING OF CYLINDERS FOR PLASTIC CONCRETE TESTED AT AN APPROVED INDEPENDENT LABORATORY AND TO SEND THE RESULTS TO THE ENGINEER. ALL MATERIAL TESTING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. ITEM INCLUDES CONSTRUCTING BOXOUTS FOR ALL STRUCTURES THAT ARE IN THE NEW PAVEMENT (I.E. MANHOLES, INTAKES, ETC.).PAVEMENT SMOOTHNESS BY PROFILOGRAPH AND CORES FOR THICKNESS ARE NOT REQUIRED. ALL TRANSVERSE JOINTS SHALL BE C JOINTS UNLESS SPECIFIED OTHERWISE. ALL JOINTS SHALL BE SEALED.

14	7030-A-1	REMOVAL OF SIDEWALK INCLUDES FULL-DEPTH SAW CUT, BREAKING, REMOVAL AND DISPOSAL. MATERIAL REMOVED SHALL BECOME PROPERTY OF THE CONTRACTOR AND CONTRACTOR SHALL PROCURE LOCATION TO DISPOSE OF MATERIAL. QUANTITY MAY VARY FROM THAT SHOWN . NO ADJUSTMENT IN UNIT PRICE WILL BE CONSIDERED.
15	7030-E	SIDEWALK, PCC USE C MIX WITH CLASS 3 COARSE AGGREGATE DURABILITY. COARSE AGGREGATE SHALL BE LIMESTONE. M MIX CONCRETE SHALL BE ALLOWED AS A SUBSTITUTE FOR CLASS C CONCRETE AT NO ADDITIONAL COST TO THE OWNER. ITEM INCLUDES 4" SAND SUBBASE. SIDEWALKS SHALL BE REPLACED TO EQUAL WIDTH. ITEM INCLUDES MINOR GRADE ADJUSTMENTS AT DRIVEWAYS AND OTHER INTERSECTIONS, SUBGRADE PREPARATION, FORMWORK, ADDITIONAL THICKNESS AT THICKENED EDGES, JOINTING, SAMPLING, AND TESTING. ALSO INCLUDES NECESSARY GRADING AND BACKFILLING WITH TOPSOIL AND REMOVAL OF TREE ROOTS WITHIN 6" OF SIDEWALK IN ALL DIRECTIONS. QUANTITY MAY VARY FROM THAT SHOWN. NO ADJUSTMENT IN UNIT PRICE WILL BE CONSIDERED.
16	7040-A	FULL DEPTH PATCHES, PCC USE C MIX WITH CLASS 3 COARSE AGGREGATE DURABILITY. COARSE AGGREGATE SHALL BE LIMESTONE. M MIX CONCRETE SHALL BE ALLOWED AS A SUBSTITUTE FOR CLASS C CONCRETE AT NO ADDITIONAL COST TO THE OWNER. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE AIR TESTS, SLUMP TESTS, AND CASTING OF CYLINDERS FOR PLASTIC CONCRETE TESTED AT AN APPROVED INDEPENDENT LABORATORY AND TO SEND THE RESULTS TO THE ENGINEER. ALL MATERIAL TESTING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. PATCH THICKNESS SHALL BE T + 1" OR 6", WHICHEVER IS GREATER. ITEM INCLUDES 6" OF SUBBASE AND A MINIMUM OF 8" OF SUBGRADE PREPARATION. ALL EXCAVATION REQUIRED SHALL BE CONSIDERED INCIDENTAL TO THIS BID ITEM. THICKNESS CORES WILL NOT BE REQUIRED. QUANTITY MAY VARY FROM THAT SHOWN. NO ADJUSTMENT IN UNIT PRICE WILL BE CONSIDERED. INCLUDES CURB AND GUTTER WHERE APPLICABLE. CONCRETE BOXOUT SHALL BE INSTALLED PER SUDAS STANDARD DETAILS WHERE INTAKE REPLACEMENT OR ADJUSTMENT IS PROPOSED. CONCRETE SHALL BE A C-4 OR M-4 MIX WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS. ITEM INCLUDES REMOVAL AND DISPOSAL OF EXISTING PAVEMENT AND SUBGRADE TO REQUIRED DEPTH.
17	7092-B	REMOVE AND REPLACE CURB AND GUTTER INCLUDES FULL DEPTH SAWING, REMOVAL AND DISPOSAL OF REMOVED MATERIALS, FURNISHING AND COMPACTING SUBGRADE MATERIAL TO BRING TO PROPER ELEVATION, ALL FORM WORK, CONCRETE, PLACING AND FINISHING OF NEW CURB AND GUTTER, AND BACKFILL BEHIND NEW CURB.
18	8020-B	PAINTED PAVEMENT MARKINGS, SOLVENT/WATERBORNE REFER TO CURRENT IDOT STANDARD SPECIFICATIONS SECTION 2527. QUANTITY BASED ON A SINGLE 4" WIDTH LINE. MEASUREMENT OF LINES WIDER THAN 4" HAVE BEEN ADJUSTED BY THE QUANTITY FACTOR TO A 4" LINE. REFER TO PLAN SHEETS FOR DETAILS AND QUANTITY INFORMATION.
19	8030-A	TEMPORARY TRAFFIC CONTROL REFER TO SPECIFICATIONS MANUAL AND PLAN SHEETS FOR TRAFFIC CONTROL EXPECTATIONS. INCLUDES TEMPORARY MAILBOXES AND GARBAGE SERVICE AS NECESSARY BY CONTRACTOR'S CHOSEN STAGING AND SCHEDULING. CONTRACTOR SHALL COORDINATE TEMPORARY PICK UP AND DROP OFF LOCATIONS FOR MAIL AND GARBAGE WITH PROPERTY OWNERS/TENANTS, USPS, AND GARBAGE SERVICE.
20	9010-A	CONVENTIONAL SEEDING, SEEDING, FERTILIZING, AND MULCHING, TYPE 1 INCLUDES ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO PREPARE SEED BED, SEED, FERTILIZE AND MULCH AND ESTABLISH GROWTH IN DISTURBED AREAS. USE TYPE 1 URBAN SEED MIXTURE. INCLUDES SUPPLEMENTAL WATERING AS REQUIRED AND RESEEDING AREAS OF NON-GERMINATION. INCLUDES THE INSTALLATION AND REMOVAL OF ANY NECESSARY FILTER SOCK DURING THE TIME OF SEEDING ESTABLISHMENT.
21	9030-A	PLANTS, "HOLMSTRUP", 4' INCLUDES DELIVERY, EXCAVATION, INSTALLATION, WATERING, PLACING BACKFILL MATERIAL, MULCHING, WRAPPING, STAKING OR GUYING, HERBICIDE, MAINTENANCE DURING THE ESTABLISHMENT PERIOD AND REPLACEMENTS.
22	9040-A-2	SWPPP MANAGEMENT ALL WORK REQUIRED TO COMPLY WITH THE ADMINISTRATIVE PROVISIONS OF THE IOWA DNR NPDES GENERAL PERMIT NO. 2. INCLUDING RECORD KEEPING, DOCUMENTATION, UPDATING THE SWPPP, FILING THE NOTICE OF DISCONTINUATION, ETC. ITEM ALSO INCLUDES WEECKLY INSPECTIONS REQUIRED TO SATISFY THE PROVISIONS OF GENERAL PERMIT NO. 2, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.
23	9040-F-1	WATTLE, 6" INCLUDES PLACEMENT, MAINTENANCE, REMOVAL AND OFFSITE DISPOSAL OF SEDIMENT, AND REMOVAL OF DEVICE. EXACT LOCATION AND LENGTH OF WATTLES NEEDED WILL BE DETERMINED DURING CONSTRUCTION.
24	9040-T-1	INLET PROTECTION DEVICE TO BE USED AT INTAKES AS NEEDED FOR EROSION CONTROL. INCLUDES PLACEMENT, MAINTENANCE, REMOVAL AND OFFSITE DISPOSAL OF SEDIMENT, AND REMOVAL OF DEVICE. ITEM SHALL BE FLEXSTORM INLET FILTER OR ENGINEER APPROVED EQUAL FOR ALL STREET INTAKES.
25	11020-A	MOBILIZATION REFER TO THE URBAN STANDARD SPECIFICATIONS. INCLUDES THE CONSTRUCTION OF ANY NECESSARY STABILIZED CONSTRUCTION ENTRANCES AND CONCRETE WASHOUTS.



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PROJECT

**CITY OF STORM
LAKE
COLLEGE & 3RD
LIFT STATION**

STORM LAKE IOWA

[illegible]

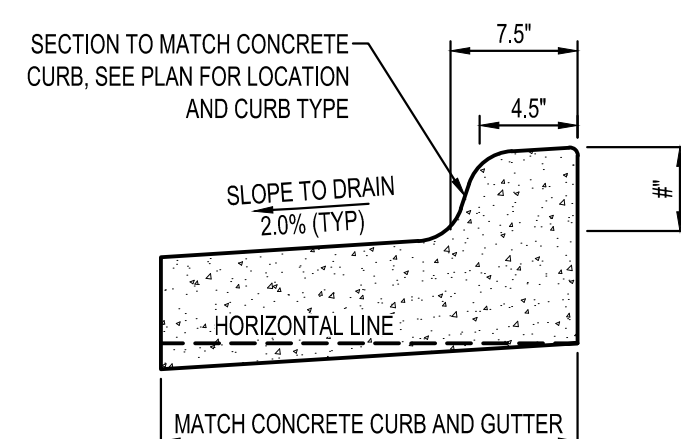
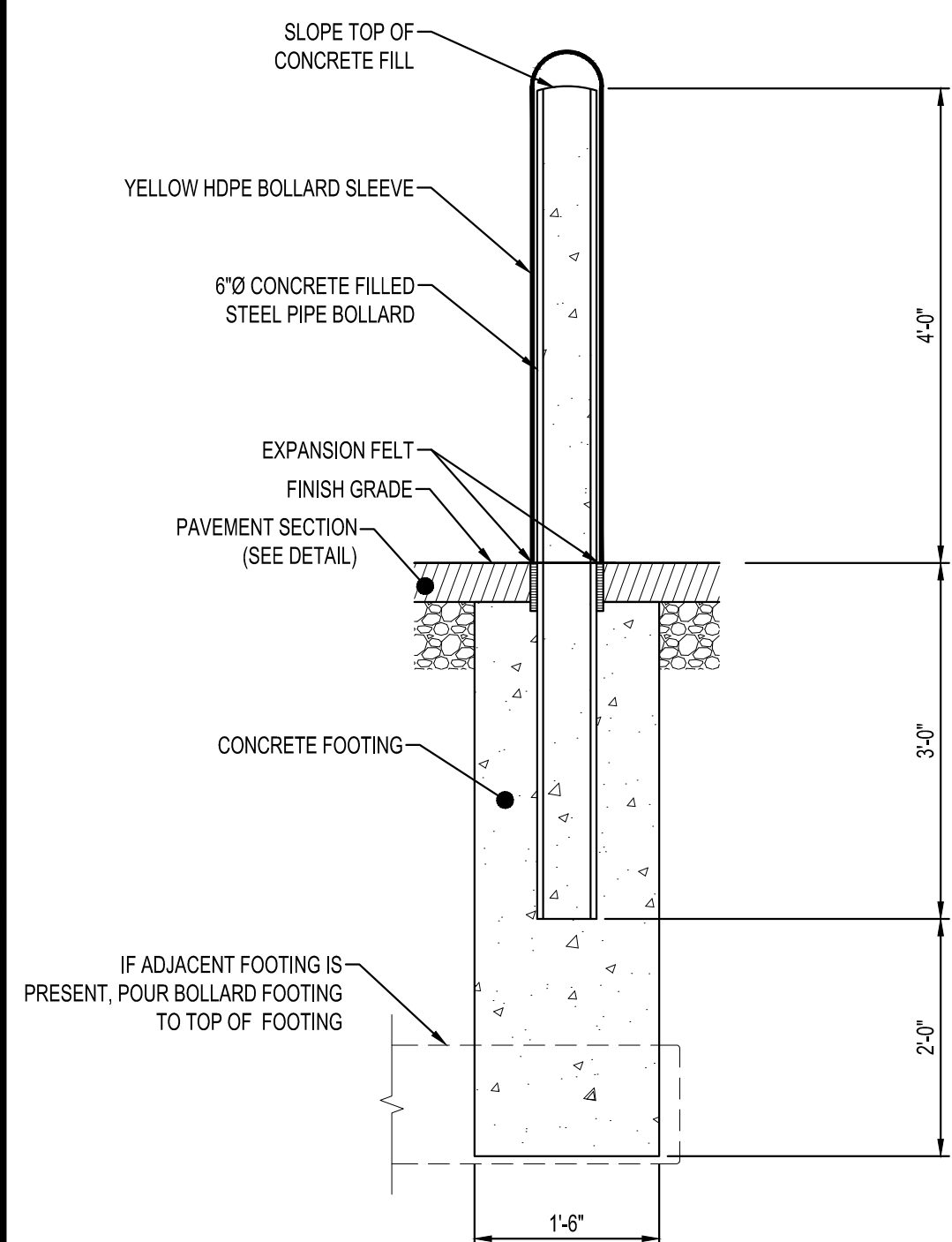
PROJECT NO.	23-29447
FILE NAME	29447 C0-DETAILS
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

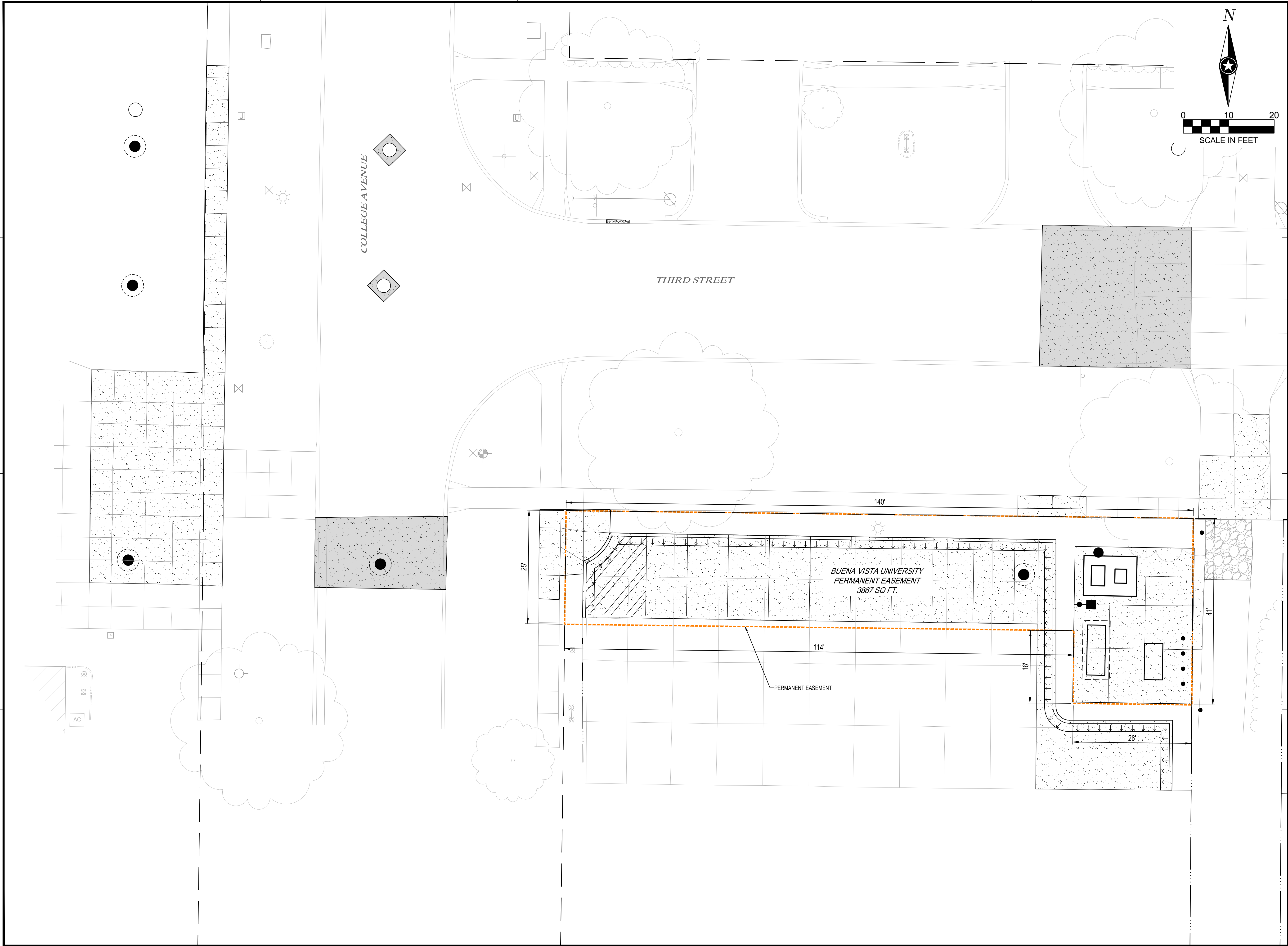
TITLE

DETAILS

SHEET

C0-12





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PROJECT

**CITY OF STORM
LAKE
COLLEGE & 3RD
LIFT STATION**

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO

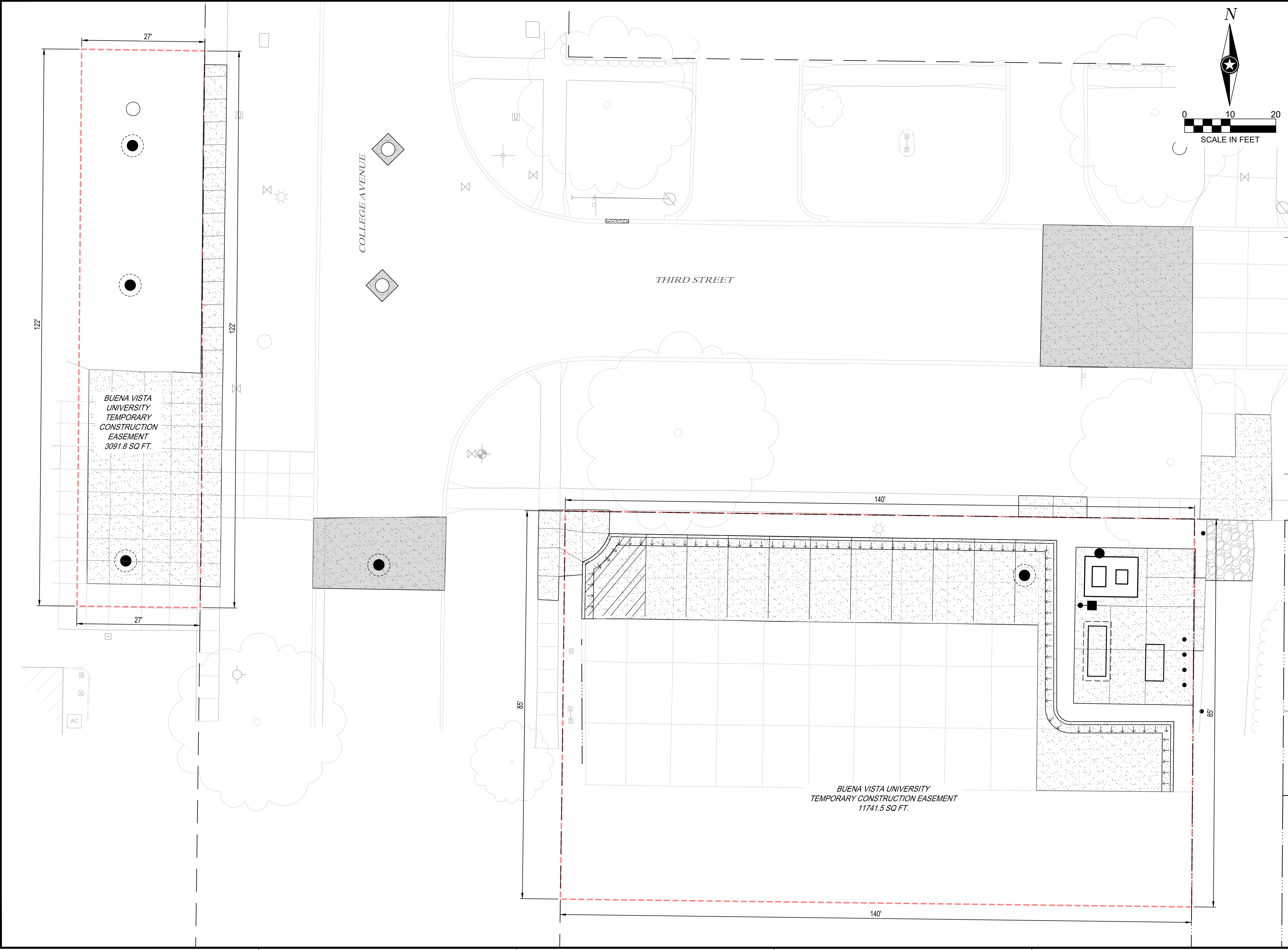
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FILE NAME	29447 C3-SITE PLAN
DRAWN BY	OBO / EBG
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REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

TITLE

**PERMANENT
EASEMENT**

SHEET

C0-21



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PROJECT

**CITY OF STORM
LAKE
COLLEGE & 3RD
LIFT STATION**

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO

PROJECT NO.	23-29447
FILE NAME	29447 C3-SITE PLAN
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
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ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

TITLE

**TEMPORARY
EASEMENT**

SHEET

C0-22

SANITARY SEWER PIPE SCHEDULE ALTERNATE A									
PIPE NO.	DRAIN FROM	INLET ELEVATION	DRAIN TO	OUTLET ELEVATION	PIPE SIZE	MATERIAL	PIPE CLASS	PIPE GRADE	PIPE LENGTH (FT)
SP-9	EXISTING	1401.17	S-10	1401.10	6"	PVC	SDR-26	1.00%	7
SP-10	EXISTING MH	1402.05	S-10	1402.00	8"	PVC	SDR-26	0.60%	8
SP-11	S-10	1401.09	S-11	1400.97	8"	PVC	SDR-26	0.40%	31
SP-12	S-11	1400.97	S-12	1400.72	8"	PVC	SDR-26	0.40%	60
SP-13	S-12	1400.72	S-13	1400.50	8"	PVC	SDR-26	0.40%	55
SP-14	S-13	1400.50	S-14	1399.94	10"	PVC	SDR-26	0.40%	142
SP-15	S-14	1399.94	LIFT STATION	1399.85	10"	PVC	SDR-26	0.41%	21
SP-20 (EXT. DROP)	EXISTING MH	1417.21	S-14	1416.00	8"	PVC	SDR-26	1.21%	100

FORCEMAIN SCHEDULE ALTERNATE A		
PIPE TYPE	** PIPE LENGTH (FT)	PIPE SIZE (IN)
DIP	5	4
DIP	4	4
DIP	11	4
DIP	12	4
DIP	22	4
DIP	9	4

** PIPE LENGTHS EXCLUDE ALL TEES, VALVES, AND FITTINGS

FORCEMAIN FITTING SCHEDULE ALTERNATE A	
TYPE	SIZE
BEND	4"X45°
BEND	4"X45°
BEND	4"X45°
BEND	4"X45°

SANITARY SEWER PIPE SCHEDULE ALTERNATE B									
PIPE NO.	DRAIN FROM	INLET ELEVATION	DRAIN TO	OUTLET ELEVATION	PIPE SIZE	MATERIAL	PIPE CLASS	PIPE GRADE	PIPE LENGTH (FT)
SP-9	EXISTING	1401.17	S-10	1401.10	6"	PVC	SDR-26	1.00%	7
SP-10	EXISTING MH	1402.05	S-10	1402.00	8"	PVC	SDR-26	0.60%	8
SP-11	S-10	1401.09	S-11	1400.97	8"	PVC	SDR-26	0.40%	31
SP-12	S-11	1400.97	S-12	1400.72	8"	PVC	SDR-26	0.40%	60
SP-13	S-12	1400.72	S-13	1400.50	8"	PVC	SDR-26	0.40%	55
SP-14	S-13	1400.50	S-14	1399.94	10"	PVC	SDR-26	0.40%	142
SP-15	S-14	1399.94	WET WELL	1399.86	10"	PVC	SDR-26	0.52%	15
SP-20 (EXT. DROP)	EXISTING MH	1417.21	S-14	1416.00	8"	PVC	SDR-26	1.21%	100

FORCEMAIN SCHEDULE ALTERNATE B		
PIPE TYPE	** PIPE LENGTH (FT)	PIPE SIZE (IN)
DIP	4	4
DIP	4	4
DIP	15	4
DIP	20	4
DIP	9	4

** PIPE LENGTHS EXCLUDE ALL TEES, VALVES, AND FITTINGS

FORCEMAIN FITTING SCHEDULE ALTERNATE B	
TYPE	SIZE
BEND	4"X45°
BEND	4"X45°
BEND	4"X45°
BEND	4"X45°

SANITARY SEWER STRUCTURE SCHEDULE ALTERNATE A							
STRUCTURE NO.	STRUCTURE TYPE	STRUCTURE SIZE (IN)	STRUCTURE MATERIAL	CASTING	TOP OF CASTING ELEVATION	INVERT ELEVATION	OUTLET PIPE
S-10	SW-301	48 Ø	Reinforced Concrete	SW-601 TYPE B	1424.92	1401.07	SP-11
S-11	SW-301	48 Ø	Reinforced Concrete	SW-601 TYPE B	1422.99	1400.97	SP-12
S-12	SW-301	48 Ø	Reinforced Concrete	SW-601 TYPE B	1421.00	1400.72	SP-13
S-13	SW-301	48 Ø	Reinforced Concrete	SW-601 TYPE B	1419.81	1400.50	SP-14
S-14	SW-301	48 Ø	Reinforced Concrete	SW-601 TYPE B	1422.07	1399.94	SP-15

SANITARY SEWER STRUCTURE SCHEDULE ALTERNATE B							
STRUCTURE NO.	STRUCTURE TYPE	STRUCTURE SIZE (IN)	STRUCTURE MATERIAL	CASTING	TOP OF CASTING ELEVATION	INVERT ELEVATION	OUTLET PIPE
S-10	SW-301	48 Ø	Reinforced Concrete	SW-601 TYPE B	1424.92	1401.07	SP-11
S-11	SW-301	48 Ø	Reinforced Concrete	SW-601 TYPE B	1422.99	1400.97	SP-12
S-12	SW-301	48 Ø	Reinforced Concrete	SW-601 TYPE B	1421.00	1400.72	SP-13
S-13	SW-301	48 Ø	Reinforced Concrete	SW-601 TYPE B	1419.81	1400.50	SP-14
S-14	SW-301	48 Ø	Reinforced Concrete	SW-601 TYPE B	1422.07	1399.94	SP-15



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PROJECT

CITY OF STORM
LAKE

COLLEGE & 3RD
LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO
02/07/25	AGENCY REVIEW AND BIDDING	AJH

PROJECT NO.	23-29447
FILE NAME	29447 C3-SITE P&P - ALT B
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

TITLE

UTILITY
SCHEDULES

SHEET

C0-30

EROSION CONTROL PLAN NARRATIVE

SWPPP PREPARATION:

ENGINEER SHALL PREPARE AND AQUIRE IOWA DNR GENERAL PERMIT NO. 2 FOR PROJECT.

CONSTRUCTION ACTIVITY NOTES:

EROSION PREVENTION:

CONSTRUCTION OF SILT FENCE AND ALL OTHER EROSION CONTROL MEASURES SHALL BE COMPLETE BEFORE OTHER CONSTRUCTION ACTIVITY OCCURS.

USE PHASED CONSTRUCTION WHEREVER PRACTICAL AND ESTABLISH TURF AS SOON AS POSSIBLE TO MINIMIZE SEDIMENT TRANSPORT. TURF ESTABLISHMENT OR TEMPORARY SEEDING OR MULCHING OF ALL EXPOSED SOIL NOT BEING ACTIVELY WORKED SHOULD BE PRACTICED FOLLOWING THE TABLE BELOW:

TYPE OF SLOPE OR DISTURBANCE AREA	TIME AREA CAN REMAIN OPEN WITHOUT BEING ACTIVELY WORKED:
STEEPER THAN 3:1	14 DAYS
10:1 TO 3:1	14 DAYS
FLATTER 10:1	14 DAYS
DITCHES	1 DAY
PIPE ENDS	1 DAY
WITHIN 200' OF SURFACE WATER	1 DAY
LAST 200' OF THE WETTED DITCH PERIMETER FROM THE DITCH OUTLET	1 DAY

ALL EXPOSED SOILS SHALL BE SEEDDED OR SODDED AT THE EARLIEST POSSIBLE TIME TO PREVENT/REDUCE EROSION.

TEMPORARY COVER DURING CONSTRUCTION IS INCIDENTAL.

PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER.

SEDIMENT CONTROL PRACTICES:

CONSTRUCTION OF SILT FENCE AND ALL OTHER EROSION CONTROL MEASURES SHALL BE COMPLETE PRIOR TO LAND DISTURBING ACTIVITIES OCCUR.

INLET EROSION PROTECTION SHALL BE INSTALLED AND MAINTAINED UNTIL TURF HAS BEEN ESTABLISHED.

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 SWEEPED WITHIN 24 HOURS WHEN ANY TRACKING OCCURS.

SILT FENCE OR OTHER EFFECTIVE EROSION 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.

PERIMETER CONTROL SHALL BE INSTALLED ALONG THE BACK OF CURB IMMEDIATELY FOLLOWING CURB INSTALLATION AT ALL LOCATIONS WITH POSITIVE DRAINAGE TO PARKING LOT AND/OR STREETS, AND SHALL REMAIN UNTIL STABILIZATION IS ACHIEVED. THIS SHALL BE ACCOMPLISHED THROUGH THE USE OF SILT FENCE, BIOROLLS, ROCK LOGS, OR OTHER METHODS APPROVED BY THE ENGINEER.

DEWATERING AND BASIN DRAINING:

DEWATER SEDIMENT-LADEN WATER TO SEDIMENTATION BASINS IF POSSIBLE OR USE OTHER BMP'S TO PREVENT EROSION AND REMOVE SEDIMENT WHEN DISCHARGING TO SURFACE WATERS. USE APPROPRIATE ENERGY DISSIPATION MEASURES ON ALL DISCHARGES. DEWATERING PRACTICES CANNOT CAUSE NUISANCE CONDITIONS, EROSION OR IN RECEIVING CHANNELS OR INUNDATION OF WETLANDS RESULTING IN ADVERSE IMPACTS.

POLLUTION PREVENTION:

ALL SOLID WASTE COLLECTED FROM THE CONSTRUCTION SITE MUST BE DISPOSED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS. 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.

CONCRETE WASHOUT ONSITE: ALL LIQUID WASTE GENERATED BY CONCRETE WASHOUT OPERATIONS

MUST BE CONTAINED IN A LEAK-PROOF CONTAINMENT FACILITY OR IMPERMEABLE LINER. A COMPACTED

CLAY LINER THAT DOES NOT ALLOW WASHOUT LIQUIDS TO ENTER GROUND WATER IS CONSIDERED AN IMPERMEABLE LINER. THE LIQUID WASTE MUST NOT CONTACT THE GROUND, AND THERE MUST NOT BE RUNOFF FROM THE CONCRETE WASHOUT OPERATIONS OR AREAS. LIQUID WASTE MUST BE DISPOSED OF PROPERLY AND IN COMPLIANCE WITH CITY OF STORM LAKE, IOWA REGULATIONS. A SIGN MUST BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES.

INSPECTION AND MAINTENANCE:

THE CONTRACTOR MUST ROUTINELY INSPECT THE CONSTRUCTION SITE ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION. ALL INSPECTIONS PERFORMED DURING CONSTRUCTION MUST BE RECORDED AND RECORDS RETAINED WITH THE EROSION CONTROL PLAN.

CONTRACTOR IS RESPONSIBLE FOR KEEPING A RECORD OF ALL RAINFALL INFORMATION & EROSION CONTROL MAINTENANCE UNTIL FINAL ESTABLISHMENT OF TURF.

ALL SILT FENCES MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 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. THE PERMITTEES MUST SUBMIT A NOTICE OF TERMINATION WITHIN 30 DAYS AFTER FINAL STABILIZATION IS COMPLETE OR CONTROL HAS BEEN PASSED TO ANOTHER OWNER.

ALL TEMPORARY EROSION CONTROL MEASURES AND BMP'S MUST BE REMOVED AS PART OF THE FINAL SITE STABILIZATION.

THE STORM WATER PERMIT FURTHER DEFINES FINAL STABILIZATION AND ITS REQUIREMENTS.

MAINTENANCE SCHEDULE:

THE FOLLOWING MAINTENANCE SCHEDULE HAS BEEN PROVIDED. THE INSPECTOR MUST PERFORM THE INSPECTIONS. THE OPERATOR/CONTRACTOR MUST PERFORM ALL NEEDED MAINTENANCE. FURTHERMORE, ALL EROSION CONTROL FEATURE REQUIRING MAINTENANCE MAY NOT BE LISTED BELOW. THE OPERATOR/CONTRACTOR AND INSPECTOR MUST PERFORM THEIR RESPECTIVE DUTIES ON ALL BMP'S THAT ARE NOT LISTED BELOW AS WELL.

- CONSTRUCTION ENTRANCE – 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 WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND 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.
- FILTER SOCKS – THE MAINTENANCE MEASURES ARE AS FOLLOWS: (2.1) FILTER SOCKS SHALL BE INSPECTED WEEKLY; (2.2) CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED BALES, END RUNS AND UNDERCUTTING BENEATH BALES; (2.3) NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT OF FILTER SOCKS SHALL BE ACCOMPLISHED PROMPTLY; (2.4) SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH RAINFALL, THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE FILTER SOCK; AND (2.5) ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE FILTER SOCK IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDDED.
- SILT FENCE – THE MAINTENANCE MEASURES ARE AS FOLLOWS; (3.1) SILT FENCES SHALL BE INSPECTED WEEKLY, ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY; (3.2) CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING; (3.3) 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; (3.4) SEDIMENT DEPOSITS MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER; AND (3.5) 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 SEEDDED.
- STORM DRAIN INLET PROTECTION – THE MAINTENANCE MEASURES ARE AS FOLLOWS: (4.1) STRUCTURES SHALL BE INSPECTED WEEKLY AND REPAIRS MADE AS NECESSARY AND (4.2) STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
- TEMPORARY DIVERSION DIKE – THE MEASURE SHALL BE INSPECTED WEEKLY AND REPAIRS MADE TO THE DIKE, FLOW CHANNEL, OUTLET OR SEDIMENT TRAPPING FACILITY, AS NECESSARY. ONCE EVERY WEEK, WHETHER A STORM EVENT HAS OCCURRED OR NOT, THE MEASURE SHALL BE INSPECTED AND REPAIRS MADE IF NEEDED. DAMAGES CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY MUST BE REPAIRED BEFORE THE END OF EACH WORKING DAY.
- TEMPORARY FILL DIVERSION – SINCE THE PRACTICE IS TEMPORARY AND UNDER MOST SITUATIONS WILL BE COVERED THE NEXT WORKING DAY. THE MAINTENANCE REQUIRED SHOULD BE LOW. IF THE PRACTICE IS TO REMAIN IN USE FOR MORE THAN ONE DAY, AN INSPECTION SHALL BE MADE AT THE END OF EACH WORKDAY AND REPAIRS MADE TO THE MEASURE IF NEEDED. THE OPERATOR/CONTRACTOR SHOULD AVOID THE PLACEMENT OF ANY MATERIAL OVER THE STRUCTURE WHILE IT IS IN USE. CONSTRUCTION TRAFFIC SHOULD NOT BE PERMITTED TO CROSS THE DIVERSION.
- TEMPORARY SEDIMENT TRAP – THE MAINTENANCE MEASURES ARE AS FOLLOWS: (7.1) SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN VOLUME OF THE WET STORAGE, SEDIMENT REMOVAL FROM THE BASIN SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS; (7.2) FILTER STONE SHALL BE REGULARLY CHECKED TO ENSURE THAT FILTRATION PERFORMANCE IS MAINTAINED, STONE CHOKED WITH SEDIMENT SHALL BE REMOVED AND CLEANED OR REPLACED; AND (7.3) THE STRUCTURE SHOULD BE CHECKED REGULARLY TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT, THE HEIGHT OF THE STONE OUTLET SHOULD BE CHECKED TO ENSURE THAT ITS CENTER IS AT LEAST 1 FOOT BELOW THE TOP OF THE EMBANKMENT.
- TEMPORARY SEDIMENT BASIN – THE BASIN EMBANKMENT SHOULD BE CHECKED REGULARLY TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT. THE EMERGENCY SPILLWAY SHOULD BE CHECKED REGULARLY TO ENSURE THAT ITS LINING IS WELL ESTABLISHED AND EROSION-RESISTANT. THE BASIN SHOULD BE CHECKED AFTER EACH RUNOFF PRODUCING RAINFALL FOR SEDIMENT CLEANOUT AND TRASH REMOVAL. WHEN THE SEDIMENT REACHES THE CLEANOUT LEVEL, IT SHALL BE REMOVED AND PROPERLY DISPOSED OF.
- TEMPORARY SEEDING – AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION WILL BE RE-SEEDDED AS SOON AS SUCH AREAS ARE IDENTIFIED.
- PERMANENT SEEDING – THE MAINTENANCE MEASURES ARE AS FOLLOWS: (10.1) IN GENERAL, A STAND OF VEGETATION CANNOT BE DETERMINED TO BE FULLY ESTABLISHED UNTIL IT HAS BEEN MAINTAINED FOR ONE FULL YEAR AFTER PLANNING; (10.2) 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; (10.3) INSPECT ALL SEEDDED AREAS FOR FAILURES AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE; [10.3.A] IF STAND IS INADEQUATE FOR EROSION CONTROL, OVER SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED; [10.3.B] IF STAND IS 60% DAMAGED, RE-ESTABLISH FOLLOWING SEEDBED AND SEEDING RECOMMENDATIONS; [10.3.C] IF STAND HAS LESS THAN 40% COVER, RE-EVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER, THE SOIL MUST BE TESTED TO DETERMINE IF ACIDITY OR NUTRIENT IMBALANCES ARE RESPONSIBLE, RE-ESTABLISH THE STAND FOLLOWING SEEDBED AND SEEDING RECOMMENDATIONS.
- MULCHING – ALL MULCHES AND SOIL COVERINGS SHOULD BE INSPECTED PERIODICALLY (PARTICULARLY AFTER RAINSTORMS) TO CHECK FOR EROSION. WHERE EROSION IS OBSERVED IN MULCHED AREAS, ADDITIONAL MULCH SHOULD BE APPLIED. NETS AND MATS SHOULD BE INSPECTED AFTER RAINSTORMS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, REINSTALL NETTING OR MATTING AS NECESSARY AFTER REPAIRING DAMAGE TO THE SLOPE OR DITCH. INSPECTIONS SHOULD TAKE PLACE UNTIL GRASSES ARE FIRMLY ESTABLISHED. WHERE MULCH IS USED IN CONJUNCTION WITH ORNAMENTAL PLANTINGS, INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE; REPAIR AS NEEDED.
- SOIL STABILIZATION BLANKETS & MATTING – ALL SOIL STABILIZATION BLANKETS AND MATTING SHOULD BE INSPECTED PERIODICALLY FOLLOWING INSTALLATION, PARTICULARLY AFTER RAINSTORMS TO CHECK FOR EROSION AND UNDERMINING. ANY DISLOCATION OR FAILURE SHOULD BE REPAIRED IMMEDIATELY. IF WASHOUTS OR BREAKAGE OCCURS, REINSTALL THE MATERIAL AFTER REPAIRING DAMAGE TO THE SLOPE OR DITCH. CONTINUE TO MONITOR THESE AREAS UNTIL WHICH TIME THEY BECOME PERMANENTLY STABILIZED; AT THAT TIME AN ANNUAL INSPECTIONS SHOULD BE ADEQUATE.
- STREET CLEANING / SWEEPING – THE MAINTENANCE MEASURES ARE AS FOLLOWS: (13.1) EVALUATE ACCESS POINTS DAILY FOR SEDIMENT TRACKING; (13.2) 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; (13.3) UNKNOWN SPILLS OR OBJECTS WILL NOT BE MIXED WITH THE SEDIMENT; AND (13.4) IF SEDIMENT IS MIXED WITH OTHER POLLUTANTS, IT WILL BE DISPOSED OF PROPERLY AT AN AUTHORIZED LANDFILL.



