CITY OF HUDSON

Engineer's Report

2024 Street Improvements Project (Green Street)

City Project No. 24-01

July 25, 2024

CERTIFICATION

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



Erin McPhee Anderson _____ Date: 07/25/2024

Erin McPhee Anderson, PE

STATEMENT OF BENEFIT

This project benefits the properties proposed to be assessed. According to Wisconsin State Statutes 66.0703, the City of Hudson intends to exercise its police power to collect special assessments for this project. Attached to this report in Appendix A is the schedule of proposed assessments.

Introduction

The City of Hudson is planning to reconstruct approximately 0.2 miles of Green Street from 11th Street to the Termini. Green Street has severely deteriorating pavement, curb and gutter settlement, and substandard drainage infrastructure. The City is recommending full pavement replacement, curb and gutter reconstruction, subgrade soil corrections, and upgrades to the storm sewer system.

Recommendations

Roadway Improvements

Green Street serves as a residential roadway with a cul-de-sac at the end. The traffic is expected to be mostly residents, homeowners, and a small amount of truck traffic from refuse and recycling and delivery vehicles.

The street pavement PASER rating is a three out of ten, with one being the poorest condition and ten being the best. This means that the pavement is nearing the end of its useful life before needing to be fulling reconstructed. Additionally, the City has contracted with a third-party firm to obtain core samples from the roadway, at a depth of 14.0 feet, to determine the existing pavement thickness, base aggregate material and thickness, and underlying subgrade material composition. These results show the asphalt pavement thickness varying from 1.25” to 4.00”, a thin section of base aggregate ranging from 1” to 5”, and a less than desirable subgrade composition, consisting of fine silts and buried topsoil. Based on the poor PASER rating and inadequate base materials, a full-reconstruction with possible soil correction areas is recommended. This method of rehabilitation will provide the best long-term solution for the roadway, mitigating future maintenance and extending the life cycle of the pavement.

The project will also include full concrete curb and gutter replacement. Much of the existing curb and gutter is in poor condition, with many sections experiencing severe settlement, indicating inadequate base material. Replacing the curb and gutter will allow for excavation of unsuitable materials underneath the curb and pavement area and allow for design flexibility with the roadway profile and cross slope, which will help promote drainage along the roadway.

Drainage and Utility Improvements

Minor storm sewer, sanitary sewer, and watermain improvements will be made within the project corridor as outlined below.

There are a total of three storm sewer inlets along Green Street; one in the cul-de-sac and two at the low point approximately 250-feet west of 11th Street. There are ponding concerns during high intensity rainfall events at both inlet locations due to the undersized storm sewer system and clogging that frequently occurs in the small inlets.

The storm sewer system was evaluated by the engineering consultant Short, Elliott, Hendrickson, Inc. (SEH) to determine the storm sewer needs and found that additional inlets would be needed to the east and west of the low point to have ideal spread in a 10-year storm event. The report also recommended two inlets at the cul-de-sac, instead of one. The cost of running additional storm sewer pipe under Green Street was evaluated, along with the potential drainage improvements. It was determined that adding four larger catch basins at the low-point and two inlets at the cul-de-sac would have the desired drainage outcome at a reasonable cost and is recommended with the project design.

Sanitary sewer manholes and water main gate valve boxes will need to be adjusted to finished grade elevation of the roadway. Two hydrants will be replaced due to age and condition.

Funding

Capital Improvement Program

Most of the project cost will be funded from the City's Infrastructure Capital Improvement Plan (CIP). Green Street was included in the 2023-2027 CIP. The sanitary sewer and watermain improvements will be funded with city utility funds.

State Grants

The City received a Local Roads Improvement Program (LRIP) grant in the amount of $20,963.78 for the Green Street project. This funding will be utilized for the roadway improvement costs.

Special Assessments

The City of Hudson's special assessment policy applies to the project activities according to the following schedule:

- Curb and Gutter - 50% of the cost of replacement, including all items associated with the removal of existing curb and gutter and replacement with new concrete curb and gutter.
- Driveway Replacement – 100% of the cost of replacement, including all items associated with the removal of the existing driveway and replacement with a new concrete or bituminous driveway.

The assessments include the material and labor costs of the construction of each assessable item. Additionally, Planning and Administration Fees are collected to offset the time spent by city staff to prepare project-related work, such as project accounting, project correspondence, public hearings, and other work not directly related to the engineering tasks associated with the project. The Planning and Administration Fees are calculated as follows:

- 1.5% on first $250,000 of total assessable costs
- 1.3% on next $750,000
- 1.1% on next $1,000,000
- 1.0% on next $1,000,000
- 0.8% on next $1,000,000
- 0.6% on remainder

Since this project has an estimated assessable cost of under $250,000, the rate used to calculate the Planning and Administration Fees is 1.5%.

The City of Hudson believes that replacement of curb and gutter, along with the associated driveway apron replacement, constitutes a benefit to the fronting properties.

A detailed breakdown of estimated project costs and preliminary assessment calculations are provided in **Appendix A**. The assessment amounts utilize the bid prices received from the Contractor awarded the project. The preliminary assessment quantities may change based on field conditions during construction or requests from property owners. Final project costs and assessments will be determined at the time of project close-out.

A summary of the project funding is as follows:

Expenses:

Construction Costs (As-Bid)	$406,117.25
Estimated Engineering Costs:	$100,000.00
Total Project Costs:	**$506,117.25**

Funding:

Special Assessments	$60,600.00
Infrastructure CIP Funds	$815,330.00
Water and Sanitary Funds	$16,250.00
LRIP Funds	$20,963.78
Total Project Funding:	**$913,143.78**

Bids were received on April 16th, 2024 and the Common Council awarded the construction contract to Haas Sons, Inc. at the April 22nd, 2024 regular council meeting. The bid tabulation showing unit price information can be seen in **Appendix B.** The plans and specifications for the project can be seen in **Appendix C**.

Summary

The recommended project improvements include the following along Green Street:

- Removal and replacement of the existing pavement section.
- Excavation of non-suitable subgrade and replacement with adequate fill material.
- Concrete curb and gutter replacement.
- Storm sewer improvements including additional inlets at the low point and cul-de-sac.

APPENDIX A

Preliminary Assessment Calculations

PRELIMINARY ASSESSMENT CALCULATIONS
PROJECT NAME: 2024 Street Improvements (Green Street)
PROJECT NUMBER: 24-01
RATES USED: As-Bid (Haas Sons, Inc)
Assessment Policy Version: 03/18/2024

TOTAL CONSTRUCTION CONTRACT COST	$	406,117.25
CONTINGENCY (NOT ADDED TO FINAL ASSESSMENTS)		20%
SPECIAL ASSESSMENT ADMINISTRATIVE RATE		1.5%
TOTAL		21.5%
TOTAL ESTIMATED ASSESSMENTS TO ALL PROPERTIES	**$**	**60,605.57**

NO.	PROPERTY OWNER NAME	PROPERTY ADDRESS	PARCEL ID	ITEM	UNIT	UNIT PRICE	QUANITITY	TOTAL COST	COST SHARE	TOTAL ASSESSABLE COST
1	Aaron Smith & Cassandra Smith	724 Green Street	236-1713-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	6.5	$ 19.50	100%	$ 19.50
				PATCH ASPHALT DRIVEWAY	SQ YD	$ 39.00	8	$ 312.00	100%	$ 312.00
									SUBTOTAL	$ 1,031.50
									PLANNING AND ADMINISTRATION FEE AND CONTINGENCY	$ 221.77
									TOTAL ESTIMATED ASSESSMENT	**$ 1,253.27**
2	James W Bauer	800 Green Street	236-1714-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	13	$ 78.00	100%	$ 78.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	140	$ 1,225.00	100%	$ 1,225.00
									SUBTOTAL	$ 2,003.00
									PLANNING AND ADMINISTRATION FEE AND CONTINGENCY	$ 430.65
									TOTAL ESTIMATED ASSESSMENT	**$ 2,433.65**
3	Michael J Jarmuz	808 Green Street	236-1715-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	10	$ 60.00	100%	$ 60.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	160	$ 1,400.00	100%	$ 1,400.00
									SUBTOTAL	$ 2,160.00
									PLANNING AND ADMINISTRATION FEE AND CONTINGENCY	$ 464.40
									TOTAL ESTIMATED ASSESSMENT	**$ 2,624.40**
4	Mark Robert and Teresa L Jepperson Rev Trust	816 Green Street	236-1716-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	7	$ 21.00	100%	$ 21.00
				PATCH ASPHALT DRIVEWAY	SQ YD	$ 39.00	10	$ 390.00	100%	$ 390.00
									SUBTOTAL	$ 1,111.00
									PLANNING AND ADMINISTRATION FEE AND CONTINGENCY	$ 238.87
									TOTAL ESTIMATED ASSESSMENT	**$ 1,349.87**

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CONTINGENCY (NOT ADDED TO FINAL ASSESSMENTS)		20%
SPECIAL ASSESSMENT ADMINISTRATIVE RATE		1.5%
TOTAL		21.5%
TOTAL ESTIMATED ASSESSMENTS TO ALL PROPERTIES	**$**	**60,605.57**

NO.	PROPERTY OWNER NAME	PROPERTY ADDRESS	PARCEL ID	ITEM	UNIT	UNIT PRICE	QUANITITY	TOTAL COST	COST SHARE	TOTAL ASSESSABLE COST
5	Shawn E Duhoux	824 Green Street	236-1717-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	16	$ 48.00	100%	$ 48.00
				PATCH ASPHALT DRIVEWAY	SQ YD	$ 39.00	18	$ 702.00	100%	$ 702.00
									SUBTOTAL	$ 1,450.00
									PLANNING AND ADMINISTRATION FEE AND CONTINGENCY	$ 311.75
									TOTAL ESTIMATED ASSESSMENT	**$ 1,761.75**
6	Bohlen Properties LLC	900 Green Street	236-1718-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	15	$ 90.00	100%	$ 90.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	160	$ 1,400.00	100%	$ 1,400.00
									SUBTOTAL	$ 2,190.00
									PLANNING AND ADMINISTRATION FEE AND CONTINGENCY	$ 470.85
									TOTAL ESTIMATED ASSESSMENT	**$ 2,660.85**
7	Emily E Bakken	906 Green Street	236-1719-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	14	$ 84.00	100%	$ 84.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	160	$ 1,400.00	100%	$ 1,400.00
									SUBTOTAL	$ 2,184.00
									PLANNING AND ADMINISTRATION FEE AND CONTINGENCY	$ 469.56
									TOTAL ESTIMATED ASSESSMENT	**$ 2,653.56**
8	Nicholas C Voss	912 Green Street	236-1720-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	4	$ 12.00	100%	$ 12.00
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	2	$ 12.00	100%	$ 12.00
				PATCH ASPHALT DRIVEWAY	SQ YD	$ 39.00	10	$ 390.00	100%	$ 390.00
									SUBTOTAL	$ 1,114.00
									PLANNING AND ADMINISTRATION FEE AND CONTINGENCY	$ 239.51
									TOTAL ESTIMATED ASSESSMENT	**$ 1,353.51**

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TOTAL ESTIMATED ASSESSMENTS TO ALL PROPERTIES	**$**	**60,605.57**

NO.	PROPERTY OWNER NAME	PROPERTY ADDRESS	PARCEL ID	ITEM	UNIT	UNIT PRICE	QUANITITY	TOTAL COST	COST SHARE	TOTAL ASSESSABLE COST
9	Wyatt & Victoria Stutzke	918 Green Street	236-1721-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	10	$ 60.00	100%	$ 60.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	120	$ 1,050.00	100%	$ 1,050.00
									SUBTOTAL	$ 1,810.00
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 389.15
								TOTAL ESTIMATED ASSESSMENT		**$ 2,199.15**
10	Stephen D Lashinski & Jodi L Peterson	1000 Green Street	236-1722-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	14	$ 84.00	100%	$ 84.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	205	$ 1,793.75	100%	$ 1,793.75
				SIDEWALK - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	2	$ 12.00	50%	$ 6.00
				CONCRETE SIDEWALK - 4 INCH	SQ FT	$ 8.50	20	$ 170.00	50%	$ 85.00
									SUBTOTAL	$ 2,668.75
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 573.78
								TOTAL ESTIMATED ASSESSMENT		**$ 3,242.53**
11	Comfy Homes LLC	1006 Green Street	236-1723-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	5.5	$ 16.50	100%	$ 16.50
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	2.5	$ 15.00	100%	$ 15.00
				PATCH ASPHALT DRIVEWAY	SQ YD	$ 39.00	12	$ 468.00	100%	$ 468.00
									SUBTOTAL	$ 1,199.50
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 257.89
								TOTAL ESTIMATED ASSESSMENT		**$ 1,457.39**
12	Craig J Stewart	1012 Green Street	236-1724-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	80	$ 240.00	50%	$ 120.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	80	$ 1,160.00	50%	$ 580.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	9.5	$ 57.00	100%	$ 57.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	110	$ 962.50	100%	$ 962.50
									SUBTOTAL	$ 1,719.50
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 369.69
								TOTAL ESTIMATED ASSESSMENT		**$ 2,089.19**

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TOTAL ESTIMATED ASSESSMENTS TO ALL PROPERTIES	**$**	**60,605.57**

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13	Jolene M Kohn	1016 Green Street	236-1638-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	70.5	$ 211.50	50%	$ 105.75
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	70.5	$ 1,022.25	50%	$ 511.13
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	10	$ 60.00	100%	$ 60.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	110	$ 962.50	100%	$ 962.50
				SIDEWALK - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	1	$ 6.00	50%	$ 3.00
				CONCRETE SIDEWALK - 4 INCH	SQ FT	$ 8.50	18	$ 153.00	50%	$ 76.50
									SUBTOTAL	$ 1,718.88
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 369.56
								TOTAL ESTIMATED ASSESSMENT		**$ 2,088.43**
14	Mary Ann Remus	1020 Green Street	236-1633-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	51	$ 153.00	50%	$ 76.50
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	51	$ 739.50	50%	$ 369.75
				SIDEWALK - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	1	$ 6.00	50%	$ 3.00
				CONCRETE SIDEWALK - 4 INCH	SQ FT	$ 8.50	10	$ 85.00	50%	$ 42.50
									SUBTOTAL	$ 491.75
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 105.73
								TOTAL ESTIMATED ASSESSMENT		**$ 597.48**
15	Andrew A Vorwald	1025 Green Street	236-1196-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	122	$ 366.00	25%	$ 91.50
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	122	$ 1,769.00	25%	$ 442.25
				DRIVEWAY - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	6	$ 18.00	100%	$ 18.00
				PATCH ASPHALT DRIVEWAY	SQ YD	$ 39.00	9	$ 351.00	100%	$ 351.00
				SIDEWALK - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	1.5	$ 4.50	50%	$ 2.25
				PATCH ASPHALT DRIVEWAY (CATWALK REPLACEMENT)	SQ YD	$ 39.00	1.5	$ 58.50	50%	$ 29.25
									SUBTOTAL	$ 934.25
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 200.86
								TOTAL ESTIMATED ASSESSMENT		**$ 1,135.11**

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NO.	PROPERTY OWNER NAME	PROPERTY ADDRESS	PARCEL ID	ITEM	UNIT	UNIT PRICE	QUANITITY	TOTAL COST	COST SHARE	TOTAL ASSESSABLE COST
16	William R Salveson	1011 Green Street	236-1197-01-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	70	$ 210.00	50%	$ 105.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	82	$ 1,189.00	50%	$ 594.50
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	12	$ 72.00	100%	$ 72.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	175	$ 1,531.25	100%	$ 1,531.25
				SIDEWALK - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	2	$ 12.00	50%	$ 6.00
				CONCRETE SIDEWALK - 4 INCH	SQ FT	$ 8.50	20	$ 170.00	50%	$ 85.00
									SUBTOTAL	$ 2,393.75
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 514.66
								TOTAL ESTIMATED ASSESSMENT		**$ 2,908.41**
17	Thomas Raymond Frank	1003 Green Street	236-1198-01-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	74	$ 222.00	50%	$ 111.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	74	$ 1,073.00	50%	$ 536.50
				DRIVEWAY - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	8	$ 24.00	100%	$ 24.00
				PATCH ASPHALT DRIVEWAY	SQ YD	$ 39.00	6	$ 234.00	100%	$ 234.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	115	$ 1,006.25	100%	$ 1,006.25
									SUBTOTAL	$ 1,911.75
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 411.03
								TOTAL ESTIMATED ASSESSMENT		**$ 2,322.78**
18	Luke Knoble & Elisa Knoble	929 Green Street	236-1199-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	78	$ 234.00	50%	$ 117.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	78	$ 1,131.00	50%	$ 565.50
				DRIVEWAY - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	12.5	$ 37.50	100%	$ 37.50
				PATCH ASPHALT DRIVEWAY	SQ YD	$ 39.00	15	$ 585.00	100%	$ 585.00
									SUBTOTAL	$ 1,305.00
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 280.58
								TOTAL ESTIMATED ASSESSMENT		**$ 1,585.58**

PRELIMINARY ASSESSMENT CALCULATIONS
PROJECT NAME: 2024 Street Improvements (Green Street)
PROJECT NUMBER: 24-01
RATES USED: As-Bid (Haas Sons, Inc)
Assessment Policy Version: 03/18/2024

TOTAL CONSTRUCTION CONTRACT COST	$	406,117.25
CONTINGENCY (NOT ADDED TO FINAL ASSESSMENTS)		20%
SPECIAL ASSESSMENT ADMINISTRATIVE RATE		1.5%
TOTAL		21.5%
TOTAL ESTIMATED ASSESSMENTS TO ALL PROPERTIES	**$**	**60,605.57**

NO.	PROPERTY OWNER NAME	PROPERTY ADDRESS	PARCEL ID	ITEM	UNIT	UNIT PRICE	QUANITITY	TOTAL COST	COST SHARE	TOTAL ASSESSABLE COST
19	Hayley I Olson	923 Green Street	236-1200-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	78	$ 234.00	50%	$ 117.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	78	$ 1,131.00	50%	$ 565.50
				DRIVEWAY - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	21	$ 63.00	100%	$ 63.00
				PATCH ASPHALT DRIVEWAY	SQ YD	$ 39.00	7	$ 273.00	100%	$ 273.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	250	$ 2,187.50	100%	$ 2,187.50
				SIDEWALK - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	2	$ 12.00	50%	$ 6.00
				CONCRETE SIDEWALK - 4 INCH	SQ FT	$ 8.50	18	$ 153.00	50%	$ 76.50
									SUBTOTAL	$ 3,288.50
						PLANNING AND ADMINISTRATION FEE AND CONTINGENCY				$ 707.03
								TOTAL ESTIMATED ASSESSMENT		**$ 3,995.53**
20	Judy M Gilbert	915 Green Street	236-1201-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	70	$ 210.00	50%	$ 105.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	70	$ 1,015.00	50%	$ 507.50
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	6	$ 36.00	100%	$ 36.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	75	$ 656.25	100%	$ 656.25
									SUBTOTAL	$ 1,304.75
						PLANNING AND ADMINISTRATION FEE AND CONTINGENCY				$ 280.52
								TOTAL ESTIMATED ASSESSMENT		**$ 1,585.27**
21	Andrew J Entenza	909 Green Street	236-1202-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	69	$ 207.00	50%	$ 103.50
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	69	$ 1,000.50	50%	$ 500.25
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	19.5	$ 117.00	100%	$ 117.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	205	$ 1,793.75	100%	$ 1,793.75
									SUBTOTAL	$ 2,514.50
						PLANNING AND ADMINISTRATION FEE AND CONTINGENCY				$ 540.62
								TOTAL ESTIMATED ASSESSMENT		**$ 3,055.12**
22	Sarah Faye Aarthun	903 Green Street	236-1203-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	69	$ 207.00	50%	$ 103.50
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	69	$ 1,000.50	50%	$ 500.25
				SIDEWALK - RECONSTRUCTION						
				ALLOWANCE (ESTIMATED T&M FOR PAVERS)	LUMP SUM	$ 400.00	1	$ 400.00	50%	$ 200.00
									SUBTOTAL	$ 803.75
						PLANNING AND ADMINISTRATION FEE AND CONTINGENCY				$ 172.81
								TOTAL ESTIMATED ASSESSMENT		**$ 976.56**