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PROJECT

CITY OF STORM LAKE COLLEGE & 3RD LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO

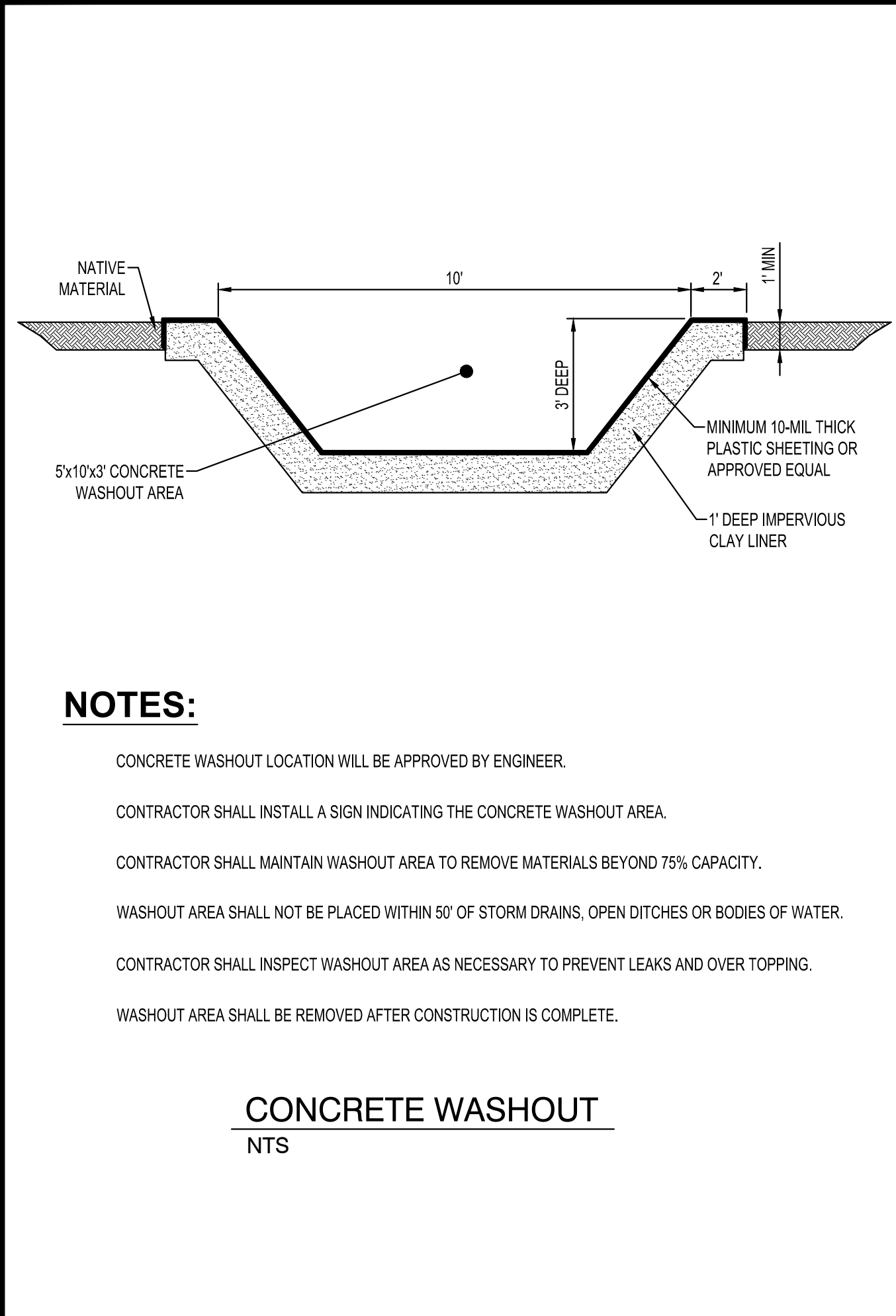
PROJECT NO.	23-29447
FILE NAME	29447 C1-EROSION
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

TITLE

EROSION CONTROL NOTES

SHEET

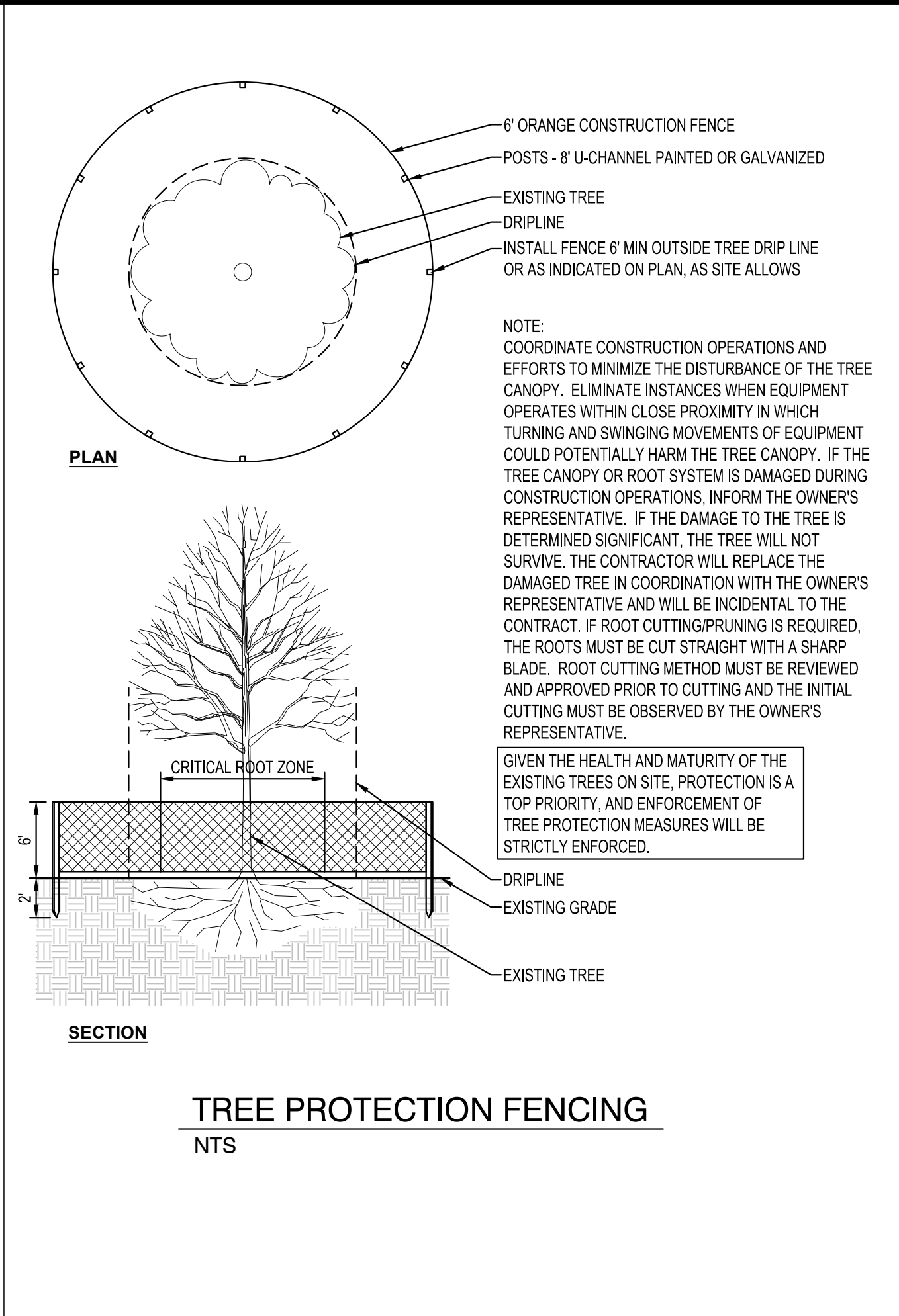
C1-10



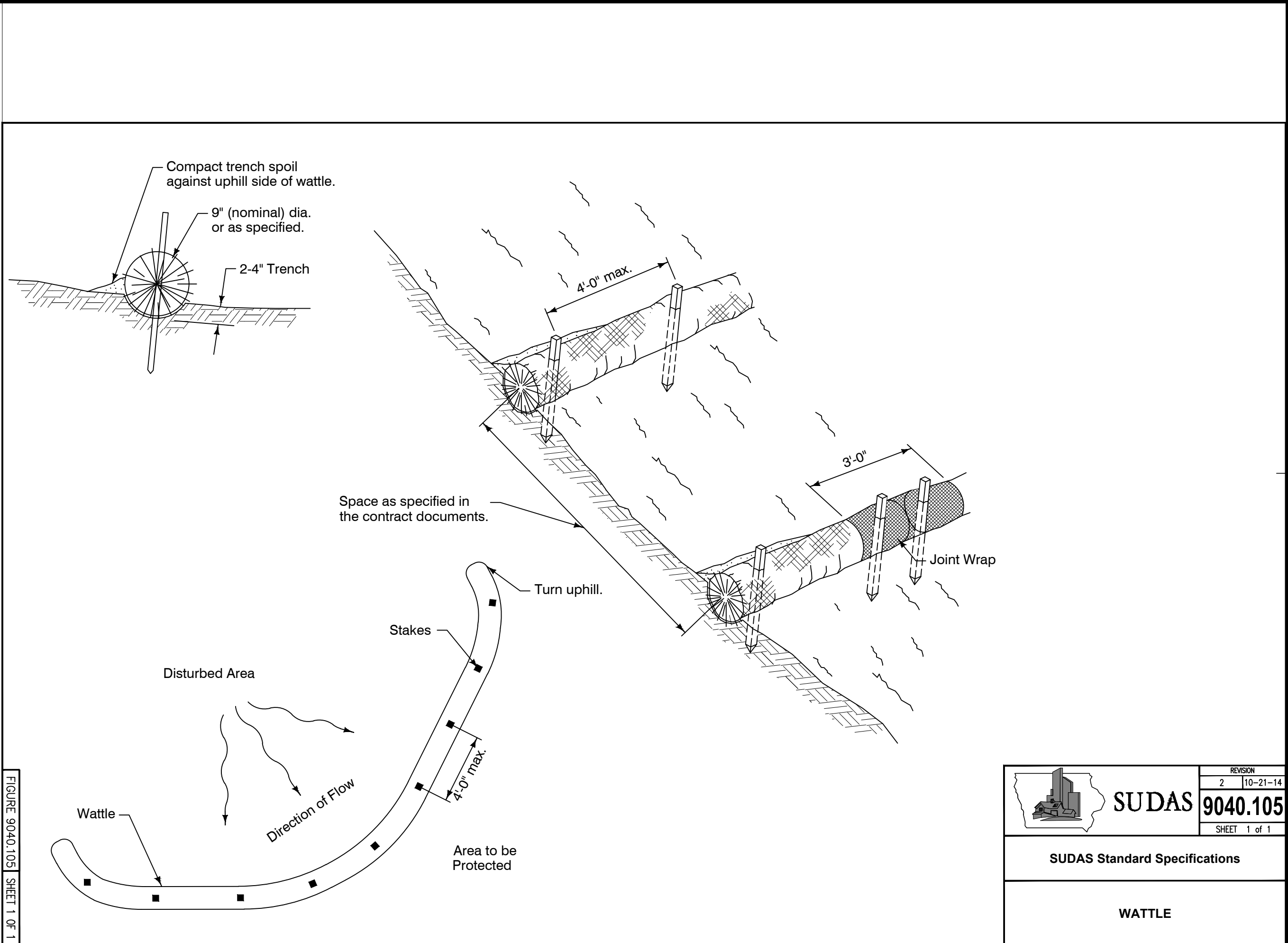
NOTES:

- CONCRETE WASHOUT LOCATION WILL BE APPROVED BY ENGINEER.
- CONTRACTOR SHALL INSTALL A SIGN INDICATING THE CONCRETE WASHOUT AREA.
- CONTRACTOR SHALL MAINTAIN WASHOUT AREA TO REMOVE MATERIALS BEYOND 75% CAPACITY.
- WASHOUT AREA SHALL NOT BE PLACED WITHIN 50' OF STORM DRAINS, OPEN DITCHES OR BODIES OF WATER.
- CONTRACTOR SHALL INSPECT WASHOUT AREA AS NECESSARY TO PREVENT LEAKS AND OVER TOPPING.
- WASHOUT AREA SHALL BE REMOVED AFTER CONSTRUCTION IS COMPLETE.

CONCRETE WASHOUT
NTS



TREE PROTECTION FENCING
NTS

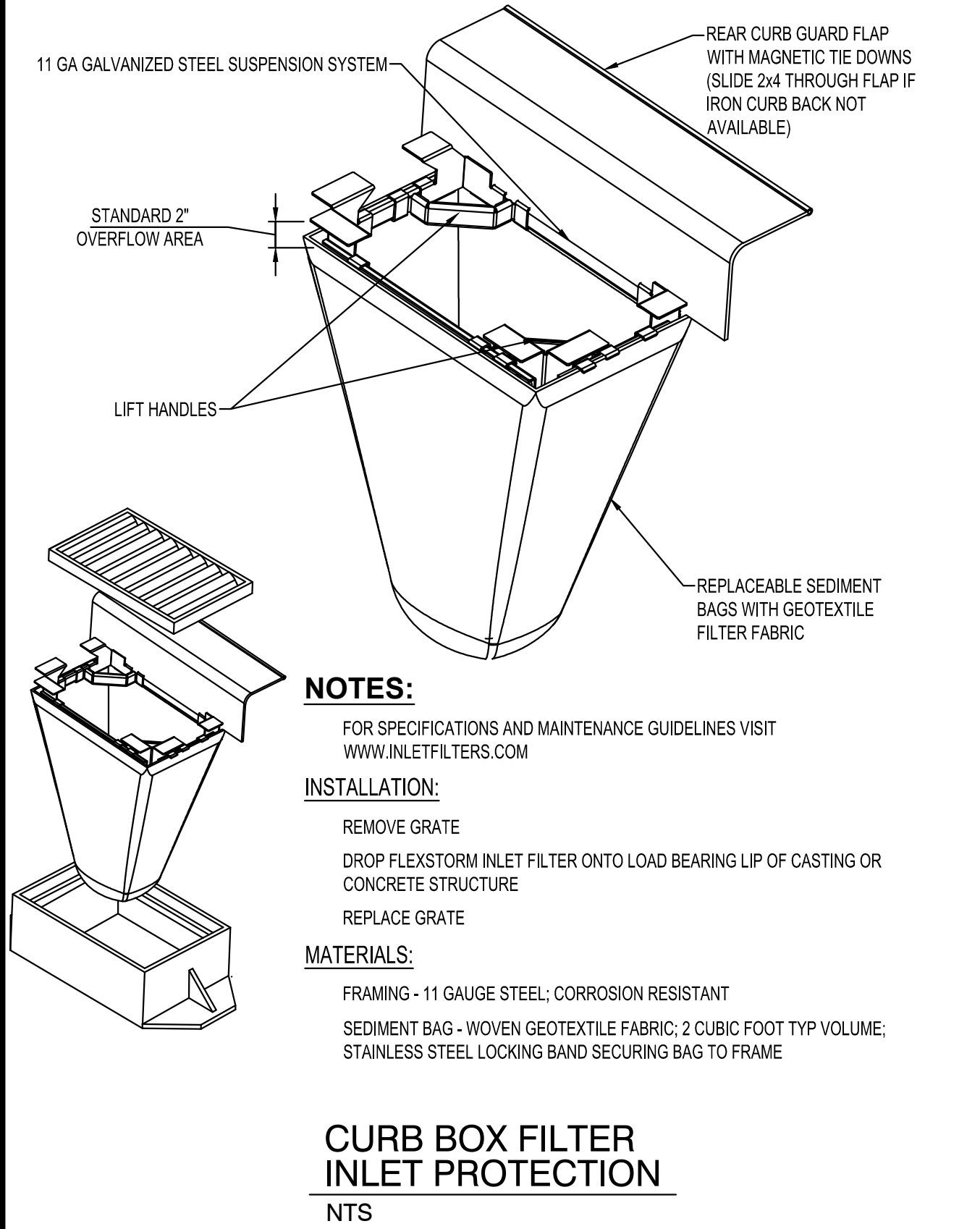


	REVISION	
	2	10-21-14
	SHEET 1 of 1	
	SUDAS	

SUDAS Standard Specifications	
WATTLE	

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NOTES:

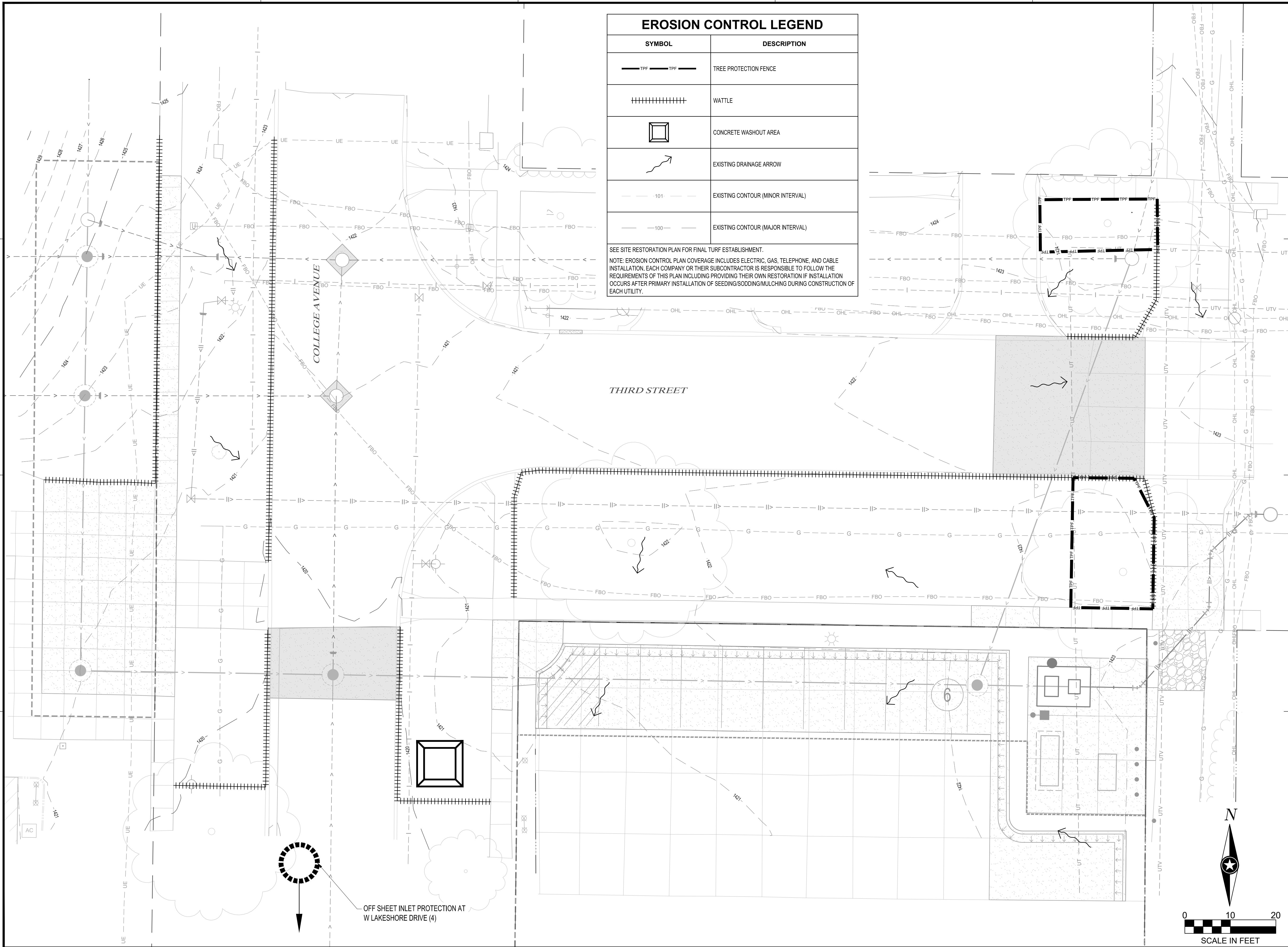
- FOR SPECIFICATIONS AND MAINTENANCE GUIDELINES VISIT WWW.INLETFILTERS.COM
- INSTALLATION:**
- REMOVE GRATE
 - DROP FLEXSTORM INLET FILTER ONTO LOAD BEARING LIP OF CASTING OR CONCRETE STRUCTURE
 - REPLACE GRATE
- MATERIALS:**
- FRAMING - 11 GAUGE STEEL; CORROSION RESISTANT
 - SEDIMENT BAG - WOVEN GEOTEXTILE FABRIC; 2 CUBIC FOOT TYP VOLUME;
 - STAINLESS STEEL LOCKING BAND SECURING BAG TO FRAME

CURB BOX FILTER
INLET PROTECTION
NTS





PROJECT				
CITY OF STORM LAKE				
COLLEGE & 3RD LIFT STATION				
STORM LAKE		IOWA		
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06/03/24	ISSUED FOR AGENCY REVIEW	AJH		
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PROJECT NO.	23-29447			
FILE NAME	29447 C1-EROSION			
DRAWN BY	OBO / EBG			
DESIGNED BY	AJH			
REVIEWED BY	ALG			
ORIGINAL ISSUE DATE	06/03/2024			
CLIENT PROJECT NO.	-			
TITLE				
EROSION CONTROL DETAILS				
SHEET				
C1-20				



EROSION CONTROL LEGEND

SYMBOL	DESCRIPTION
— TPF — TPF —	TREE PROTECTION FENCE
	WATTLE
□	CONCRETE WASHOUT AREA
↗	EXISTING DRAINAGE ARROW
— 101 —	EXISTING CONTOUR (MINOR INTERVAL)
— 100 —	EXISTING CONTOUR (MAJOR INTERVAL)

SEE SITE RESTORATION PLAN FOR FINAL TURF ESTABLISHMENT.

NOTE: EROSION CONTROL PLAN COVERAGE INCLUDES ELECTRIC, GAS, TELEPHONE, AND CABLE INSTALLATION. EACH COMPANY OR THEIR SUBCONTRACTOR IS RESPONSIBLE TO FOLLOW THE REQUIREMENTS OF THIS PLAN INCLUDING PROVIDING THEIR OWN RESTORATION IF INSTALLATION OCCURS AFTER PRIMARY INSTALLATION OF SEEDING/SODDING/MULCHING DURING CONSTRUCTION OF EACH UTILITY.



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PROJECT

CITY OF STORM
LAKE
COLLEGE & 3RD
LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
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06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO

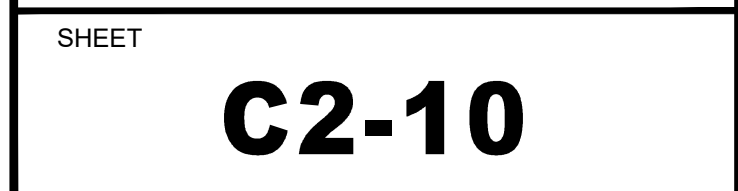
PROJECT NO.	23-29447
FILE NAME	29447 C1-EROSION
DRAWN BY	OBO / EBG
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ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

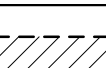
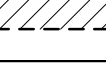
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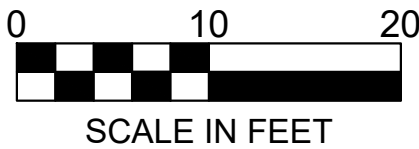
EROSION
CONTROL PLAN

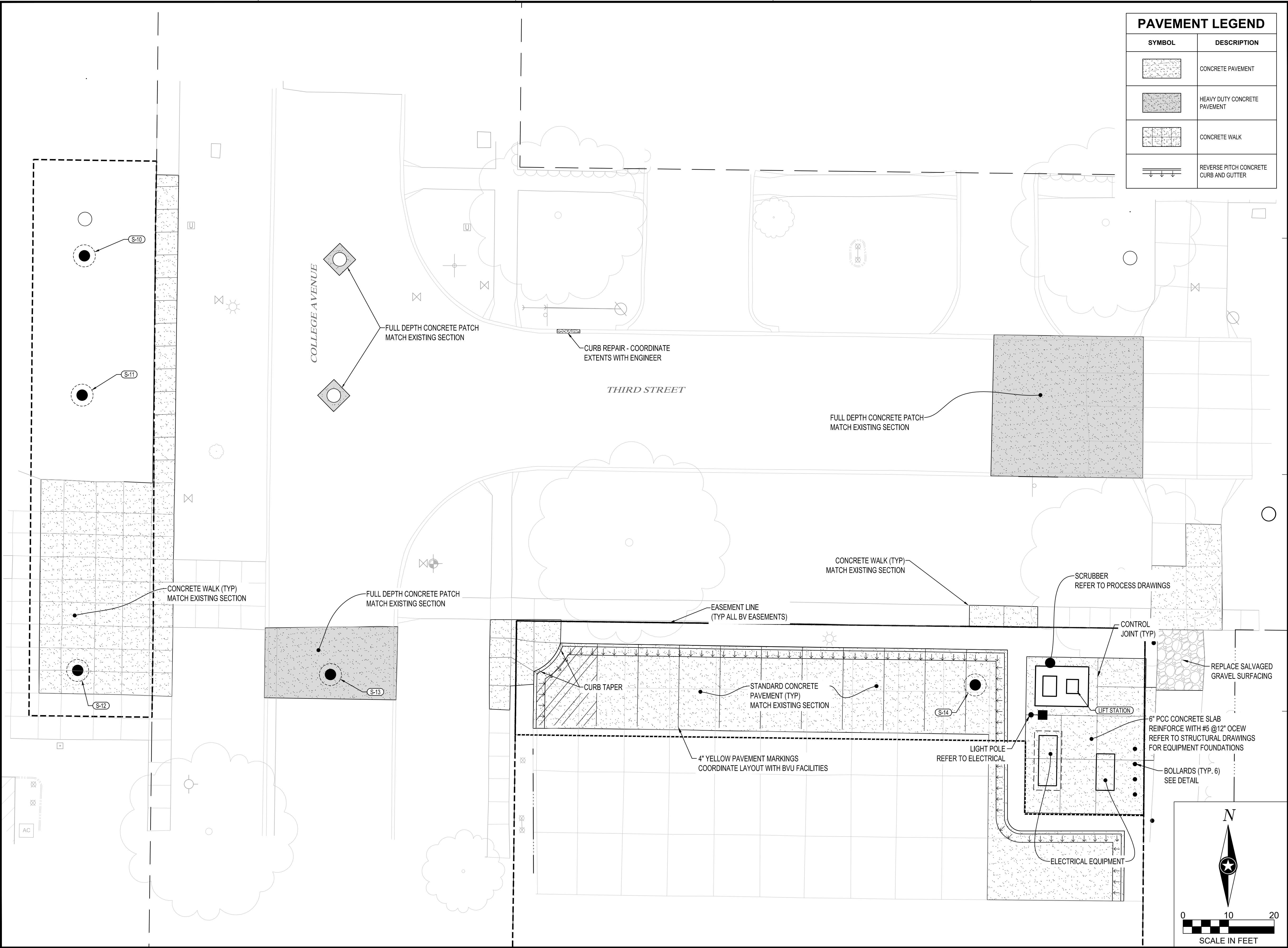
SHEET

C1-30



REMOVAL LEGEND	
SYMBOL	DESCRIPTION
	REMOVE ASPHALT PAVEMENT
	REMOVE CONCRETE PAVEMENT
	REMOVE AGGREGATE SURFACING
CONTRACTOR SHALL VERIFY EXISTING PAVEMENT SECTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES. PAVEMENT REMOVALS SHALL INCLUDE FULL DEPTH SAWCUT AND SECTION REMOVAL.	





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PROJECT

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LAKE
COLLEGE & 3RD
LIFT STATION**

STORM LAKE IOWA

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08/19/24	ISSUED FOR BIDDING	OBO
02/07/25	AGENCY REVIEW AND BIDDING	AJH

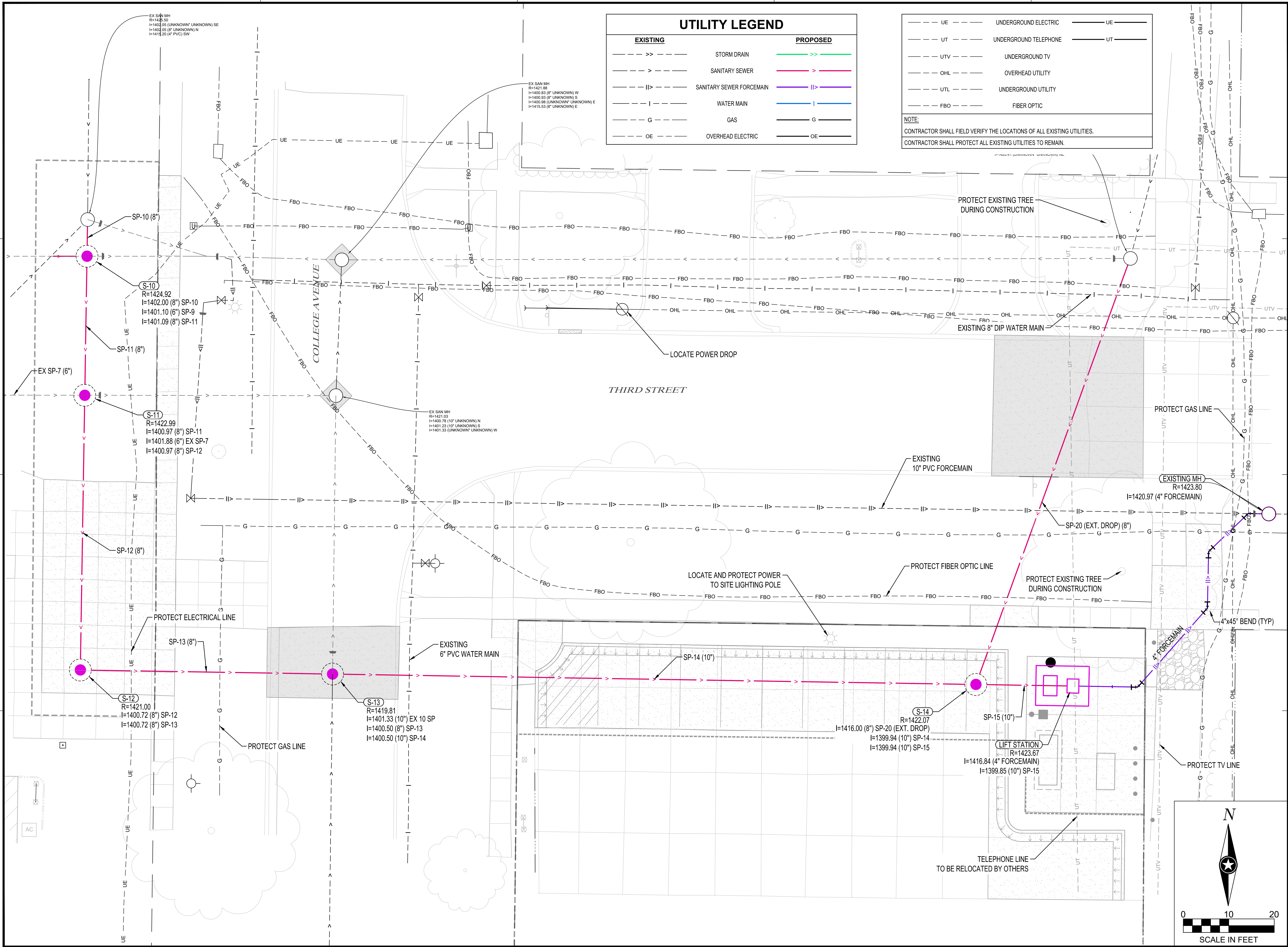
PROJECT NO.	23-29447
FILE NAME	29447 C3-SITE PLAN
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

TITLE

SITE PLAN - ALT A

SHEET

C3-10A



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PROJECT

**CITY OF STORM LAKE
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STORM LAKE IOWA

REVISION SCHEDULE		
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06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO
02/07/25	AGENCY REVIEW AND BIDDING	TAK

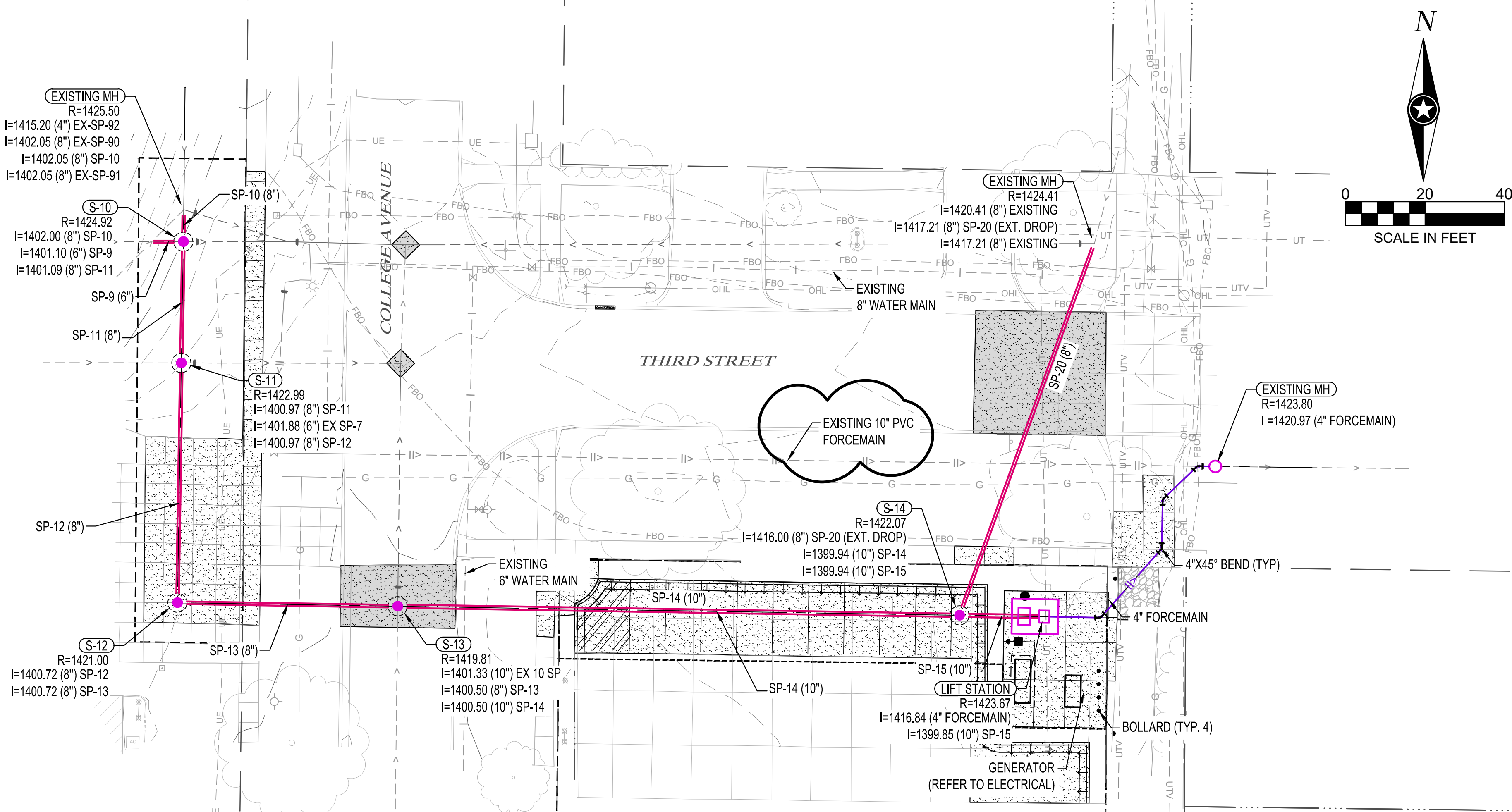
PROJECT NO.	23-29447
FILE NAME	29447 C3-SITE PLAN
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

TITLE

**UTILITY PLAN -
ALT A**

SHEET

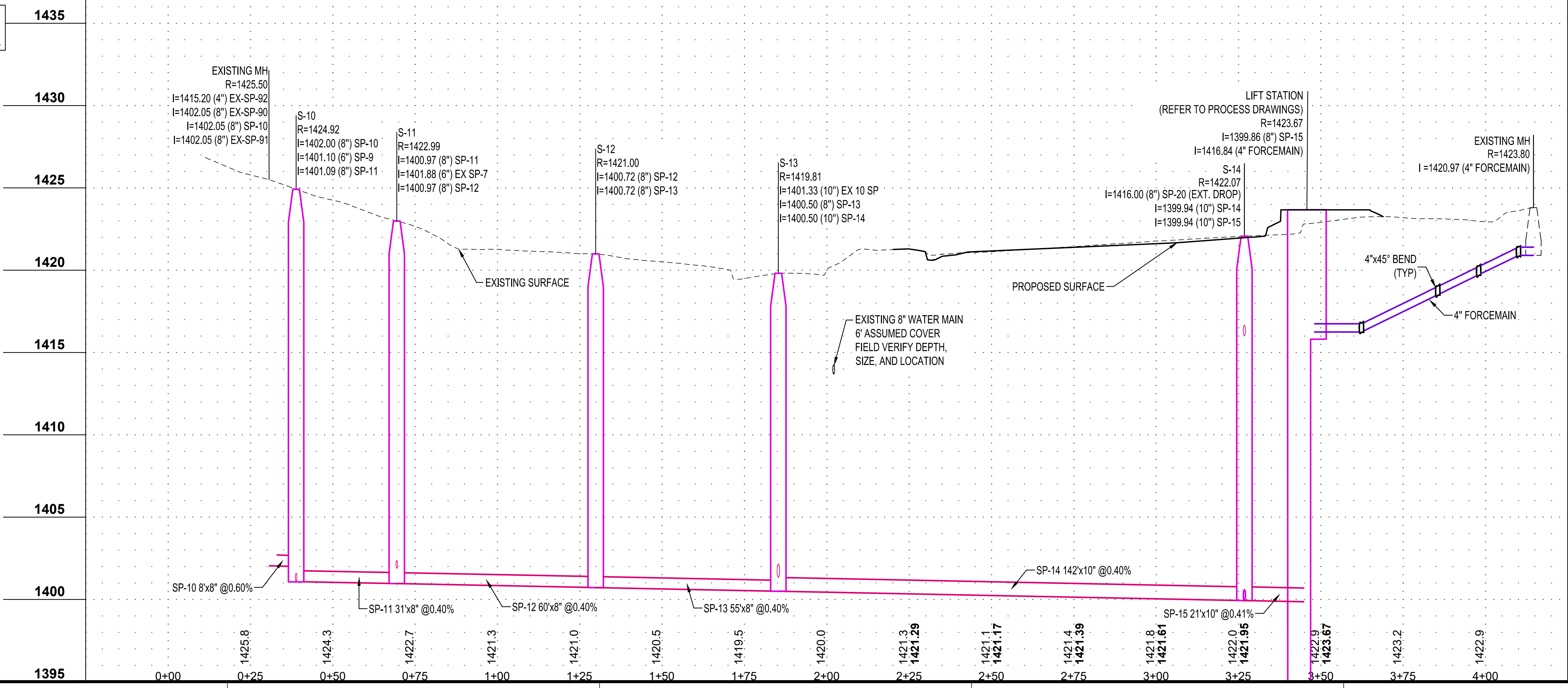
C3-20A



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NOTE:
XXXX.X - EXISTING GROUND E
XXXX.XX - PROPOSED GRADE E



PROJECT

CITY OF STORM LAKE

COLLEGE & 3RD

LIFT STATION

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO
02/26/25	ADDENDUM #1	GMR

PROJECT NO.	23-29447
FILE NAME	29447 C3-SITE P&P
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

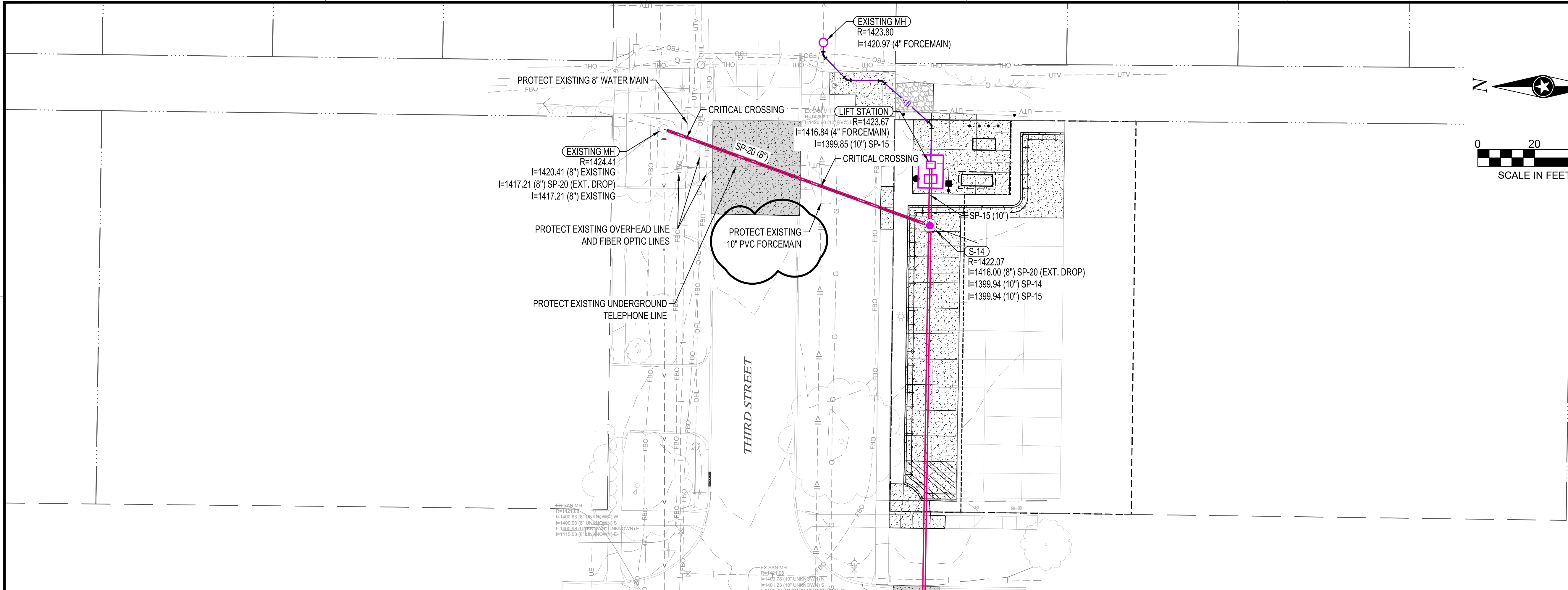
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PLAN & PROFILE -

ALT A

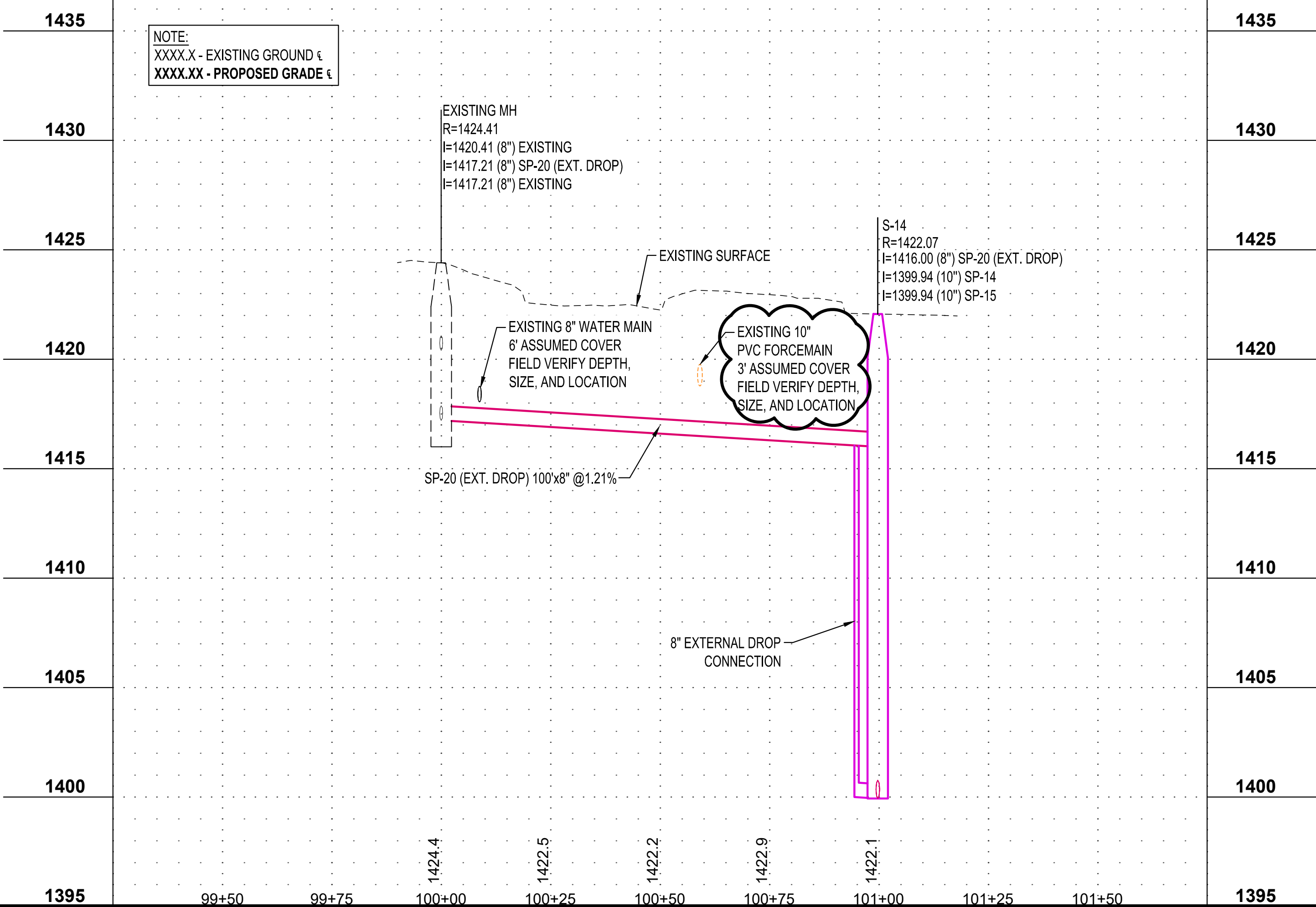
SHEET

C3-30A



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PROJECT

CITY OF STORM LAKE

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LIFT STATION

STORM LAKE IOWA

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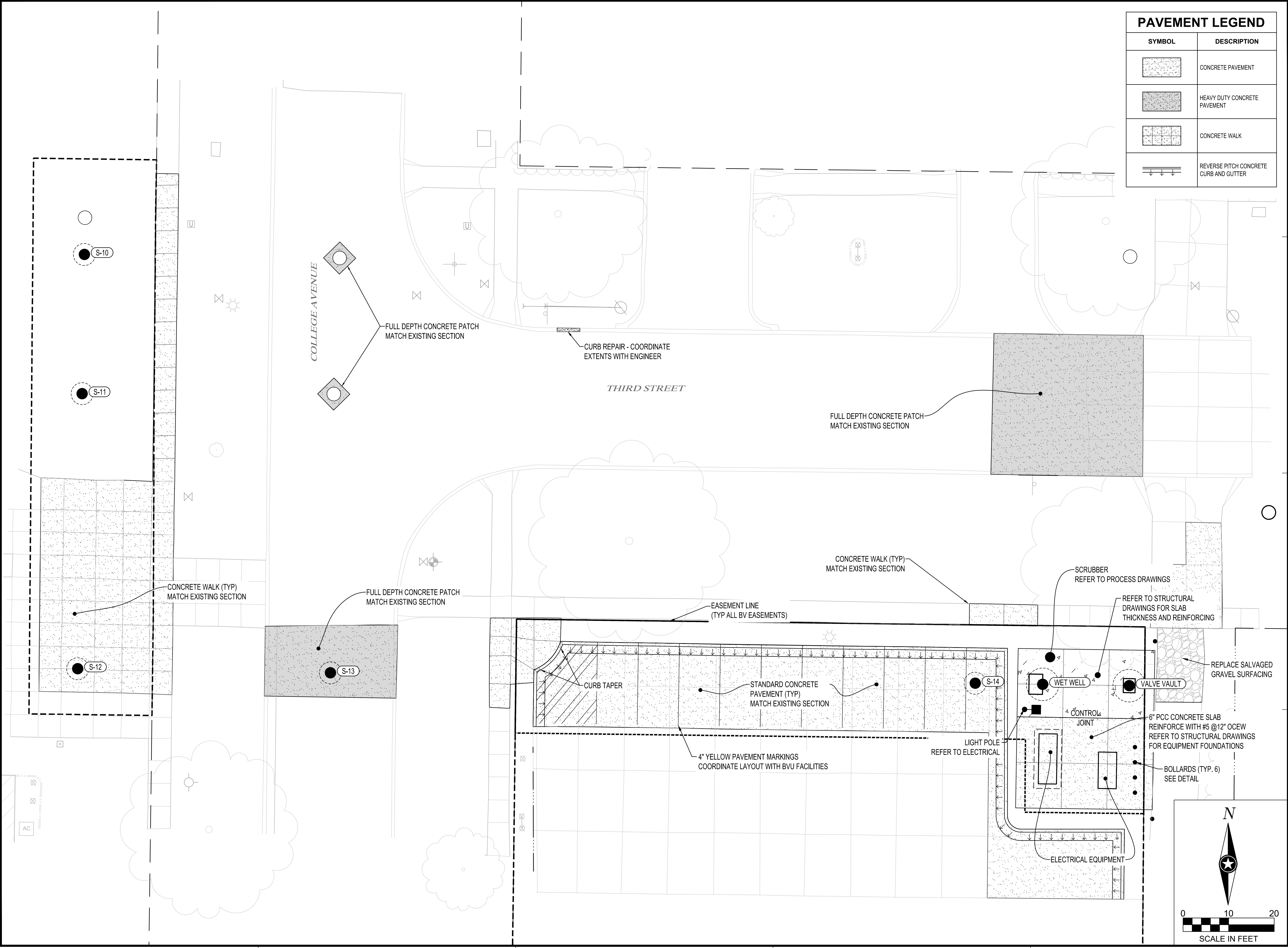
TITLE