PRELIMINARY ASSESSMENT CALCULATIONS
PROJECT NAME: 2024 Street Improvements (Green Street)
PROJECT NUMBER: 24-01
RATES USED: As-Bid (Haas Sons, Inc)
Assessment Policy Version: 03/18/2024

TOTAL CONSTRUCTION CONTRACT COST	$	406,117.25
CONTINGENCY (NOT ADDED TO FINAL ASSESSMENTS)		20%
SPECIAL ASSESSMENT ADMINISTRATIVE RATE		1.5%
TOTAL		21.5%
TOTAL ESTIMATED ASSESSMENTS TO ALL PROPERTIES	**$**	**60,605.57**

NO.	PROPERTY OWNER NAME	PROPERTY ADDRESS	PARCEL ID	ITEM	UNIT	UNIT PRICE	QUANITITY	TOTAL COST	COST SHARE	TOTAL ASSESSABLE COST
23	Craig A Okello	821 Green Street	236-1180-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	72	$ 216.00	50%	$ 108.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	72	$ 1,044.00	50%	$ 522.00
									SUBTOTAL	$ 630.00
						PLANNING AND ADMINISTRATION FEE AND CONTINGENCY				$ 135.45
								TOTAL ESTIMATED ASSESSMENT		**$ 765.45**
24	Seth T & Sarah J Tegtmeier	815 Green Street	236-1181-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	72	$ 216.00	50%	$ 108.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	72	$ 1,044.00	50%	$ 522.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	18	$ 108.00	100%	$ 108.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	200	$ 1,750.00	100%	$ 1,750.00
									SUBTOTAL	$ 2,488.00
						PLANNING AND ADMINISTRATION FEE AND CONTINGENCY				$ 534.92
								TOTAL ESTIMATED ASSESSMENT		**$ 3,022.92**
25	Colleen C Fellrath	807 Green Street	236-1182-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	72	$ 216.00	50%	$ 108.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	72	$ 1,044.00	50%	$ 522.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	10	$ 60.00	100%	$ 60.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	125	$ 1,093.75	100%	$ 1,093.75
									SUBTOTAL	$ 1,783.75
						PLANNING AND ADMINISTRATION FEE AND CONTINGENCY				$ 383.51
								TOTAL ESTIMATED ASSESSMENT		**$ 2,167.26**
26	Edward A & Tammy J Payton	801 Green Street	236-1183-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	72	$ 216.00	50%	$ 108.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	72	$ 1,044.00	50%	$ 522.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	8	$ 24.00	100%	$ 24.00
				PATCH ASPHALT DRIVEWAY	SQ YD	$ 39.00	15	$ 585.00	100%	$ 585.00
									SUBTOTAL	$ 1,239.00
						PLANNING AND ADMINISTRATION FEE AND CONTINGENCY				$ 266.39
								TOTAL ESTIMATED ASSESSMENT		**$ 1,505.39**
27	Robert Hegg	725 Green Street	236-1184-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	72	$ 216.00	50%	$ 108.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	72	$ 1,044.00	50%	$ 522.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE ASPHALT PAVEMENT	SQ YD	$ 3.00	9	$ 27.00	100%	$ 27.00
				PATCH ASPHALT DRIVEWAY	SQ YD	$ 39.00	15	$ 585.00	100%	$ 585.00
									SUBTOTAL	$ 1,242.00
						PLANNING AND ADMINISTRATION FEE AND CONTINGENCY				$ 267.03
								TOTAL ESTIMATED ASSESSMENT		**$ 1,509.03**

PRELIMINARY ASSESSMENT CALCULATIONS
PROJECT NAME: 2024 Street Improvements (Green Street)
PROJECT NUMBER: 24-01
RATES USED: As-Bid (Haas Sons, Inc)
Assessment Policy Version: 03/18/2024

TOTAL CONSTRUCTION CONTRACT COST	$	406,117.25
CONTINGENCY (NOT ADDED TO FINAL ASSESSMENTS)		20%
SPECIAL ASSESSMENT ADMINISTRATIVE RATE		1.5%
TOTAL		21.5%
TOTAL ESTIMATED ASSESSMENTS TO ALL PROPERTIES	**$**	**60,605.57**

NO.	PROPERTY OWNER NAME	PROPERTY ADDRESS	PARCEL ID	ITEM	UNIT	UNIT PRICE	QUANITITY	TOTAL COST	COST SHARE	TOTAL ASSESSABLE COST
28	Jacob S Bauer	719 Green Street	236-1185-00-000	*CURB & GUTTER - RECONSTRUCTION*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	72	$ 216.00	50%	$ 108.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	72	$ 1,044.00	50%	$ 522.00
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	27.00	$ 162.00	100%	$ 162.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ YD	$ 8.75	230.00	$ 2,012.50	100%	$ 2,012.50
									SUBTOTAL	$ 2,804.50
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 602.97
								TOTAL ESTIMATED ASSESSMENT		**$ 3,407.47**
29	Brian Kochendorfer	715 Green Street	236-1186-00-000	*CURB & GUTTER - RECONSTRUCTION (CUL-DE-SAC)*						
				REMOVE CONCRETE CURB AND GUTTER	LIN FT	$ 3.00	86	$ 258.00	50%	$ 129.00
				CONCRETE CURB AND GUTTER (D24)	LIN FT	$ 14.50	86	$ 1,247.00	50%	$ 623.50
				DRIVEWAY - RECONSTRUCTION						
				REMOVE CONCRETE SURFACE	SQ YD	$ 6.00	17.00	$ 102.00	100%	$ 102.00
				CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	$ 8.75	175.00	$ 1,531.25	100%	$ 1,531.25
									SUBTOTAL	$ 2,385.75
								PLANNING AND ADMINISTRATION FEE AND CONTINGENCY		$ 512.94
								TOTAL ESTIMATED ASSESSMENT		**$ 2,898.69**

APPENDIX B

Bid Tabulation

ABSTRACT OF BIDS

2024 STREET IMPROVEMENTS
CITY PROJECT 24-01
HUDSON, WISCONSIN
BID DATE: 4/16/2024 at 10:00 A.M.

Line Item	Item Description	Unit	Quantity	Haas Sons, Inc.		Stout Construction, LLC		Total Excavating LLC.		Pember Companies, Inc.	
				Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
SCHEDULE 1: VINE STREET											
1	MOBILZATION	LUMP SUM	1	$73,098.01	$73,098.01	$58,758.00	$58,758.00	$65,300.89	$65,300.89	$79,700.00	$79,700.00
2	TRAFFIC CONTROL	LUMP SUM	1	$9,400.00	$9,400.00	$8,295.00	$8,295.00	$8,690.00	$8,690.00	$10,800.00	$10,800.00
3	TRAFFIC CONTROL PLAN	LUMP SUM	1	$2,000.00	$2,000.00	$525.00	$525.00	$550.00	$550.00	$530.00	$530.00
4	REMOVE ASPHALT PAVEMENT	SQ YD	3575	$3.00	$10,725.00	$3.00	$10,725.00	$2.35	$8,401.25	$5.25	$18,768.75
5	REMOVE CONCRETE CURB AND GUTTER	LF	5959	$3.00	$17,877.00	$5.00	$29,795.00	$3.66	$21,809.94	$3.50	$20,856.50
6	REMOVE CONCRETE SURFACE	SQ YD	210	$6.00	$1,260.00	$11.00	$2,310.00	$11.87	$2,492.70	$14.60	$3,066.00
7	SALVAGE SIGN AND POST	EACH	26	$40.00	$1,040.00	$42.00	$1,092.00	$44.00	$1,144.00	$42.50	$1,105.00
8	REINSTALL SIGN PANEL	EACH	26	$250.00	$6,500.00	$262.50	$6,825.00	$275.00	$7,150.00	$265.00	$6,890.00
9	SALVAGE AND REINSTALL SIGN SPECIAL	EACH	5	$5,250.00	$26,250.00	$704.50	$3,522.50	$319.00	$1,595.00	$4,750.00	$23,750.00
10	CLEARING	EACH	20	$300.00	$6,000.00	$650.00	$13,000.00	$1,023.00	$20,460.00	$305.00	$6,100.00
11	GRUBBING	EACH	20	$300.00	$6,000.00	$450.00	$9,000.00	$253.00	$5,060.00	$175.00	$3,500.00
12	COMMON EXCAVATION (P)	CU YD	725	$32.00	$23,200.00	$14.00	$10,150.00	$13.24	$9,599.00	$68.25	$49,481.25
13	BORROW (P)	CU YD	590	$4.00	$2,360.00	$14.19	$8,372.10	$19.48	$11,493.20	$42.00	$24,780.00
14	FULL DEPTH RECLAMATION (10")	SQ YD	15792	$1.25	$19,740.00	$5.78	$91,277.76	$1.32	$20,845.44	$3.40	$53,692.80
15	STABILIZED FULL DEPTH RECLAMATION RECLAMATION (6")	SQ YD	14616	$5.50	$80,388.00	$1.89	$27,624.24	$0.66	$9,646.56	$5.85	$85,503.60
16	ASPHALT STABLIZING AGENT (FOAMED ASPHALT)	TON	152	$350.00	$53,200.00	$367.50	$55,860.00	$385.00	$58,520.00	$370.00	$56,240.00
17	HAUL EXCESS RECLAIMED MATERIAL OFF SITE (EV)	CU YD	1755	$0.20	$351.00	$7.28	$12,776.40	$10.69	$18,760.95	$9.00	$15,795.00
18	BASE AGGREGATE DENSE 1 1/4-INCH - STREET (P)	CU YD	806	$8.00	$6,448.00	$23.10	$18,618.60	$26.77	$21,576.62	$25.05	$20,190.30
19	BASE AGGREGATE DENSE 1 1/4-INCH -TRAIL (P)	CU YD	483	$8.00	$3,864.00	$26.10	$12,606.30	$26.77	$12,929.91	$39.75	$19,199.25
20	HMA PAVEMENT 5 LT 58-34 S	TON	560	$111.00	$62,160.00	$116.55	$65,268.00	$122.10	$68,376.00	$117.70	$65,912.00
21	HMA PAVEMENT 4 MT 58-34 H	TON	1780	$102.25	$182,005.00	$107.36	$191,100.80	$112.48	$200,214.40	$108.50	$193,130.00
22	HMA PAVEMENT 3 MT 58-28 S	TON	2290	$87.25	$199,802.50	$91.61	$209,786.90	$95.98	$219,794.20	$92.50	$211,825.00
23	TACK COAT	GAL	2500	$3.50	$8,750.00	$3.68	$9,200.00	$3.85	$9,625.00	$3.70	$9,250.00
24	PATCH ASPHALT DRIVEWAY	SQ YD	25	$59.00	$1,475.00	$40.95	$1,023.75	$42.90	$1,072.50	$60.40	$1,510.00
25	PATCH ASPHALT STREET	SQ YD	683	$50.00	$34,150.00	$36.49	$24,922.67	$38.23	$26,111.09	$56.75	$38,760.25
26	CONCRETE CURB AND GUTTER (D30)	LIN FT	6379	$16.00	$102,064.00	$16.80	$107,167.20	$21.21	$135,298.59	$16.00	$102,064.00
27	CONCRETE SIDEWALK - 4 INCH	SQ FT	1041	$7.65	$7,963.65	$7.51	$7,817.91	$10.31	$10,732.71	$7.15	$7,443.15
28	CONCRETE SIDEWALK - 6 INCH	SQ FT	2327	$9.30	$21,641.10	$9.24	$21,501.48	$11.30	$26,295.10	$8.80	$20,477.60
29	CONCRETE MEDIAN - 4 INCH	SQ FT	864	$5.50	$4,752.00	$5.78	$4,993.92	$9.27	$8,009.28	$5.50	$4,752.00
30	CONCRETE MEDIAN APPROACH NOSE	SQ FT	190	$9.25	$1,757.50	$9.71	$1,844.90	$12.44	$2,363.60	$9.25	$1,757.50
31	CURB RAMP DETECTABLE WARNING FIELD - NATURAL PATINA	SQ FT	276	$49.90	$13,772.40	$52.40	$14,462.40	$55.42	$15,295.92	$49.90	$13,772.40
32	CONCRETE VALLEY GUTTER	SQ YD	750	$94.00	$70,500.00	$98.70	$74,025.00	$75.04	$56,280.00	$94.00	$70,500.00
33	PAVEMENT MARKING EPOXY 4-INCH (WHITE)	LF	1865	$0.90	$1,678.50	$0.95	$1,771.75	$0.99	$1,846.35	$0.95	$1,771.75
34	PAVEMENT MARKING EPOXY 4-INCH DOTTED (WHITE)	LF	150	$0.90	$135.00	$0.95	$142.50	$0.99	$148.50	$0.95	$142.50
35	PAVEMENT MARKING EPOXY 4-INCH (YELLOW)	LF	7356	$1.00	$7,356.00	$0.95	$6,988.20	$0.99	$7,282.44	$0.95	$6,988.20
36	PAVEMENT MARKING DIAGONAL EPOXY 8-INCH (YELLOW)	LF	1715	$6.00	$10,290.00	$6.30	$10,804.50	$6.88	$11,799.20	$6.35	$10,890.25
37	PAVEMENT MARKING CHEVRON EPOXY 8-INCH (WHITE)	LF	50	$6.00	$300.00	$6.30	$315.00	$6.88	$344.00	$6.35	$317.50
38	PAVEMENT MARKING EPOXY 12-INCH (WHITE)	LF	421	$7.00	$2,947.00	$7.35	$3,094.35	$14.30	$6,020.30	$7.40	$3,115.40

ABSTRACT OF BIDS

2024 STREET IMPROVEMENTS

CITY PROJECT 24-01

HUDSON, WISCONSIN

BID DATE: 4/16/2024 at 10:00 A.M.

Line Item	Item Description	Unit	Quantity	Haas Sons, Inc.		Stout Construction, LLC		Total Excavating LLC.		Pember Companies, Inc.	
				Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
39	PAVEMENT MARKING EPOXY 18-INCH (WHITE)	LF	66	$8.50	$561.00	$8.93	$589.38	$18.70	$1,234.20	$9.00	$594.00
40	PAVEMENT MARKING ARROWS EPOXY (WHITE)	EACH	38	$130.00	$4,940.00	$136.50	$5,187.00	$275.00	$10,450.00	$137.85	$5,238.30
41	PAVEMENT MARKING TEXT EPOXY (WHITE)	EACH	1	$180.00	$180.00	$189.00	$189.00	$330.00	$330.00	$190.00	$190.00
42	MARKING ISLAND NOSE PAINT EPOXY (YELLOW)	EACH	6	$260.00	$1,560.00	$273.00	$1,638.00	$346.50	$2,079.00	$275.00	$1,650.00
43	SIGNS TYPE II REFLECTIVE H	SQ FT	150	$58.00	$8,700.00	$60.90	$9,135.00	$63.80	$9,570.00	$61.50	$9,225.00
44	SIGNS TYPE II REFLECTIVE F	SQ FT	73	$58.00	$4,234.00	$60.90	$4,445.70	$63.80	$4,657.40	$61.50	$4,489.50
45	RECTANGULAR RAPID FLASHING BEACON (RRFB)	EACH	1	$33,500.00	$33,500.00	$13,500.00	$13,500.00	$21,450.00	$21,450.00	$30,800.00	$30,800.00
46	SILT FENCE	LF	3808	$2.75	$10,472.00	$3.00	$11,424.00	$3.41	$12,985.28	$2.95	$11,233.60
47	STORM DRAIN INLET PROTECTION	EACH	15	$2.50	$37.50	$100.00	$1,500.00	$236.26	$3,543.90	$120.00	$1,800.00
48	EROSION MAT, CLASS 1, URBAN, TYPE B	SQ YD	800	$3.75	$3,000.00	$2.00	$1,600.00	$2.30	$1,840.00	$3.60	$2,880.00
49	TOPSOIL BORROW - 6-INCH	CU YD	870	$44.60	$38,802.00	$33.00	$28,710.00	$40.52	$35,252.40	$56.20	$48,894.00
50	MNDOT SEED MIX NO. 33-261	LB	10	$45.00	$450.00	$45.00	$450.00	$218.72	$2,187.20	$120.00	$1,200.00
51	WISDOT SEED MIX NO. 40	LB	115	$25.00	$2,875.00	$12.05	$1,385.75	$157.58	$18,121.70	$48.00	$5,520.00
52	SOIL STABILIZER, TYPE A (HYDROMULCH)	SQ YD	4769	$3.75	$17,883.75	$1.55	$7,391.95	$1.44	$6,867.36	$2.25	$10,730.25
53	WATER FOR SEED	MGAL	400	$1.00	$400.00	$50.00	$20,000.00	$18.61	$7,444.00	$60.00	$24,000.00
54	REMOVE STORM SEWER PIPE	LIN FT	81	$30.00	$2,430.00	$5.00	$405.00	$51.04	$4,134.24	$15.55	$1,259.55
55	REMOVE STORM STRUCTURE	EACH	5	$500.00	$2,500.00	$500.00	$2,500.00	$1,034.57	$5,172.85	$480.00	$2,400.00
56	REMOVE CONCRETE TOP SLAB	EACH	3	$500.00	$1,500.00	$250.00	$750.00	$1,034.57	$3,103.71	$250.00	$750.00
57	SALVAGE CASTING ASSEMBLY	EACH	8	$400.00	$3,200.00	$250.00	$2,000.00	$406.42	$3,251.36	$110.00	$880.00
58	ADJUST CATCH BASIN CASTING	EACH	8	$370.00	$2,960.00	$500.00	$4,000.00	$406.42	$3,251.36	$735.00	$5,880.00
59	ADJUST MANHOLE CASTING	EACH	5	$700.00	$3,500.00	$500.00	$2,500.00	$418.59	$2,092.95	$810.00	$4,050.00
60	48" MANHOLE TOP SLAB (2X3 OPENING)	EACH	2	$3,125.00	$6,250.00	$777.00	$1,554.00	$1,007.28	$2,014.56	$1,115.00	$2,230.00
61	48" MANHOLE TOP SLAB (27-INCH DIA. OPENING)	EACH	1	$3,125.00	$3,125.00	$777.00	$777.00	$1,007.28	$1,007.28	$1,115.00	$1,115.00
62	CASTING ASSEMBLY	EACH	3	$1,050.00	$3,150.00	$971.00	$2,913.00	$1,071.85	$3,215.55	$1,540.00	$4,620.00
63	CATCH BASIN 2X3-FT	EACH	1	$2,775.00	$2,775.00	$2,405.00	$2,405.00	$2,516.12	$2,516.12	$3,030.00	$3,030.00
64	CATCH BASIN MANHOLE 4-FT DIA.	EACH	2	$3,875.00	$7,750.00	$2,477.00	$4,954.00	$3,749.26	$7,498.52	$4,765.00	$9,530.00
65	CONNECT TO EXISTING PIPE - STORM SEWER	EACH	6	$750.00	$4,500.00	$1,000.00	$6,000.00	$2,826.67	$16,960.02	$995.00	$5,970.00
66	STORM SEWER PIPE RCP CLASS III 12 INCH	LIN FT	28	$87.50	$2,450.00	$53.34	$1,493.52	$79.42	$2,223.76	$110.00	$3,080.00
67	STORM SEWER PIPE RCP CLASS III 15 INCH	LIN FT	28	$92.75	$2,597.00	$59.08	$1,654.24	$85.74	$2,400.72	$113.00	$3,164.00
68	STORM SEWER PIPE RCP CLASS III 18 INCH	LIN FT	10	$96.75	$967.50	$63.38	$633.80	$90.47	$904.70	$115.00	$1,150.00
69	STORM SEWER PIPE RCP CLASS III 21 INCH	LIN FT	18	$103.75	$1,867.50	$72.73	$1,309.14	$98.56	$1,774.08	$130.00	$2,340.00
70	SALVAGE AND REINSTALL HYDRANT	EACH	5	$1,637.00	$8,185.00	$2,877.10	$14,385.50	$2,093.53	$10,467.65	$2,685.00	$13,425.00
71	REMOVE WATERMAIN PIPE	LIN FT	30	$30.00	$900.00	$10.00	$300.00	$34.57	$1,037.10	$24.30	$729.00
72	ADJUST VALVE BOX	EACH	18	$375.00	$6,750.00	$425.00	$7,650.00	$291.91	$5,254.38	$370.00	$6,660.00
73	WATERMAIN 6" DIP CLASS 52	LIN FT	40	$132.25	$5,290.00	$59.80	$2,392.00	$144.63	$5,785.20	$69.00	$2,760.00
	SCHEDULE 1: VINE STREET TOTAL:				**$1,283,442.91**		**$1,305,086.11**		**$1,335,013.19**		**$1,497,795.15**

ABSTRACT OF BIDS

2024 STREET IMPROVEMENTS

CITY PROJECT 24-01

HUDSON, WISCONSIN

BID DATE: 4/16/2024 at 10:00 A.M.