PLAN & PROFILE -

ALT A

SHEET

C3-31A



PAVEMENT LEGEND	
SYMBOL	DESCRIPTION
	CONCRETE PAVEMENT
	HEAVY DUTY CONCRETE PAVEMENT
	CONCRETE WALK
	REVERSE PITCH CONCRETE CURB AND GUTTER



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STORM LAKE IOWA

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02/07/25	AGENCY REVIEW AND BIDDING	AJH

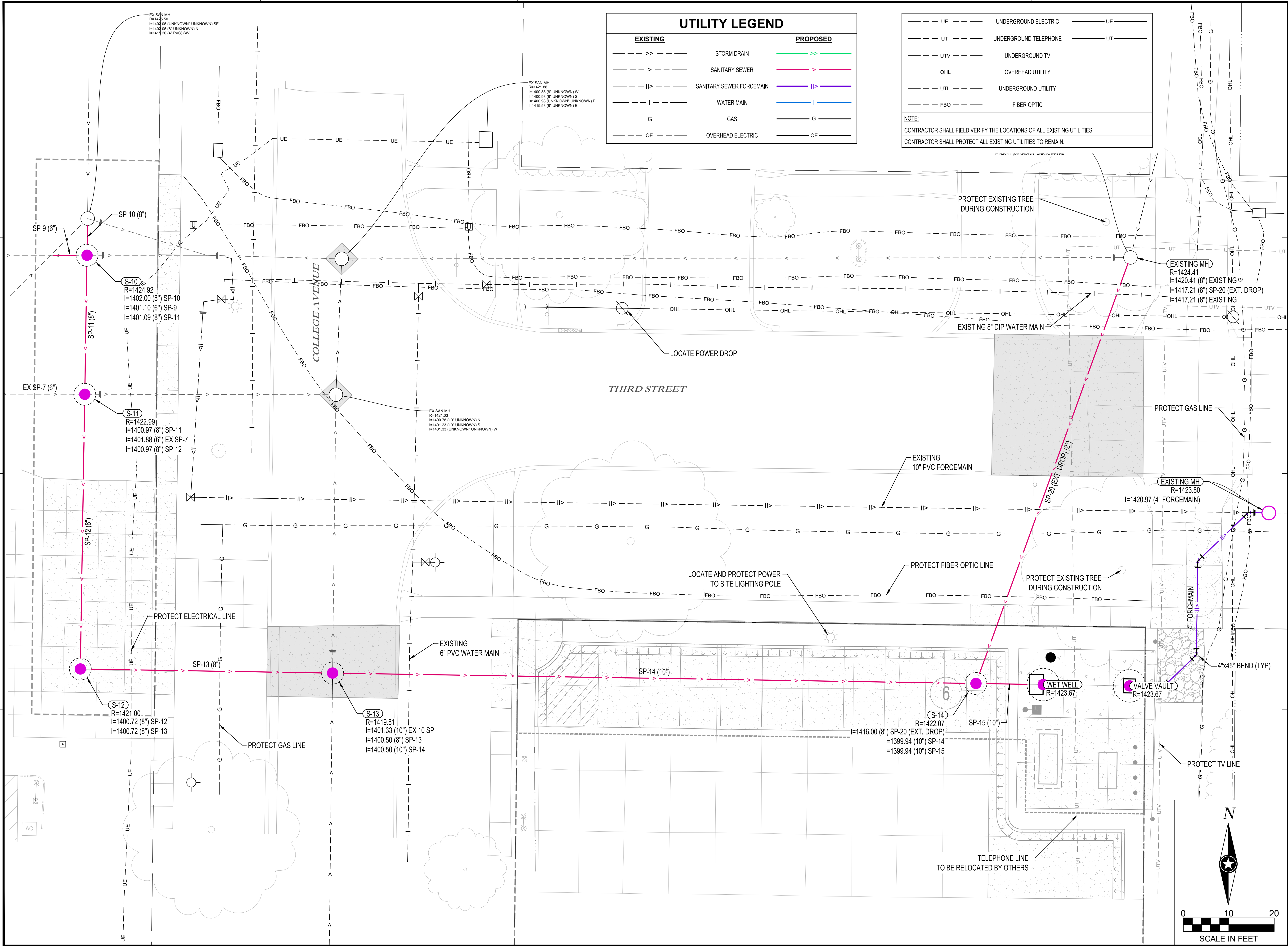
PROJECT NO.	23-29447
FILE NAME	29447 C3-SITE PLAN - ALT B
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	02/07/2025
CLIENT PROJECT NO.	-

TITLE

SITE PLAN - ALT B

SHEET

C3-10B



UTILITY LEGEND	
EXISTING	PROPOSED

	UNDERGROUND ELECTRIC	
	UNDERGROUND TELEPHONE	
	UNDERGROUND TV	
	OVERHEAD UTILITY	
	UNDERGROUND UTILITY	
	FIBER OPTIC	

NOTE:
CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES.
CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES TO REMAIN.



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PROJECT

CITY OF STORM LAKE
COLLEGE & 3RD
LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
02/07/25	AGENCY REVIEW AND BIDDING	AJH

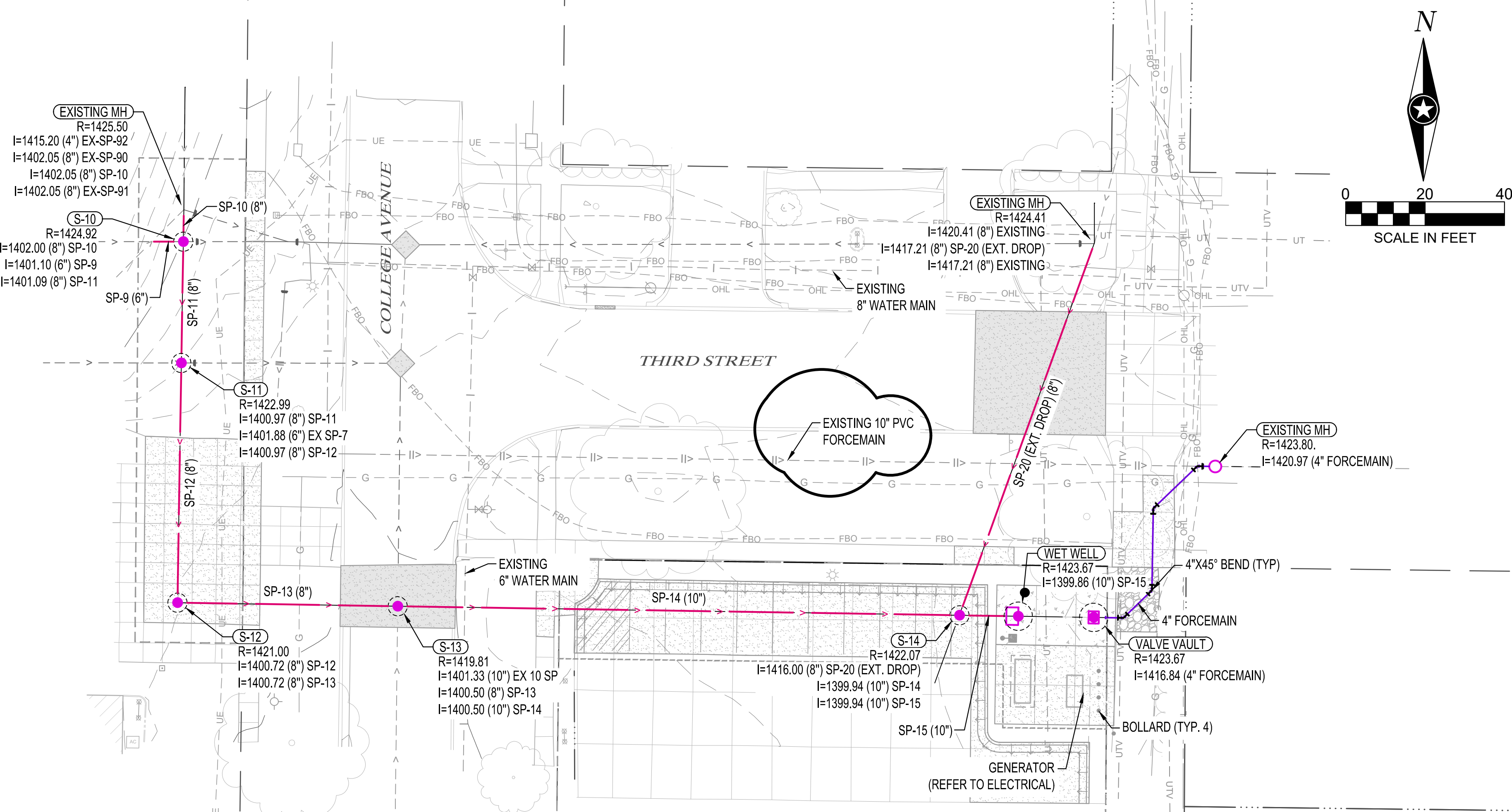
PROJECT NO.	23-29447
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DRAWN BY	OBO / EBG
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CLIENT PROJECT NO.	-

TITLE

UTILITY PLAN -
ALT B

SHEET

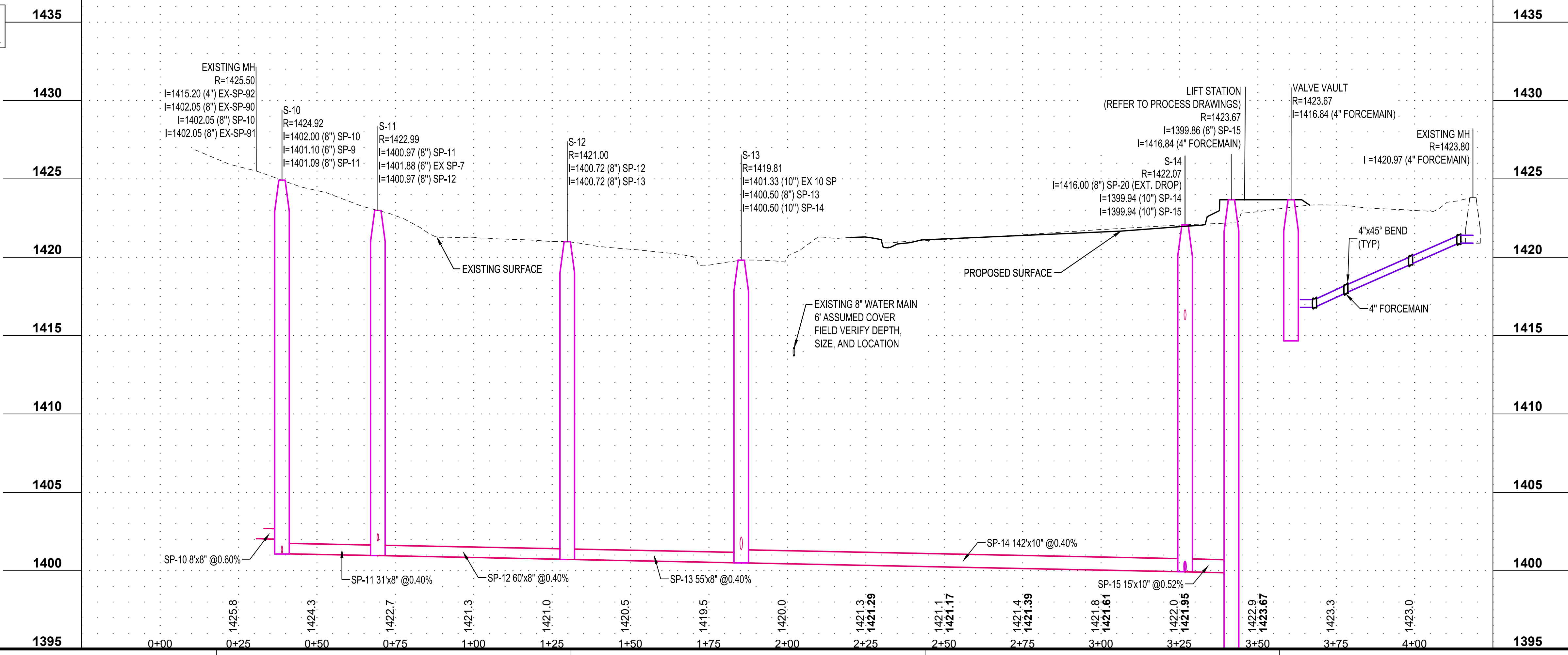
C3-20B



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NOTE:
XXXX.X - EXISTING GROUND E
XXXX.XX - PROPOSED GRADE E



PROJECT

CITY OF STORM LAKE

COLLEGE & 3RD

LIFT STATION

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02/07/25	AGENCY REVIEW AND BIDDING	AJH
02/26/25	ADDENDUM #1	GMR

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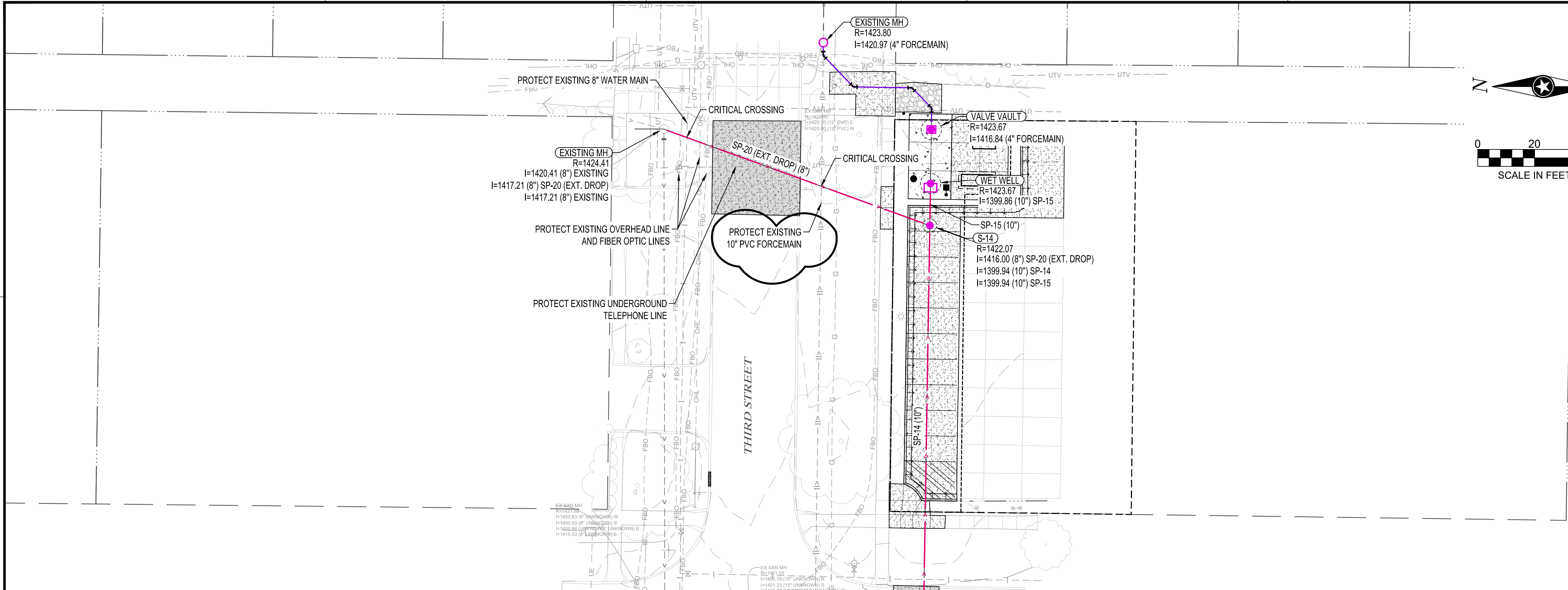
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PLAN & PROFILE -

ALT B

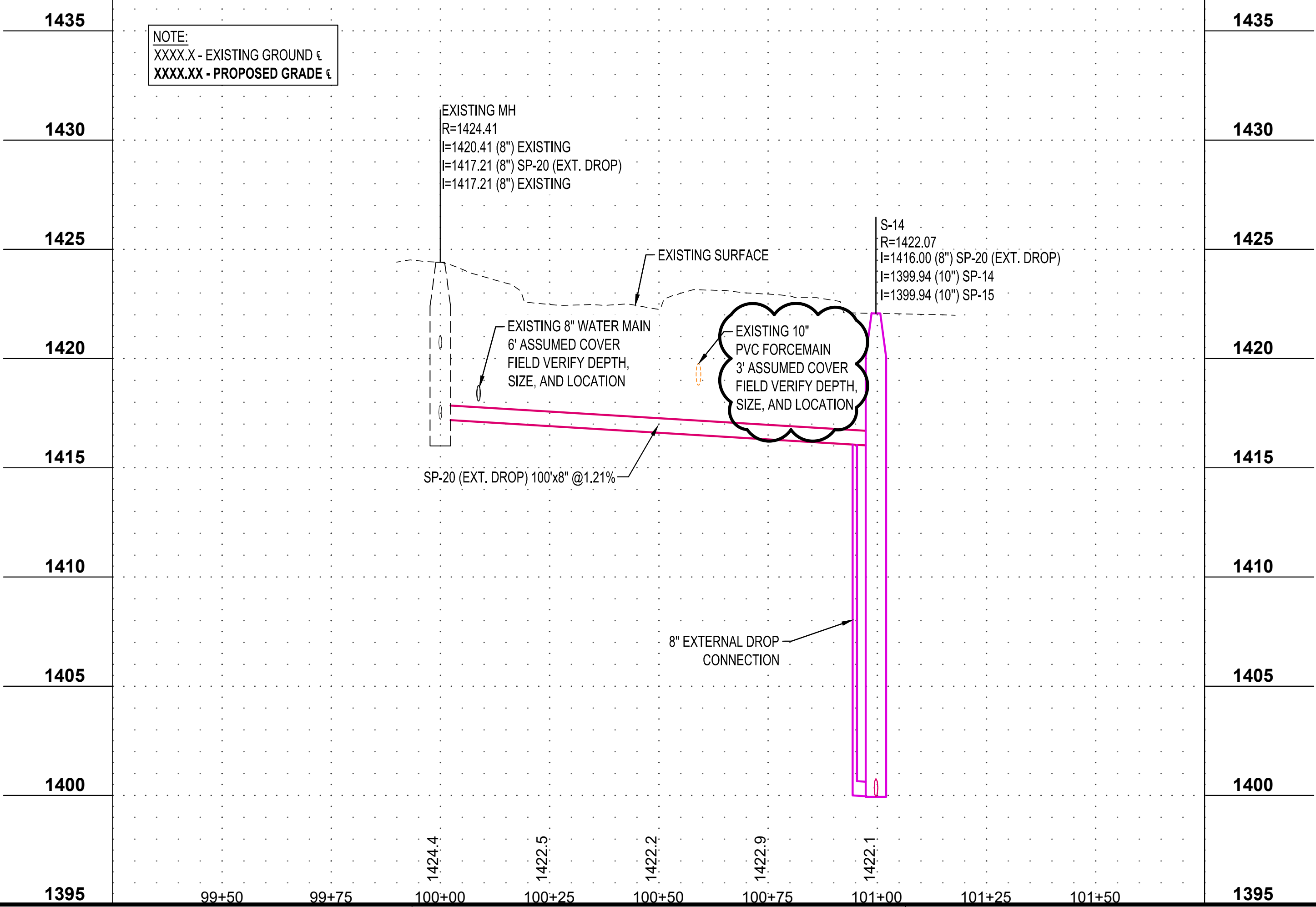
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C3-30B



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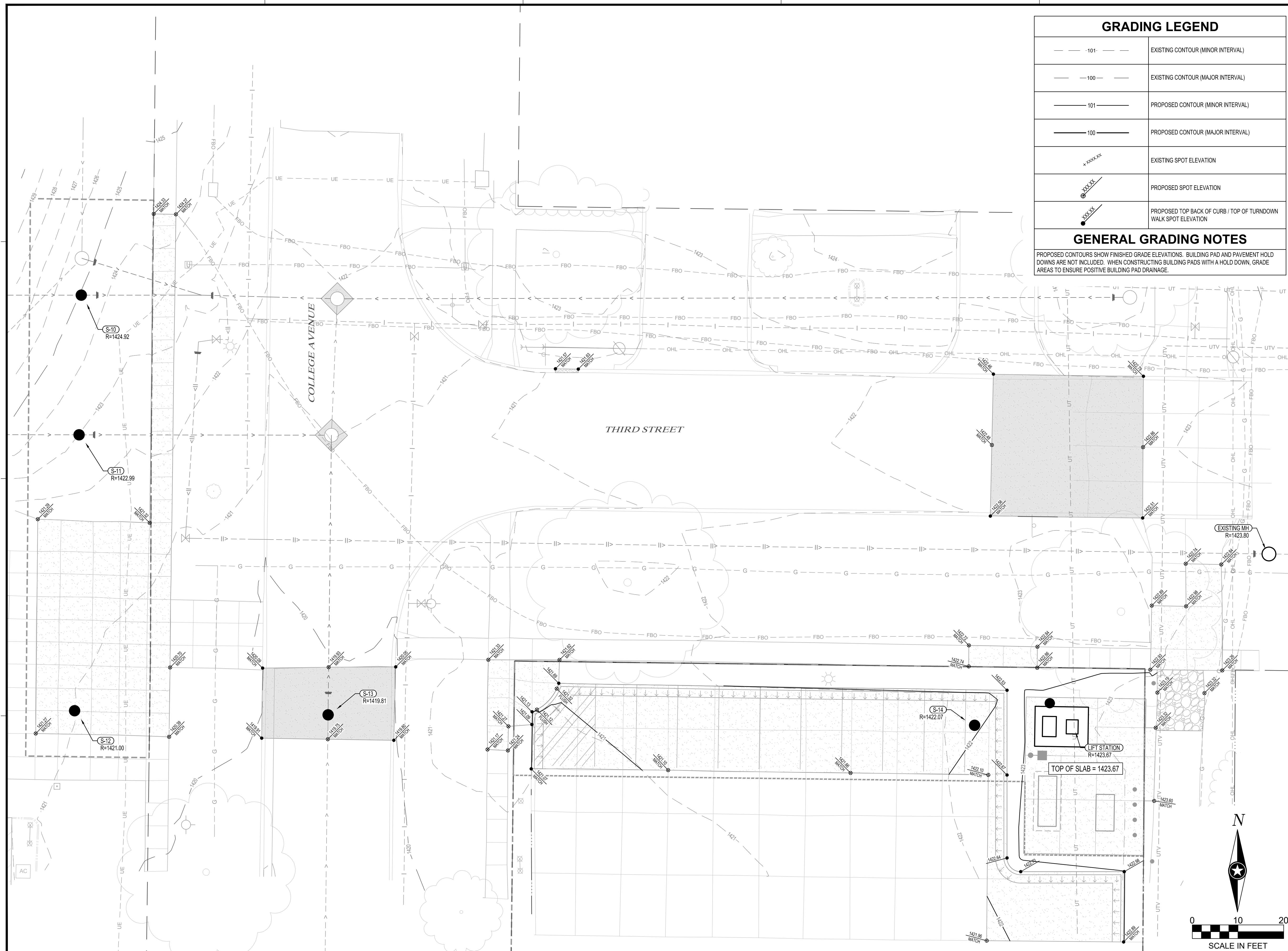
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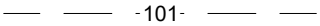
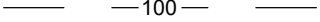
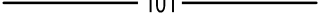
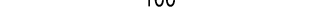
TITLE

**PLAN & PROFILE -
ALT B**

SHEET

C3-31B



GRADING LEGEND	
	EXISTING CONTOUR (MINOR INTERVAL)
	EXISTING CONTOUR (MAJOR INTERVAL)
	PROPOSED CONTOUR (MINOR INTERVAL)
	PROPOSED CONTOUR (MAJOR INTERVAL)
	EXISTING SPOT ELEVATION
	PROPOSED SPOT ELEVATION
	PROPOSED TOP BACK OF CURB / TOP OF TURNDOWN WALK SPOT ELEVATION
GENERAL GRADING NOTES	
PROPOSED CONTOURS SHOW FINISHED GRADE ELEVATIONS. BUILDING PAD AND PAVEMENT HOLD DOWNS ARE NOT INCLUDED. WHEN CONSTRUCTING BUILDING PADS WITH A HOLD DOWN, GRADE AREAS TO ENSURE POSITIVE BUILDING PAD DRAINAGE.	



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STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO

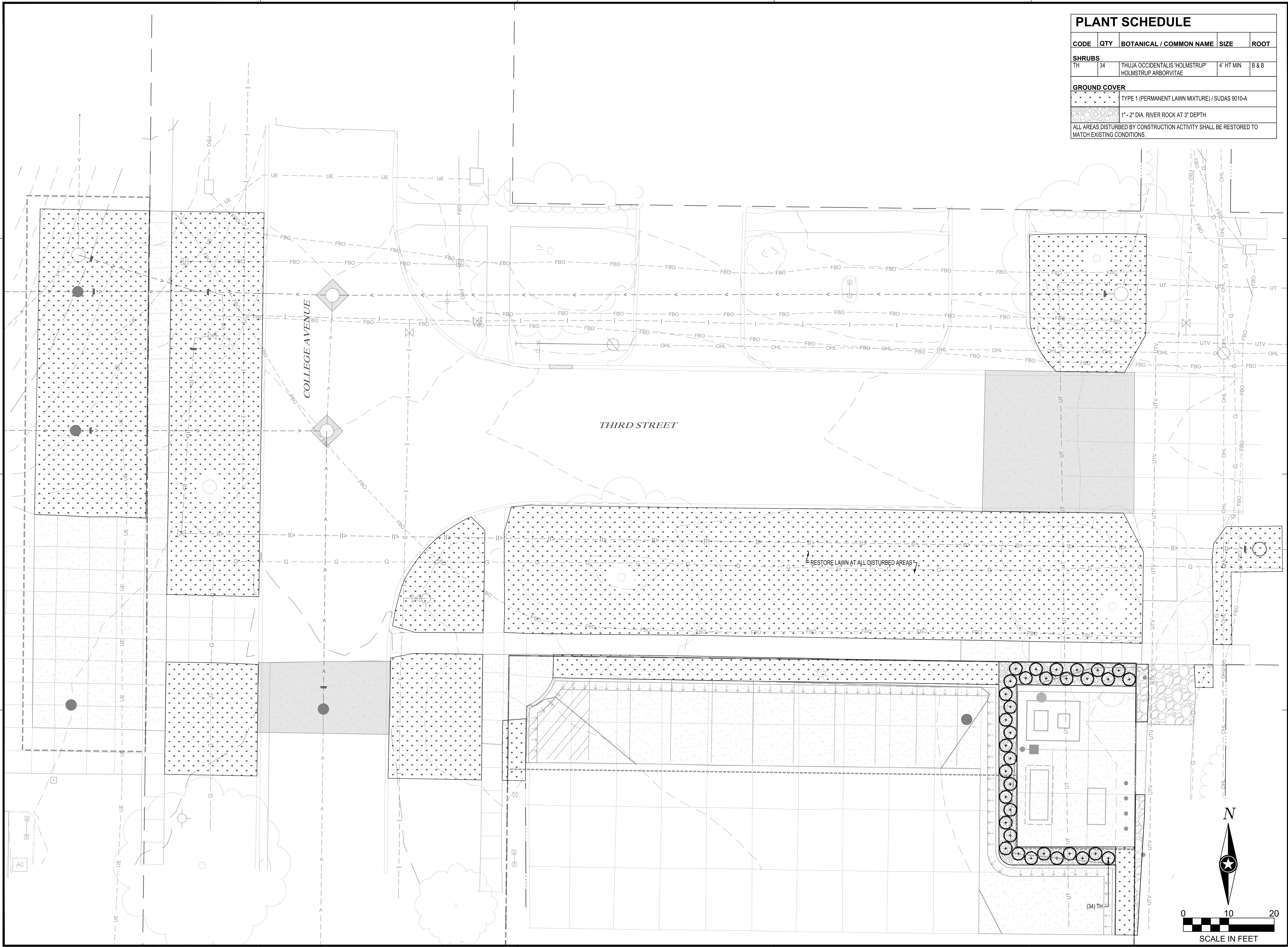
PROJECT NO.	23-29447
FILE NAME	29447 C4-GRADE
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

TITLE

GRADING PLAN

SHEET

C4-10



PLANT SCHEDULE

CODE	QTY	BOTANICAL / COMMON NAME	SIZE	ROOT
SHRUBS				
TH	34	THUJA OCCIDENTALIS 'HOLMSTRUP' HOLMSTRUP ARBORVITAE	4' HT MIN	B & B
GROUND COVER				
		TYPE 1 (PERMANENT LAWN MIXTURE) / SUDAS 9010-A		
		1\"/>		
ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITY SHALL BE RESTORED TO MATCH EXISTING CONDITIONS.				



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PROJECT

CITY OF STORM
LAKE
COLLEGE & 3RD
LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO

PROJECT NO.	23-29447
FILE NAME	29447 C5-LAND
DRAWN BY	PCN
DESIGNED BY	PCN
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

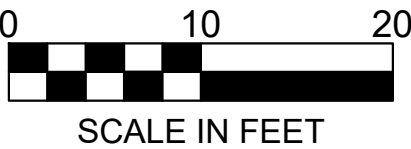
TITLE

SITE
RESTORATION
PLAN

SHEET

C5-10

N



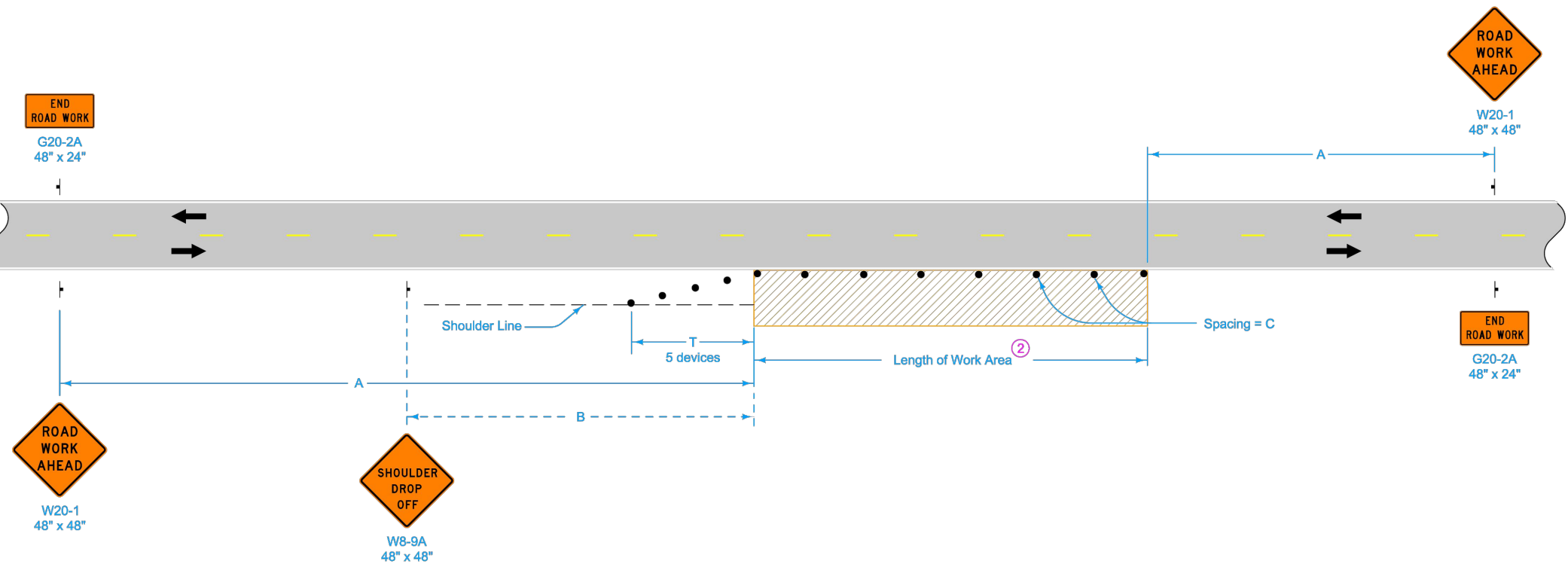
IDOT STANDARD ROAD PLANS

TC-202

TC-252

TC-601

1. CONTRACTOR TO SUBMIT A SCHEDULE AND STAGING PLAN FOR ENGINEER'S APPROVAL PRIOR TO WORK COMMENCING.
2. ALL CONSTRUCTION MATERIALS AND EQUIPMENT MUST STAY WITHIN THE EXISTING RIGHT OF WAY AND EASEMENTS.
3. WORK MUST BE PHASED TO REDUCE CLOSURES TO ADJACENT PROPERTY OWNERS. CONTRACTOR TO SCHEDULE REMOVALS, UNDERGROUND WORK, AND PAVING OPERATIONS TO MAINTAIN LOCAL ACCESS FOR AS LONG AS FEASIBLE.
4. CONTRACTOR TO SUBMIT A TRAFFIC CONTROL PLAN TO THE ENGINEER AT LEAST FOURTEEN (14) DAYS PRIOR TO THE START OF CONSTRUCTION.
5. CONTRACTOR TO PROVIDE CITY A MINIMUM 7 DAY NOTICE PRIOR TO COMMENCING WORK. A 48 HOUR NOTICE MUST BE PROVIDED PRIOR TO ANY UTILITY DISRUPTIONS. CONTRACTOR SHALL PROVIDE REQUIRED NOTICES TO THE CITY FOR ROAD AND SIDEWALK CLOSURES. INADEQUATE NOTICE TO THE CITY MAY RESULT IN A DELAY TO THE CONTRACTOR'S SCHEDULE. ANY DELAYS DUE TO CONTRACTOR'S LACK OF COMMUNICATION TO CITY OR ENGINEER SHALL NOT BE JUSTIFICATION FOR EXTENDING THE PROJECT'S COMPLETION DATE.
6. ALL TRAFFIC CONTROL DEVICES MUST BE INSTALLED PRIOR TO BEGINNING ANY WORK.
7. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
8. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING, INSTALLATION, MAINTENANCE, & REMOVAL OF TRAFFIC CONTROL SIGNING.
9. ANY EXISTING SIGNS IN THE CONSTRUCTION ZONE THAT CONFLICT WITH TEMPORARY TRAFFIC PATTERNS THAT ARE NOT REMOVED DUE TO THE CONSTRUCTION MUST BE COVERED BY THE CONTRACTOR.
10. ACCESS TO ALL PROPERTIES OUTSIDE OF THE PROJECT'S CONSTRUCTION LIMITS MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
11. CONTRACTOR TO OBTAIN ANY NECESSARY ADDITIONAL PERMITS FOR UTILIZING ROUTES OTHER THAN THAT SHOWN IN THE PLANS.
12. CONTRACTOR IS RESPONSIBLE FOR COMMUNICATION AND/OR COORDINATION OF THE TRAFFIC CONTROL PLAN AND CHANGES TO ACCESS, DETOURS, AND PHASING WITH LOCAL BUSINESSES, RESIDENCES, THE CITY OF STORM LAKE, BUENA VISTA UNIVERSITY, AND THE ENGINEER.



When a pavement edge drop-off exists, install a SHOULDER DROP-OFF sign.
No pavement edge drop-offs greater than pavement depth will be allowed during non-working hours.
Shoulder edge drop-offs shall be mitigated according to Article 1107.08.K2 of the Standard Specifications.
For work lasting less than one hour, refer to TC-1.

SPEED LIMIT (mph)*	A	B	C ②	T
35 or less	500'	250'	40'	100'
40 - 45	700'	350'	80' ①	200'
50 or greater	1000'	500'	100' ①	200'

*Speed Limit refers to regulatory speed limit before road work.

Possible Contract Item:
Traffic Control

IOWADOT STANDARD ROAD PLAN	REVISION
	10 4-18-23
	TC-202
REVISIONS: Added speed limit note.	SHEET 1 of 1
APPROVED BY DESIGN METHUEN ENGINEER	
WORK WITHIN 15 FT OF TRAVELED WAY	

- ① When the length of a pavement edge drop-off is 1000 feet or less, the temporary fill requirement of Article 1107.08 of the Standard Specifications does not apply. Reduce channelizer spacing to 40 feet.
- ② For work areas less than 200 feet long, use channelizers spaced at 20 foot centers or use a vehicle with an amber revolving light or amber strobe light.