Line Item	Item Description	Unit	Quantity	Haas Sons, Inc.		Stout Construction, LLC		Total Excavating LLC.		Pember Companies, Inc.	
				Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
SCHEDULE 2: GREEN STREET											
74	MOBILZATION	LUMP SUM	1	$16,300.00	$16,300.00	$14,300.00	$14,300.00	$6,325.00	$6,325.00	$23,590.00	$23,590.00
75	TRAFFIC CONTROL	LUMP SUM	1	$2,400.00	$2,400.00	$945.00	$945.00	$990.00	$990.00	$2,150.00	$2,150.00
76	REMOVE FENCE	LF	40	$20.00	$800.00	$5.00	$200.00	$6.08	$243.20	$7.20	$288.00
77	REMOVE ASPHALT PAVEMENT	SQ YD	4240	$3.00	$12,720.00	$3.00	$12,720.00	$2.34	$9,921.60	$2.85	$12,084.00
78	REMOVE CONCRETE CURB AND GUTTER	LF	2290	$3.00	$6,870.00	$5.00	$11,450.00	$3.66	$8,381.40	$4.00	$9,160.00
79	REMOVE CONCRETE SURFACE	SQ YD	180	$6.00	$1,080.00	$11.00	$1,980.00	$13.85	$2,493.00	$19.50	$3,510.00
80	REMOVE AT&T STRUCTURE	LUMP SUM	1	$3,500.00	$3,500.00	$2,500.00	$2,500.00	$9,957.57	$9,957.57	$1,800.00	$1,800.00
81	SALVAGE SIGN AND POST	EACH	2	$350.00	$700.00	$42.00	$84.00	$44.00	$88.00	$42.50	$85.00
82	REINSTALL SIGN PANEL	EACH	2	$150.00	$300.00	$262.50	$525.00	$275.00	$550.00	$265.00	$530.00
83	SALVAGE AND REINSTALL MAILBOX	EACH	21	$200.00	$4,200.00	$150.00	$3,150.00	$729.62	$15,322.02	$150.00	$3,150.00
84	CLEARING	EACH	4	$300.00	$1,200.00	$650.00	$2,600.00	$2,750.00	$11,000.00	$990.00	$3,960.00
85	GRUBBING	EACH	4	$300.00	$1,200.00	$450.00	$1,800.00	$682.00	$2,728.00	$745.00	$2,980.00
86	COMMON EXCAVATION (P)	CU YD	2760	$14.00	$38,640.00	$14.00	$38,640.00	$13.24	$36,542.40	$21.75	$60,030.00
87	SOIL CORRECTION (CUT AND FILL)	CU YD	700	$16.00	$11,200.00	$24.03	$16,821.00	$33.96	$23,772.00	$40.00	$28,000.00
88	GRANULAR BACKFILL GRADE 1 (P)	CU YD	1715	$22.20	$38,073.00	$20.69	$35,483.35	$20.72	$35,534.80	$24.15	$41,417.25
89	SUBGRADE PREPARATION	SQ YD	5140	$1.00	$5,140.00	$0.50	$2,570.00	$0.87	$4,471.80	$1.00	$5,140.00
90	BASE AGGREGATE DENSE 1 1/4-INCH - STREET (P)	CU YD	1045	$30.40	$31,768.00	$27.19	$28,413.55	$26.77	$27,974.65	$38.50	$40,232.50
91	HMA PAVEMENT 5 LT 58-34 H	TON	390	$103.50	$40,365.00	$108.68	$42,385.20	$113.85	$44,401.50	$110.00	$42,900.00
92	HMA PAVEMENT 3 LT 58-28 S	TON	650	$84.50	$54,925.00	$88.73	$57,674.50	$92.95	$60,417.50	$89.65	$58,272.50
93	TACK COAT	GAL	315	$3.50	$1,102.50	$3.68	$1,159.20	$3.85	$1,212.75	$3.70	$1,165.50
94	PATCH ASPHALT DRIVEWAY	SQ YD	125	$39.00	$4,875.00	$40.95	$5,118.75	$42.90	$5,362.50	$63.10	$7,887.50
95	CONCRETE CURB AND GUTTER (D24)	LIN FT	2291	$14.50	$33,219.50	$15.22	$34,869.02	$19.84	$45,453.44	$14.50	$33,219.50
96	CONCRETE SIDEWALK - 4 INCH	SQ FT	70	$8.50	$595.00	$8.93	$625.10	$10.31	$721.70	$8.50	$595.00
97	CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	1775	$8.75	$15,531.25	$9.19	$16,312.25	$11.30	$20,057.50	$9.75	$17,306.25
98	CONCRETE VALLEY GUTTER	SQ YD	24	$94.00	$2,256.00	$98.70	$2,368.80	$75.04	$1,800.96	$94.00	$2,256.00
99	SIGNS TYPE II REFLECTIVE H	SQ FT	8.5	$58.00	$493.00	$60.90	$517.65	$63.80	$542.30	$61.50	$522.75
100	STREET NAME SIGN	EACH	1	$650.00	$650.00	$682.50	$682.50	$715.00	$715.00	$690.00	$690.00
101	SILT FENCE	LF	80	$6.25	$500.00	$3.00	$240.00	$3.41	$272.80	$3.35	$268.00
102	STORM DRAIN INLET PROTECTION	EACH	6	$250.00	$1,500.00	$100.00	$600.00	$236.26	$1,417.56	$120.00	$720.00
103	TEMPORARY CONSTRUCTION ENTRANCE	EACH	1	$1,500.00	$1,500.00	$1,500.00	$1,500.00	$2,043.36	$2,043.36	$1,200.00	$1,200.00
104	EROSION MAT, CLASS 1, URBAN, TYPE B	SQ YD	30	$10.00	$300.00	$4.00	$120.00	$5.84	$175.20	$4.50	$135.00
105	TOPSOIL BORROW - 6-INCH	CU YD	300	$44.60	$13,380.00	$33.00	$9,900.00	$40.52	$12,156.00	$59.50	$17,850.00
106	WISDOT SEED MIX NO. 40	LB	45	$25.00	$1,125.00	$12.05	$542.25	$134.70	$6,061.50	$43.50	$1,957.50
107	SOIL STABILIZER, TYPE A (HYDROMULCH)	SQ YD	1610	$3.75	$6,037.50	$1.85	$2,978.50	$1.44	$2,318.40	$1.85	$2,978.50
108	WATER FOR SEED	MGAL	135	$1.00	$135.00	$50.00	$6,750.00	$18.38	$2,481.30	$65.00	$8,775.00
109	REMOVE STORM SEWER PIPE	LIN FT	50	$20.00	$1,000.00	$5.00	$250.00	$51.04	$2,552.00	$21.00	$1,050.00
110	REMOVE STORM STRUCTURE	EACH	2	$500.00	$1,000.00	$500.00	$1,000.00	$1,034.57	$2,069.14	$500.00	$1,000.00
111	REMOVE CONCRETE TOP SLAB	EACH	1	$500.00	$500.00	$250.00	$250.00	$1,034.57	$1,034.57	$250.00	$250.00