SIGN PLACEMENT ON
TYPE III BARRICADES



Typical Sign Placement



Sign Placement with
Supplemental Sign

Possible Contract Items:
Traffic Control
Safety Closures
Portable Dynamic Message Sign

Possible Tabulation:
108-13A

IOWADOT STANDARD ROAD PLAN	REVISION
	6 04-21-20
	TC-252
REVISIONS: Added Portable Dynamic Message Sign and new note 4 on Sheet 2.	SHEET 1 of 3
APPROVED BY DESIGN METHUEN ENGINEER	
ROUTES CLOSED TO TRAFFIC	



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PROJECT

CITY OF STORM LAKE
COLLEGE & 3RD
LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	AJH
08/19/24	ISSUED FOR BIDDING	OBO

PROJECT NO.	23-29447
FILE NAME	29447 J1-TRAFFIC CONTROL
DRAWN BY	OBO / EBG
DESIGNED BY	AJH
REVIEWED BY	ALG
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	-

TITLE

TRAFFIC CONTROL
NOTES

SHEET

J1-10



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PROJECT

CITY OF STORM LAKE
COLLEGE & 3RD
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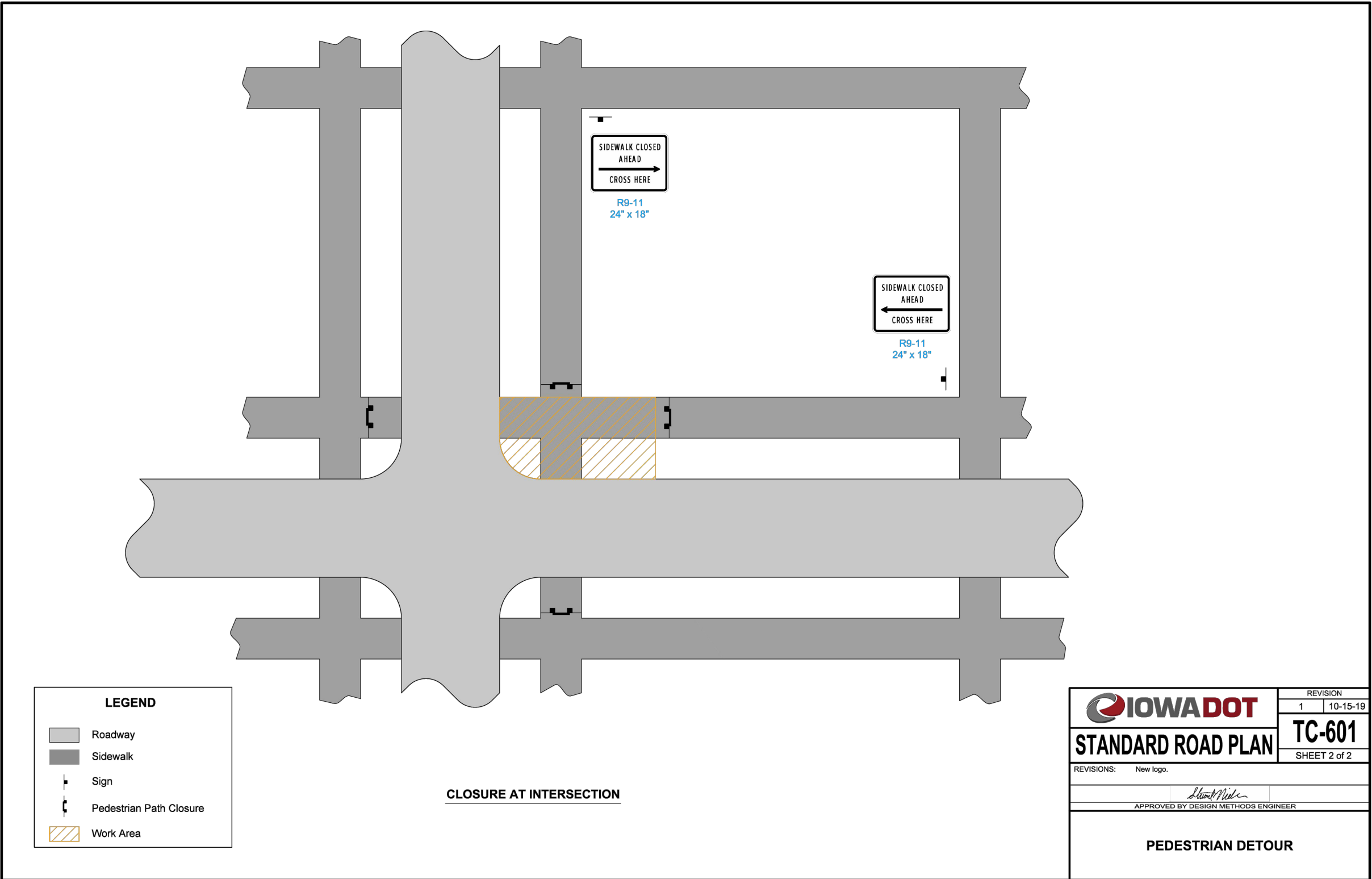
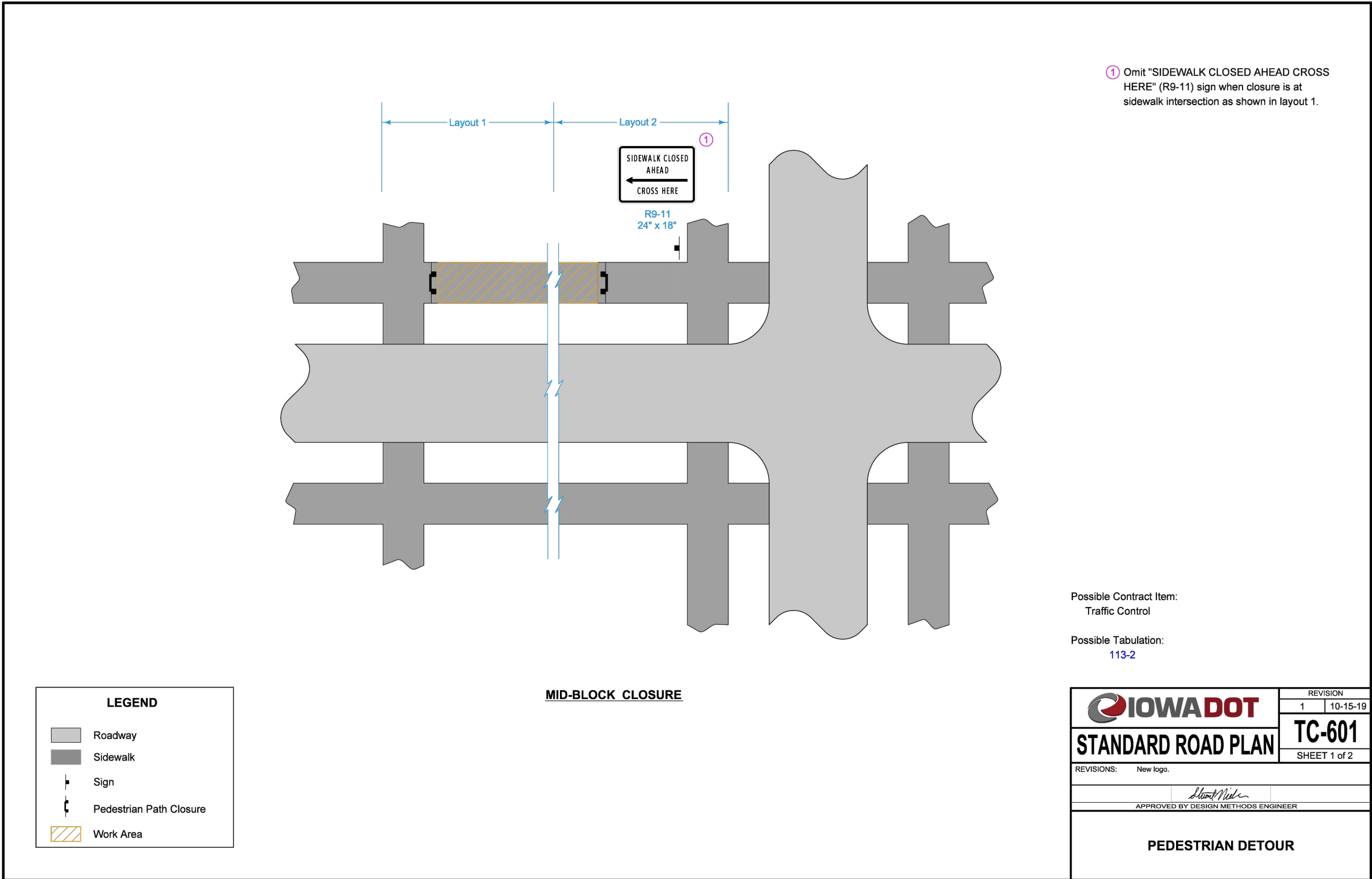
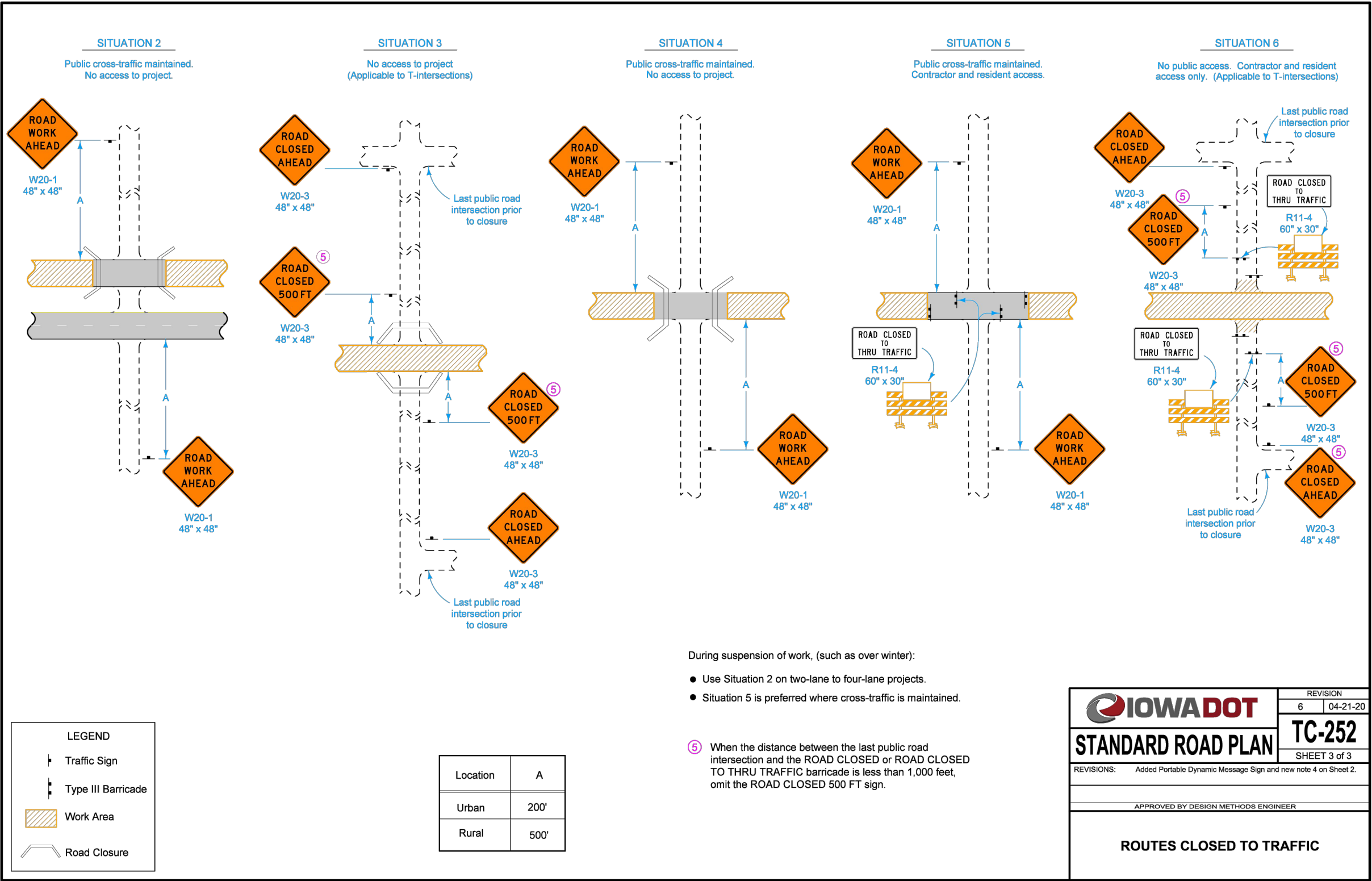
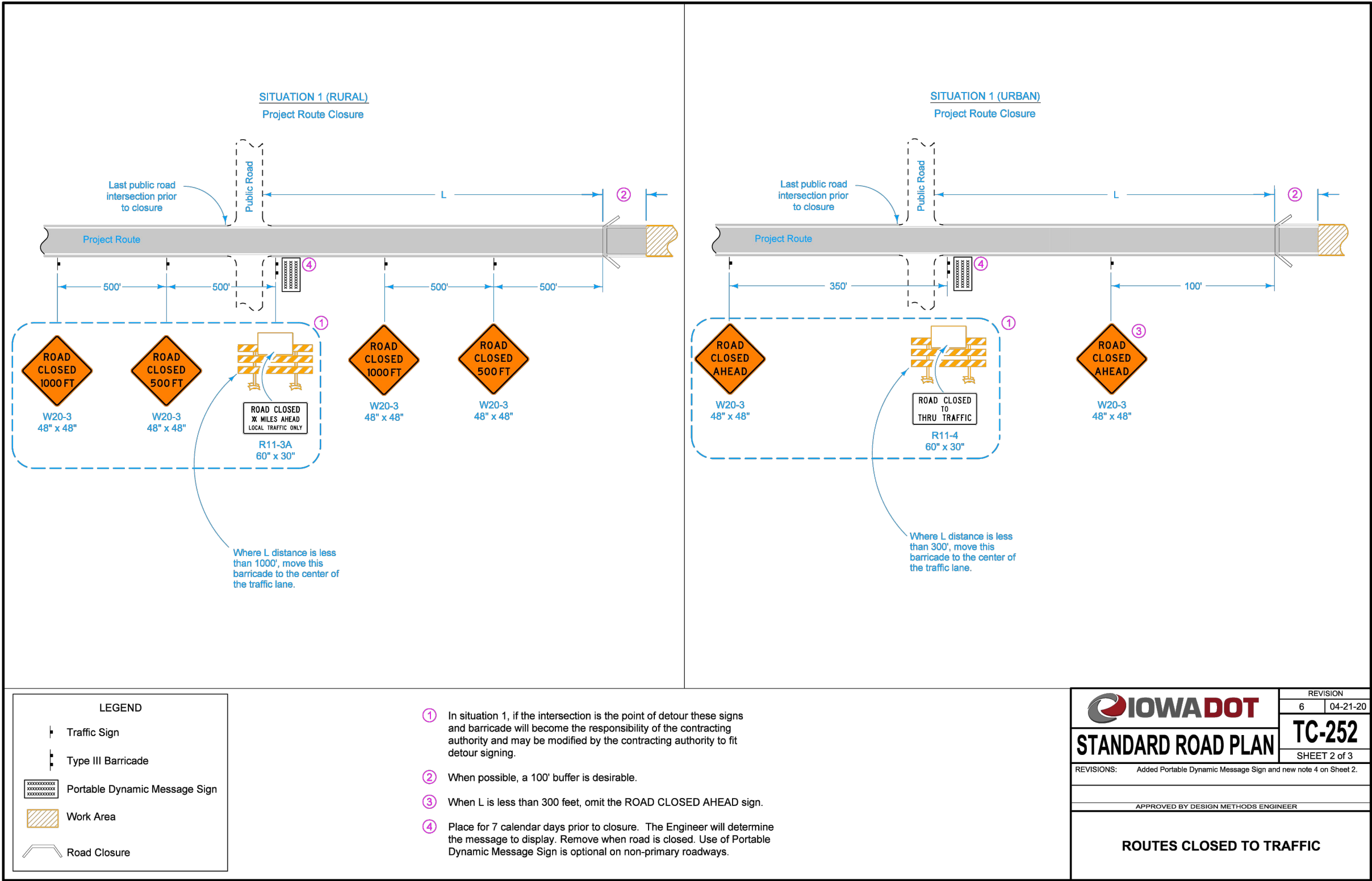
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TITLE

TRAFFIC CONTROL
NOTES

SHEET

J1-11



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. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR REQUIREMENTS, DIMENSIONS AND EXACT LOCATIONS OF FLOOR DRAINS, TRENCHES, DRAIN TILE, PUMPS AND EQUIPMENT INCLUDING ANCHORING SYSTEMS AND HOUSEKEEPING PADS. GENERAL CONTRACTOR TO COORDINATE ALL OF THESE ITEMS WITH ALL DISCIPLINES INVOLVED.
- H. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND MANUALS (LATEST ADOPTED EDITION):
1. STATE BUILDING CODE, WHEN APPLICABLE.
 2. INTERNATIONAL BUILDINGS 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 7-16)
- B. RISK CATEGORY: III
- C. WIND LOAD CRITERIA:
1. BASIC DESIGN WIND SPEED, V = 120 MPH (3 SECOND GUST)
 2. ALLOWABLE STRESS DESIGN WIND SPEED, V_{asd} = 93 MPH (3 SECOND GUST)
 3. WIND LOAD EXPOSURE: C
 4. INTERNAL PRESSURE COEFFICIENT: +/- 0.18 (ENCLOSED BUILDING)
 5. WIND TOPOGRAPHIC FACTOR: K_{zt} = 1.0
- D. SNOW LOAD CRITERIA:
1. GROUND SNOW LOAD, P_g = 30 PSF
 2. SNOW LOAD IMPORTANCE FACTOR, I_s = 1.0
 3. SLOPE FACTOR, C_s = 1.0
 4. THERMAL FACTOR, C_t = 1.0
 5. SNOW EXPOSURE FACTOR, C_e = 1.0
- E. EARTHQUAKE LOAD CRITERIA
1. SEISMIC IMPORTANCE FACTOR: I_e = 1.0
 2. MAPPED SPECTRAL RESPONSE ACCELERATIONS:
 - S_s = 0.1% g
 - S₁ = 3.7% g
 3. SOIL SITE CLASS: D
 4. SPECTRAL RESPONSE COEFFICIENT:
 - S_{DS} = 0.065
 - S_{DI} = 0.060
 5. SEISMIC DESIGN CATEGORY = A
- F. LIVE LOADS:
1. LIFT STATION COVER SLAB: 100 PSF
- G. DEAD LOADS
1. MECHANICAL: SEE PLAN
- H. RAIN LOAD DATA
1. RAIN INTENSITY: 4.12 IN/HR

SHOP DRAWINGS

- A. SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR APPROVAL, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER RESPONSIBLE FOR ITS PREPARATION, WHO IS REGISTERED IN THE STATE WHICH THE PROJECT IS LOCATED.
- B. PRIOR TO SUBMITTAL, THE CONTRACTOR SHALL REVIEW THE SHOP DRAWINGS AND MAKE ANY CORRECTIONS REQUIRED. THE CONTRACTOR SHALL STAMP AND SIGN THE SHOP DRAWINGS PRIOR TO SUBMITTAL TO THE ENGINEER.
- C. THE ENGINEER'S REVIEW OF SHOP DRAWINGS IS FOR GENERAL CONFORMANCE OF THE DESIGN CONCEPT. CONTRACTOR SHALL SUBMIT A SCHEDULE OF SHOP DRAWING SUBMITTALS THAT IS ACCEPTABLE TO BOTH CONTRACTOR AND ENGINEER. AFTER THE CONTRACTOR HAS REVIEWED THE SHOP DRAWINGS, PROMPT REVIEW BY THE ENGINEER WILL BE MADE OF ALL SUBMITTALS.
- D. FOR LARGE SUBMITTALS, REASONABLE REVIEW TIME SHALL BE ALLOWED AND MAY EXCEED TWO WEEKS. THE CONTRACTOR SHALL SUBMIT NECESSARY REQUEST FOR INFORMATION (RFIs) DURING THE DETAILING PROCESS TO AVOID SUBMITTALS THAT ARE INCOMPLETE OR NEED SIGNIFICANT VERIFICATIONS. THE CONCURRENT SUBMITTAL OF MULTIPLE SHOP DRAWINGS ("DUMPING") WILL FURTHER EXTEND THE REVIEW PROCESS AND TIME FRAME NECESSARY TO PROPERLY REVIEW EACH SUBMITTAL.
- E. UNLESS INDICATED OTHERWISE, THE GENERAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF THE FOLLOWING ITEMS FOR STRUCTURAL REVIEW. REFER TO SPECIFIC SECTION OF STRUCTURAL NOTES FOR ANY ADDITIONAL CRITERIA:
1. CONCRETE MIX DESIGNS
 2. ADDITIONAL STRUCTURAL SHOP DRAWINGS REQUESTED IN THE SPECIFICATIONS
 3. PRECAST SHOP DRAWINGS AND CALCULATIONS.
 - 4.
- F. A COPY OF ALL SHOP DRAWINGS SHALL BE MAINTAINED ON SITE AT ALL TIMES.
- G. SHOP DRAWINGS SHALL INCLUDE COMPLETE DETAIL SCHEDULES, PROCEDURES, AND DIAGRAMS FOR FABRICATION AND ASSEMBLY OF STRUCTURAL MEMBERS AND SUBMIT PRIOR TO FABRICATION.
- H. ERECTION PLANS ARE THE RESPONSIBILITY OF THE FABRICATOR.

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" TREADED ROD CONFORMING TO ISO 898-1 CLASS 5.8 OR SHALL BE MADE FROM ALL-TREADED ROD CONFORMING TO ASTM A572 GRADE 60, OR APPROVED ALTERNATE, UNLESS NOTED OTHERWISE.

FOOTINGS AND FOUNDATIONS

- A. SOIL BEARING DESIGN VALUE:
1. 2000 PSF AS PER GEOTECHNICAL REPORT FROM CERTIFIED TESTING SERVICES, INC., PROJECT NUMBER G7326.
 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.
- D. 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 | 6% ± 1.5% | 0.55 |
| EXTERIOR SLABS ON GRADE | 4500 PSI | 6% ± 1.5% | 0.45 |
- B. CEMENT SHALL CONFORM TO ASTM C150, TYPE I / II OR ASTM C595 TYPE IL.
- 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 OR VAPOR BARRIER 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.

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 (L _d) FOR STRAIGHT BARS (MIN. OF 12 INCHES) | | | | | |
| | TENSION CLASS A | | TENSION CLASS B | | COMPRESSION | HOOKED BARS, HOOK DEVELOPMENT LENGTH |
| | #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. L_d = 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	2" 1 1/2"
#6 TO #18 REBAR	
#5 AND SMALLER REBAR	3/4"
WALLS, STRUCTURAL SLABS NOT EXPOSED TO EARTH OR WEATHER	
#11 AND SMALLER REBAR	1 1/2"
COLUMNS AND PIERS (COVER TO STIRRUPS AND TIES)	

REINFORCING STEEL - CONTINUED

- 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.



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PROJECT

CITY OF STORM LAKE COLLEGE & 3RD LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUE FOR AGENCY REVIEW	ACC
08/19/24	ISSUED FOR BIDDING	ACC
02/07/25	AGENCY REVIEW AND BIDDING	ACC

PROJECT NO.	23-29447
FILE NAME	
DRAWN BY	ACC
DESIGNED BY	RK
REVIEWED BY	JMB
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	

TITLE

STRUCTURAL NOTES - ALT A

SHEET

S1-00A

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.

FABRICATED ITEMS (IBC 1704.2)

SPECIAL INSPECTION TYPE: FABRICATOR APPROVAL
SPECIAL INSPECTION IS NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM WORK WITHOUT SPECIAL INSPECTION PROVIDED THE FABRICATOR COMPLIES WITH IBC.

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. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16". INSPECT ALL OTHER WELDS.	PERIODIC PERIODIC 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. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE.	CONTINUOUS 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 75 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

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



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PROJECT

CITY OF STORM
LAKE

COLLEGE & 3RD
LIFT STATION

STORM LAKE IOWA

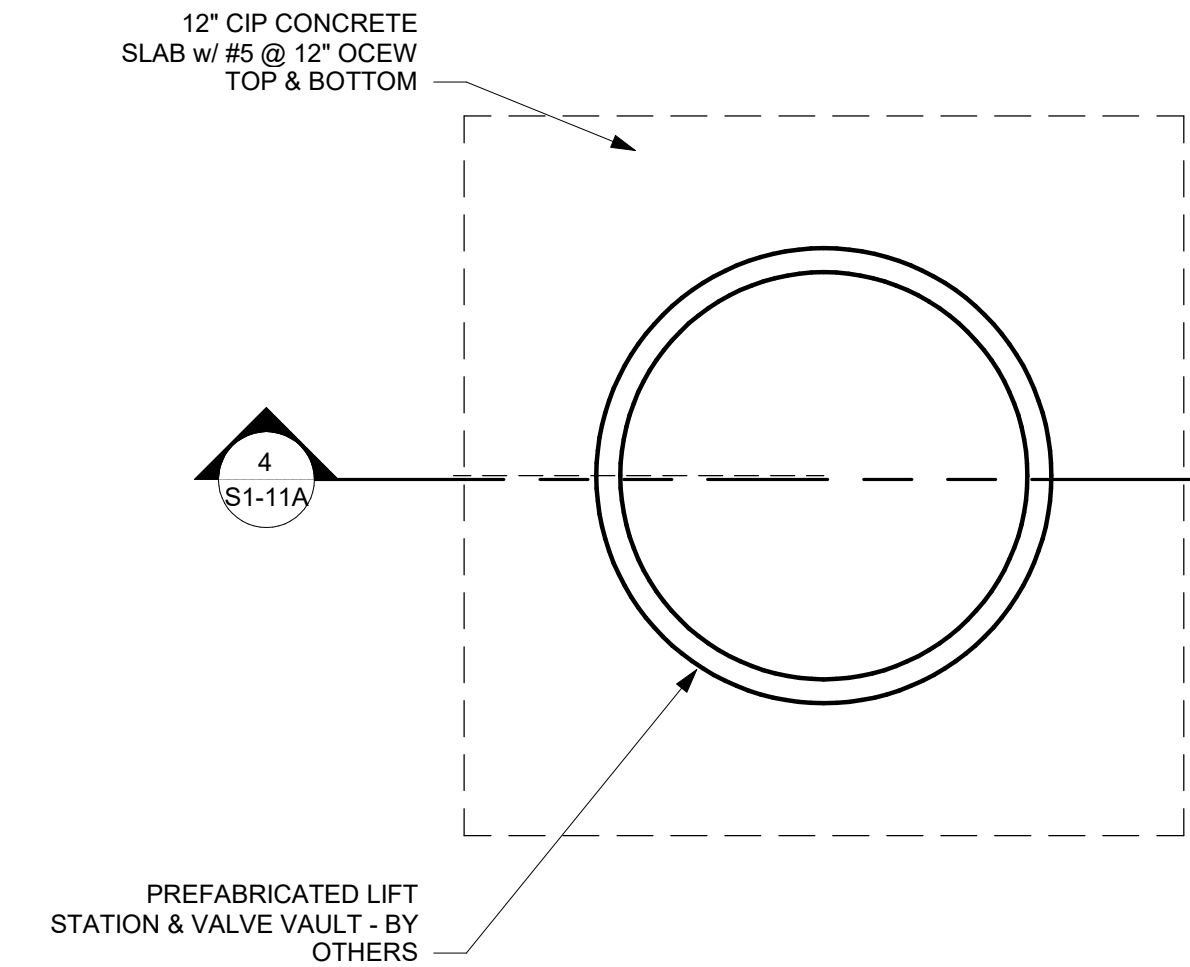
REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUE FOR AGENCY REVIEW	ACC
08/19/24	ISSUED FOR BIDDING	ACC
02/07/25	AGENCY REVIEW AND BIDDING	ACC

PROJECT NO.	23-29447
FILE NAME	
DRAWN BY	ACC
DESIGNED BY	RK
REVIEWED BY	JMB
ORIGINAL ISSUE DATE	06/03/2024
CLIENT PROJECT NO.	

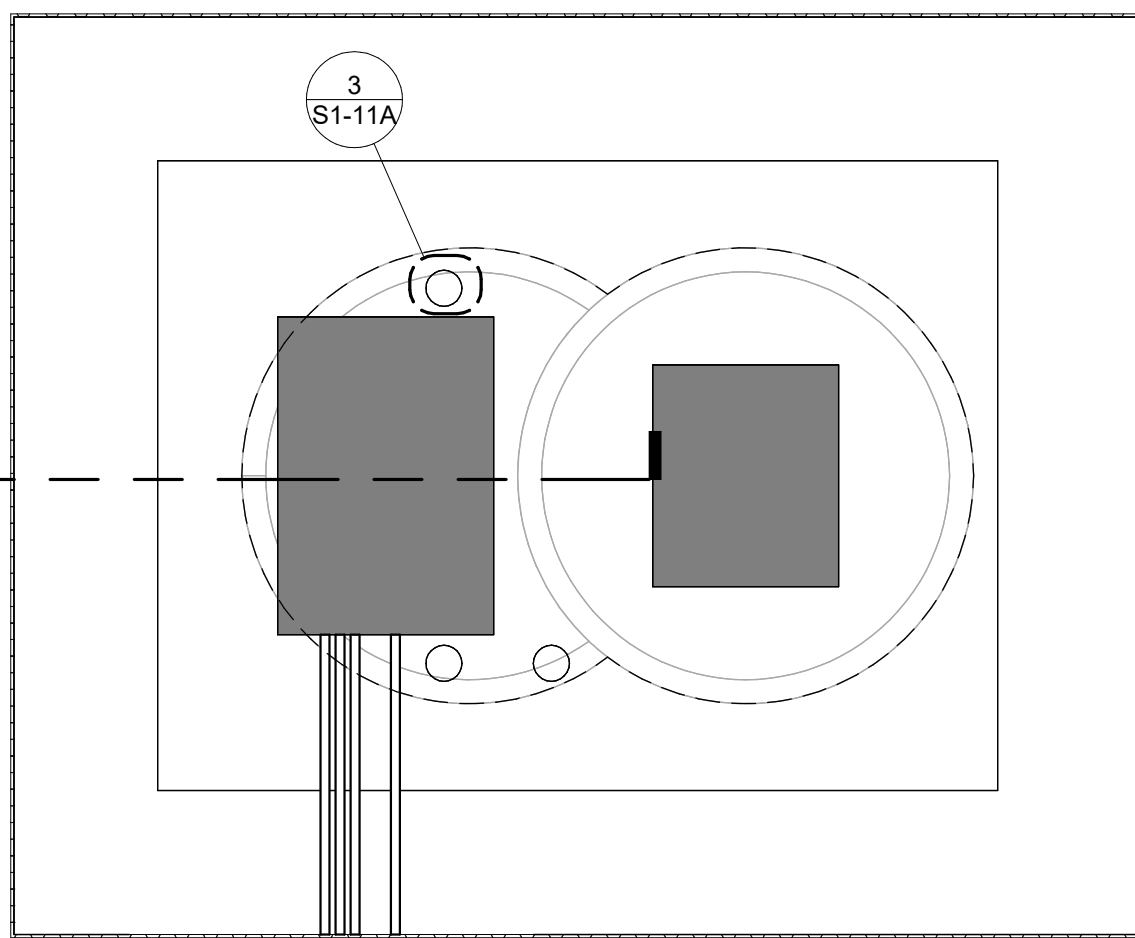
TITLE
**SPECIAL
INSPECTIONS
(PER IBC 2018) -
ALT A**

SHEET
S1-01A



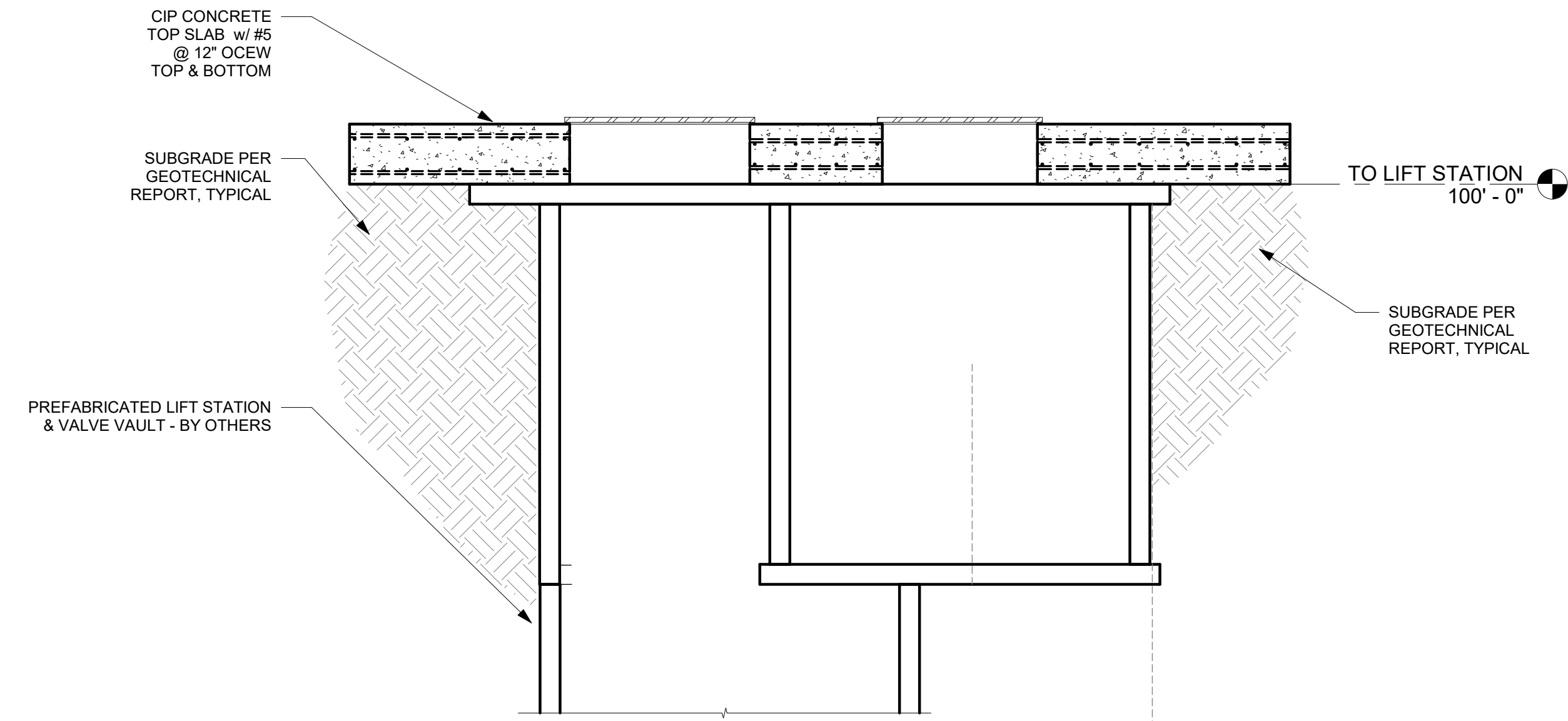


1 FOUNDATION PLAN
3/8" = 1'-0"

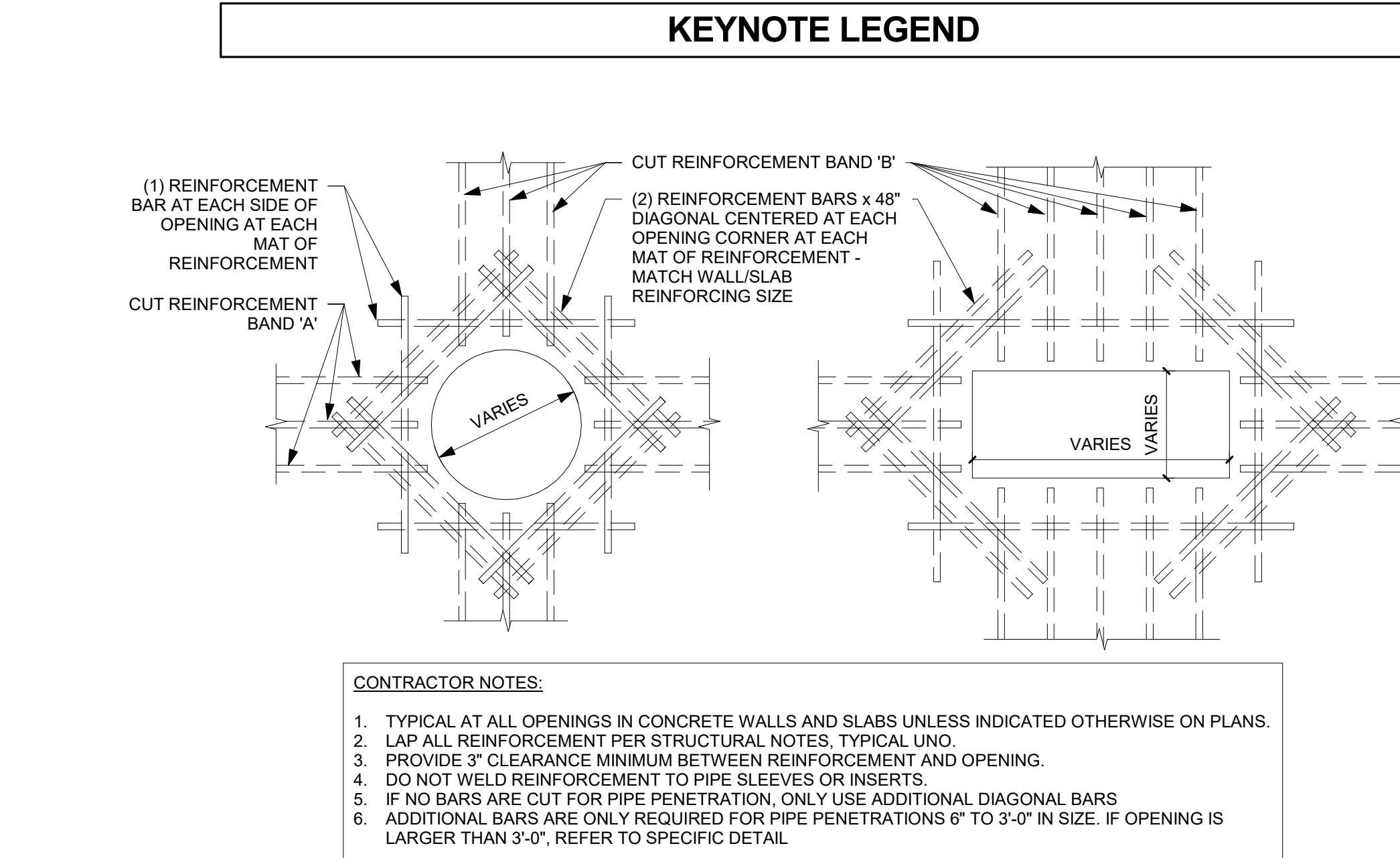
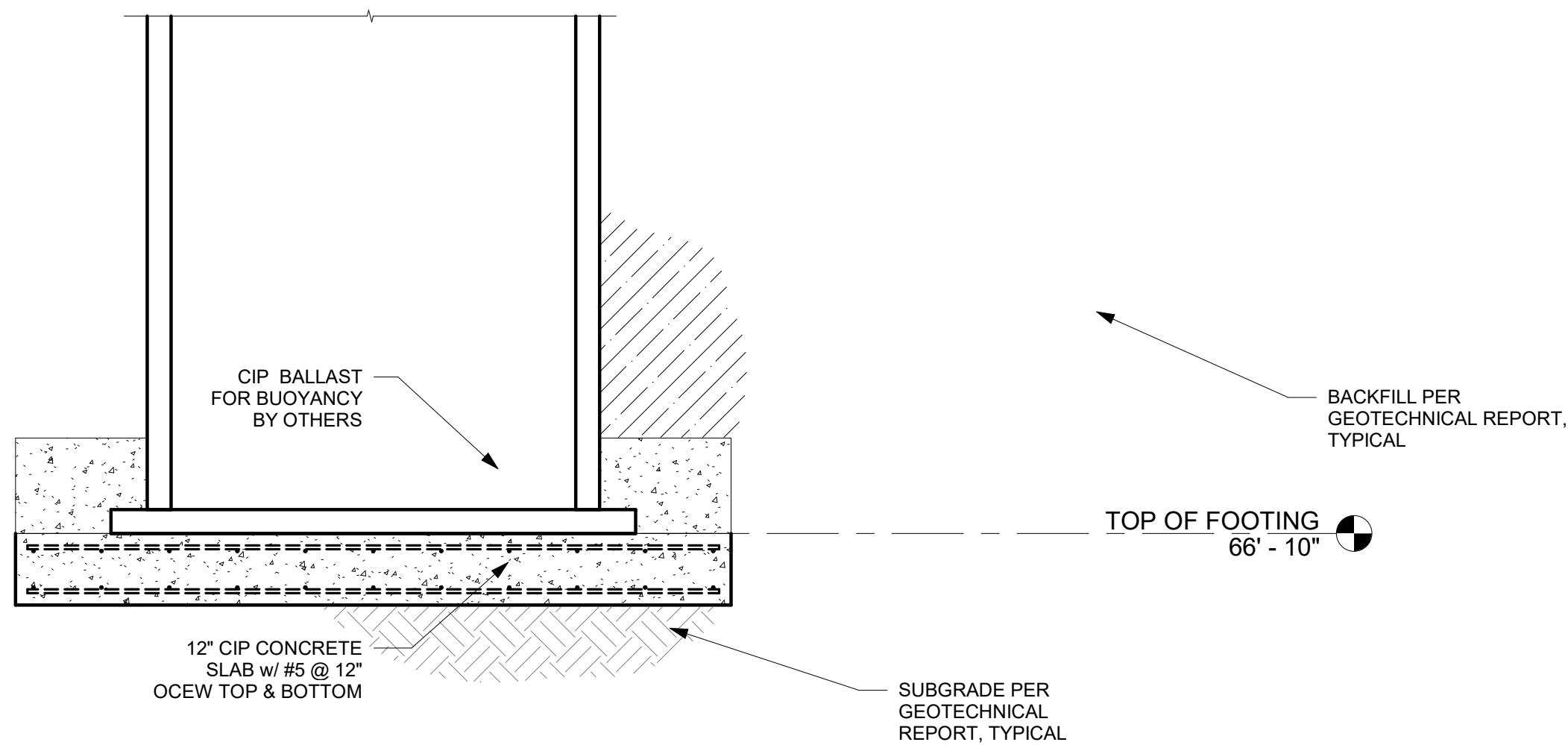


2 TOP SLAB PLAN
3/8" = 1'-0"

* VERIFY DIMENSIONS w/
LIFT STATION SUPPLIER

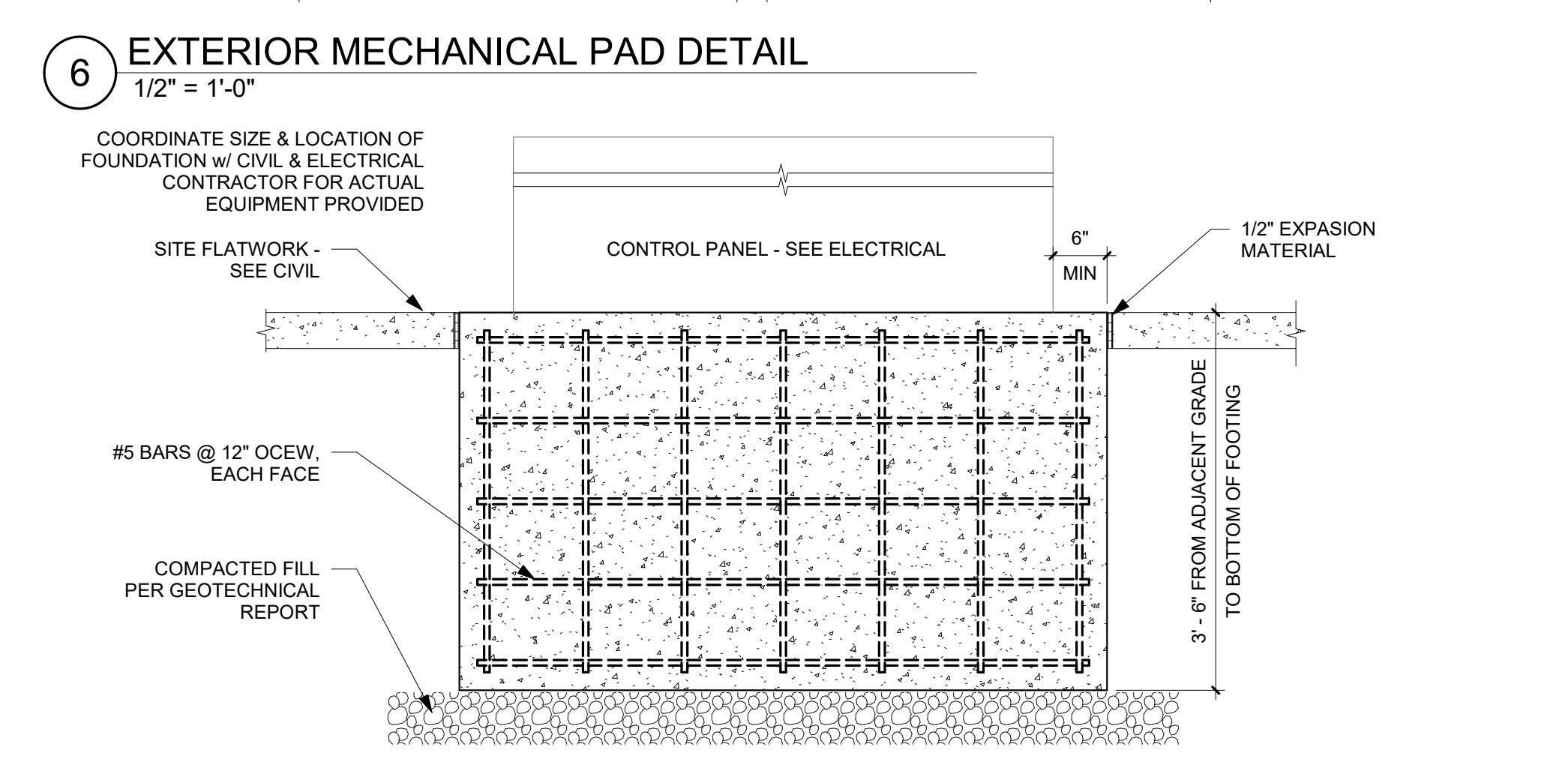
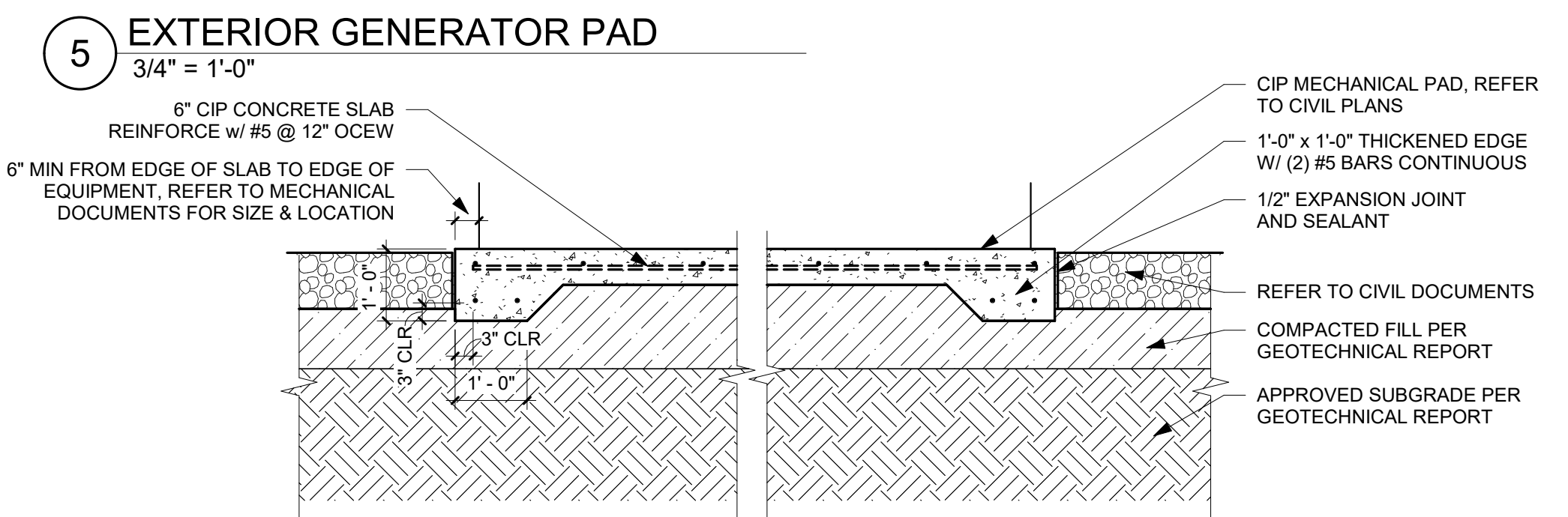
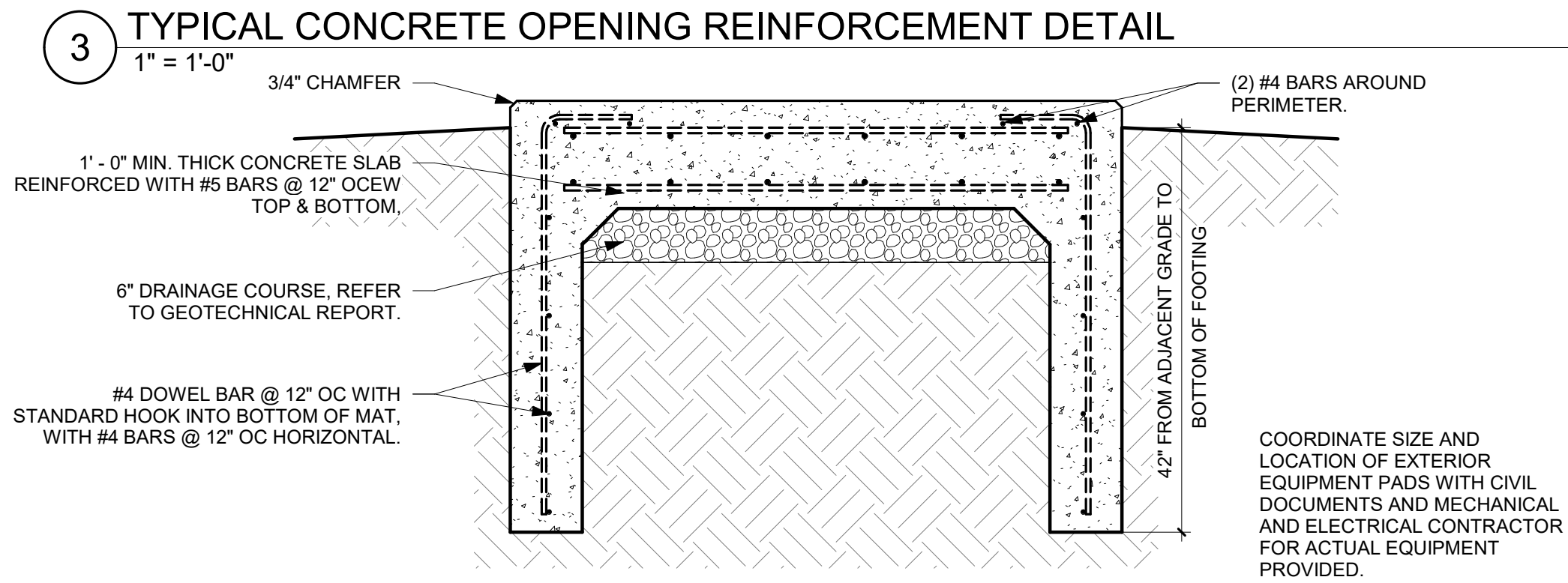


4 LIFT STATION SECTION - BASE BID
1/2" = 1'-0"



CONTRACTOR NOTES:

1. TYPICAL AT ALL OPENINGS IN CONCRETE WALLS AND SLABS UNLESS INDICATED OTHERWISE ON PLANS.
2. LAP ALL REINFORCEMENT PER STRUCTURAL NOTES, TYPICAL UNO.
3. PROVIDE 3" CLEARANCE MINIMUM BETWEEN REINFORCEMENT AND OPENING.
4. DO NOT WELD REINFORCEMENT TO PIPE SLEEVES OR INSERTS.
5. IF NO BARS ARE CUT FOR PIPE PENETRATION, ONLY USE ADDITIONAL DIAGONAL BARS.
6. ADDITIONAL BARS ARE ONLY REQUIRED FOR PIPE PENETRATIONS 6" TO 3'-0" IN SIZE. IF OPENING IS LARGER THAN 3'-0", REFER TO SPECIFIC DETAIL.