ABSTRACT OF BIDS

2024 STREET IMPROVEMENTS
CITY PROJECT 24-01
HUDSON, WISCONSIN
BID DATE: 4/16/2024 at 10:00 A.M.

Line Item	Item Description	Unit	Quantity	Haas Sons, Inc.		Stout Construction, LLC		Total Excavating LLC.		Pember Companies, Inc.	
				Unit Price	Amount	Unit Price	Amount	Unit Price	Amount	Unit Price	Amount
112	SALVAGE CASTING ASSEMBLY	EACH	3	$400.00	$1,200.00	$250.00	$750.00	$440.22	$1,320.66	$120.00	$360.00
113	ADJUST MANHOLE CASTING	EACH	4	$400.00	$1,600.00	$650.00	$2,600.00	$426.70	$1,706.80	$630.00	$2,520.00
114	48" MANHOLE TOP SLAB (27-INCH DIA. OPENING)	EACH	1	$1,225.00	$1,225.00	$777.00	$777.00	$1,007.28	$1,007.28	$1,100.00	$1,100.00
115	CASTING ASSEMBLY	EACH	1	$650.00	$650.00	$722.00	$722.00	$1,071.85	$1,071.85	$940.00	$940.00
116	CATCH BASIN 2X3-FT	EACH	4	$2,895.00	$11,580.00	$2,531.00	$10,124.00	$1,959.33	$7,837.32	$2,915.00	$11,660.00
117	CATCH BASIN MANHOLE 4-FT DIA.	EACH	2	$3,625.00	$7,250.00	$2,477.00	$4,954.00	$3,083.46	$6,166.92	$3,940.00	$7,880.00
118	CONNECT TO EXISTING PIPE - STORM SEWER	EACH	1	$875.00	$875.00	$1,000.00	$1,000.00	$2,826.67	$2,826.67	$1,020.00	$1,020.00
119	CONNECT TO EXISTING STRUCTURE - STORM SEWER	EACH	1	$1,375.00	$1,375.00	$1,200.00	$1,200.00	$2,826.67	$2,826.67	$1,000.00	$1,000.00
120	STORM SEWER PIPE RCP CLASS III 12 INCH	LIN FT	38	$87.50	$3,325.00	$53.34	$2,026.92	$79.42	$3,017.96	$70.00	$2,660.00
121	STORM SEWER PIPE RCP CLASS III 15 INCH	LIN FT	36	$92.75	$3,339.00	$59.08	$2,126.88	$85.74	$3,086.64	$82.00	$2,952.00
122	STORM SEWER PIPE PVC (SDR 35) 12 INCH	LIN FT	6	$92.25	$553.50	$80.00	$480.00	$51.63	$309.78	$125.00	$750.00
123	IMPROVED PIPE FOUNDATION	LIN FT	56	$16.00	$896.00	$5.00	$280.00	$42.42	$2,375.52	$5.00	$280.00
124	TELEVISE STORM SEWER	LIN FT	74	$7.00	$518.00	$13.51	$999.74	$11.00	$814.00	$10.00	$740.00
125	REMOVE HYDRANT	EACH	2	$500.00	$1,000.00	$500.00	$1,000.00	$1,475.98	$2,951.96	$800.00	$1,600.00
126	ADJUST VALVE BOX	EACH	4	$375.00	$1,500.00	$425.00	$1,700.00	$291.91	$1,167.64	$275.00	$1,100.00
127	HYDRANT	EACH	2	$6,075.00	$12,150.00	$8,108.77	$16,217.54	$7,171.71	$14,343.42	$6,900.00	$13,800.00
	SCHEDULE 2: GREEN STREET TOTAL:				**$406,117.25**		**$406,983.70**		**$462,393.51**		**$489,467.75**
	ALLOWANCE				*$15,000.00*		*$15,000.00*		*$15,000.00*		*$15,000.00*
	BASE BID TOTAL:				**$1,704,560.16**		**$1,727,069.81**		**$1,812,406.70**		**$2,002,262.90**
ALTERNATE 1: VINE HILLS POND RESTORATION											
128	POND EXCAVATION (P)	CU YD	921	$15.00	$13,815.00	$14.00	$12,894.00	$22.33	$20,565.93	$28.60	$26,340.60
129	EROSION MAT, CLASS 1, URBAN, TYPE B	SQ YD	79	$10.00	$790.00	$5.00	$395.00	$3.56	$281.24	$3.65	$288.35
130	TOPSOIL BORROW SPECIAL	CU YD	19	$44.60	$847.40	$60.00	$1,140.00	$40.52	$769.88	$95.00	$1,805.00
131	MNDOT SEED MIX NO. 33-261	LB	19	$100.00	$1,900.00	$45.00	$855.00	$179.14	$3,403.66	$100.00	$1,900.00
132	SOIL STABILIZER, TYPE A (HYDROMULCH)	SQ YD	1464	$3.75	$5,490.00	$1.85	$2,708.40	$1.44	$2,108.16	$1.95	$2,854.80
133	WATER FOR SEED	MGAL	145	$5.00	$725.00	$50.00	$7,250.00	$17.11	$2,480.95	$65.00	$9,425.00
134	RIPRAP	CU YD	30	$60.00	$1,800.00	$59.66	$1,789.80	$125.62	$3,768.60	$90.00	$2,700.00
	ALTERNATE 1: VINE HILLS POND RESTORATION TOTAL:				**$25,367.40**		**$27,032.20**		**$33,378.42**		**$45,313.75**
	TOTAL AMOUNT BID (BASE + ALTERNATE)				**$1,729,927.56**		**$1,754,102.01**		**$1,845,785.12**		**$2,047,576.65**
					Haas Sons, Inc.		Stout Construction, LLC		Total Excavating LLC.		Pember Companies, Inc.

APPENDIX C

As-Bid Plans and Specifications

Project Specific Manual

2024 Street Improvements

Vine Street (Wisconsin Street to Diamond Drive)

Green Street (11th Street to Termini)

City of Hudson, Wisconsin

City Project No. 24-01

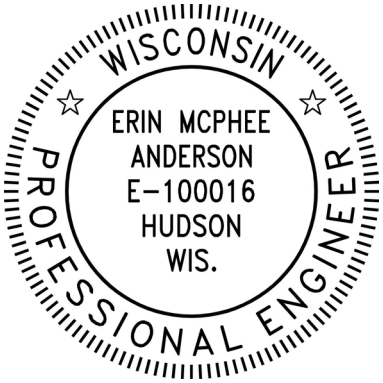
March 18, 2024

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CERTIFICATION

I hereby certify that these specifications were prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.



Erin McPhee Anderson, PE

Date: 03/18/2024 License. No. E-100016

END OF SECTION

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SECTION 00 01 10

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Appendices
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Appendix B Report of Geotechnical Exploration – Green Street (11th St to cul-de-sac)

END OF SECTION

SECTION 00 01 11

GENERAL INFORMATION

PART 1 GENERAL

1.01 DEFINITIONS

A. Any reference to *"Engineer"* within these specifications shall refer to the City Engineer for the City of Hudson or his/her designee for this project.

B. Any reference to "Standard Project Manual" shall refer to the City of Hudson Standard Project Manual for Utility and Street Construction, April 2019 edition. An electronic copy of the Standard Project Manual is available for free at https://hudsonwi.gov/712/Standard-Specifications-and-Detail-Plate. Unless revised within the project plans and this Project Specific Manual, The Standard Project Manual governs this project.

C. Any reference to *"WisDOT Standard Specifications"* within this Project Specific Manual shall refer to the State of Wisconsin Standard Specifications for Highway and Structure Construction 2023 Edition as adopted by the Wisconsin Department of Transportation and any subsequent revisions and supplements as of the time of the adoption of this document.

1.02 SUMMARY

A. Where conflicting information is present within the contract documents, the following order of preference shall be followed with number (1) having the highest priority:
   1. Project Specific Manual
   2. Project Plans
   3. Standard Project Manual
   4. WisDOT Standard Specifications

B. Modifications to the Standard Project Manual through this Project Specific Manual shall be as noted throughout the document. The following list of corrections is provided to aid interpretations of the changes that this document makes to the Standard Project Manual:
   - Notes to ***Modify*** certain text of certain sections shall indicate the following changes in the text of the Standard Project Manual:
     - Specific text from the Standard Project Manual that is deleted will be noted with a strikethrough.
     - Specific text added to the text of the Standard Project Manual will be noted as **bold text**.
     - Specific text from the Standard Project Manual to remain in effect will be noted as standard text.
   - Notes to ***Remove and Replace*** certain sections or parts of the Standard Project Manual shall indicate that the entirety of the section or part in the Standard Project Manual shall be removed and replaced with the text following the note.
   - Notes to ***Add the Following*** shall indicate that the text following shall be added to the referenced section of the Standard Project Manual with the remainder of the referenced section of the Standard Project Manual continuing to be in effect.

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SECTION 00 11 13

ADVERTISEMENT FOR BIDS

2024 Street Improvements
City of Hudson, St.Croix County, WI
City Project No. 24-01

Notice is hereby given that bids will be received online through QuestCDN vBid™ until **10:00 a.m. CST on Tuesday, April 16th, 2024** via QuestCDN for furnishing all labor and materials for the construction of the 2024 Street Improvements Project.

The bid opening will be conducted via ZOOM, at which time the bids will be publicly opened and read aloud:

Hudson 2024 Street Improvements Bid Opening
Tuesday, April 16, 2024 at 10:00 a.m. CST

Please join the meeting from your computer, tablet or smartphone:
https://zoom.us/join

Meeting ID: 837 9263 4013
Passcode: Hudson

Major items for the Work include the following approximate quantities:

Item	Quantity
Remove Asphalt Pavement	7,815 SY
Clearing & Grubbing	24 EA
Full-Depth Reclamation (FDR)	15,792 SY
Stabilized FDR (asphalt)	15,792 SY
Base Aggregate/Granular Backfill	4,050 CY
HMA Pavement	5,670 TONS
Hydrant	2 EA
Watermain (6-inch DIP)	40 LF
Storm Manhole/Catch Basin	9 EA
Storm Sewer (RCP)	160 LF
Concrete Curb and Gutter	8,670 LF
Concrete Sidewalk/Median/Driveway	6,270 SF
Concrete Valley Gutter	774 SY
Pavement Marking Line	11,620 LF
Signs Type II	232 SF
Turf Establishment	4,780 SY

Along with other appurtenant construction items.

This project includes funding from the Local Road Improvement Program (LRIP).

TO OBTAIN BID DOCUMENTS: To access the electronic bid form, download the bidding documents and click the 'Online Bid' button or Online Bidding 'Available' button on the bid posting page. Complete digital project bidding documents are available at www.questcdn.com. You may view the digital plan documents for free by entering Quest project **#9032037** on the website's Project Search page.

Documents may be downloaded for a fee of $25.00. All prime bidders must be registered planholders on QuestCDN. Please contact QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free

membership registration, viewing, downloading, and working with this digital project information. An optional paper set of project documents is also available for a nonrefundable price of $100.00 per set, which includes applicable sales tax and shipping.

The website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the website www.questcdn.com. The OWNER will not be responsible for Bidding Documents, including addenda, if any, obtained from other sources.

Bids will ONLY be accepted via the electronic bidding service through QuestCDN no later than the date and time noted above. After the bid close, bidders will be charged a fee of $45.00 for successful bid submission. **No paper bids will be accepted.**

Direct inquiries to Erin McPhee Anderson, City Engineer, at 715-716-5729 or eanderson@hudsonwi.gov.

BID SECURITY: A certified check or proposal bond in the amount of not less than 5 percent of the total amount bid, drawn in favor of City of Hudson shall accompany each bid.

OWNER'S RIGHTS RESERVED: The Owner reserves the right to retain the deposits of the 3 lowest Bidders for a period not to exceed 60 days after the date and time set for the Opening of Bids. No Bids may be withdrawn for a period of 60 days after the date and time set for the Opening of Bids.

The Owner reserves the right to reject any or all bids and to waive any irregularities and informalities therein and to award the Contract in the best interests of the Project.

It is anticipated that the bids will be considered by the Common Council at their meeting on April 22nd, 2024.

Erin McPhee Anderson
City Engineer
Publish: Hudson Star Observer – March 28, April 4, April 11, 2024

SECTION 00 21 13 (REVISED)

INSTRUCTIONS TO BIDDERS

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 where the Bidding procedures are to be administered.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 **Authorized sets of the Bidding Documents may be obtained digitally or by paper copy as directed in the Advertisement for Bids.**

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.