7 CONTROL PANEL FOUNDATION
3/4" = 1'-0"



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PROJECT

CITY OF STORM LAKE

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TITLE

PLANS, SECTIONS & DETAILS - ALT A

SHEET

S1-11A

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. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR REQUIREMENTS, DIMENSIONS AND EXACT LOCATIONS OF FLOOR DRAINS, TRENCHES, DRAIN TILE, PUMPS AND EQUIPMENT INCLUDING ANCHORING SYSTEMS AND HOUSEKEEPING PADS. GENERAL CONTRACTOR TO COORDINATE ALL OF THESE ITEMS WITH ALL DISCIPLINES INVOLVED.
- H. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND MANUALS (LATEST ADOPTED EDITION):
1. STATE BUILDING CODE, WHEN APPLICABLE.
 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 7-16)
- B. RISK CATEGORY: III
- C. WIND LOAD CRITERIA:
1. BASIC DESIGN WIND SPEED, V = 120 MPH (3 SECOND GUST)
 2. ALLOWABLE STRESS DESIGN WIND SPEED, V_{asd} = 93 MPH (3 SECOND GUST)
 3. WIND LOAD EXPOSURE: C
 4. INTERNAL PRESSURE COEFFICIENT: +/- 0.18 (ENCLOSED BUILDING)
 5. WIND TOPOGRAPHIC FACTOR: K_{zt} = 1.0
- D. SNOW LOAD CRITERIA:
1. GROUND SNOW LOAD, P_g = 30 PSF
 2. SNOW LOAD IMPORTANCE FACTOR, I_s = 1.0
 3. SLOPE FACTOR, C_s = 1.0
 4. THERMAL FACTOR, C_t = 1.0
 5. SNOW EXPOSURE FACTOR, C_e = 1.0
- E. EARTHQUAKE LOAD CRITERIA
1. SEISMIC IMPORTANCE FACTOR: I_e = 1.0
 2. MAPPED SPECTRAL RESPONSE ACCELERATIONS:
 - S_s = 0.1% g
 - S₁ = 3.7% g
 3. SOIL SITE CLASS: D
 4. SPECTRAL RESPONSE COEFFICIENT:
 - S_{DS} = 0.065
 - S_{DI} = 0.060
 5. SEISMIC DESIGN CATEGORY = A
- F. LIVE LOADS:
1. LIFT STATION COVER SLAB: 100 PSF
- G. DEAD LOADS
1. MECHANICAL: SEE PLAN
- H. RAIN LOAD DATA
1. RAIN INTENSITY: 4.12 IN/HR

SHOP DRAWINGS

- A. SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR APPROVAL, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER RESPONSIBLE FOR ITS PREPARATION, WHO IS REGISTERED IN THE STATE WHICH THE PROJECT IS LOCATED.
- B. PRIOR TO SUBMITTAL, THE CONTRACTOR SHALL REVIEW THE SHOP DRAWINGS AND MAKE ANY CORRECTIONS REQUIRED, THE CONTRACTOR SHALL STAMP AND SIGN THE SHOP DRAWINGS PRIOR TO SUBMITTAL TO THE ENGINEER.
- C. THE ENGINEER'S REVIEW OF SHOP DRAWINGS IS FOR GENERAL CONFORMANCE OF THE DESIGN CONCEPT. CONTRACTOR SHALL SUBMIT A SCHEDULE OF SHOP DRAWING SUBMITTALS THAT IS ACCEPTABLE TO BOTH CONTRACTOR AND ENGINEER. AFTER THE CONTRACTOR HAS REVIEWED THE SHOP DRAWINGS, PROMPT REVIEW BY THE ENGINEER WILL BE MADE OF ALL SUBMITTALS.
- D. FOR LARGE SUBMITTALS, REASONABLE REVIEW TIME SHALL BE ALLOWED AND MAY EXCEED TWO WEEKS. THE CONTRACTOR SHALL SUBMIT NECESSARY REQUEST FOR INFORMATION (RFIs) DURING THE DETAILING PROCESS TO AVOID SUBMITTALS THAT ARE INCOMPLETE OR NEED SIGNIFICANT VERIFICATIONS. THE CONCURRENT SUBMITTAL OF MULTIPLE SHOP DRAWINGS ("DUMPING") WILL FURTHER EXTEND THE REVIEW PROCESS AND TIME FRAME NECESSARY TO PROPERLY REVIEW EACH SUBMITTAL.
- E. UNLESS INDICATED OTHERWISE, THE GENERAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF THE FOLLOWING ITEMS FOR STRUCTURAL REVIEW. REFER TO SPECIFIC SECTION OF STRUCTURAL NOTES FOR ANY ADDITIONAL CRITERIA:
1. CONCRETE MIX DESIGNS
 2. ADDITIONAL STRUCTURAL SHOP DRAWINGS REQUESTED IN THE SPECIFICATIONS
 3. PRECAST SHOP DRAWINGS AND CALCULATIONS.
 - 4.
- F. A COPY OF ALL SHOP DRAWINGS SHALL BE MAINTAINED ON SITE AT ALL TIMES.
- G. SHOP DRAWINGS SHALL INCLUDE COMPLETE DETAIL SCHEDULES, PROCEDURES, AND DIAGRAMS FOR FABRICATION AND ASSEMBLY OF STRUCTURAL MEMBERS AND SUBMIT PRIOR TO FABRICATION.
- H. ERECTION PLANS ARE THE RESPONSIBILITY OF THE FABRICATOR.

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" TREADED ROD CONFORMING TO ISO 898-1 CLASS 5.8 OR SHALL BE MADE FROM ALL-TREADED ROD CONFORMING TO ASTM A572 GRADE 60, OR APPROVED ALTERNATE, UNLESS NOTED OTHERWISE.

FOOTINGS AND FOUNDATIONS

- A. SOIL BEARING DESIGN VALUE:
1. 2000 PSF AS PER GEOTECHNICAL REPORT FROM CERTIFIED TESTING SERVICES, INC., PROJECT NUMBER G7326
 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.
- D. 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 | 6% ± 1.5% | 0.55 |
| EXTERIOR SLABS ON GRADE | 4500 PSI | 6% ± 1.5% | 0.45 |
- B. CEMENT SHALL CONFORM TO ASTM C150, TYPE I / II OR ASTM C595 TYPE 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 OR VAPOR BARRIER 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.

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 (L _d) 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. L _d = 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	2"
#5 AND SMALLER REBAR	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"

REINFORCING STEEL - CONTINUED

- 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.

PRESTRESSED CONCRETE

- A. DESIGN PRECAST CONCRETE UNITS AND CONNECTIONS CAPABLE OF WITHSTANDING DESIGN LOAD CRITERIA, LOADS SHOWN ON PLANS AND ALL OTHER DEAD LOADS IN ACCORDANCE WITH PCI MNL 120, "PRECAST AND PRE-STRESSED CONCRETE" AND PCI MNL 123, "DESIGN AND TYPICAL DETAILS OF CONNECTIONS FOR PRECAST AND PRE-STRESSED CONCRETE."
- B. PRECAST CONCRETE TO BE MANUFACTURED BY A PCI CERTIFIED PLANT IN ACCORDANCE WITH PCI MNL 116, "MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF STRUCTURAL CONCRETE PRODUCTS," PCI MNL 117, "MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF ARCHITECTURAL PRECAST CONCRETE PRODUCTS," AND PCI MNL 135, "TOLERANCE MANUAL FOR PRECAST AND PRE-STRESSED CONCRETE CONSTRUCTION."
- C. PROVIDE NECESSARY CONNECTIONS TO RESTRAIN OR STABILIZE COMPONENTS. FOLLOW STRUCTURAL INTEGRITY REQUIREMENTS OF PCI MNL 120 AND ACI 318.
- D. ALL HEADERS AT OPENINGS IN PRECAST AND PRE-STRESSED CONCRETE SHALL BE FURNISHED BY SUPPLIER.
- E. PLACE OPENINGS NOT SHOWN ON PLANS BETWEEN WEBS IN PRECAST UNITS. VERIFY SIZE AND LOCATION WITH PRECAST SUPPLIER.
- F. SHOP DRAWINGS
1. INDICATE ALL PRECAST MEMBER DESIGNS AND THEIR DESIGN LOADS.
 2. SHOW THE ERECTION SEQUENCE, BRACING PLAN, ALL BEARING CONDITIONS AND ANCHORAGE DETAILS.
 3. LOCATE AND DETAIL CONNECTIONS INCLUDING THEIR LOOSE HARDWARE AND ANCHORAGE ITEMS. INDICATE ITEMS TO BE EMBEDDED IN OR ATTACHED TO OTHER CONSTRUCTION AND WHO THEY ARE FURNISHED BY.
- G. WELDING
1. ALL WELDING PROCEDURES AND PERSONNEL SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.1, "STRUCTURAL WELDING CODE – STEEL," AND AWS D1.4, "STRUCTURAL WELDING CODE – REINFORCING."
 2. ALL WELDERS SHALL BE CURRENTLY CERTIFIED AND REGISTERED BY LOCAL OFFICIALS AND/OR AWS, WITH THEIR CERTIFICATION AVAILABLE UPON REQUEST.
 3. WELDING PROCEDURES AND SEQUENCES SHALL BE PLANNED TO MINIMIZE SPALLING INDUCED BY STEEL EXPANSION OR WELD SHRINKAGE.
 4. ALL WELD FILLERS SHALL BE AWS E70XX, UNLESS NOTED OTHERWISE.
 5. ALL FIELD WELDS SHALL BE WIRE BRUSHED AND CLEANED, THEN TOUCHED UP PAINTED UNLESS PATCHED UNDER APPROPRIATE CONCRETE COVER PER ACI 318.
- H. PRECAST ERECTION
1. ERECTOR SHALL BE PCI CERTIFIED AND HAVE A MINIMUM OF 5 YEARS EXPERIENCE IN THE ERECTION OF PRECAST CONCRETE SIMILAR TO THE REQUIREMENTS OF THE PROJECT.
 2. ALL LIFTING, HANDLING, TRANSPORTATION AND DELIVERY, STORAGE AND SUPPORT, BRACING AND ERECTION OF PRECAST UNITS ARE TO BE PERFORMED BY QUALIFIED PERSONNEL USING METHODS AND EQUIPMENT APPROVED BY MANUFACTURER.
 3. ERECT PRECAST UNITS LEVEL, PLUMB, SQUARE, TRUE AND IN ALIGNMENT IN ACCORDANCE WITH PCI MNL 127, "STANDARDS AND GUIDELINES FOR THE ERECTION OF PRECAST CONCRETE PRODUCTS," AND THE ERECTION TOLERANCES OF PCI MNL 135.
 4. PRECAST AND PRE-STRESSED UNITS SHALL BE ESSENTIALLY PAST THE EFFECTS OF DEFORMATION DUE TO CREEP AND SHALL NOT HAVE CAMBER OVER 1/300 OF THE SPAN. PROVIDE FOR UNIFORM CAMBER OF UNITS IN ACCORDANCE WITH PCI MNL 135.
- I. MATERIALS
1. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5,000 PSI.
 2. CEMENT SHALL CONFORM TO ASTM C150, TYPE I OR III.
 3. ADMIXTURES SHALL CONFORM TO ASTM C260 AND ASTM C494.
 4. AGGREGATES SHALL CONFORM TO ASTM C330 AND ASTM C33, EXCEPT THAT COARSE AGGREGATES FOR PRECAST CONCRETE SURFACES EXPOSED TO DAMP CONDITIONS SHALL CONTAIN ZERO IRON OXIDES.
 5. READY MIX SHALL CONFORM TO ASTM C94.
 6. STRAND SHALL BE GRADE 250KSI OR 270KSI, UNCOATED, 7-WIRE, STRESS RELIEVED STRAND CONFORMING TO ASTM A416.
 7. STRUCTURAL STEEL SHALL CONFORM TO ASTM A36.
 8. SEE REINFORCING STEEL SECTION FOR REQUIREMENTS.
 9. GROUT SHALL BE AS INDICATED ON DRAWINGS:
 - a. "DRY PACK": GROUT SHALL BE TYPE I (ASTM C150) PORTLAND CEMENT, SAND AND WATER HAVING A MINIMUM OF 3,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS, AND A SAND CEMENT RATIO OF 3 TO 1.
 - b. "NON-SHRINK" DRY PACK SHALL CONFORM TO ASTM C1107, BE TYPE III (ASTM C150) PORTLAND CEMENT, SAND AND WATER HAVING A MINIMUM OF 10,000PSI COMPRESSIVE STRENGTH AT 28 DAYS.
 - c. TAMP DRY PACK GROUT BETWEEN BOTTOM OF PRECAST WALLS AND THEIR BEARING SURFACES FILLING THE ENTIRE AREA FREE OF VOIDS. RAKE JOINTS BACK AT LOCATIONS WHERE BACKER ROD AND SEALANT IS TO BE INSTALLED.



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PROJECT

CITY OF STORM LAKE COLLEGE & 3RD LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
02/07/25	AGENCY REVIEW AND BIDDING	ACC

PROJECT NO.	23-29447
FILE NAME	
DRAWN BY	ACC
DESIGNED BY	RK
REVIEWED BY	JMB
ORIGINAL ISSUE DATE	02/07/25
CLIENT PROJECT NO.	

TITLE

STRUCTURAL NOTES - ALT B

SHEET

S1-00B

- 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.

FABRICATED ITEMS (IBC 1704.2)

SPECIAL INSPECTION TYPE: FABRICATOR APPROVAL
SPECIAL INSPECTION IS NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM WORK WITHOUT SPECIAL INSPECTION PROVIDED THE FABRICATOR COMPLIES WITH IBC.

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. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16". INSPECT ALL OTHER WELDS.	PERIODIC PERIODIC 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. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE.	CONTINUOUS 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 75 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

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

PRECAST CONCRETE (IBC 1705.3)

SPECIAL INSPECTION TYPE	FREQUENCY
PLANT CERTIFICATION/QUALITY CONTROL PROCEDURES: REVIEW PLANT OPERATIONS AND QUALITY CONTROL PROCEDURES. PCI CERTIFICATION OF PRECAST PLANT REQUIRED	PLANT EXEMPT
INSPECT ERECTION OF PRECAST CONCRETE MEMBERS INCLUDING MEMBER CONFIGURATION, CONNECTIONS, WELDING, AND GROUTING.	PERIODIC



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PROJECT

**CITY OF STORM
LAKE

COLLEGE & 3RD
LIFT STATION**

STORM LAKE IOWA

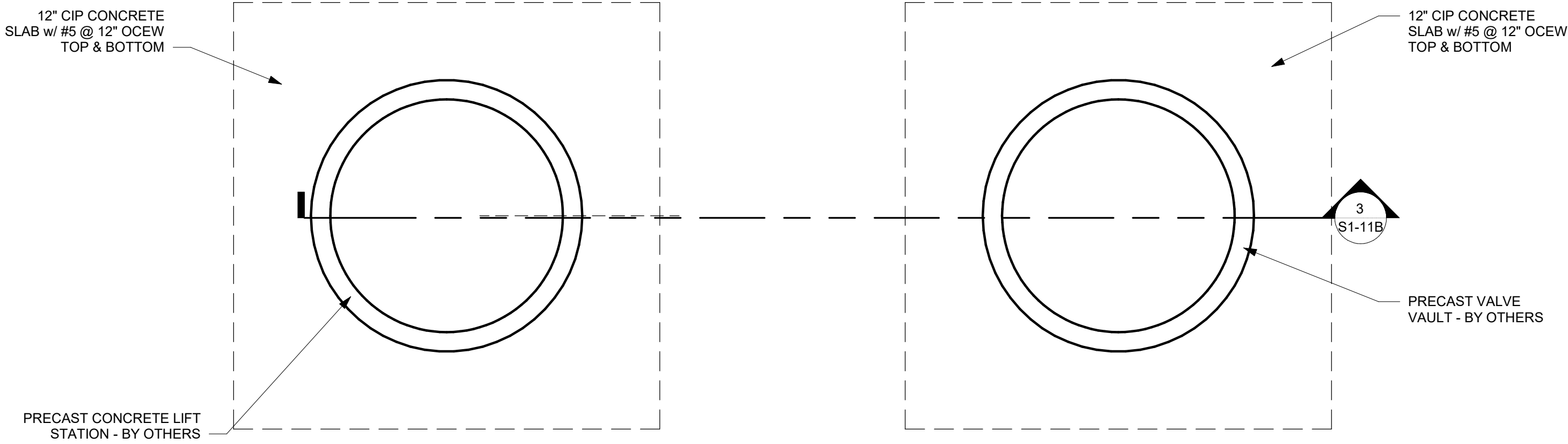
REVISION SCHEDULE		
DATE	DESCRIPTION	BY
02/07/25	AGENCY REVIEW & BIDDING	ACC

PROJECT NO.	23-29447
FILE NAME	
DRAWN BY	ACC
DESIGNED BY	RK
REVIEWED BY	JMB
ORIGINAL ISSUE DATE	02/07/25
CLIENT PROJECT NO.	

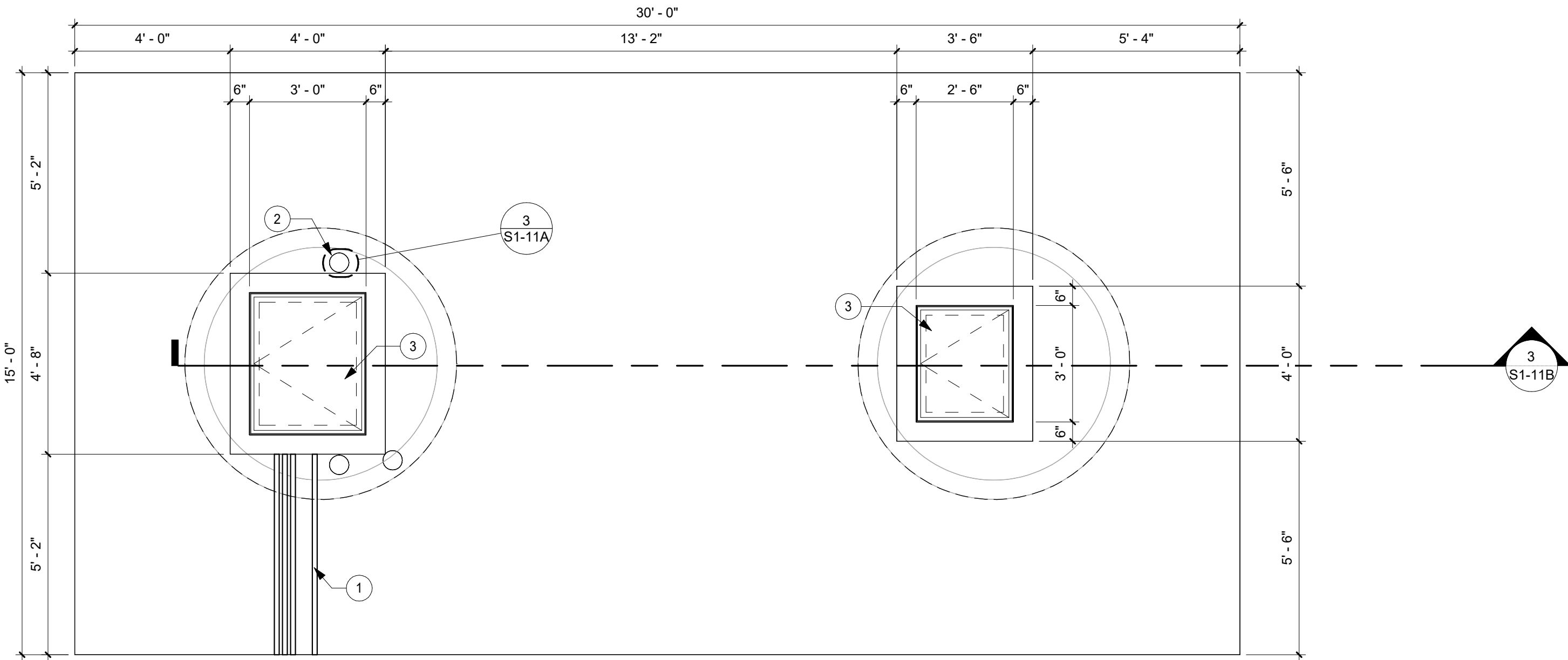
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**SPECIAL
INSPECTIONS
(PER IBC 2018) -
ALT B**

SHEET

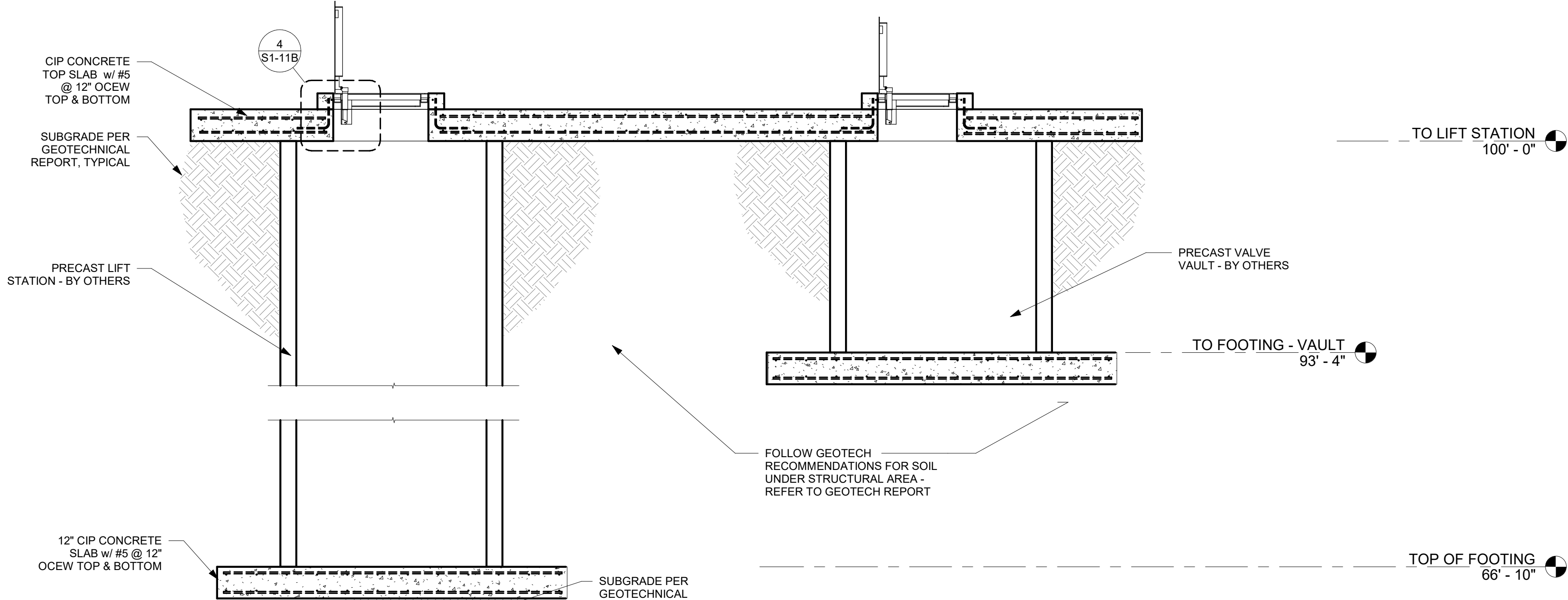
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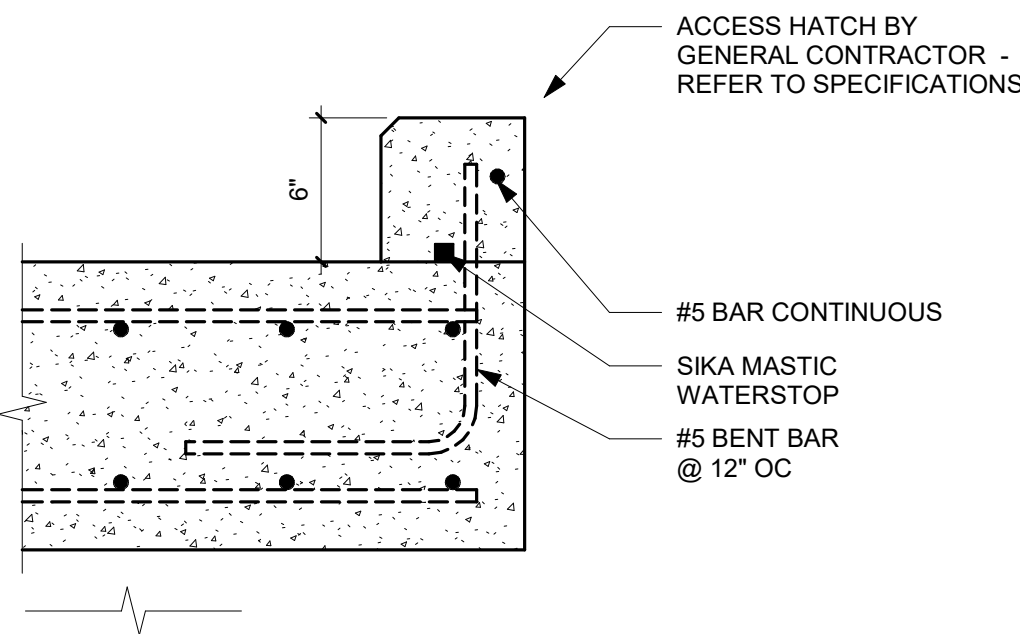
1 FOUNDATION PLAN
3/8" = 1'-0"



2 TOP SLAB PLAN
3/8" = 1'-0"



3 LIFT STATION SECTION - ALTERNATE
3/8" = 1'-0"



4 CURB @ HATCH
1 1/2" = 1'-0"

KEYNOTE LEGEND

1	COORDINATE WITH CIVIL AND ELECTRICAL TO LOCATE CONDUITS FOR ELECTRICAL IN THE TOP CAP SLAB. ENSURE CONDUITS ARE LOCATED BETWEEN THE TOP AND BOTTOM MAT OF REINFORCEMENT.
2	PIPE PENETRATION IN TOP SLAB. COORDINATE SIZE AND LOCATION WITH LIFT STATION SUPPLIER
3	ACCESS HATCH BY GENERAL CONTRACTOR - REFER TO SPECIFICATIONS



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PROJECT

CITY OF STORM
LAKE
COLLEGE & 3RD
LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
08/19/24	AGENCY REVIEW AND BIDDING	ACC

PROJECT NO. 23-29447

FILE NAME

DRAWN BY ACC

DESIGNED BY RK

REVIEWED BY JMB

ORIGINAL ISSUE DATE 02/07/25

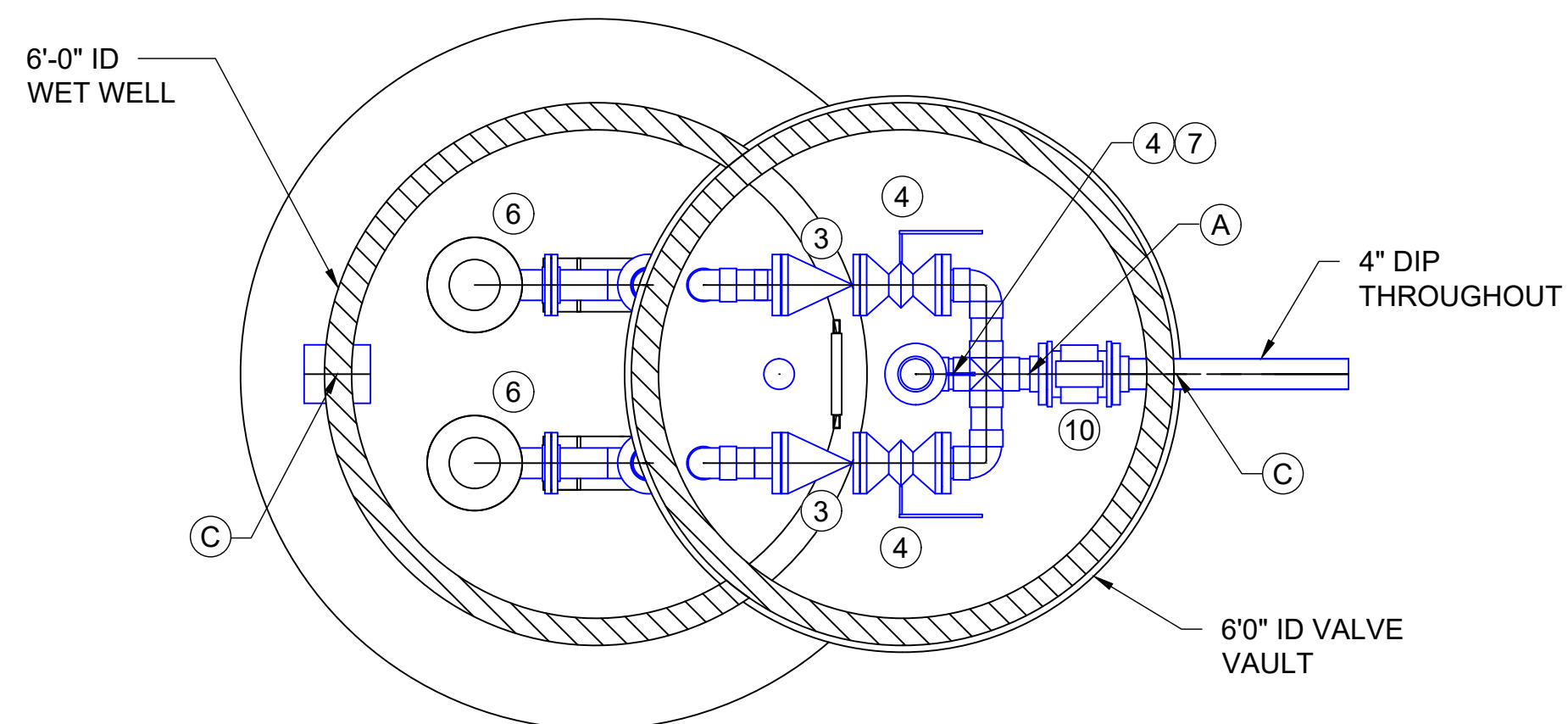
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TITLE

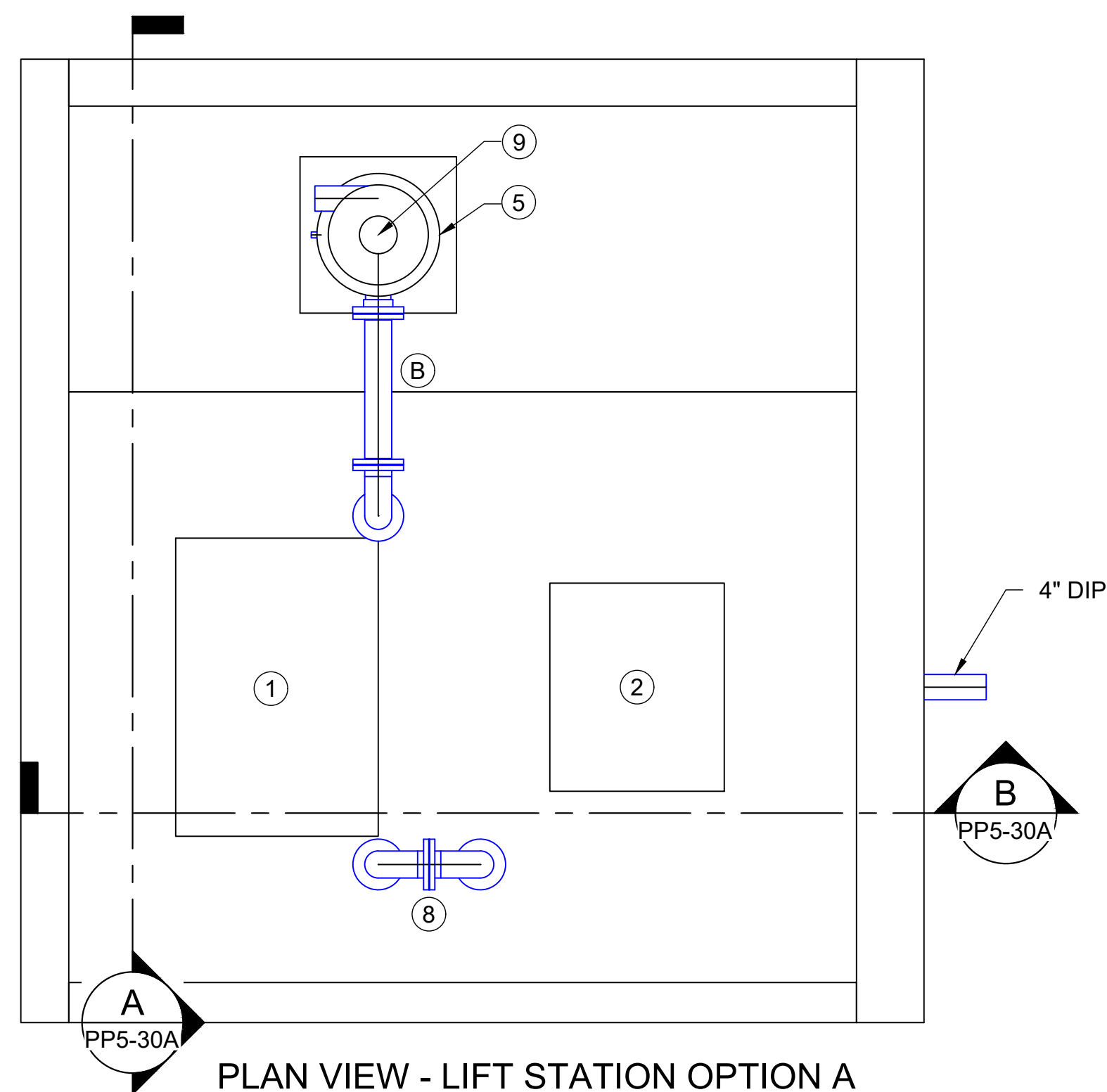
PLANS, SECTIONS
& DETAILS - ALT
B

SHEET

S1-11B



(A) PLAN VIEW - LIFT STATION OPTION A
SCALE: 1/2" = 1'-0"



PLAN VIEW - LIFT STATION OPTION A
SCALE: 1/2" = 1'-0"

KEYNOTE LEGEND	
1.	30" x 48" RATED HATCH WITH SAFETY GRATE
2.	24" x 30" RATED HATCH WITH SAFETY GART
3.	4" CHECK VALVE
4.	4" PLUG VALVE
5.	ODOR CONTROL DRUM SCRUBBER
6.	SUBMERSIBLE NON-CLOG PUMP (5HP, 208V, 3PH, 60HZ, 200GPM, 35' TDH)
7.	4" BYPASS W/ CAM LOCK
8.	4" VENT
9.	BLOWER MOTOR ASSEMBLY (1/3 HP, 115/230V, 1PH, 60HZ)
10.	4" MAGNETIC FLOWMETER

NOTES:

- A. AIR RELEASE VALVE WITH ISOLATION BALL VALVE LOCATED ON TEE. PVC DRAIN LINE IS TO BE ROUTED TO VALVE VALVE DRAIN LOCATION.
- B. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO INSTALLING EQUIPMENT. FINAL ROUTING AND ALIGNMENT OF PIPING FROM WET WELL TO THE ODOR CONTROL EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR
- C. WET WELL MANUFACTURER TO PROVIDE CONNECTIONS. INLET PIPE AND OUTLET PIPE OPENING SHALL BE FITTED WITH WATER TIGHT SEAL TO PREVENT INFILTRATION. MATERIAL SHALL BE RESISTANT TO HYDROGEN SULFIDE.

NOTE:
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PROJECT

**CITY OF STORM
LAKE**

COLLEGE & 3RD LIFT STATION

STORM LAKE IOWA

[illegible]

PROJECT NO.	23-29447
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FILE NAME	29447-PP5-10A
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DRAWN BY TAK

DESIGNED BY	GMR
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REVIEWED BY LAL

ORIGINAL ISSUE DATE 06/03/24

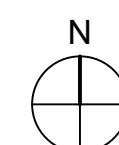
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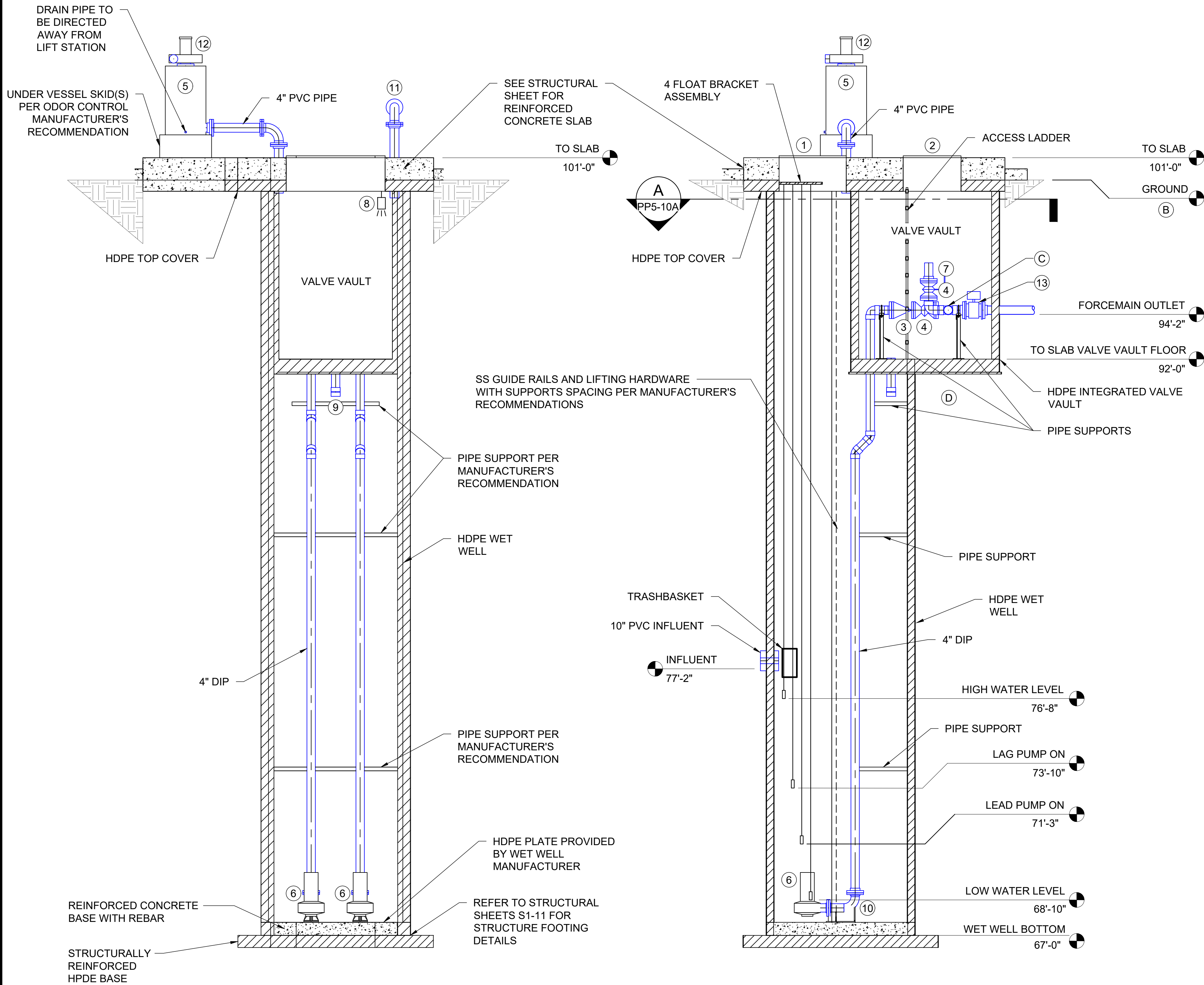
PLAN VIEWS - LIFT STATION - ALT A

SHEET

PP5-10A



S:\PROJECTS\29000 PROJ\29400-29499\29447 STORM LAKE COLLEGE 3RD LIFT ST-STORM LAKE COLLEGE 3RD LIFT ST-STORM LAKE COLLEGE & 3RD LIFT STATION\ORTHOS\DWGS\29447-PP5-30A.DWG



A SECTION VIEW - LIFT STATION OPTION A
SCALE: 3/8" = 1'-0"

B SECTION VIEW - LIFT STATION OPTION A
SCALE: 3/8" = 1'-0"

KEYNOTE LEGEND

1.	30" x 48" RATED HATCH WITH SAFETY GRATE
2.	24" x 30" RATED HATCH WITH SAFETY GRATE
3.	4" CHECK VALVE
4.	4" PLUG VALVE
5.	ODOR CONTROL DRUM SCRUBBER
6.	SUBMERSIBLE NON-CLOG PUMP (5HP, 208V, 3PH, 60HZ, 200 GPM, 35 TDH)
7.	4" BYPASS W/CAM LOCK
8.	RADAR LEVEL CONTROL
9.	DRAIN WITH DUCK BILL VALVE
10.	BREAK AWAY FITTING
11.	4" VENT
12.	BLOWER MOTOR ASSEMBLY (1/3 HP, 115/230V, 1PH, 60HZ)
13.	4" MAGNETIC FLOWMETER

ELEVATION REFERENCE

LEVEL NAME	PLAN ELEVATION	SURVEY ELEVATION
WET WELL T.O. SLAB	101'-0"	1423.67
TOP OF LIFT STATION LID	101'-0"	1423.67
FORCEMAIN EXIT	94'-2"	1416.84
INFLUENT INVERT	77'-2"	1399.86
HIGH WATER LEVEL	76'-8"	1399.36
LAG PUMP ON	73'-10"	1396.47
LEAD PUMP ON	71'-3"	1393.97
LEAD PUMP OFF	69'-3"	1391.97
LOW WATER LEVEL	68'-10"	1391.47
WET WELL BOTTOM	67'-0"	1389.67

NOTES:

- LIFT STATION T.O. SLAB ELEVATION IS 0.5' HIGHER THAN SURROUNDING PAVEMENT, REFER TO CIVIL SHEETS.
- THE GROUND ON SITE VARIES BY LOCATION. THE GROUND ELEVATION AT THE LIFT STATION USED FOR REFERENCE WAS 1422.67. REFER TO CIVIL SHEETS.
- AIR RELEASE VALVE WITH ISOLATION BALL VALVE LOCATED ON TEE. PVC DRAIN LINE IS TO BE ROUTED TO VALVE VAULT DRAIN LOCATION.
- REFER TO STRUCTURAL SHEETS S1-00A AND S1-00B FOR SUBBASE REQUIREMENTS.



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PROJECT

CITY OF STORM LAKE

COLLEGE & 3RD LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUED FOR AGENCY REVIEW	TAK
08/19/24	ISSUED FOR BIDDING	TAK
02/07/25	AGENCY REVIEW AND BIDDING	TAK

PROJECT NO.	23-29447
FILE NAME	29447-PP5-30A
DRAWN BY	TAK
DESIGNED BY	GMR
REVIEWED BY	LAL
ORIGINAL ISSUE DATE	06/03/24
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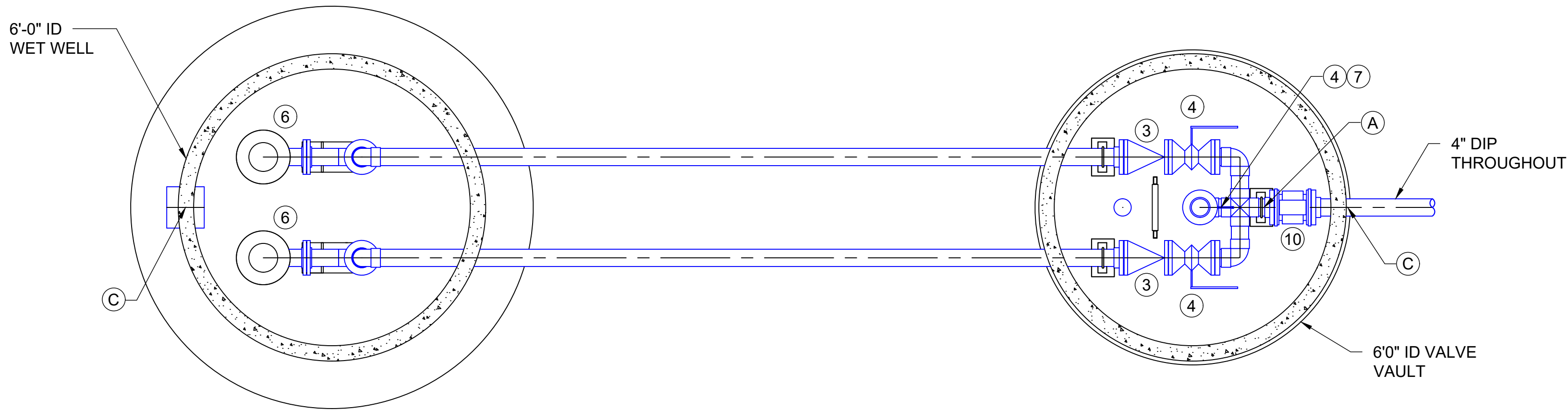
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SECTION VIEWS - LIFT STATION - ALT A

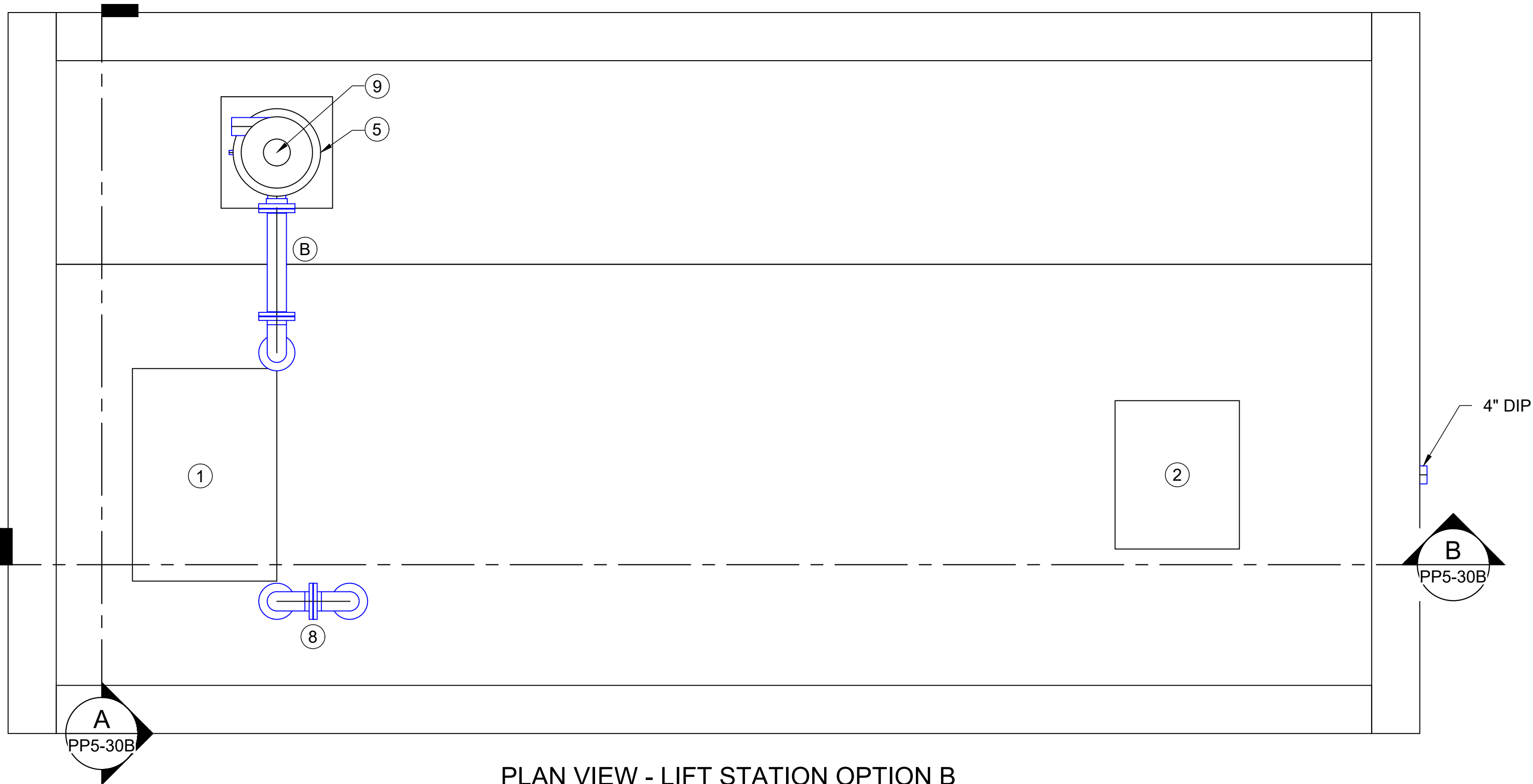
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PP5-30A

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A PLAN VIEW - LIFT STATION OPTION B
SCALE: 1/2" = 1'-0"



PLAN VIEW - LIFT STATION OPTION B
SCALE: 1/2" = 1'-0"

KEYNOTE LEGEND

- | | |
|-----|---|
| 1. | 30" x 48" RATED HATCH WITH SAFETY GRATE |
| 2. | 24" x 30" RATED HATCH WITH SAFETY GARTE |
| 3. | 4" CHECK VALVE |
| 4. | 4" PLUG VALVE |
| 5. | ODOR CONTROL DRUM SCRUBBER |
| 6. | SUBMERSIBLE NON-CLOG PUMP (5HP, 208V, 3PH, 60HZ, 200GPM, 35' TDH) |
| 7. | 4" BYPASS W/ CAM LOCK |
| 8. | 4" VENT |
| 9. | BLOWER MOTOR ASSEMBLY (1/3 HP, 115/230V, 1PH, 60HZ) |
| 10. | 4" MAGNETIC FLOWMETER |

NOTES:

- A. AIR RELEASE VALVE WITH ISOLATION BALL VALVE LOCATED ON TEE. PVC DRAIN LINE IS TO BE ROUTED TO VALVE VAULT DRAIN LOCATION.
- B. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO INSTALLING EQUIPMENT. FINAL ROUTING AND ALIGNMENT OF PIPING FROM WET WELL TO THE ODOR CONTROL EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FINAL DISTANCE BETWEEN STRUCTURES MAY VARY DEPENDING ON THE PRODUCT SELECTION AND ITS REQUIREMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING WET WELL AND VALVE VAULT FIT WITHIN THE BOUNDARIES OF THE SITE. ESTIMATED DISTANCE IS 12 FEET.
- C. WET WELL MANUFACTURER TO PROVIDE CONNECTIONS. INLET PIPE AND OUTLET PIPE OPENING SHALL BE FITTED WITH WATER TIGHT SEAL TO PREVENT INFILTRATION. MATERIAL SHALL BE RESISTANT TO HYDROGEN SULFIDE.



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PROJECT

**CITY OF STORM
LAKE**

**COLLEGE & 3RD
LIFT STATION**

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
02/07/25	AGENCY REVIEW AND BIDDING	TAK

PROJECT NO. 23-29447

FILE NAME 29447-PP5-10B

DRAWN BY TAK

DESIGNED BY GMR

REVIEWED BY LAL

ORIGINAL ISSUE DATE 02/07/25

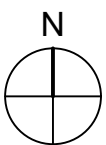
CLIENT PROJECT NO. ----

TITLE

**PLAN VIEWS -
LIFT STATION
-ALT B**

SHEET

PP5-10B





NOTES:

- A. LIFT STATION T.O. SLAB ELEVATION IS 0.5' HIGHER THAN SURROUNDING PAVEMENT, REFER TO CIVIL SHEETS
- B. THE GROUND ON SITE VARIES BY LOCATION, THE GROUND ELEVATION AT THE LIFT STATION USED FOR REFERENCE WAS 1422.67'. REFER TO CIVIL SHEETS.
- C. AIR RELEASE VALVE WITH ISOLATION BALL VALVE LOCATED ON TEE. PVC DRAIN LINE IS TO BE ROUTED TO VALVE VAULT DRAIN LOCATION.
- D. REFER TO STRUCTURAL SHEETS S1-00B AND S1-11B FOR SUBBASE REQUIREMENTS.

Page 510 of 564



1. ALL PROPOSED UNDERGROUND ELECTRIC LINES SHOWN ARE DIAGRAMMATIC. CONTRACTOR RESPONSIBLE FOR DETERMINING BEST ROUTE.
2. CONTRACTORS CHOICE TO UTILIZE DIRECTIONAL BORING OR TRENCHING FOR UNDERGROUND UTILITIES SHOWN UNLESS NOTED OTHERWISE. WHERE TRENCHING IS UTILIZED AND CROSSING CONCRETE, CONCRETE AREA SHALL BE SAW CUT AND REMOVED. NEW CONCRETE SHALL BE INSTALLED MATCHING EXISTING.
3. REBNORD TECHNOLOGIES SHALL BE UTILIZED TO PROVIDE ALL NETWORK MEDIA AND NETWORK EQUIPMENT REQUIRED TO EXTEND EXISTING OWNER FIBER OPTIC NETWORK TO LIFT STATION #3. ALL COSTS ASSOCIATED WITH FIBER AND MEDIA PURCHASE AND INSTALLATION FROM REBNORD TECHNOLOGIES SHALL BE INCLUDED IN CONTRACTORS BID. REBNORD TECHNOLOGIES CONTACT: TIM REBNORD OR JASON KNAPTON 210 SALE BARN ROAD, STORM LAKE, IA 50588, 712-732-6449.

1	EXISTING UTILITY POLE WITH UTILITY PROVIDED TRANSFORMER.
2	F&I UNDERGROUND ELECTRICAL FROM UTILITY POLE TO MSD. REFER TO ONE LINE DIAGRAM.
5	F&I UNDERGROUND JUNCTION BOX (UGJB) FOR FIBER OPTIC CABLE. APPROXIMATE LOCATION SHOWN. COORDINATE EXACT LOCATION AND HAND HOLE SPECIFICATIONS AS REQUIRED BY REBNORD TECHNOLOGIES.
6	PROPOSED UNDERGROUND FIBER OPTIC FROM UGJB TO COMM-1. REFER TO CONTROL NETWORK RISER DIAGRAM DETAIL. CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL HAND HOLE REPAIRS DURING INSTALLATION. ROUTE UNDERGROUND WITHIN EASEMENTS.
7	SPLICE EXISTING OWNER FIBER OPTIC CABLES AT UGJB TO SERVE COMM-1. UTILIZE REBNORD TECHNOLOGIES.
12	F&I FIBER TO COPPER COMMUNICATIONS ENCLOSURE FOR CONNECTION TO OWNERS PRIVATE NETWORK. COMM-1 SHALL BE PROVIDED BY REBNORD TECHNOLOGIES. CONTRACTOR SHALL INCLUDE ALL COSTS FROM REBNORD TECHNOLOGIES IN BID.



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CITY OF STORM LAKE

COLLEGE & 3RD LIFT STATION

REVISION SCHEDULE

[illegible]

FILE NAME	29447 Elec R24
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DRAWN BY BJM

DESIGNED BY	BJM
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REVIEWED BY	CRI
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ORIGINAL ISSUE DATE 06/03/24

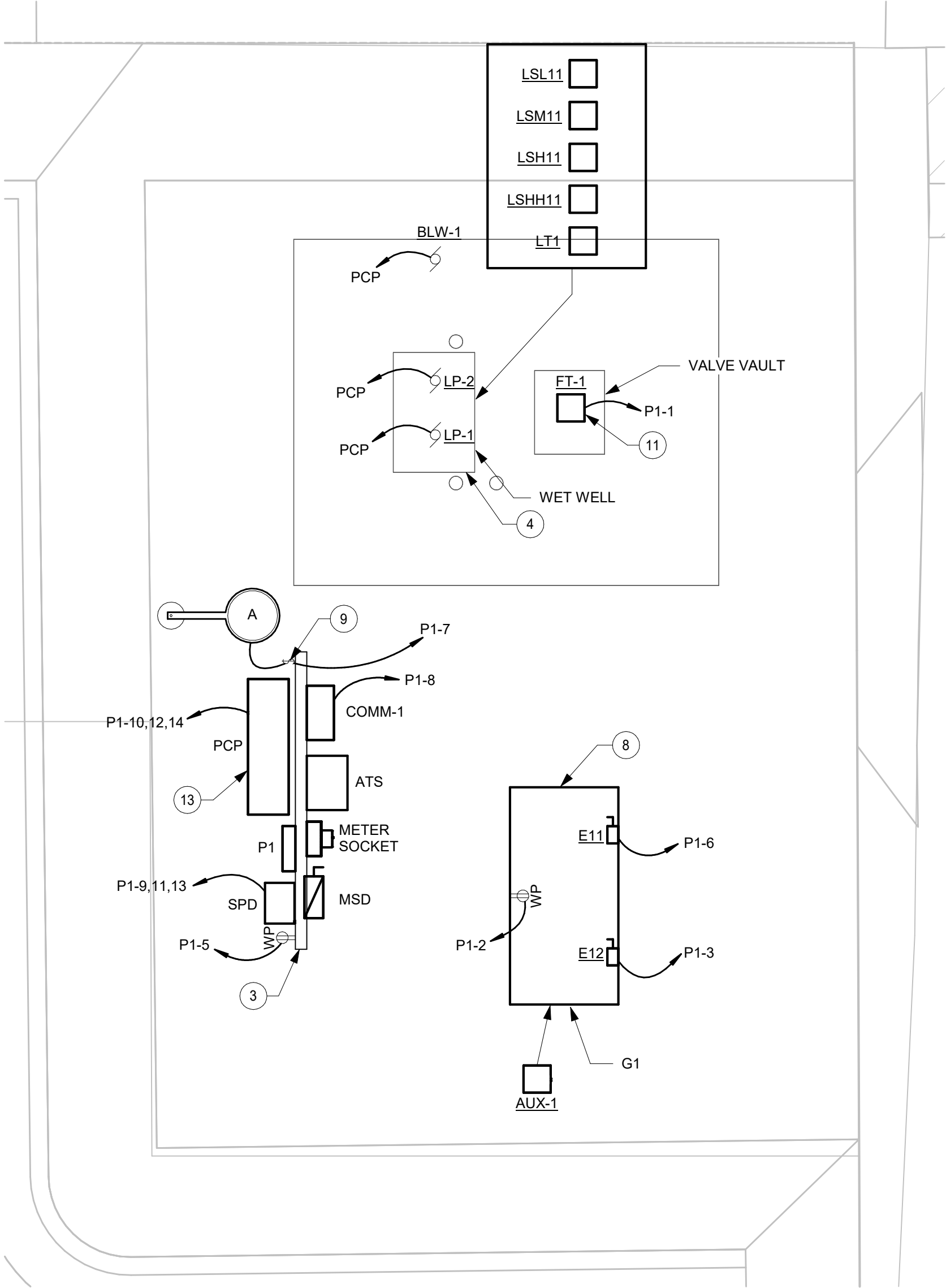
CLIENT PROJECT NO.

TITLE

OVERALL ELECTRICAL SITE PLAN

SHEET

E2-11



1 ENLARGED ELECTRICAL SITE PLAN - ALT A
1/4" = 1'-0"

SHEET NOTES

1. ALL PROPOSED UNDERGROUND ELECTRIC LINES SHOWN ARE DIAGRAMATICAL. CONTRACTOR RESPONSIBLE FOR DETERMINING BEST ROUTE.
2. CONTRACTORS CHOICE TO UTILIZE DIRECTIONAL BORING OR TRENCHING FOR UNDERGROUND UTILITIES SHOWN UNLESS NOTED OTHERWISE. WHERE TRENCHING IS UTILIZED AND CROSSING CONCRETE; CONCRETE AREA SHALL BE SAW CUT AND REMOVED. NEW CONCRETE SHALL BE INSTALLED MATCHING EXISTING.
3. REBNORD TECHNOLOGIES SHALL BE UTILIZED TO PROVIDE ALL NETWORK MEDIA AND NETWORK EQUIPMENT REQUIRED TO EXTEND EXISTING OWNER FIBER OPTIC NETWORK TO LIFT STATION #3. ALL COSTS ASSOCIATED WITH FIBER OPTIC MATERIALS AND INSTALLATION FROM REBNORD TECHNOLOGIES SHALL BE INCLUDED IN CONTRACTORS BID. REBNORD TECHNOLOGIES CONTACT: TIM REBNORD OR JASON KNAPTON 210 SALE BARN ROAD, STORM LAKE, IA 50588, 712-732-6449.

ELECTRICAL KEYNOTE LEGEND

3	F&I FREE STANDING EQUIPMENT STAND. REFER TO DETAIL. COORDINATE EXACT LOCATION WITH GENERAL CONTRACTOR AND ADJUST LOCATION AS REQUIRED.
4	F&I (2) 2" CONDUITS FROM WET WELL TO PUMP CONTROL PANEL (PCP) TO SERVE WELL PUMPS LP-1 AND LP-2. STUB CONDUITS UNDERNEATH PCP. REFER TO DETAIL. REFER TO WET WELL FREE STANDING ENCLOSURE FOR CONDUIT TERMINATIONS TO PCP.
8	F&I 1" CONDUIT TO ATS FOR START/STOP SIGNAL. PROVIDE CONDUCTORS AND WIRE AS RECOMMENDED BY MANUFACTURER.
9	F&I NEMA 4X SWITCH FOR SITE LIGHT.
11	F&I FLOW METER WITH REMOTE TRANSMITTER. INSTALL 120 VOLT POWER CIRCUIT FROM PCP. GROUND FLOW TUBE PER MANUFACTURERS INSTRUCTIONS. PROVIDE NEMA 4X ENCLOSURE FOR REMOTE TRANSMITTER.
13	INSTALL FREE STANDING PUMP CONTROL PANEL ON CONCRETE EQUIPMENT PAD, REFER TO ELECTRICAL AND STRUCTURAL DETAILS.



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PROJECT

**CITY OF STORM
LAKE**

**COLLEGE & 3RD
LIFT STATION**

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUE FOR AGENCY REVIEW	BJM
08/19/24	ISSUED FOR BIDDING	CRI
02/07/25	AGENCY REVIEW AND BIDDING	BJM

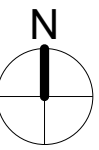
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FILE NAME	29447 Elec R24
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REVIEWED BY	CRI
ORIGINAL ISSUE DATE	06/03/24
CLIENT PROJECT NO.	

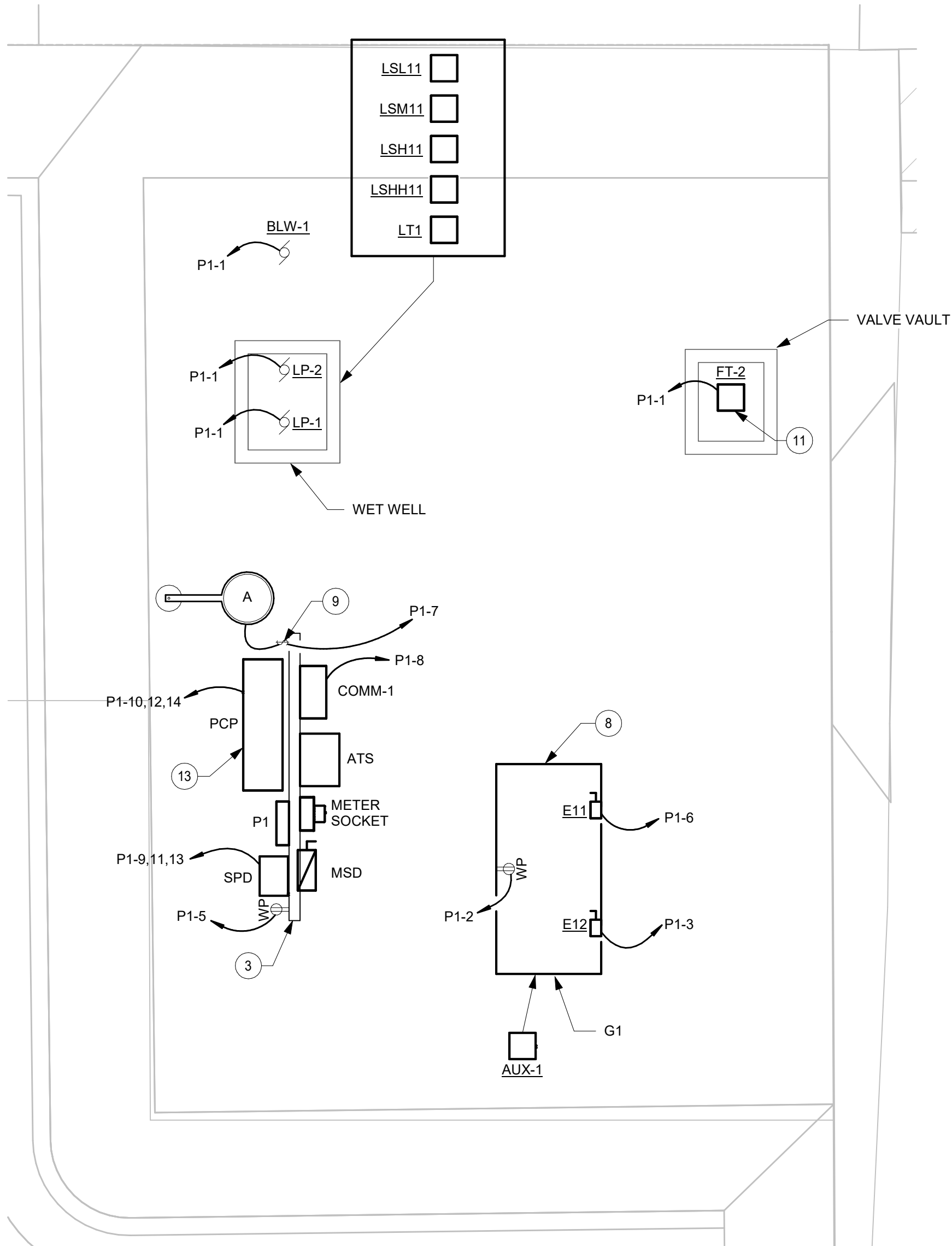
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**ENLARGED
ELECTRICAL SITE
PLAN - ALT A**

SHEET

E2-12A





1 ENLARGED ELECTRICAL SITE PLAN - ALT B
1/4" = 1'-0"

SHEET NOTES

1. ALL PROPOSED UNDERGROUND ELECTRIC LINES SHOWN ARE DIAGRAMATICAL. CONTRACTOR RESPONSIBLE FOR DETERMINING BEST ROUTE.
2. CONTRACTORS CHOICE TO UTILIZE DIRECTIONAL BORING OR TRENCHING FOR UNDERGROUND UTILITIES SHOWN UNLESS NOTED OTHERWISE. WHERE TRENCHING IS UTILIZED AND CROSSING CONCRETE; CONCRETE AREA SHALL BE SAW CUT AND REMOVED. NEW CONCRETE SHALL BE INSTALLED MATCHING EXISTING.
3. REBNORD TECHNOLOGIES SHALL BE UTILIZED TO PROVIDE ALL NETWORK MEDIA AND NETWORK EQUIPMENT REQUIRED TO EXTEND EXISTING OWNER FIBER OPTIC NETWORK TO LIFT STATION #3. ALL COSTS ASSOCIATED WITH FIBER OPTIC MATERIALS AND INSTALLATION FROM REBNORD TECHNOLOGIES SHALL BE INCLUDED IN CONTRACTORS BID. REBNORD TECHNOLOGIES CONTACT: TIM REBNORD OR JASON KNAPTON 210 SALE BARN ROAD, STORM LAKE, IA 50588, 712-732-6449.

ELECTRICAL KEYNOTE LEGEND

3	F&I FREE STANDING EQUIPMENT STAND. REFER TO DETAIL. COORDINATE EXACT LOCATION WITH GENERAL CONTRACTOR AND ADJUST LOCATION AS REQUIRED.
8	F&I 1" CONDUIT TO ATS FOR START/STOP SIGNAL. PROVIDE CONDUCTORS AND WIRE AS RECOMMENDED BY MANUFACTURER.
9	F&I NEMA 4X SWITCH FOR SITE LIGHT.
11	F&I FLOW METER WITH REMOTE TRANSMITTER. INSTALL 120 VOLT POWER CIRCUIT FROM PCP. GROUND FLOW TUBE PER MANUFACTURERS INSTRUCTIONS. PROVIDE NEMA 4X ENCLOSURE FOR REMOTE TRANSMITTER.
13	INSTALL FREE STANDING PUMP CONTROL PANEL ON CONCRETE EQUIPMENT PAD, REFER TO ELECTRICAL AND STRUCTURAL DETAILS.



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PROJECT

**CITY OF STORM
LAKE**

**COLLEGE & 3RD
LIFT STATION**

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
02/07/25	AGENCY REVIEW AND BIDDING	BJM

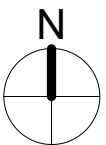
PROJECT NO.	23-29447
FILE NAME	29447 Elec R24
DRAWN BY	BJM
DESIGNED BY	BJM
REVIEWED BY	CRI
ORIGINAL ISSUE DATE	02/07/25
CLIENT PROJECT NO.	

TITLE

**ENLARGED
ELECTRICAL SITE
PLAN - ALT B**

SHEET

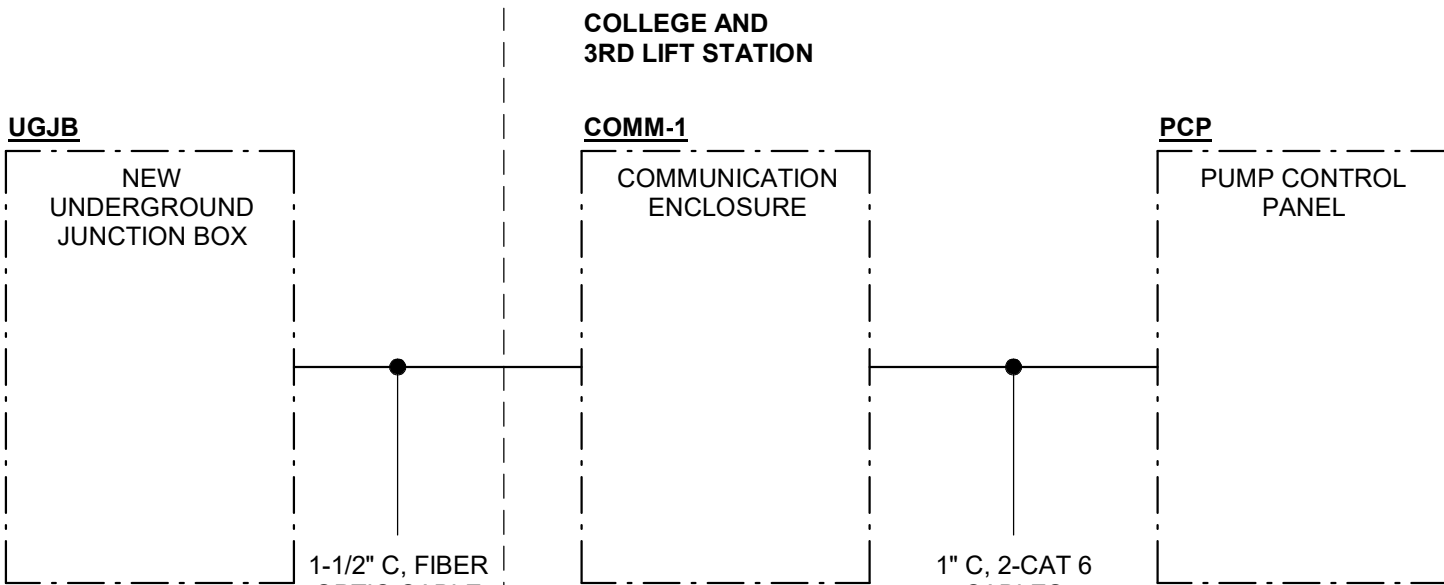
E2-12B



ELECTRICAL SYMBOLS LEGEND									
RECEPTACLES		SWITCHES		MISC. POWER SYMBOLS		ELECTRICAL PANELS		TAG DESCRIPTIONS	
	SIMPLEX		SINGLE POLE		DISCONNECT		FLUSH MOUNT PANELBOARD		LIGHTING SCENARIO
	DUPLEX		DOUBLE POLE		FUSED DISCONNECT		SURFACE MT PANELBOARD		KEYNOTE
	ISOLATED GROUND		3-WAY		FAN		PHONE SYSTEM		
	TAMPER RESISTANT		4-WAY		ELECT. CONTROLLED VALVE				
	WEATHER PROOF W/GFI		EMERGENCY		FUSESTAT				
	GROUND FAULT INTERRUPT		FAN		HAND DRYER				
	CONTROLLED RECEPTACLE		KEY OPERATED		HAIR DRYER				
	COUNTERTOP RECEPTACLE		LOW VOLTAGE		HEATER				
	COMBO RECEPTACLE / USB		PILOT LIGHT		JUNCTION BOX				
	HIGH VOLTAGE		TIMER		MOTOR				
	SPLIT WIRE		CIRCUIT BREAKER		MOTOR WITH DISCONNECT				
	DOUBLE DUPLEX		DIMMER		RELAY				
	220 VOLT		ILLUMINATED HANDLE		SOLENOID VALVE				
	SPECIAL PURPOSE		MOTOR		COMBINATION STARTER & DISC				
	CEILING MOUNTED RECPT		SPEED CONTROLLER		MOTOR STARTER				
	CEILING MOUNTED SP RECPT		SPRING WOUND TIMER		THERMOSTAT				
	FLOOR BOX RECEPTACLE		MOMENTARY CONTACT		DUCT-TYPE SMOKE DETECTOR				
			WEATHER PROOF		USB CHARGING STATION				
			OCCUPANCY SENSOR-WALL						
			VACANCY SENSOR-WALL						
			OCCUPANCY SENSOR-CLG						
			VACANCY SENSOR-CLG						
			PHOTO CELL						
			3-BUTTON SWITCH						
			LOW VOLTAGE SWITCH / TYPE						

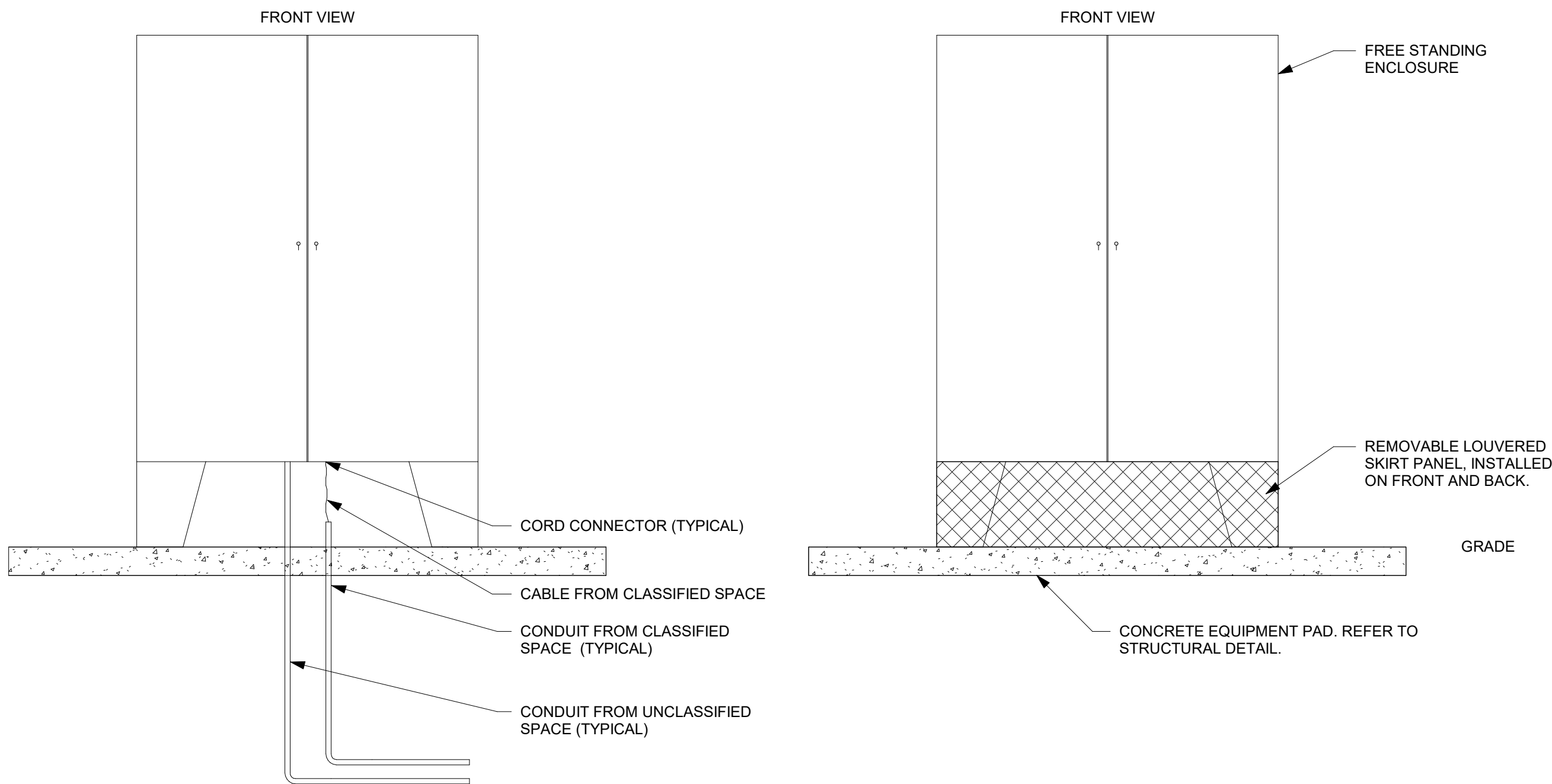
NOTE:
ALL SIZES SHOWN ARE MINIMUMS, REBNORD TECHNOLOGIES SHALL FURNISH ALL NETWORK MEDIA AND SHALL BE RESPONSIBLE FOR ALL TERMINATIONS. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF NETWORK MEDIA. ALL COSTS ASSOCIATED WITH NETWORK MEDIA MATERIAL AND INSTALLATION FROM REBNORD TECHNOLOGIES SHALL BE INCLUDED IN CONTRACTORS BID. REFER TO ELECTRICAL AND CONTROL SITE PLAN.

ADDITIONAL HAND HOLES NEEDED FOR INSTALLATION ARE NOT SHOWN.

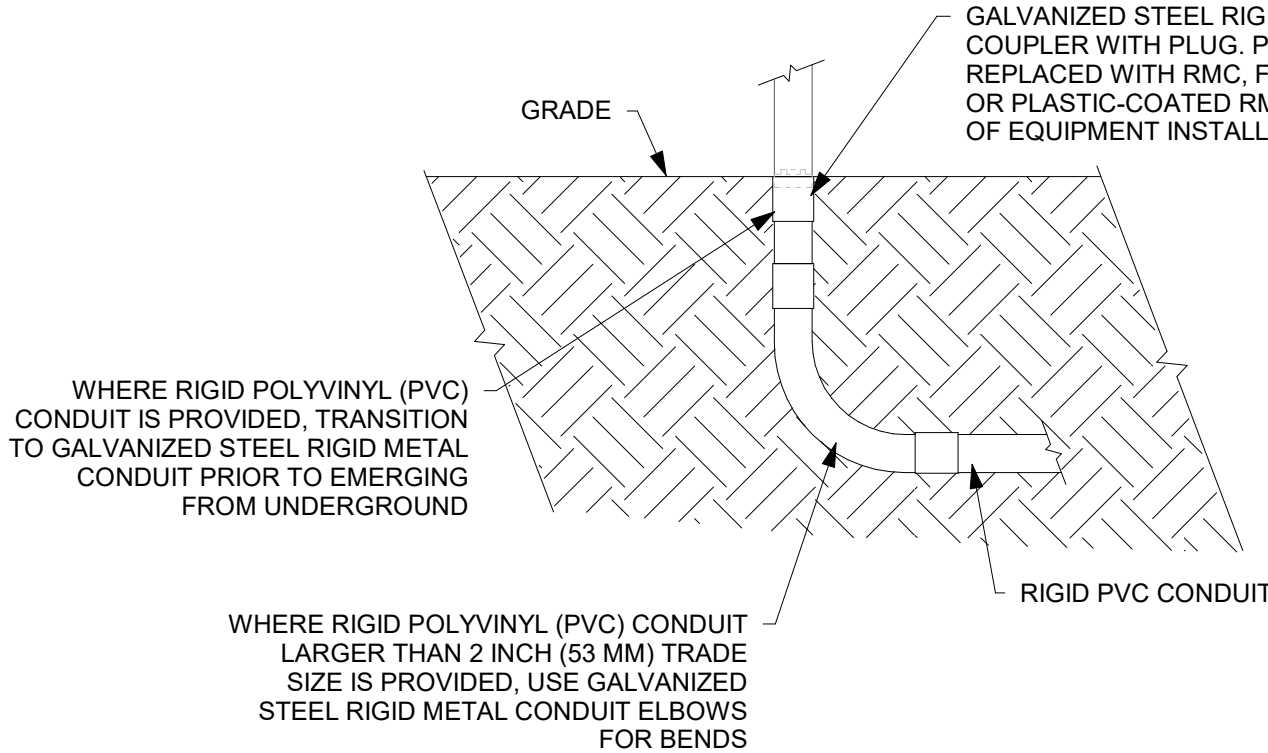


3 CONTROL NETWORK ONE LINE DIAGRAM
NOT TO SCALE

NOTE: DETAIL DOES NOT SHOW ALL CONDUIT AND CONDUCTORS REQUIRED, BUT IS INTENDED TO SHOW INTENT OF TYPICAL INSTALLATION. DISTANCES SHOWN FROM ENCLOSURE TO EDGE OF CONCRETE REFLECT MINIMUMS. CONDUITS FROM CLASSIFIED SPACE SHALL BE STUBBED UNDERNEATH FREE STANDING ENCLOSURE.