2.04 Neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from Bidder's use of electronic downloadable Bidding Documents (Electronic Bidding Documents). In addition to the above items, Bidders using Electronic Bidding Documents are solely responsible for use of such documents, including, but not limited to:

A. It is the responsibility of the Bidder to go to the appropriate website, check for the presence of Bidding Documents (including Addenda), and download documents as they become available. Bidder shall regularly check the appropriate website for Addenda or other additions or revisions to the Bidding Documents through the Bid Opening date, whether or not Bidder has received email notice of Addenda from Engineer.

B. It is the responsibility of the Bidder to verify the intended document size (sheet dimensions) and to verify proper colors (color, or black and white) of the Electronic Bidding Documents prior to reproduction. Bidder shall ensure that the Electronic Bidding Documents are reproduced to the correct and exact scale, and correct colors.

C. It is the responsibility of the Recipient of Electronic Bidding Documents from this site to check the electronic data for computer viruses or other harmful coding.

D. Bidders are subject to the Terms of Use and Limitations on Use detailed in the Electronic Bidding Documents website.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, within 5 days of Owner's request, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below:

A. Evidence of Bidder's authority to do business in the state where the Project is located.

B. Evidence of genuiness of Bid and lack of collusion in conjunction therewith.

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 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND 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 Subsurface and Physical Conditions

A. The Supplementary Conditions identify:
   1. Those reports known to Owner of explorations and tests of subsurface conditions at or contiguous 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).

B. Copies of reports and drawings referenced in Paragraph 4.02.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in Paragraph 5.03 of the General Conditions has been identified and established in Paragraph 5.03 of 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.

4.03 Underground Facilities

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner or others.

4.04 Hazardous Environmental Condition

A. The Supplementary Conditions identify any reports and drawings known to Owner relating to a Hazardous Environmental Condition identified at the Site.

B. Copies of reports and drawings referenced in Paragraph 4.04.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in Paragraph 5.06 of the General Conditions has been identified and established in Paragraph 5.06 of 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.

4.05 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.

4.06 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. 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. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

4.07 Reference is made to **Article 8 of the Supplementary Conditions** for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of contract documents (other than portions thereof related to price) for such other work.

4.08 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;

B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy Bidder as to all federal, state, and local 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 contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in Paragraph 5.03 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in the Paragraph 5.06 of the Supplementary Conditions as containing reliable "technical data;"

E. consider the information known to Bidder; 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, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs;

F. agree at the time of submitting its Bid that 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(s) 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; and

I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.09 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 - PRE-BID CONFERENCE

5.01 There will be no Pre-Bid Conference.

ARTICLE 6 - SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner, unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 7 - INTERPRETATIONS AND ADDENDUM

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 Addendum mailed or delivered to all parties recorded by Engineer 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 Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

ARTICLE 8 - BID SECURITY

8.01 A Bid must be accompanied by Bid Security made payable to Owner in an amount of 5 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 issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions.

8.02 The Bid Security of the successful Bidder will be retained until 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 returned. 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 whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Agreement or 61 days after the Bid Opening, whereupon Bid Security furnished by such Bidders will be returned.

8.04 Bid Security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within 7 days after the Bid Opening.

ARTICLE 9 - CONTRACT TIMES

9.01 The number of days within which, or the dates by which, Milestones are to be achieved and 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, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement.

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 If the Supplementary Conditions require the identity of certain subcontractors, suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent successful Bidder, and any other Bidder so requested, shall within 5 days after Bid Opening, submit to Owner a list of all such subcontractors, suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. 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, individual, or entity if requested

by Owner. 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 a substitute, in which case apparent successful Bidder shall submit an acceptable 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.

12.02 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, individuals, or entities. Declining to make requested substitutions will not 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 revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 7.05 of the General Conditions.

12.03 Contractor shall not be required to employ any subcontractor, supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 - PREPARATION OF BID

13.01 The Bid Form and **attachments are** included with the Bidding Documents.

13.02 The Bid Form shall be completed **online**. A Bid price shall be indicated for each section, Bid Item, Alternate, adjustment Bid Unit Price Bid Item, and Bid Unit Price Bid Item listed therein.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member 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.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.

13.08 All names shall be **typed or** printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda.

13.10 Postal and e-mail addresses and telephone and fax numbers for communications regarding the Bid shall be shown.

13.11 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; COMPARISON OF BIDS

14.01 Unit Price, or Unit Price With Alternates

A. Bidders shall submit a Bid on a Bid Unit Price basis for each Bid Item of Work listed in the Bid Form:

1. If an Alternate is present, include a separate unit price for each Alternate provided on the Bid Form. The price for the Alternates will be the amount added to or deleted from the Base Bid if the Owner selects the Alternate. In the evaluation of Bids, Owner may select any combination of Alternates or Owner may choose not to accept any Alternate Bids.

B. The total of all estimated prices will be the sum of the products of the estimated quantity of each Bid Item and the corresponding Bid Unit Price. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.

C. Discrepancies between the multiplication of units of work and Bid Unit Prices will be resolved in favor of the Bid Unit Prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

D. Bids will be evaluated and the low Bidder determined pursuant to Article 19:

1. If no Alternate is present, bids will be compared on the basis of the "Total Base Bid" and this amount will be the basis for determining the lowest Bidder.
2. If an Alternate is present, bids will be compared on the basis of the "Adjusted Total Base Bid" and this amount will be the basis for determining the lowest Bidder. The sum of the Total Base Bid and any combination of Alternates accepted by the Owner will determine the "Adjusted Total Base Bid."

14.02 Allowances

A. For cash allowances, the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 15 - SUBMITTAL OF BID

15.01 Bid shall be submitted no later than the date and time prescribed **as indicated in the Advertisement for Bids, unless altered in an issued addendum**. **Bids received after the date and time prescribed for the opening of bids, or not submitted in the designated manner, will not be accepted.**

15.02 The Bid shall include the entire Document 00 41 10, Bid Form. This includes all attachments listed in Article 7.01 of the bid form and/or all forms included with the Bid Form. The Contractor may remove or copy these sheets from the Project Manual.

15.03 The entire Project Manual should not be submitted with the Bid.

15.04 For this project, the City will only be accepting online electronic bids through QuestCDN. To access the electronic bid form, download the project documents and click the online bidding

button at the top of the advertisement. Prospective bidders must be on the plan holders list through QuestCDN for bids to be accepted.

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 **A Bid may be withdrawn in the same manner that a Bid must be executed prior to the date and time for the opening of Bids.**

16.02 Bids may be withdrawn after Bid Opening only in accordance with the law.

16.03 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 Bid Opening.

ARTICLE 17 - OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the Advertisement or Invitation for Bids 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 Project is awarded.

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 If the Contract is awarded, award will be made on the basis of the lowest responsive, responsible, qualified Bidder determined by the Total Base Bid, or Adjusted Total Base Bid if an Alternate is present, which is found by the City to be in the best interest of the project.

19.02 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the successful Bidder.

19.03 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.04 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such Alternates, Bid Unit Prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.05 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

19.06 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents. As a condition of its Bid, Bidder is required to waive any and all claims of whatever nature against Owner, Engineer, and their employees and agents which arise out of or relate to such investigations and statements made as a result thereof, except for statements that can be shown by clear and convincing evidence to be intentionally false and made with actual malice. This waiver is not intended to restrict Bidder's rights to challenge a Contract pursuant to law.

ARTICLE 20 - CONTRACT SECURITY 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 executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 21 - SIGNING OF AGREEMENT

21.01 When Owner issues a Notice of Award to the successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within 10 days thereafter, Owner shall deliver 2 fully signed counterparts to successful Bidder with a complete set of the Drawings with appropriate identification.

END OF SECTION

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In addition to the Bid Worksheet electronically completed and submitted online, this BID FORM - DOCUMENT 00 41 10 and the attachments provided must be completed and uploaded to QuestCDN Online prior to the Bid opening time and date.

BIDDER: _____

DOCUMENT 00 41 10

BID FORM

2024 STREET IMPROVEMENTS

CITY PROJECT NO. 24-01

HUDSON, WISCONSIN

BIDS TO BE OPENED: 10:00 A.M. CST, Tuesday, April 16, 2024

1.01 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.

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.

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.

B. Bidder has visited the Site 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. Bidder is familiar with and is satisfied 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 contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that have been identified in Division 00 of the Project Specific Manual, and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Division 00 of the Project Specific Manual.

E. Bidder has considered the information known to Bidder; 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, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) 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 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 of the work for which this Bid is submitted.

J. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

K. The Bidder hereby acknowledges receipt of the Addenda via QuestCDN online.

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.

5.01 Bidder will complete the work in accordance with the Contract Documents for the prices as indicated on the QuestCDN online Bid Worksheet. The Bid Worksheet is a part of and appurtenant to the Bid Form and Bid.

A. Unit Prices have been computed in accordance with Paragraph 13.03 of the General Conditions.

B. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and Final Payment for all Unit Price Bid Items will be based on actual quantities provided, determined as provided in the Contract Documents.

C. The Bid Form shall cover all Work depicted on the contract drawings and/or required by the Specifications. All costs in connection with the Work including furnishing of all materials, equipment, and performing necessary labor, coordination, supervision, and management to fully complete the Work, shall be included in the Unit or Lump Sum prices quoted in the Bid Form. All Work not specifically set forth as a pay item in the Bid Form shall be considered incidental to the Project and all costs in connection therewith shall be included in the amounts and prices submitted in the Bid Form.