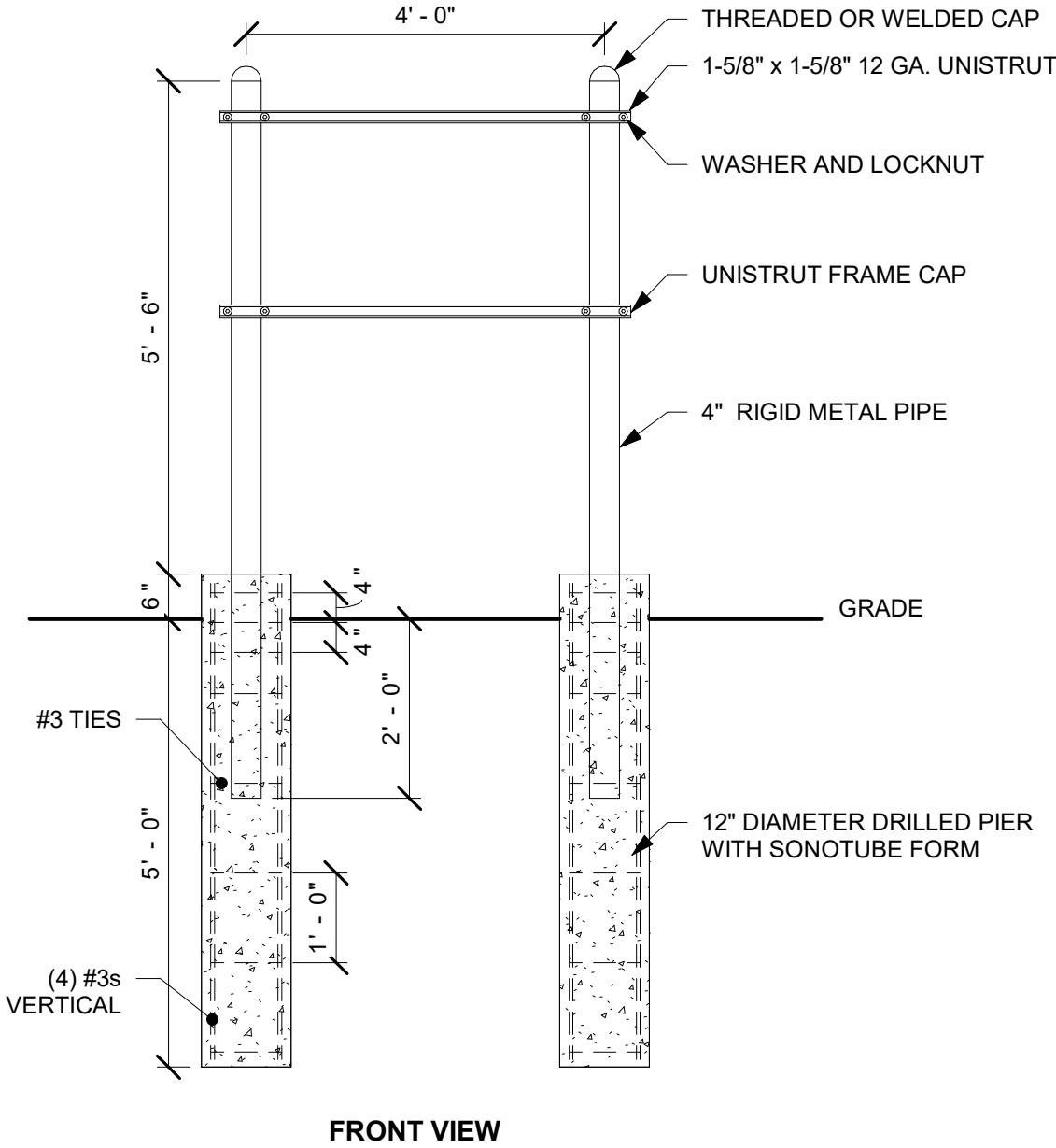


4 WET WELL FREE STANDING ENCLOSURE DETAIL
NOT TO SCALE

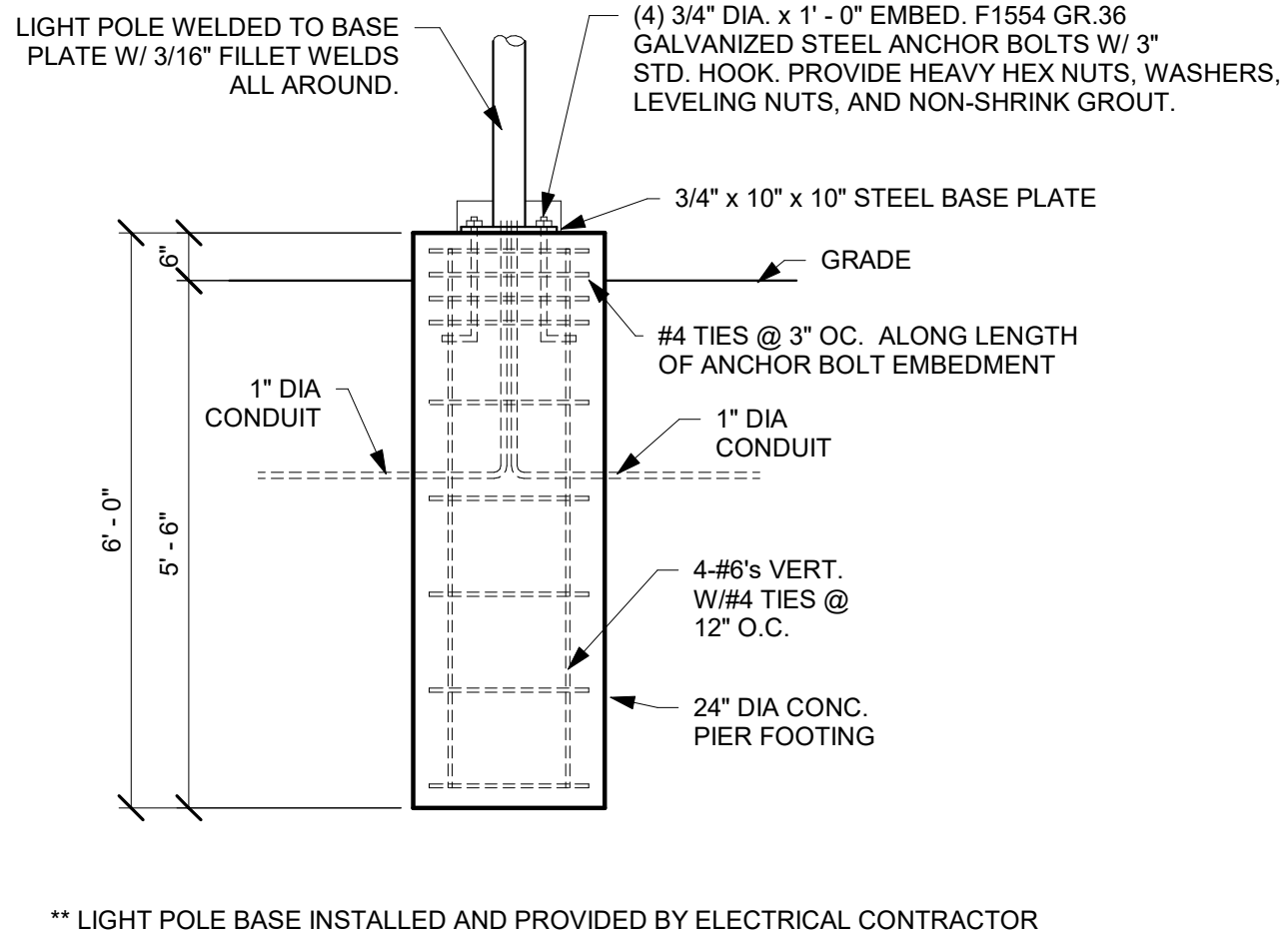


1 BELOW GRADE PVC CONDUIT DETAIL
NOT TO SCALE

ALL UNISTRUT, FASTENERS, AND ASSOCIATED MATERIALS SHALL BE GALVANIZED OR STAINLESS STEEL. DETAIL IS MEANT TO CONVEY MINIMUM CONSTRUCTION REQUIREMENTS. MAXIMUM DISTANCE BETWEEN VERTICAL SUPPORTS IS SHOWN. CONTRACTOR RESPONSIBLE FOR SIZING, SUPPLYING, AND CONSTRUCTING STRUCTURE WITH ALL NEEDED MATERIALS TO SUPPORT ALL REQUIRED EQUIPMENT PER PLANS AND SPECIFICATIONS. INCREASE STUCTURE LENGTH WITH ADDITIONAL VERTICAL SUPPORTS AS REQUIRED. UNISTRUT MAY BE PLACED ON BOTH SIDES OF STRUCTURE FOR INSTALLATION OF EQUIPMENT. F&I UNISTRUT AS REQUIRED TO PROPERLY SECURE EQUIPMENT. ENCLOSURES SHALL BE SECURED AT TOP AND BOTTOM, AND ADDITIONAL SUPPORTS SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER OR REQUIRED.

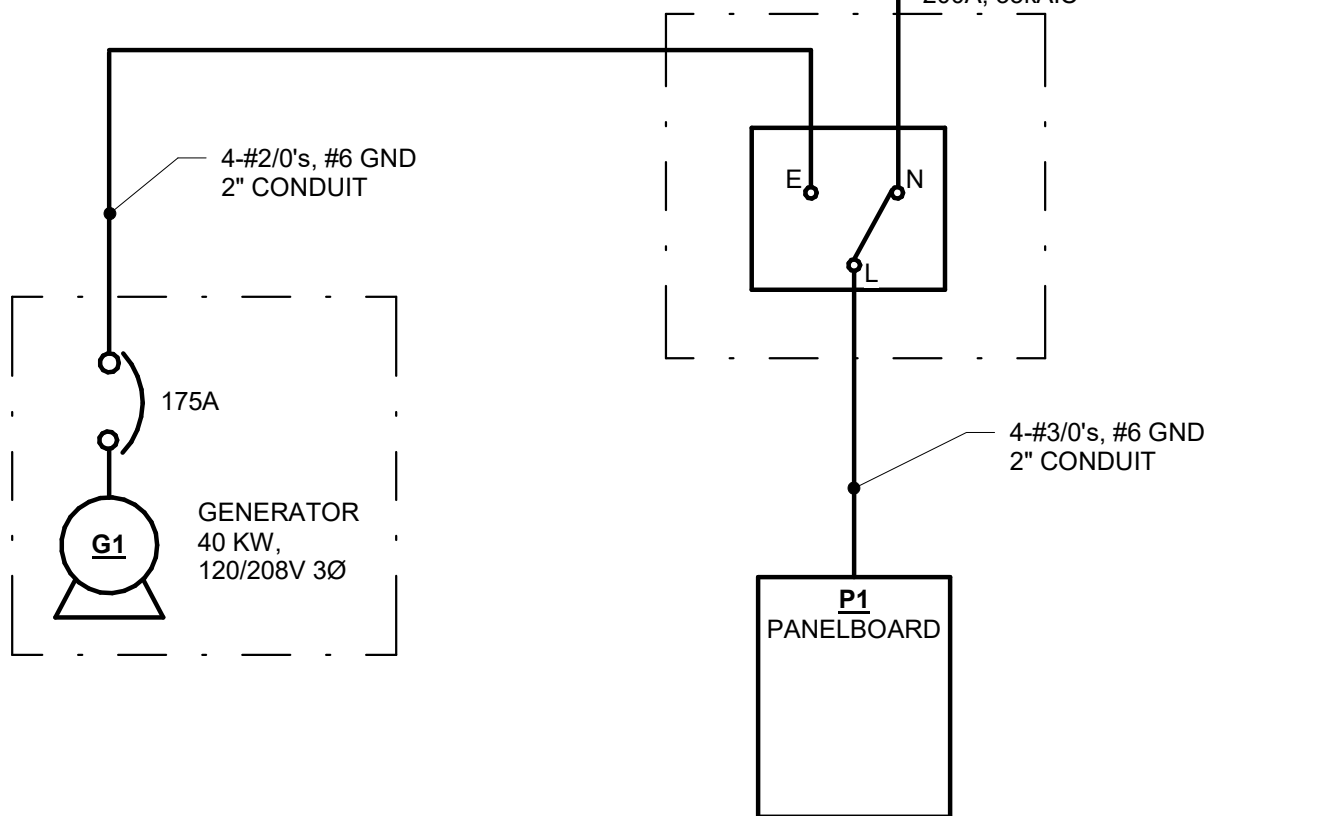


6 FREE STANDING EXTERIOR EQUIPMENT STAND DETAIL
NOT TO SCALE



** LIGHT POLE BASE INSTALLED AND PROVIDED BY ELECTRICAL CONTRACTOR

2 SITE LIGHT POLE MOUNTING BASE (20-25 FT)
NOT TO SCALE



5 POWER ONE LINE DIAGRAM
NONE



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PROJECT

**CITY OF STORM
LAKE**

**COLLEGE & 3RD
LIFT STATION**

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUE FOR AGENCY REVIEW	BJM
08/19/24	ISSUED FOR BIDDING	CRI
02/07/25	AGENCY REVIEW AND BIDDING	BJM

PROJECT NO.	23-29447
FILE NAME	29447 Elec R24
DRAWN BY	BJM
DESIGNED BY	BJM
REVIEWED BY	CRI
ORIGINAL ISSUE DATE	06/03/24
CLIENT PROJECT NO.	

**SYMBOL LEGEND,
ONE LINE, AND
DETAILS**

SHEET

E4-11



ELECTRICAL EQUIPMENT SCHEDULE													
TAG	DESCRIPTION	POWER REQUIREMENTS				PNL - CKT	MINIMUM CONDUIT, WIRE SIZE, GROUND	STARTER		DISCONNECT		NOTES	
		HP	VOLTS	POLES	FLA	VA		TYPE	BY	TYPE	BY		
BLW-1	BLOWER 1	.33	120 V	1	7.2 A	864 VA	PCP - 2	(none)	(none)	(none)	(none)		
E11	G1 GENERATOR BATTERY CHARGER	N/A	120 V	1	8.3 A	996 VA	P1 - 6	(none)	(none)	(none)	(none)		
E12	1 GENERATOR COOLANT HEATE	N/A	120 V	1	12.5 A	1500 VA	P1 - 3	(none)	(none)	(none)	(none)		
LP-1	LIFT PUMP 1	5	208 V	3	14.0 A	5044 VA	PCP - 1,3,5	VFD	ES	(none)	(none)		
LP-2	LIFT PUMP 2	5	208 V	3	14.0 A	5044 VA	PCP - 1,3,5	VFD	ES	(none)	(none)		
PCP	PUMP CONTROL PANEL	N/A	208 V	3	35.0 A	12680 VA	P1 - 10,12,14	(none)	(none)	(none)	(none)		
SPD	SURGE PROTECTIVE DEVICE	N/A	208 V	3	0.0 A	10 VA	P1 - 9,11,13	(none)	(none)	(none)	(none)		

STARTER TYPE		STARTER BY		DISCONNECT TYPE		DISCONNECT BY	
COMB	COMBINATION STARTER	EC	ELECTRICAL CONTRACTOR	BO	BY OTHERS	EC	ELECTRICAL CONTRACTOR
ECM	ELECTRONICALLY CONTROLLED MOTOR	ES	EQUIPMENT SUPPLIER	F	FUSED DISCONNECT	ES	EQUIPMENT SUPPLIER
MAG	MAGNETIC STARTER	MC	MECHANICAL CONTRACTOR	NF	NON-FUSED DISCONNECT	MC	MECHANICAL CONTRACTOR
MAN	MANUAL STARTER	WU	WITH UNIT			WU	WITH UNIT
SS	SOFT STARTER						
VFD	VARIABLE FREQUENCY DRIVE						

Branch Panel: P1													
Location:				Volts: 120/208 Wye				A.I.C. Rating: 35 kAIC					
Supply From:				Phases: 3				Mains Type: MLO					
Mounting: Surface				Wires: 4				Mains Rating: 200 A					
Enclosure: Type 4X								MCB Rating: 200 A					
Notes:													
CKT	Circuit Description	Trip	Pole	A		B		C		Pole	Trip	Circuit Description	CKT
1	FT-1 FLOW METER	20 A	1	50	180					1	20 A	G1 RCP	2
3	G1 COOLANT HEATER (E-12)	20 A	1			1500	0			1	20 A	SPARE	4
5	P1 RCP	20 A	1					180	996	1	20 A	G1 BATTERY CAHRGER (E-11)	6
7	SITE LIGHT	20 A	1	250	300					1	20 A	COMM-1	8
9	SURGE PROTECTIVE DEVICE (SPD)	30 A	3			3	4227						10
							3	4227	3	100 A	PUMP CONTROL PANEL (PCP)	12	
				3	4227								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	SPARE	20 A	1	0	0					1	20 A	SPARE	20
Total Load:				4998 VA		5730 VA		5406 VA					
Total Amps:				42 A		48 A		46 A					
Legend:													

INPUT AND OUTPUT CONTROL SCHEDULE									
ITEM#	DESCRIPTION	PANEL	MINIMUM CONDUIT, WIRE #, SIZE, GND	I/O	DEVICE BY	NOTES			
AUX-1	G1 GENERATOR ALARM MONITOR AND RUNING MONITOR	PCP	1" C, 4-#14'S	2 DI	EC				
FT-1	FLOW METER 1	PCP	3/4" C, 1-#20 TWISTED PAIR SHIELDED, 2-#16'S	AI, DI	ES				
LSH11	LIFT STATION LAG PUMP ON FLOAT SWITCH	PCP	2" C, 2-#14'S, #14 GND	DI	ES	WET WELL FLOAT SWITCH CONDUCTORS MAY BE COMBINED IN A SINGLE CONDUIT. UPSIZE CONDUIT AS REQUIRED.			
LSHH11	LIFT STATION HIGH LEVEL ALARM FLOAT SWITCH	PCP	2" C, 2-#14'S, #14 GND	DI	ES	WET WELL FLOAT SWITCH CONDUCTORS MAY BE COMBINED IN A SINGLE CONDUIT. UPSIZE CONDUIT AS REQUIRED.			
LSL11	LIFT STATION LEAD PUMP ON FLOAT SWITCH	PCP	2" C, 2-#14'S, #14 GND	DI	ES	WET WELL FLOAT SWITCH CONDUCTORS MAY BE COMBINED IN A SINGLE CONDUIT. UPSIZE CONDUIT AS REQUIRED.			
LSM11	LIFT STATION PUMP OFF FLOAT SWITCH	PCP	2" C, 2-#14'S, #14 GND	DI	ES	WET WELL FLOAT SWITCH CONDUCTORS MAY BE COMBINED IN A SINGLE CONDUIT. UPSIZE CONDUIT AS REQUIRED.			
LT1	LIFT STATION LEVEL TRANSMITTER	PCP	1" C, 1-#20 TWISTED PAIR SHIELDED	AI	ES				

I/O		SUPPLIED BY	
AI	ANALOG INPUT	BO	BY OWNER
AO	ANALOG OUTPUT	EC	ELECTRICAL CONTRACTOR
COM	COMMUNICATIONS	ES	EQUIPMENT SUPPLIER
DI	DIGITAL INPUT	MC	MECHANICAL CONTRACTOR
DO	DIGITAL OUTPUT	PC	PROCESS CONTRACTOR
ENET	ETHERNET/IP	WU	WITH UNIT

LIGHT FIXTURE SCHEDULE					
TYPE	DESCRIPTION	MANUFACTURER	MODEL	LAMP	TYPE COMMENTS
A	LED SITE LIGHT	LITHONIA LIGHTING	DSX0 LED P5 35K 80CRI T2M MVOLT RPA PER DBLXD	89W LED	MOUNT 20' ABOVE FINISHED GRADE, F&I WITH RSS-19-6-5-9B-DM19AS-VD-DBLXD 19'-6" POLE. F&I WITH APPLICABLE FUSE OPTION. F&I WITH PHOTOCELL OPTION. F&I VD VIBRATION DAMPER & FBC BASE COVER.

INPUT DEVICE TAG PREFIXES							
PARAMETER	ELEMENT/ SENSOR	INDICATOR	TRANSMITTER		SWITCH		
			BLIND	INDICATING	SWITCH	HIGH	LOW
AMMONIUM	AME	AMI	AMT	AMIT	AMS	AMSH	AMSL
ANALYTICAL	AE	AI	AT	AIT	AS	ASH	ASL
AUXILIARY					AUX		
CONDUCTIVITY	CE	CI	CT	CIT	CS	CSH	CSL
EVENT/STATE/PRESENCE	YE	YI			YS	YSH	YSL
FLOW RATE	FE	FI	FT	FIT	FS	FSH	FSL
HYDROGEN SULFIDE	HSE	HSI	HST	HSIT	HSS	HSH	HSL
LEVEL	LE	LI	LT	LIT	LS	LSH / LSHH	LSL / LSLL
LIMIT					LMS		
MOTOR/MOISTURE	ME	MI	MT	MIT	MS	MSH	MSL
ORP	ORE	ORI	ORT	ORIT	ORS	ORH	ORL
OXYGEN	OXE	OXI	OXT	OXIT	OXS	OXH	OXL
OZONE	OZE	OZI	OZT	OZIT	OZS	OZH	OZL
PH	PHE	PHI	PHT	PHIT	PHS	PHH	PHL
POSITION	ZE	ZI	ZT	ZIT	ZS	ZSC (CLOSED)	ZSO (OPEN)
POWER	PWE	PWI	PWT	PWIT	PWS	PWH	PWL
PRESSURE	PE	PI	PT	PIT	PS	PSH / PSHH	PSL / PSLL
TEMPERATURE	TE	TI	TT	TIT	TS	TSH / TSHH	TSL / TSLL



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PROJECT

CITY OF STORM LAKE

COLLEGE & 3RD LIFT STATION

STORM LAKE IOWA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY
06/03/24	ISSUE FOR AGENCY REVIEW	BJM
08/19/24	ISSUED FOR BIDDING	CRI
02/07/25	AGENCY REVIEW AND BIDDING	BJM

PROJECT NO.	23-29447
FILE NAME	29447 Elec R24
DRAWN BY	BJM
DESIGNED BY	BJM
REVIEWED BY	CRI
ORIGINAL ISSUE DATE	06/03/24
CLIENT PROJECT NO.	

TITLE

SCHEDULES

SHEET

E4-12

RESOLUTION NO. 59-R-2024-2025

**RESOLUTION ADOPTING PLANS, SPECIFICATIONS, FORM OF CONTRACT AND
ESTIMATE OF COST FOR THE STORM LAKE COLLEGE AND 3RD LIFT STATION
PROJECT**

WHEREAS, on the 17th day of March 2025, plans, specifications, form of contract and estimate of cost were filed with the Clerk for the construction of certain public improvements described in general as the Storm Lake College and 3rd Lift Station Project; and

WHEREAS, notice of the hearing on plans, specifications, form of contract and estimate of cost for the public improvements was published as required by law.

NOW, THEREFORE, BEIT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, STATE OF IOWA:

Section 1. That the plans, specifications, form of contract and estimate of cost are hereby approved as the plans, specifications, form of contract and estimate of cost for the public improvements, as described in the preamble of this Resolution.

PASSED AND APPROVED this 17th day of March 2025.

Michael Porsch, Mayor

ATTEST:

Mayra A. Martinez, City Clerk

Staff Summary

3/17/2025

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: Scott Olesen, Building Official

SUBJECT: **Resolution No. 60-R-2024-2025 Making Award of Construction Contract for the Base Bid + Alternate B for the Storm Lake College and 3rd Lift Station Replacement Project.**

BACKGROUND: Bids were received for the Storm Lake College and 3rd Lift Station project on Tuesday, March 4, 2025. Three bids were received for the project. The apparent low bidder for the Base Bid + Alternate B, which includes a new precast concrete lift station, was King Construction of Wall Lake, IA for the amount of \$1,443,435.00.

The low bid was approximately 24% higher than the engineer's estimate for this project. The City previously bid the project in August 2024, with bids coming in over the engineer's estimate. Based on this information, we do not believe rebidding the project as designed will result in any additional cost savings. Therefore, it is recommended to award the bid to King Construction for the Base Bid + Alternate B in the amount of \$1,443,435.00. The contractor has done work for the city on previous projects and has a good working relationship.

FISCAL IMPACT: The construction contract for Base Bid + Alternate B has an estimated value of \$1,443,435.00.

If we propose the 10% sewer rate increase, we would generate an approximate \$100,807 more in revenue in the first year. The remaining \$370,628 would come from reserves. This approach would stay within the Council's required 40% fund balance but would take away from funds set aside for future nutrient reduction projects that have been in planning for several years.

If we proceed with the 7% rate increase, the full \$471,435 would

come from reserves and again reduce the amount of set aside for nutrient reduction initiatives.

RECOMMENDATION: Approve Resolution No. 60-R-2024-2025 Making Award of Construction Contract for the Base Bid+ Alternate B for Storm Lake College and 3rd Lift Station Project to King Construction in the amount of \$1,443,435.00

ATTACHMENTS:

1. 29447 ISG Award Recommendation - 2025-03-07
2. 29447 Lump Sum Bid Tab
3. Resolution No. 60-R-2024-2025 - Award Construction Contract For College and 3rd Lift Station



RE: SUMMARY OF BIDS RECEIVED – COLLEGE & 3RD LIFT STATION

Honorable Mayor and Council,

Bids were received for the Storm Lake College & 3rd Lift Station project on Tuesday, March 4, 2025. Three bids were received for the project.

The bid tabulation is attached. A summary of bids is provided below:

Contractor		Bid Amount	
		Base Bid + Alternate A (HDPE Lift Station)	Base Bid + Alternate B (Precast Lift Station)
King Construction	Wall Lake, IA	\$1,525,115	\$1,443,435
Tom's Backhoe Service, Inc.	Brainerd, MN	-	\$1,688,000
Christiansen Construction Co.	Pender, NE	\$1,818,176	\$1,761,242
Engineer's Estimate		\$1,234,288	\$1,114,338

Bids received were all above the Engineer's Estimate. The apparent low bidder for both options is King Construction with a Base Bid + Alternate A price of \$1,525,115.00 and a Base Bid + Alternate B price of \$1,443,435. These values are approximately 24% and 30% above the Engineer's Estimate of \$1,234,288 and \$1,114,338, respectively. We understand that the low bid is higher than the budgeted funding for the project. If the project is not awarded, we do not believe rebidding the project as designed will provide significant bid savings.

We have found the low bidder to be responsible and their bid in order. ISG has worked with King Construction on successful projects of similar size and scope. Therefore, should the City have sufficient funding for the project and decide to with construction, we recommend awarding the Base Bid + Alternate B for the Storm Lake College & 3rd Lift Station project to King Construction of Wall Lake, Iowa.

Tom Grafft
Water/Wastewater Group Leader
Tom.Grafft@ISGInc.com

Encl: Bid Tabulation

Bid Tabulation

College and 3rd Lift Station

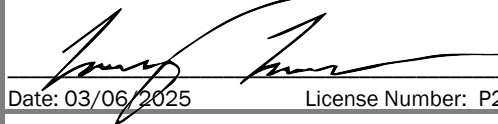
Storm Lake, Iowa

ISG

Project Number: 23-29447

Bid Letting Time + Date: 10:00 a.m. March 04, 2025

Bid Letting Location + Address: 620 Erie Street, Storm Lake, IA 50588

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE ACCOUNT OF BIDS RECEIVED.			KING CONTRACTING, LLC dba KING CONSTRUCTION WALL LAKE, IA		TOM'S BACKHOE SERVICE, INC. BRainerd, MN		CHRISTIANSEN CONSTRUCTION CO. PENDER, NE		ENGINEER'S ESTIMATE	
 Date: 03/06/2025 License Number: P24128										
Construction Item	Unit	Quantity	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount
Base Bid	LS	1	\$ 805,350.00	\$ 1,000,000.00	\$ 1,179,200.00	-				
Alternate A - HDPE Lift Station and Intergrated Valve Vault	LS	1	\$ 719,765.00		\$ 638,976.00	-				
Alternate B - Precast Lift Station and Valve Vault	LS	1	\$ 638,085.00	\$ 688,000.00	\$ 582,042.00	-				
BASE BID + ALTERNATE A TOTAL PRICE			\$ 1,525,115.00	-	\$ 1,818,176.00	\$ 1,234,288.00				
BASE BID + ALTERNATE B TOTAL PRICE			\$ 1,443,435.00	\$ 1,688,000.00	\$ 1,761,242.00	\$ 1,114,338.00				

RESOLUTION NO. 60-R-2024-2025

**RESOLUTION MAKING AWARD OF CONSTRUCTION CONTRACT FOT THE
STORM LAKE COLLEGE AND 3RD LIFT STATION PROJECT**

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, STATE OF
IOWA:

That the following bid for the construction of a certain public improvement described in
general as the Storm Lake College and 3rd Lift Station Project, described in the plans and
specifications heretofore adopted by this Council on March 17, 2025, be and hereby accepted,
the same being the lowest responsive, responsible bid received for such work as follows:

Contractor: King Construction of Wall Lake, Iowa

Amount of bid: \$1,443,435.00

Portion of project: All construction work

PASSED AND APPROVED THIS 17th DAY OF MARCH 2025.

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

Michael Porsch, Mayor

ATTEST

Mayra A. Martinez, City Clerk

Staff Summary

3/17/2025

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: Lee Dutfield, Development Services Specialist

SUBJECT: **Work Session - Downtown Signage Ad Hoc Committee Recommendations**

BACKGROUND: The Downtown Master Plan and IEDA's Downtown Assessment Report both touched on recommendations for improving signage in the Central Business District ("CBD"). City Council felt that it was an opportune time to gather recommendations from business owners in the CBD and members of the public as to appropriate signage and what, if any, changes should be made to the current sign ordinance.

On June 17, 2024, City Council approved Resolution NO. 62-R-2023-2024 establishing a Downtown Signage Ad Hoc Committee consisting of members from the Central Business District and members of the public at large.

The following members: Terrie Eddie, Laura Hanks, Jeanyleen John, Joe Kelly, Rhonda Ringgenberg, Holly Schipper, Liz Smith, Adilene Soto, Brent Ulrich, Ruth Whitmore and Rick Wimer participated in committee meetings on September 24, 2024, October 8, 2024, October 30, 2024, and February 20, 2025. Development Services Specialist, Lee Dutfield and Building Official, Scott Olesen facilitated the meetings.

Lee Dutfield will provide the Mayor and City Council with a summary of the Downtown Signage Committee's recommendations.

FISCAL IMPACT: N/A

RECOMMENDATION: Review the attached document and provide input to staff.

ATTACHMENTS:

1. AD Hoc Signage Report to Council 25
2. brackets 1
3. Brackets 2
4. Brackets 3
5. Mainstreet Guide for Downtown Signage

Storm Lake Downtown Ad Hoc Signage Committee Members:

Terrie Eddie, Laura Hanks, Jeanyleen John, Joe Kelly, Rhonda Ringgenberg, Holly Schipper, Liz Smith, Adilene Soto, Brent Ulrich, Ruth Whitmore, Rick Wimer

Committee Meeting Dates:

September 24, 2024, October 8, 2024, October 30, 2024, and February 20, 2025

Documents Reviewed:

2023 Downtown Master Plan – Signage Improvements

IEDA Downtown Assessment Report -Signs

Power of the Sign Presentation – Business Signage by Ben Muldrow

Power of the Sign Presentation – Public Signage by Ben Muldrow

Signage Guide for Private Sector -Mainstreet Solutions Center

Article 10 – Sign Regulations (City of Storm Lake)

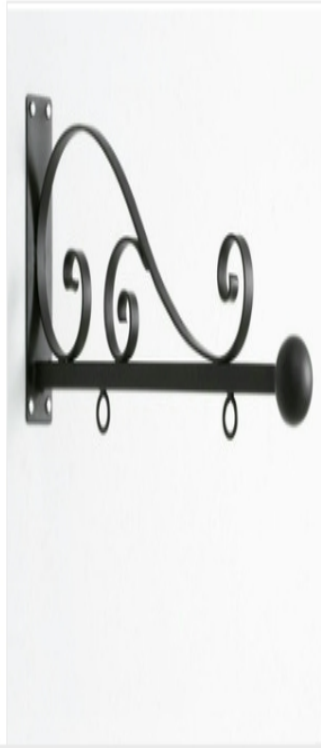
Recommended Changes to Article 10 - Sign Regulations

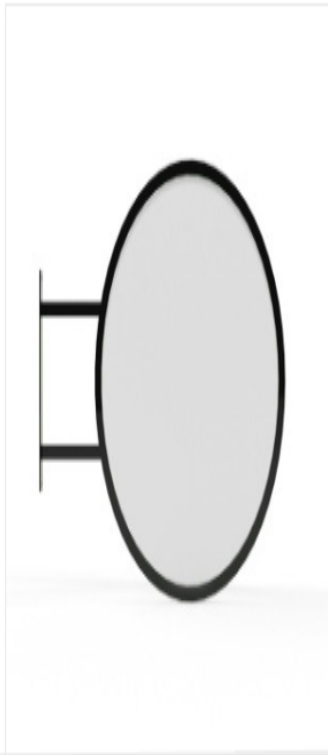
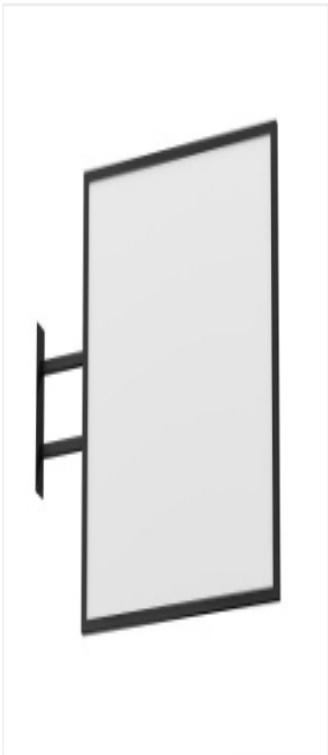
- Add the words “preserve and protect historic signage” to Section 1001 *Purpose*.
- Move *Definition of Terms* section 1002 to end of document, after section 1009.
- Add the following definitions: A-Frame Sign (Sandwich Board), Bag Sign (Temporary Cover), Balloon Sign (Air-Inflated), Blade Sign, Electronic Message Center, Feather Sign, Flashing Lights, Hanging Sign, Human Billboard, Historic Sign, Memorial Sign, and Side-Walk Graphics.
- Update the following definitions: Abandoned Sign, Back-Lit-Sign, Projecting Signs, Temporary Sign, Wall Sign.
- Allow for memorial signs by updating 1003 C. Prohibited Signs 1.
- 1003 D. Exempt Signs 1. Increase from 20 sq. ft. to 50 sq. ft
- Remove 1004 Signs and Graphics 1. Wall sign not to extend more than 30 inches from the wall.

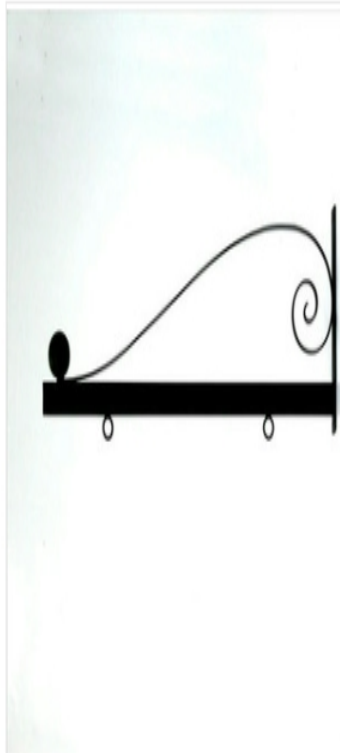
Additional Recommendations and Remarks:

- Creativity not uniformity. It Important all signs are properly maintained.
- Enforce sign ordinance violations with due process and proper notification.
- Allow for sign permit payments on-line.
- Provide signage guide for business in the CBD when they apply for sign permit.
- Explore options for a flat rate(s) for signage permit.

- Allow extra signage for multiple tenants/ second floor businesses.
- Temporary signs are only allowed for 90 days, 180 days is too long. Examples: Vinyl banners, corrugated plastic, weather-resistant laminated paper, foam board.
- Abandoned signs shall be replaced with a blank panel or repainted by the owner, agent or person having beneficial use of the building within 90 days. The sign base, pole, electronics and frame do not have to be removed but shall be properly maintained and kept in a safe, orderly condition.
- Window graphics such as decals, clings, window lettering, hours of operation should be allowed and should not count towards the overall sign budget.
- A-Frame (Sandwich Board) signs should continue to be allowed and not count towards overall sign budget.
- LED signage in windows should be allowable, however brightness of signs (lumen) needs to be regulated. Downtown should be vibrant and well-lit but no flashing, strobing or excessively bright lights.
- Holiday downtown lights on year round or at least on during weekends.
- Increase wayfinding signage and directions signs on how to get to downtown.
- No Roof Top Signs in the CBD
- Trees on Mainstreet should not block signage.
- Additional wayfinding signage is needed to create a gateway to downtown. Possible partner with private business that have abandoned signs not being utilized for this purpose.
- Add wayfinding signage on the incoming route from Hwy 71, past lighthouse, past King's Pointe Resort, along Lakeshore Drive and up Lake Ave into downtown.
- Add additional wayfinding signage from other incoming routes when possible.
- Approve of a blade sign or hanging sign program. The city will reimburse business for the cost of the sign mounting bracket once the sign is installed. There will be an application process. The business owner is solely responsible for the design of the blade sign. Storm Lake United has a revolving loan program that is available to business owners to help finance the cost of the blade sign.







Signage Guide for Private Sector



Signs for Your Business

Creating effective signage for a small business in a historic district involves balancing modern marketing needs with the aesthetic and regulatory requirements of the area. Here are various types of signage that can be suitable:

Hanging Signs: These signs are often double-sided and hang perpendicular to the storefront, making them visible from both directions on the street. They're ideal for pedestrian traffic in historic districts.

Window Graphics: Utilize the front windows of your business for subtle, yet effective signage. This can include business names, logos, operating hours, and brief descriptions of products or services. Ensure compliance with any historical district regulations regarding window signage.

Projecting Signs: Similar to hanging signs but often larger and more ornate, projecting signs extend out from the building and can be designed to reflect the historical character of the area.

A-Frame Signs: Portable and easy to manage, A-frame signs can be placed on the sidewalk during business hours to attract passersby. These should be tastefully designed to complement the historic surroundings.

Wall-Mounted Signs: These signs are fixed directly onto the building and can range from simple nameplates to more elaborate signboards. In a historic district, it's important to choose materials and designs that harmonize with the building's architecture.

Blade Signs: Thin and elegant, blade signs are mounted on a wall and stick out, making them visible from a distance. They can be designed to match the historical theme of the area.

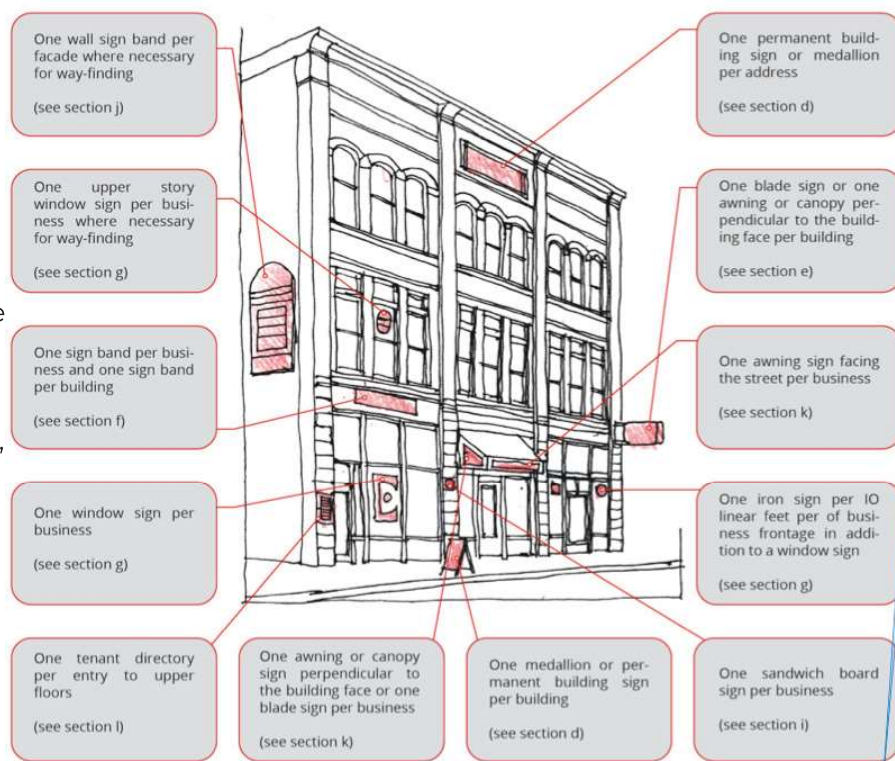
Awning Graphics: If your business has an awning, using it for signage is a subtle way to convey your brand. Ensure that the material and lettering style are in keeping with the historic character.

Banner Signs: While more temporary, banners can be used for special promotions or events. They should be designed with a nod to the historic environment to ensure they don't clash with the surroundings.

Informational Plaques: These can be used to provide historical information about the building or area, alongside your business information, adding a storytelling element to your signage.

Hours Signs: Hours signs on downtown businesses are crucial as they inform customers of operational times, fostering convenience and managing expectations in bustling urban areas.

Remember, each historic district may have specific guidelines and restrictions for signage, so it's crucial to check with the local historic preservation or planning office before designing and installing your signs.



Hanging Signs

Hanging signs serve as an elegant and effective solution for Main Street businesses, particularly in areas with heavy foot traffic. These signs, often crafted from materials like wood or metal to evoke a classic, timeless feel, hang perpendicular to the storefront, making them easily visible to pedestrians approaching from either direction. Their compact and elevated design ensures minimal obstruction on bustling sidewalks, while offering ample space for creative branding.

Ideal for historic or quaint shopping districts, hanging signs can be designed to blend seamlessly with the architectural charm of the area, often featuring intricate details, custom typography, or artistic renderings of the business logo. This type of signage not only enhances the aesthetic appeal of a Main Street but also plays a crucial role in increasing business visibility and attracting potential customers.



Window Graphics

Window graphics offer Main Street businesses a versatile and cost-effective way to enhance their storefronts while maximizing marketing potential. These graphics, ranging from simple vinyl lettering to elaborate full-window designs, transform a business's windows into a canvas for creative expression and branding. They effectively communicate the essence of the business, display operating hours, or highlight promotions without taking up additional sidewalk

space, crucial in bustling pedestrian areas. Tailored to fit the unique style and architecture of Main Street settings, window graphics can be designed to reflect a vintage, modern, or thematic look, thereby contributing to the street's visual appeal. This type of signage is particularly beneficial for businesses seeking a subtle yet impactful way to attract the attention of passersby, enhancing their storefront's aesthetics and drawing in customers with minimal structural modification.



Projecting Signs

Projecting signs, distinct from hanging signs, are a prominent signage option for Main Street businesses, offering high visibility from a distance while complementing the street's architectural character. Unlike hanging signs, which are typically smaller and suspended from a bracket or a support, projecting signs are larger and mounted directly onto the building's facade, extending outward in a way that makes them noticeable to both pedestrian and vehicular traffic. They can be crafted in various shapes and sizes, often

illuminated for added visibility at night. These signs provide a broader canvas for creative design, allowing businesses to feature more detailed graphics or larger text. The key difference lies in their orientation and size: while hanging signs are more compact and ideal for narrow streets and pedestrian zones, projecting signs are designed to be eye-catching and readable from a greater distance, making them an excellent choice for businesses on wider or busier Main Streets.



A Frame or Sandwich Board Signs

A-frame signs, also known as sandwich boards, are a highly versatile and portable signage option for Main Street businesses, ideal for attracting foot traffic and promoting daily specials or events. These freestanding signs can be easily placed on the sidewalk in front of a store or café, offering a direct line of sight to passing pedestrians. Their double-sided design allows for messages to be seen from both directions, maximizing exposure. A key advantage of A-frame signs is their mobility; they can be brought indoors after business

hours or repositioned as needed throughout the day. Additionally, they offer a quaint, personal touch to the storefront, often featuring chalkboard surfaces or customizable panels that enable businesses to frequently update their messaging. This adaptability makes A-frame signs particularly suitable for the dynamic and pedestrian-oriented environment of Main Street, where engaging directly with passersby is crucial for attracting customers.



Wall Mounted Signage

Wall-mounted signage is a classic and enduring choice for Main Street businesses, offering a prominent and permanent way to display a brand. Mounted directly onto the exterior of a building, these signs are designed to be both visually striking and harmonious with the architectural style of the street. They come in various forms, from flat panels to dimensional letters or intricate lightbox signs, providing businesses with a broad canvas to showcase their name, logo, and aesthetic. The permanence of wall-mounted signs makes them

a key element in establishing a business's presence and identity within the Main Street landscape. Their elevation above street level ensures visibility from a distance, making them ideal for businesses looking to stand out in a bustling, competitive environment. Additionally, wall-mounted signs can be illuminated for night-time visibility, enhancing their impact and ensuring that the business's presence is felt around the clock.



Blade Signs

Blade signs are a distinctive and elegant signage option for Main Street businesses, particularly effective in areas with heavy foot traffic. Unlike traditional projecting signs, blade signs are usually narrower and more streamlined, extending outward from a building's facade with a vertical orientation. This design makes them highly visible to pedestrians approaching from either direction, without overwhelming the streetscape. Often crafted from materials like wrought iron, wood, or high-quality plastics,

and sometimes incorporating lighting for added visibility, blade signs offer a blend of modern functionality and classic charm. Their slim profile and customizable design options make them ideal for businesses in historic districts or those with limited façade space. Blade signs not only enhance a business's visibility but also contribute to the overall aesthetic of Main Street, providing a quaint, yet sophisticated signage solution that resonates with the character of the area.



Awning Graphics

Awning graphics blend functionality with branding for Main Street businesses, offering a unique way to advertise while providing aesthetic and practical benefits. These graphics are incorporated into the fabric of awnings, extending over the sidewalk or entryway of a store, café, or restaurant. They serve a dual purpose: protecting customers from the elements and enhancing the storefront's visual appeal. The customization of awning graphics allows businesses to showcase their logo, business name, or key information

in a subtle yet impactful manner, contributing to the street's overall charm. This type of signage is particularly effective in historic or densely packed shopping areas where traditional signage space might be limited. Awning graphics maintain a low profile, preserving the architectural integrity of the street, while still providing a visually appealing and distinctive branding opportunity. Their functionality, combined with the capacity for creative and elegant designs, makes awning graphics a smart choice for businesses looking to stand out on Main Street.



Banner Signs

Banner signs offer Main Street businesses a flexible and dynamic signage solution, particularly well-suited for temporary promotions, events, or announcements. These signs are typically made of durable, weather-resistant materials like vinyl, enabling them to withstand outdoor conditions. Their large, eye-catching format ensures high visibility, making them an excellent tool for drawing attention to sales, grand openings, or special occasions. One of the key advantages of banner signs is their portability and ease of installation; they can be

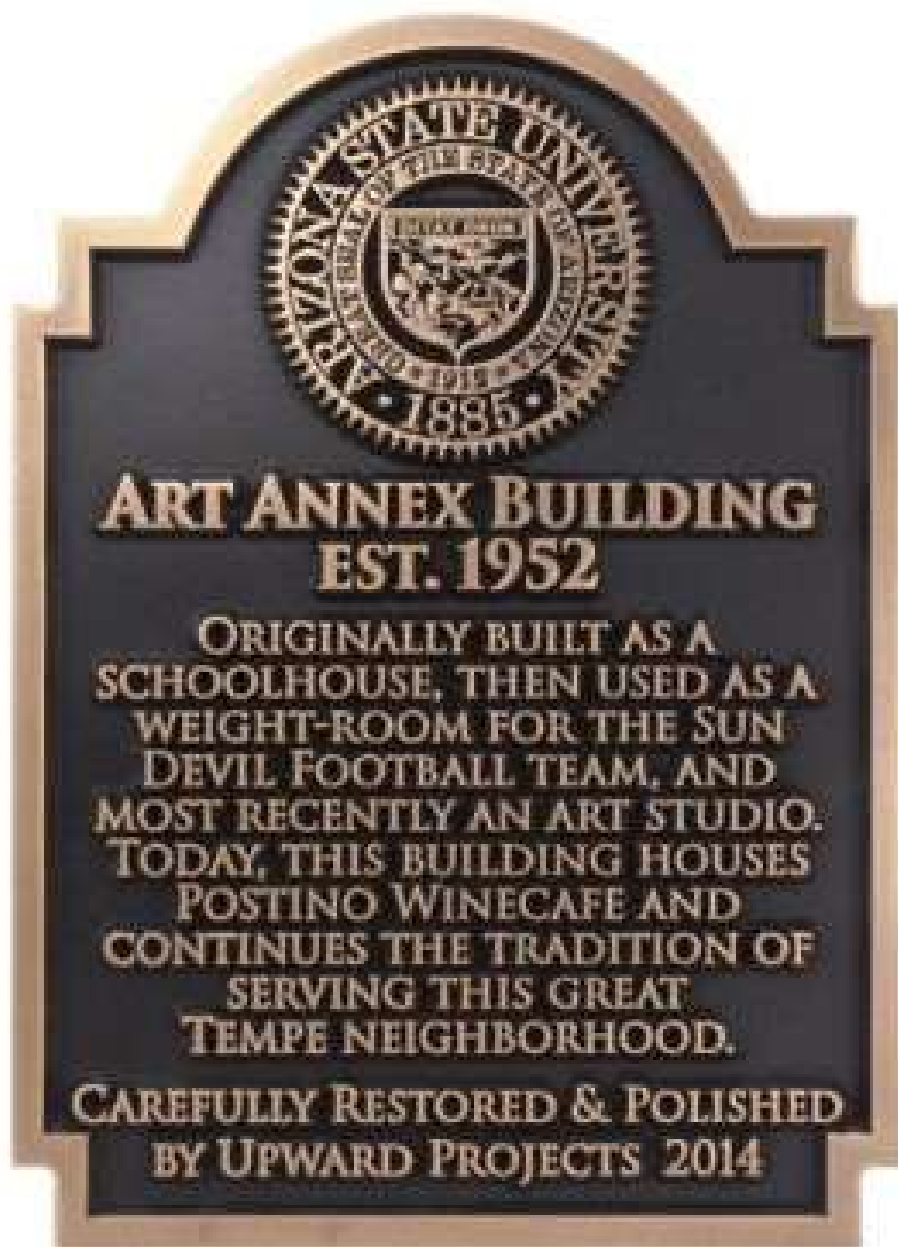
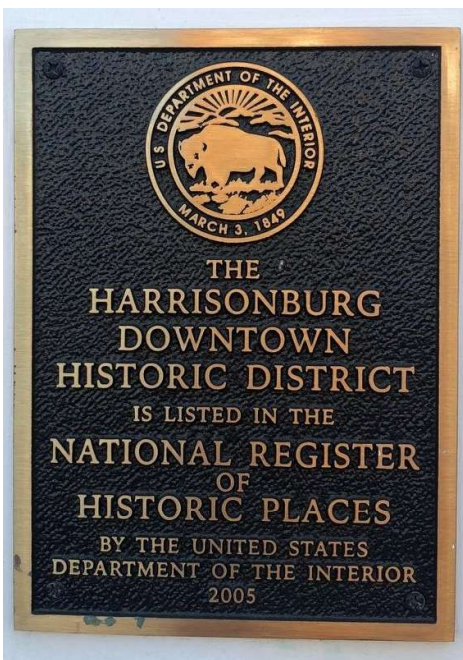
hung across the storefront, between street poles, or in other prominent locations. This versatility makes them a popular choice for businesses that need to frequently update or change their promotional messaging. Despite their temporary nature, banner signs can be designed with vibrant colors and bold text to blend seamlessly with the aesthetic of Main Street, ensuring that they contribute positively to the area's visual appeal while effectively communicating their intended message.



Informational Plaques

Informational plaques provide Main Street businesses with an understated yet impactful means of connecting with their community by blending historical context with business identity. Typically made of durable materials like bronze or brass, these plaques are mounted on the exterior of a building, often near the entrance, and offer a brief history of the site, the building, or the area, along with information about the current business. This blend of past and present not only informs and engages passersby but also adds

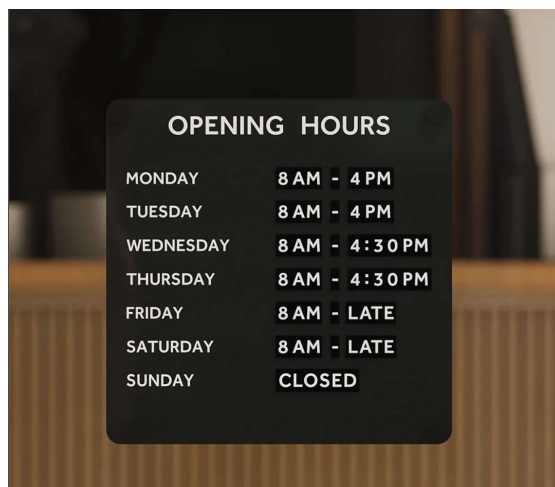
a layer of depth to the business's presence, fostering a sense of continuity and respect for the locale's heritage. Especially suitable for businesses located in historic districts or buildings with a significant past, informational plaques enhance the cultural experience of Main Street, inviting customers to appreciate the rich backstory of the area while they shop, dine, or explore. This unique form of signage serves as a testament to a business's integration into the fabric of the community and its commitment to preserving local history.



Hours Signs

In the dynamic and fast-paced environment of downtown areas, the clarity and visibility of business hours signs are paramount. These signs serve as the first point of communication between businesses and potential customers, offering essential information at a glance. For people navigating through the bustling streets, an easily readable and well-placed hours sign can be the deciding factor in choosing where to dine, shop, or seek services. Especially in downtown areas, where competition is fierce and every footfall counts, missing out on potential customers due to unclear or absent business hours signs can significantly impact a business's bottom line. Moreover, good hours signs mitigate confusion and prevent the frustration of customers showing up at closed doors, thereby maintaining a business's reputation for professionalism and customer service.

Furthermore, in an era where digital presence is crucial, the physical aspect of a business, like its hours sign, continues to hold significant importance. It reflects the business's attention to detail and commitment to customer experience. A well-designed, accurate, and easy-to-read hours sign not only attracts foot traffic but also enhances the business's image. It sends a message of reliability and trustworthiness, qualities highly valued by customers in any industry. In addition, as downtown areas often host tourists and visitors unfamiliar with local business hours, clear signage helps these businesses tap into the lucrative tourist market by reducing uncertainty and encouraging spontaneous visits. In essence, investing in a good hours sign is not just about displaying operational times; it's about respecting customers' time, improving service efficiency, and ultimately, fortifying the business's presence in a competitive urban landscape.



Staff Summary

3/17/2025

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: David Derragon, Assistant City Manager

SUBJECT: **Work Session – Electric Bikes**

BACKGROUND: This work session will focus on Electric Bikes and the related sections of Iowa Code related to operating electric bikes.

Iowa Code Section 321.1 36A and 36B provide this information:

36A. “Low-speed electric bicycle” means a device having a saddle or seat for the use of a rider, two or three wheels equipped with fully operable pedals, and an electric motor of less than seven hundred fifty watts that meets the requirements of one of the following classes:

a. “Class 1 low-speed electric bicycle” means a low-speed electric bicycle equipped with a motor that may be used to provide assistance only when the rider is pedaling and that ceases to provide assistance when the bicycle reaches a speed of twenty miles per hour or more.

b. “Class 2 low-speed electric bicycle” means a low-speed electric bicycle equipped with a motor that may be used exclusively to propel the bicycle and that is not capable of providing assistance when the bicycle reaches a speed of twenty miles per hour or more.

c. “Class 3 low-speed electric bicycle” means a low-speed electric bicycle equipped with a motor that may be used to provide assistance only when the rider is pedaling and that ceases to provide assistance when the bicycle reaches a speed of twenty-eight miles per hour or more.

36B. “Low-speed vehicle” means a motor vehicle manufactured in

compliance with the national highway and traffic safety administration standards for low-speed vehicles in 49 C.F.R. §571.500. A low-speed vehicle which is in compliance with the equipment requirements in 49 C.F.R. §571.500 shall be deemed to be in compliance with all equipment requirements of this chapter.

In addition, Iowa Code Section 321.235B addresses requirements for labeling low-speed electric bicycles related to top assisted speed and motor wattage. Modifications to changes speed capabilities cannot be made. If modified, an new label with new information must be affixed.

The low speed electric bicycle must operate in a manner when the rider stops pedaling, applies the brakes, or the electric motor is disengaged, the motor assist ceases to function. A class 3 low-speed electric bicycle shall not be operated unless it is equipped with a speedometer that displays its speed in miles per hour.

A person under the age of sixteen cannot operate an electric bicycle but can ride as a passenger on one. When operating a low-speed electric bicycle on a highway, a rider is subject to provisions of a rider of a bicycle. A person shall not use a bicycle on the highway to carry more persons at one time than the number of persons for which the bicycle is designed and equipped.

A low-speed bicycle is not subject to licensure, registration, titling, inspection and proof of financial liability coverage. A driver's license or permit is not required.

Iowa Code Section 321.235B 9 notes as follows:

9. a. A low-speed electric bicycle may be operated in any place where a bicycle is allowed to operate, including but not limited to streets, highways, roadways, shoulders, bicycle lanes, bikeways, and bicycle or multi-use paths.

b. A person shall not operate a class 3 low-speed electric bicycle on a bicycle lane or multi-use path in excess of the posted or applicable speed limit, or if there is no posted or applicable speed limit, twenty miles per hour.

Two bills (Senate File 4990 and House File 765) are being considered in the Iowa Legislature regarding low-speed electric bicycles and pedestrian conveyances powered by an electric motor. The explanation for both bills follows:

The two bills relate to the authorized maximum power produced by electric motors on low-speed electric bicycles and pedestrian conveyances. Current law limits the output of such electric motors to less than 750 watts. The bill instead authorizes such electric motors to produce not more than 750 watts. If an electric motor produces more than 750 watts and is attached to what would otherwise be considered a low-speed electric bicycle or personal conveyance, the provisions of Code chapter 321 (motor vehicles and law of the road) relating to vehicles, motor vehicles, automobiles, cars, motorcycles, and motorized bicycles are applicable to such vehicles.

A 750W electric bike can reach a top speed of 28 to 32 mph and climb hills at speeds of up to 14 mph. However, the actual speed and range of a 750W electric bike can vary depending on several factors such as the weight of the rider, the terrain, and the type of battery used.

FISCAL IMPACT: N/A

RECOMMENDATION: Information only at this time

ATTACHMENTS:

1. [Electric Bike Information](#)
2. [E-Bikes - Additional Information](#)

321.235B Low-speed electric bicycles — labels — operation.

1. A manufacturer or distributor of low-speed electric bicycles shall apply a label that is permanently affixed in a prominent location to each of the manufacturer's or distributor's low-speed electric bicycles. The label shall contain all of the following information printed in arial font with a font size not less than nine point type:

a. A classification number for the low-speed electric bicycle that corresponds with a class defined in section 321.1, subsection 36A.

b. The low-speed electric bicycle's top assisted speed.

c. The low-speed electric bicycle's motor wattage.

2. A person shall not knowingly modify the speed capability or engagement of a low-speed electric bicycle such that the low-speed electric bicycle does not qualify for a class defined in section 321.1, subsection 36A. If a person has modified the speed capability or engagement of a low-speed electric bicycle, the person shall affix a new label containing the information listed in subsection 1 to the modified low-speed electric bicycle.

3. A low-speed electric bicycle shall be manufactured and equipped in compliance with 16 C.F.R. pt. 1512.

4. A low-speed electric bicycle shall be manufactured to operate in such a manner that when the rider stops pedaling, applies the brakes, or the electric motor is disengaged, the electric motor assist ceases to function.

5. A class 3 low-speed electric bicycle shall not be operated unless it is equipped with a speedometer that displays its speed in miles per hour.

6. A person under the age of sixteen shall not operate a class 3 low-speed electric bicycle. A person under the age of sixteen may ride as a passenger on a class 3 low-speed electric bicycle in compliance with section 321.234, subsection 4.

7. A person operating a low-speed electric bicycle on a highway is subject to the provisions of this chapter applicable to a rider of a bicycle on a highway and has all the rights and duties under this chapter applicable to a rider of a bicycle, except those provisions of this chapter which by their nature can have no application, or except as otherwise provided in this section.

8. Except for provisions of the Code made specifically applicable to low-speed electric bicycles in this section, low-speed electric bicycles are not subject to provisions of the Code applicable to vehicles, including provisions relating to all of the following:

a. Licensure, registration, titling, inspection, and proof of financial liability coverage.

b. Possession of a driver's license or permit.

9. a. A low-speed electric bicycle may be operated in any place where a bicycle is allowed to operate, including but not limited to streets, highways, roadways, shoulders, bicycle lanes, bikeways, and bicycle or multi-use paths.

b. A person shall not operate a class 3 low-speed electric bicycle on a bicycle lane or multi-use path in excess of the posted or applicable speed limit, or if there is no posted or applicable speed limit, twenty miles per hour.

2021 Acts, ch 125, §5, 8, 9

Referred to in §805.8A(9A)(b)

Subsections 1 and 2 apply to low-speed electric bicycles manufactured or distributed on or after January 1, 2022; 2021 Acts, ch 125, §8

Subsections 3 and 4 apply to low-speed electric bicycles manufactured or distributed on or after July 1, 2021; 2021 Acts, ch 125, §9

321.235B Low-speed electric bicycles — labels — operation.

1. A manufacturer or distributor of low-speed electric bicycles shall apply a label that is permanently affixed in a prominent location to each of the manufacturer's or distributor's low-speed electric bicycles. The label shall contain all of the following information printed in arial font with a font size not less than nine point type:

a. A classification number for the low-speed electric bicycle that corresponds with a class defined in [section 321.1, subsection 36A](#).

b. The low-speed electric bicycle's top assisted speed.

c. The low-speed electric bicycle's motor wattage.

2. A person shall not knowingly modify the speed capability or engagement of a low-speed electric bicycle such that the low-speed electric bicycle does not qualify for a class defined in [section 321.1, subsection 36A](#). If a person has modified the speed capability or engagement of a low-speed electric bicycle, the person shall affix a new label containing the information listed in [subsection 1](#) to the modified low-speed electric bicycle.

3. A low-speed electric bicycle shall be manufactured and equipped in compliance with [16 C.F.R. pt. 1512](#).

4. A low-speed electric bicycle shall be manufactured to operate in such a manner that when the rider stops pedaling, applies the brakes, or the electric motor is disengaged, the electric motor assist ceases to function.

5. A class 3 low-speed electric bicycle shall not be operated unless it is equipped with a speedometer that displays its speed in miles per hour.

6. A person under the age of sixteen shall not operate a class 3 low-speed electric bicycle. A person under the age of sixteen may ride as a passenger on a class 3 low-speed electric bicycle in compliance with [section 321.234, subsection 4](#).

7. A person operating a low-speed electric bicycle on a highway is subject to the provisions of [this chapter](#) applicable to a rider of a bicycle on a highway and has all the rights and duties under [this chapter](#) applicable to a rider of a bicycle, except those provisions of [this chapter](#) which by their nature can have no application, or except as otherwise provided in [this section](#).

8. Except for provisions of the Code made specifically applicable to low-speed electric bicycles in [this section](#), low-speed electric bicycles are not subject to provisions of the Code applicable to vehicles, including provisions relating to all of the following:

a. Licensure, registration, titling, inspection, and proof of financial liability coverage.

b. Possession of a driver's license or permit.

9. a. A low-speed electric bicycle may be operated in any place where a bicycle is allowed to operate, including but not limited to streets, highways, roadways, shoulders, bicycle lanes, bikeways, and bicycle or multi-use paths.

b. A person shall not operate a class 3 low-speed electric bicycle on a bicycle lane or multi-use path in excess of the posted or applicable speed limit, or if there is no posted or applicable speed limit, twenty miles per hour.

[2021 Acts, ch 125, §5, 8, 9](#)

Referred to in [§805.8A\(9A\)\(b\)](#)

Subsections 1 and 2 apply to low-speed electric bicycles manufactured or distributed on or after January 1, 2022; [2021 Acts, ch 125, §8](#)
Subsections 3 and 4 apply to low-speed electric bicycles manufactured or distributed on or after July 1, 2021; [2021 Acts, ch 125, §9](#)

Senate File 490 - Introduced

SENATE FILE 490

BY COMMITTEE ON TRANSPORTATION

(SUCCESSOR TO SF 375)

(COMPANION TO HF 74 BY GUSTOFF)

A BILL FOR

- 1 An Act relating to the maximum power output for low-speed
- 2 electric bicycles and pedestrian conveyances powered by an
- 3 electric motor.
- 4 BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF IOWA:

1 Section 1. Section 321.1, subsection 36A, unnumbered
2 paragraph 1, Code 2025, is amended to read as follows:

3 "*Low-speed electric bicycle*" means a device ~~having~~ equipped
4 with a saddle or seat for the use of a rider, two or three
5 wheels, ~~equipped with~~ fully operable pedals, and an electric
6 motor ~~of less than that produces not more than~~ seven hundred
7 fifty watts that meets, and is classified in accordance with
8 the following requirements of one of the following classes:

9 Sec. 2. Section 321.1, subsection 51A, Code 2025, is amended
10 to read as follows:

11 51A. "*Pedestrian conveyance*" means any human-powered device
12 by which a pedestrian may move other than by walking or by
13 which a pedestrian may move another person, including but not
14 limited to a wheelchair, stroller, skateboard, scooter, or
15 other similar device. "*Pedestrian conveyance*" also includes
16 an electric personal assistive mobility device and any other
17 device used to move a person sitting or standing on the device
18 regardless of whether the device is powered by an electric
19 motor, so long as the electric motor produces ~~less~~ not more
20 than seven hundred fifty watts. "*Pedestrian conveyance*" does
21 not include a bicycle.

22 EXPLANATION

23 The inclusion of this explanation does not constitute agreement with
24 the explanation's substance by the members of the general assembly.

25 This bill relates to the authorized maximum power produced
26 by electric motors on low-speed electric bicycles and
27 pedestrian conveyances. Current law limits the output of such
28 electric motors to less than 750 watts. The bill instead
29 authorizes such electric motors to produce not more than 750
30 watts. If an electric motor produces more than 750 watts and
31 is attached to what would otherwise be considered a low-speed
32 electric bicycle or personal conveyance, the provisions of Code
33 chapter 321 (motor vehicles and law of the road) relating to
34 vehicles, motor vehicles, automobiles, cars, motorcycles, and
35 motorized bicycles are applicable to such vehicles.

House File 765 -- Introduced

HOUSE FILE 765
BY COMMITTEE ON TRANSPORTATION

(SUCCESSOR TO HF 74)

A BILL FOR

1 An Act relating to the maximum power output for low-speed
2 electric bicycles and pedestrian conveyances powered by an
3 electric motor.
4 BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF IOWA:

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15 other similar device. "Pedestrian conveyance" also includes
16 an electric personal assistive mobility device and any other
17 device used to move a person sitting or standing on the device
18 regardless of whether the device is powered by an electric
19 motor, so long as the electric motor produces ~~less~~ not more
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28 electric motors to less than 750 watts. The bill instead
29 authorizes such electric motors to produce not more than 750
30 watts. If an electric motor produces more than 750 watts and
31 is attached to what would otherwise be considered a low-speed
32 electric bicycle or personal conveyance, the provisions of Code
33 chapter 321 (motor vehicles and law of the road) relating to
34 vehicles, motor vehicles, automobiles, cars, motorcycles, and
35 motorized bicycles are applicable to such vehicles.

Additional Information

In Iowa, electric bicycles (e-bikes) are regulated under specific statutes that outline their classification, equipment requirements, operational guidelines, and rider eligibility.

E-Bike Classifications:

Iowa classifies e-bikes into three categories based on their motor assistance and speed capabilities:

- **Class 1:** Equipped with a pedal-assist motor that ceases to provide assistance when the bicycle reaches a speed of 20 mph.
- **Class 2:** Equipped with a throttle-actuated motor that can exclusively propel the bicycle and stops providing assistance when the bicycle reaches a speed of 20 mph.
- **Class 3:** Equipped with a pedal-assist motor that ceases to provide assistance when the bicycle reaches a speed of 28 mph.

All e-bikes must have fully operable pedals and an electric motor of less than 750 watts (1 horsepower).

legis.iowa.gov

Equipment and Labeling Requirements:

- **Labeling:** Manufacturers or distributors must affix a permanent label to each e-bike, indicating its classification number, top assisted speed, and motor wattage.

legis.iowa.gov

- **Modification:** Altering an e-bike's speed capability or engagement in a manner that changes its classification is prohibited unless a new label reflecting these changes is affixed.

legis.iowa.gov

- **Speedometer:** Class 3 e-bikes must be equipped with a speedometer that displays speed in miles per hour.

legis.iowa.gov

Operational Guidelines:

- **Age Restrictions:** Individuals under 16 years old are prohibited from operating Class 3 e-bikes but may ride as passengers. There are no age restrictions for operating Class 1 and Class 2 e-bikes.

legis.iowa.gov

- **Helmet Use:** Iowa does not mandate helmet use for e-bike riders; however, wearing a helmet is strongly recommended for safety.

evelo.com

- **Licensing and Registration:** E-bikes are exempt from vehicle registration, licensing, and insurance requirements applicable to motor vehicles.

legis.iowa.gov

Where to Ride:

E-bikes are permitted on roadways, bike lanes, and multi-use paths where traditional bicycles are allowed. However, operators of Class 3 e-bikes must adhere to posted speed limits on these paths and may not exceed 20 mph if no speed limit is posted. Local jurisdictions may impose additional restrictions, so it's advisable to check local ordinances before riding.

legis.iowa.gov

For the most current information, consult the Iowa Department of Transportation or local authorities, as regulations can change over time.

Ankeny:

The City of Ankeny has established guidelines for the use of electric scooters and personal transportation devices on bicycle and trail paths:

- **Permitted Areas:** These devices are allowed only on paved bicycle paths and trails that are at least eight feet wide.
- **Operational Conduct:** Riders must obey traffic signals, yield to pedestrians and cyclists, maintain a safe speed, and keep a safe distance from others.
- **Parking:** Devices should be parked in designated areas without obstructing sidewalks or entrances.

It's important to note that these rules apply to privately owned devices; rental services are not permitted to operate within city limits.

ankenyiowa.gov

Marion:

Marion's regulations encompass bicycles, scooters, and skateboards, with provisions that likely extend to e-bikes:

- **Traffic Compliance:** Riders are granted the same rights and duties as motor vehicle drivers and must adhere to all applicable traffic laws.
- **Sidewalk Riding:** Riding on sidewalks is generally prohibited in business districts unless explicitly allowed by signage. In other areas, riders must yield to pedestrians and provide an audible signal before overtaking them.

- **Equipment Requirements:** At night, bicycles and similar devices must have a front lamp emitting a white light visible from at least 300 feet and a rear red reflector or lamp visible from the same distance.

These regulations aim to ensure safety and harmony among all road and path users.
ecode360.com

Davenport:

In Davenport, bicycle ordinances include several provisions relevant to e-bike riders:

- **Sidewalk Restrictions:** Riding bicycles on sidewalks in commercial districts is prohibited unless specifically designated by the traffic engineer.
- **Riding Conduct:** Riders must not operate bicycles in a careless manner, such as weaving through traffic or performing stunts, and should ride single file in business districts and on permitted sidewalks.
- **Traffic Adherence:** Bicyclists are required to observe all traffic ordinances, including signaling changes in direction and obeying traffic lights and stop signs.

These measures are designed to promote safety and order within the city's transportation network.
ecode360.com

Oelwein:

The City of Oelwein has specific ordinances pertaining to bicycle operation:

- **Traffic Rules:** Bicyclists must observe all traffic signals and signs, signaling changes in direction as required for motor vehicles, and avoiding weaving in and out of traffic.
- **Lighting:** Between sunset and sunrise, bicycles must display a front white light visible from at least 300 feet and a rear red light or reflector visible from the same distance.
- **Sidewalk Riding:** Riding bicycles, skateboards, roller skates, or roller blades on sidewalks in the Central Business District is prohibited. In other areas, such activities are allowed provided riders yield to pedestrians.

These ordinances aim to ensure the safety of both riders and pedestrians.
oelweinpolic.org

Iowa City:

Iowa City's bicycle regulations include provisions that may apply to e-bikes:

- **Operation:** Bicyclists are expected to follow local traffic laws, though specific details are not provided in the available summary.

- **Parking:** Regulations regarding bicycle parking are in place, but specific details are not provided in the available summary.
- **Lighting:** Requirements for lights and reflectors are specified, though specific details are not provided in the available summary.

For detailed information, consulting the full ordinance is recommended.

codelibrary.amlegal.com

Ames:

As of March 2025, Ames is considering drafting an ordinance to regulate e-bikes and personal transportation devices. Discussions include potential bans on these devices in certain areas, such as downtown and Campustown sidewalks, and implementing a 20-mile-per-hour speed limit on shared-use paths. Currently, the Ames Municipal Code addresses bicycles but does not specifically mention e-bikes or other power-assisted devices.

amestrib.com

Cedar Rapids:

Cedar Rapids requires a \$5 registration fee for bicycles, including e-bikes. The city prohibits the operation of bicycles and micromobility devices on public property where signs or pavement markings explicitly prohibit riding or in specified dismount zones.

library.municode.com

Iowa City:

The University of Iowa has specific regulations for e-mobility devices on campus. Riders must slow down to match pedestrian flow when within five bicycle lengths of others and are prohibited from riding on non-paved areas such as grass and planting beds unless designated as a bicycle trail.

opsmanual.uiowa.edu

Des Moines:

Des Moines is considering implementing restrictions on e-bike usage in areas with high pedestrian traffic, particularly for Class 3 e-bikes.

birchhunters.com

Staff Summary

3/17/2025

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: Keri Navratil, City Manager

SUBJECT: **Worksession Amendments to Storm Lake Municipal Code Title 3, Chapter 4 Waterworks**

BACKGROUND: Periodically, it becomes necessary for repairs to private service lines, fixtures and meters. Many times, property owners complete the work in a timely manner.

The ordinance provides for amendments to existing Sections 3-4-15 (Maintenance of Service Pipes) and Section 3-4-19 (Owners to Protect Meters). It also adds new Sections 3-4-15A (Failure to Maintain) and 3-4-15B (Emergency Maintenance).

Sections 3-4-15 and 3-4-15A cover maintaining and repairing water service lines and fixtures, and Section 3-4-19 pertains to water meters. The existing remedies for an owner's nonpayment of City repair work in Sections 3-4-15 and 3-4-19 is to shut off the water until payment. The amendments to Sections 3-4-15 and 3-4-19, along with the addition of Section 3-4-15A, remove that remedy and replace it with assessing delinquent payments to the property. Section 3-4-15B allows for emergency work to be undertaken to the extent required to abate the threat posed, and then such costs for that work may be charged to the property owner, and if not paid, assessed to the property. The amendments and additions make clear that property owners of rental properties may be charged the repair costs, and if not paid, the rental property may be assessed.

FISCAL IMPACT: N/A

RECOMMENDATION: N/A

ATTACHMENTS:

1. ordinance - water repair lien
2. Summary - City Code Chapter 3-4 Amendments (Water Line Repair Lien) (01.31.25)

ORDINANCE NO. __

**AN ORDINANCE AMENDING TITLE III OF THE 1994
RECODIFICATION OF THE MUNICIPAL CODE OF THE CITY
OF STORM LAKE, IOWA, REGARDING MAINTENANCE OF
WATER UTILITY INFRASTRUCTURE WITHIN THE
CORPORATE LIMITS OF STORM LAKE, IOWA**

WHEREAS, Title III, Chapter 3-4, Waterworks, of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa ("City Code") regulates the operation and maintenance of the water system of the City of Storm Lake, Iowa; and

WHEREAS, the Council hereby determines the provisions set out herein are in the public's best interests to adopt and enforce henceforth.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF STORM LAKE, IOWA, THAT:

SECTION ONE. Title III of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa, is hereby amended by repealing and replacing Section 3-4-15, Maintenance Of Service Pipes, as follows:

Section 3-4-15 Maintenance Of Service Pipes

All service pipes and fixtures of every kind from the street water main to the premises, including but not limited to the corporation cocks at the mains, the water service lines, and the stop cocks, shall be installed and maintained at the expense of the property owner. Any leaks or other defects in the same shall be promptly repaired by the property owner. If leaks or other defects are not promptly repaired by the property owner, the water shall be turned off until such repairs have been made, and the expense incurred for discontinuing and restarting water service shall be charged to and paid by such owner. The provisions of this section shall include properties registered as rental properties within the City and the owners thereof.

The owner shall indemnify the City from any loss or damage that may directly or indirectly be occasioned by the installation or maintenance of said water service pipes and fixtures.

Stop cock locations shall not be in sidewalks, driveways, or any type of concrete improvement. Stop cocks shall be placed within and as close as otherwise practical to the boundary lines of the property owner's property. Exact stop cock location shall be as determined by the City.

In the event the City should discontinue and abandon the use of an existing water main and relocate the new water main on the opposite side of the street, the City will install, at the City's expense, that portion of the service pipe from the abandoned water main to the newly-installed water main.

SECTION TWO. Title III of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa, is hereby amended by adding a new Section 3-4-15A, to Chapter 3-4, Waterworks, as follows:

3-4-15A Failure to Maintain

When any portion of the service pipes and fixtures from the street water main to the premises which is the responsibility of the property owner, including but not limited to the corporation cocks at the mains, the water service lines, and the stop cocks, becomes defective or creates a nuisance and the owner fails to correct such defect or nuisance following notice, the City shall discontinue water service, pursuant to Section 3-4-15, and may correct the defective condition or abate the nuisance at the property owner's cost, following notice to the property owner.

In the event the City makes corrections to the service pipes or fixtures to correct a defect or nuisance, the City shall charge the property owner the costs thereof. All charges incident to the City's correction or maintenance shall be charged at the amounts provided for by section 3-4-9, and such charges shall be the property owner's obligation to pay. Should such charges become delinquent, the City may assess the costs thereof to the property, following notice to the property owner.

The provisions of this section shall include properties registered as rental properties within the City and the owners thereof.

The owner shall indemnify the City from any loss or damage that may directly or indirectly be occasioned by the correction or maintenance work required.

SECTION THREE. Title III of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa, is hereby amended by adding a new Section 3-4-15B, to Chapter 3-4, Waterworks, as follows:

3-4-15B Emergency Maintenance

(A) In the event the state or condition of a property's service pipes or fixtures of any kind from the street water main to the premises threaten life, safety, property, or infrastructure so as to constitute an emergency, as determined by the City Manager, the City may undertake the necessary emergency maintenance required to abate the threat.

1. The City shall make a reasonable attempt to notify the property owner of its intent to conduct such necessary emergency maintenance.
2. The City may charge the property owner the costs for any necessary emergency maintenance to the service pipes or fixtures at the amounts provided for by section 3-4-9, and such charges shall be the property owner's obligation to pay.

3. Should such charges become delinquent, the City may assess the costs thereof to the property, following notice to the property owner. The provisions of this section shall include properties registered as rental properties within the City and the owners thereof.

(B) Emergencies Enumerated. The following circumstances may constitute an emergency for purposes of this section, but shall not be limited hereto:

1. A curb stop in disrepair resulting in the City's inability to shut off water supply to the property.

2. Water lines or meters in disrepair at any time during which a resolution of the City Council declaring a public emergency water shortage, pursuant to section 3-5-4, is in effect, and imposing water conservation measures pursuant to section 3-5-5.

SECTION FOUR. Title III of the 1994 Recodification of the Municipal Code of the City of Storm Lake, Iowa, is hereby amended by repealing and replacing Section 3-4-19, Owners To Protect Meters, as follows:

3-4-19 Owners To Protect Meters

(A) The property owner of the premises where a meter or remote control meter reading device is installed shall be held responsible for its care and protection from freezing or hot water and from other damage or interference from any person. (Every hot water heater and hot water storage tank must have a check valve on the supply pipe line and a suitable relief valve on the discharge line of such heater or tank.)

(B) In case of any damage to the meter or remote control meter reading device, or in case of its stoppage or imperfect working, the property owner shall give immediate notice to the office of the City Clerk.

(C) In all cases where the meters or remote control meter reading devices are broken or damaged by negligence of owners or occupants of premises, or by freezing, hot water or other damage except ordinary wear and tear, the necessary repairs to the meter or remote control meter reading device shall be made by the City after first giving notice thereof to the property owner, and the costs of such repairs paid for by such property owner.

(D) When a meter or remote control meter reading device becomes inoperative, damaged, or fails as a result of ordinary wear and tear, or otherwise, the property owner shall give immediate notice to the office of the City Clerk. The meter or

remote control meter reading device shall be repaired or replaced in accordance with section 3-4-16.

(E) All charges incident to any repair or replacement by the City of a property's meter or remote control meter shall be charged at the amounts provided for by section 3-4-9. Should such charges become delinquent, the City may assess the costs thereof to the property, following notice to the property owner.

(F) No one shall in any way interfere with the proper registration of a water meter or remote control meter reading device, and no one except an authorized employee of the Water Department shall break a seal of a meter or remote control meter reading device or shall remove, relocate or alter a remote meter; provided, however, that the City Manager or City Clerk may grant written permits to licensed plumbers in case of emergency to break such seal for draining pipes or stopping water leaks.

(G) The provisions of this section shall include properties registered as rental properties within the City and the owners thereof.

(H) Any failure to adhere to the requirements of this section for the protection and maintenance of a property's meter and remote control meter reading device, if applicable, shall be a violation of this Chapter and subject to enforcement under section 3-4-30.

SECTION FIVE. 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 SIX. Repealer. All ordinances or parts of ordinances in conflict with the provisions of this Ordinance are hereby repealed.

SECTION SEVEN. 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 EIGHT. 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 _____, 2025.

PASSED on its second consideration the _____ day of _____, 2025.

Requirement of consideration and vote at two (2) prior Council meetings suspended the _____ day of _____, 2025.

PASSED AND APPROVED on its third consideration this _____ day of _____, 2025.

CITY OF STORM LAKE, IOWA

By: _____
Micheal Porsch, Mayor

_____ No action taken by Mayor.

_____ Vetoed this _____ day of _____, 2025.

Michael Porsch, Mayor
ATTEST:

Mayra A, Martinez, City Clerk

_____ Repassed and adopted over the veto this _____ day of _____, 2025.

_____ Veto affirmed this _____ day of _____, 2025 by failure of vote taken to repass.

_____ Veto affirmed no timely vote taken to repass over veto.

ATTEST:

Mayra A. Martinez, City Clerk

AMENDMENTS TO STORM LAKE MUNICIPAL CODE

TITLE III, CHAPTER 4, WATERWORKS

AMENDMENT:

Section 3-4-15 Maintenance Of Service Pipes

All service pipes and fixtures of every kind from the street water main to the premises, including but not limited to the corporation cocks at the mains, the water service lines, and the stop cocks, shall be installed and maintained at the expense of the property owner.~~s and a~~Any leaks or other defects in the same shall be promptly repaired by the property owner. If leaks or other defects are m, or if not promptly repaired by the property owner, the water shall be turned off until such repairs have been made, and the expense incurred thereby for discontinuing and restarting water service shall be charged to against and paid by such owner. The provisions of this section shall include properties registered as rental properties within the City and the owners thereof, and must be paid before the water shall again be turned on.

The owner shall indemnify the City from any loss or damage that may directly or indirectly be occasioned by the installation or maintenance of said water service pipes and fixtures.

Stop cock locations shall not be in sidewalks, driveways, or any type of concrete improvement. Stop cocks shall be placed within and as close as otherwise practical to the boundary lines of the property owner's property. Exact stop cock location shall be as determined by the City.

In the event the City should discontinue and abandon the use of an existing water main and relocate the new water main on the opposite side of the street, the City will install, at the City's expense, that portion of the service pipe from the abandoned water main to the newly-installed water main.

NEW SECTION:

3-4-15A Failure to Maintain

When any portion of the service pipes and fixtures from the street water main to the premises which is the responsibility of the property owner, including but not limited to the corporation cocks at the mains, the water service lines, and the stop cocks, becomes defective or creates a nuisance and the owner fails to correct such defect or nuisance following notice, the City shall discontinue water service, pursuant to Section 3-4-15, and may correct the defective condition or abate the nuisance at the property owner's cost, following notice to the property owner.

In the event the City makes corrections to the service pipes or fixtures to correct a defect or nuisance, the City shall charge the property owner the costs thereof. All charges incident to the City's correction or maintenance shall be charged at the amounts provided for by section 3-4-9, and such charges shall be the property owner's obligation to pay. Should such charges become delinquent, the City may assess the costs thereof to the property, following notice to the property owner.

The provisions of this section shall include properties registered as rental properties within the City and the owners thereof.

The owner shall indemnify the City from any loss or damage that may directly or indirectly be occasioned by the correction or maintenance work required.

NEW SECTION:

3-4-15B Emergency Maintenance

(A) In the event the state or condition of a property's service pipes or fixtures of any kind from the street water main to the premises threaten life, safety, property, or infrastructure so as to constitute an emergency, as determined by the City Manager, the City may undertake the necessary emergency maintenance required to abate the threat.

1. The City shall make a reasonable attempt to notify the property owner of its intent to conduct such necessary emergency maintenance.

2. The City may charge the property owner the costs for any necessary emergency maintenance to the service pipes or fixtures at the amounts provided for by section 3-4-9, and such charges shall be the property owner's obligation to pay.

3. Should such charges become delinquent, the City may assess the costs thereof to the property, following notice to the property owner. The provisions of this section shall include properties registered as rental properties within the City and the owners thereof.

(B) Emergencies Enumerated. The following circumstances may constitute an emergency for purposes of this section, but shall not be limited hereto:

1. A curb stop in disrepair resulting in the City's inability to shut off water supply to the property.

2. Water lines or meters in disrepair at any time during which a resolution of the City Council declaring a public emergency water shortage, pursuant to section 3-5-4, is in effect, and imposing water conservation measures pursuant to section 3-5-5.

AMENDMENT:

3-4-19 Owners To Protect Meters

(A) The property owner or occupant of premises where a meter or remote control meter reading device is installed shall be held responsible for its care and protection from freezing or hot water and from other damage or interference from any person. (Every hot water heater and hot water storage tank must have a check valve on the supply pipe line and a suitable relief valve on the discharge line of such heater or tank.)

(B) In case of any damage to the meter or remote control meter reading device, or in case of its stoppage or imperfect working, he shall give immediate notice to the office of the City Clerk.

(C) In all cases where the meters or remote control meter reading devices are broken or damaged by negligence of owners or occupants of premises, or by freezing, hot water or other damage except ordinary wear and tear, the necessary repairs to the meter or remote control meter reading device shall be made by the City after first giving notice thereof to the property owner, and the costs of such repairs paid for by such property owner.

(D) When a meter or remote control meter reading device becomes inoperative, damaged, or fails as a result of ordinary wear and tear, or otherwise, the property owner shall give immediate notice to the office of the City Clerk. The meter or remote control meter reading device shall be repaired or replaced in accordance with section 3-4-16.

(E) All charges incident to any repair or replacement by the City of a property's meter or remote control meter shall be charged at the amounts provided for by section 3-4-9. Should such charges become delinquent, the City may assess the costs thereof to the property, following notice to the property owner.

~~(F) -or occupant, and in case payment thereof is neglected or refused, the water supply shall be turned off and shall not be turned on until full payment has been made, together with a fee, in the amount set by Council Resolution, for turning on the water again and a fee, in the amount set by Council Resolution, for posting the disconnect notice (door tag). Damaged meters or remote control meter reading devices may be repaired by the City without first giving notice thereof to the owner of the premises served by such meter or remote control reading device. (Every hot water heater and hot water storage tank must have a check valve on the supply pipe line and a suitable relief valve on the discharge line of such heater or tank.)~~ No one shall in any way interfere with the proper registration of a water meter or remote control meter reading device, and no one except an authorized employee of the Water Department shall break a seal of a meter or remote control meter reading device or shall remove, relocate or alter a remote meter; provided, however, that the City ~~Administrator-Manager~~ or City Clerk may grant written permits to licensed plumbers in case of emergency to break such seal for draining pipes or stopping water leaks.

(A)(G) The provisions of this section shall include properties registered as rental properties within the City and the owners thereof.

Any failure to adhere to the requirements of this section for the protection and maintenance of a property's meter and remote control meter reading device, if applicable, shall be a violation of this Chapter and subject to enforcement under section 3-4-30.

(H) _____

Commented [A1]: If property owners are refusing to repair/replace old meters, the City may cite them with a municipal infraction as an enforcement mechanism. Water is required to be metered per Section 3-4-16. Updates in this section, Sub. (D), would require residents to notify the City if/when their water meter stops working and then repair or replace the meter, to be furnished by the City, in accordance with Section 3-4-16.