UNIT PRICE SCHEDULE

No.	Description	Unit	Estimated Quantity
Schedule 1 - Vine Street			
1	MOBILZATION	LUMP SUM	1
2	TRAFFIC CONTROL	LUMP SUM	1
3	TRAFFIC CONTROL PLAN	LUMP SUM	1
4	REMOVE ASPHALT PAVEMENT	SQ YD	3575
5	REMOVE CONCRETE CURB AND GUTTER	LF	5959
6	REMOVE CONCRETE SURFACE	SQ YD	210
7	SALVAGE SIGN AND POST	EACH	26
8	REINSTALL SIGN PANEL	EACH	26
9	SALVAGE AND REINSTALL SIGN SPECIAL	EACH	5
10	CLEARING	EACH	20
11	GRUBBING	EACH	20
12	COMMON EXCAVATION (P)	CU YD	725
13	BORROW (P)	CU YD	590
14	FULL DEPTH RECLAMATION (10")	SQ YD	15792
15	STABILIZED FULL DEPTH RECLAMATION RECLAMATION (6")	SQ YD	15792
16	ASPHALT STABLIZING AGENT (FOAMED ASPHALT)	TON	152
17	HAUL EXCESS RECLAIMED MATERIAL OFF SITE (EV)	CU YD	1755
18	BASE AGGREGATE DENSE 1 1/4-INCH - STREET (P)	CU YD	806
19	BASE AGGREGATE DENSE 1 1/4-INCH -TRAIL (P)	CU YD	483
20	HMA PAVEMENT 5 LT 58-34 S	TON	560
21	HMA PAVEMENT 4 MT 58-34 H	TON	1780
22	HMA PAVEMENT 3 MT 58-28 S	TON	2290
23	TACK COAT	GAL	2500
24	PATCH ASPHALT DRIVEWAY	SQ YD	25
25	PATCH ASPHALT STREET	SQ YD	683
26	CONCRETE CURB AND GUTTER (D30)	LIN FT	6379
27	CONCRETE SIDEWALK - 4 INCH	SQ FT	1041
28	CONCRETE SIDEWALK - 6 INCH	SQ FT	2327
29	CONCRETE MEDIAN - 4 INCH	SQ FT	864
30	CONCRETE MEDIAN APPROACH NOSE	SQ FT	190
31	CURB RAMP DETECTABLE WARNING FIELD - NATURAL PATINA	SQ FT	276
32	CONCRETE VALLEY GUTTER	SQ YD	750
33	PAVEMENT MARKING EPOXY 4-INCH (WHITE)	LF	1865
34	PAVEMENT MARKING EPOXY 4-INCH DOTTED (WHITE)	LF	150
35	PAVEMENT MARKING EPOXY 4-INCH (YELLOW)	LF	7356
36	PAVEMENT MARKING DIAGONAL EPOXY 8-INCH (YELLOW)	LF	1715
37	PAVEMENT MARKING CHEVRON EPOXY 8-INCH (WHITE)	LF	50
38	PAVEMENT MARKING EPOXY 12-INCH (WHITE)	LF	421
39	PAVEMENT MARKING EPOXY 18-INCH (WHITE)	LF	66
40	PAVEMENT MARKING ARROWS EPOXY (WHITE)	EACH	38
41	PAVEMENT MARKING TEXT EPOXY (WHITE)	EACH	1
42	MARKING ISLAND NOSE PAINT EPOXY (YELLOW)	EACH	6
43	SIGNS TYPE II REFLECTIVE H	SQ FT	150
44	SIGNS TYPE II REFLECTIVE F	SQ FT	73
45	RECTANGULAR RAPID FLASHING BEACON (RRFB)	EACH	1
46	SILT FENCE	LF	3808

UNIT PRICE SCHEDULE

No.	Description	Unit	Estimated Quantity
47	STORM DRAIN INLET PROTECTION	EACH	15
48	EROSION MAT, CLASS 1, URBAN, TYPE B	SQ YD	800
49	TOPSOIL BORROW - 6-INCH	CU YD	870
50	MNDOT SEED MIX NO. 33-261	LB	10
51	WISDOT SEED MIX NO. 40	LB	115
52	SOIL STABILIZER, TYPE A (HYDROMULCH)	SQ YD	4769
53	WATER FOR SEED	MGAL	400
54	ALLOWANCE	LUMP SUM	0.67
55	REMOVE STORM SEWER PIPE	LIN FT	81
56	REMOVE STORM STRUCTURE	EACH	5
57	REMOVE CONCRETE TOP SLAB	EACH	3
58	SALVAGE CASTING ASSEMBLY	EACH	7
59	ADJUST CATCH BASIN CASTING	EACH	8
60	ADJUST MANHOLE CASTING	EACH	5
61	48" MANHOLE TOP SLAB (2X3 OPENING)	EACH	2
62	48" MANHOLE TOP SLAB (27-INCH DIA. OPENING)	EACH	1
63	CASTING ASSEMBLY	EACH	7
64	CATCH BASIN 2X3-FT	EACH	1
65	CATCH BASIN MANHOLE 4-FT DIA.	EACH	2
66	CONNECT TO EXISTING PIPE - STORM SEWER	EACH	6
67	STORM SEWER PIPE RCP CLASS III 12 INCH	LIN FT	28
68	STORM SEWER PIPE RCP CLASS III 15 INCH	LIN FT	28
69	STORM SEWER PIPE RCP CLASS III 18 INCH	LIN FT	10
70	STORM SEWER PIPE RCP CLASS III 21 INCH	LIN FT	18
71	SALVAGE AND REINSTALL HYDRANT	EACH	5
72	REMOVE WATERMAIN PIPE	LIN FT	30
73	ADJUST VALVE BOX	EACH	18
74	WATERMAIN 6" DIP CLASS 52	LIN FT	40
Schedule 2 - Green Street			
1	MOBILZATION	LUMP SUM	1
2	TRAFFIC CONTROL	LUMP SUM	1
3	REMOVE FENCE	LF	40
4	REMOVE ASPHALT PAVEMENT	SQ YD	4240
5	REMOVE CONCRETE CURB AND GUTTER	LF	2290
6	REMOVE CONCRETE SURFACE	SQ YD	180
7	REMOVE AT&T STRUCTURE	LUMP SUM	1
8	SALVAGE SIGN AND POST	EACH	2
9	REINSTALL SIGN PANEL	EACH	2
10	SALVAGE AND REINSTALL MAILBOX	EACH	21
11	CLEARING	EACH	4
12	GRUBBING	EACH	4
13	COMMON EXCAVATION (P)	CU YD	2500
14	SOIL CORRECTION (CUT AND FILL)	CU YD	700
15	GRANULAR BACKFILL GRADE 1 (P)	CU YD	1715
16	SUBGRADE PREPARATION	SQ YD	5140
17	BASE AGGREGATE DENSE 1 1/4-INCH - STREET (P)	CU YD	1045

UNIT PRICE SCHEDULE

No.	Description	Unit	Estimated Quantity
18	HMA PAVEMENT 5 LT 58-34 H	TON	390
19	HMA PAVEMENT 3 LT 58-28 S	TON	650
20	TACK COAT	GAL	315
21	PATCH ASPHALT DRIVEWAY	SQ YD	125
22	CONCRETE CURB AND GUTTER (D24)	LIN FT	2291
23	CONCRETE SIDEWALK - 4 INCH	SQ FT	70
24	CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	1775
25	CONCRETE VALLEY GUTTER	SQ YD	24
26	SIGNS TYPE II REFLECTIVE H	SQ FT	8.5
27	STREET NAME SIGN	EACH	1
28	SILT FENCE	LF	80
29	STORM DRAIN INLET PROTECTION	EACH	6
30	TEMPORARY CONSTRUCTION ENTRANCE	EACH	1
31	EROSION MAT, CLASS 1, URBAN, TYPE B	SQ YD	30
32	TOPSOIL BORROW - 6-INCH	CU YD	300
33	WISDOT SEED MIX NO. 40	LB	45
34	SOIL STABILIZER, TYPE A (HYDROMULCH)	SQ YD	1610
35	WATER FOR SEED	MGAL	135
36	ALLOWANCE	LUMP SUM	0.33
37	REMOVE STORM SEWER PIPE	LIN FT	50
38	REMOVE STORM STRUCTURE	EACH	2
39	REMOVE CONCRETE TOP SLAB	EACH	1
40	SALVAGE CASTING ASSEMBLY	EACH	3
41	ADJUST MANHOLE CASTING	EACH	4
42	48" MANHOLE TOP SLAB (27-INCH DIA. OPENING)	EACH	1
43	CASTING ASSEMBLY	EACH	1
44	CATCH BASIN 2X3-FT	EACH	4
45	CATCH BASIN MANHOLE 4-FT DIA.	EACH	2
46	CONNECT TO EXISTING PIPE - STORM SEWER	EACH	1
47	CONNECT TO EXISTING STRUCTURE - STORM SEWER	EACH	1
48	STORM SEWER PIPE RCP CLASS III 12 INCH	LIN FT	38
49	STORM SEWER PIPE RCP CLASS III 15 INCH	LIN FT	36
50	STORM SEWER PIPE PVC (SDR 35) 12 INCH	LIN FT	6
51	IMPROVED PIPE FOUNDATION	LIN FT	56
52	TELEVISE STORM SEWER	LIN FT	74
53	REMOVE HYDRANT	EACH	2
54	ADJUST VALVE BOX	EACH	4
55	HYDRANT	EACH	2
Alternate 1 - Pond Cleanout			
1	POND EXCAVATION (P)	CU YD	921
2	EROSION MAT, CLASS 1, URBAN, TYPE B	SQ YD	79
3	TOPSOIL BORROW SPECIAL	CU YD	19
4	MNDOT SEED MIX NO. 33-261	LB	19
5	SOIL STABILIZER, TYPE A (HYDROMULCH)	SQ YD	1464
6	WATER FOR SEED	MGAL	145
7	RIPRAP	CU YD	30

6.01 Bidder agrees that the work will be Substantially Completed and completed and ready for Final Payment in accordance with the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

7.01 The following documents are attached to and made a condition of this Bid and shall be uploaded via QuestCDN online:

A. Required Bid security in the form of Five Percent.

B. Document 00 43 36 - List of Proposed Subcontractors.

C. Document 00 43 37 - List of Proposed Suppliers.

D. Document 00 44 14 - List of Project References.

E. Document 00 41 20 - Bidders Proof of Responsibility (if requested)

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.

9.01 This Bid submitted by:

If Bidder Is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____

Business address: _____

_____

Phone No.: _____ Fax No.: _____

A Partnership

Partnership Name: _____(SEAL)

By: _____
(Signature of general partner)

Name (typed or printed): _____

Business address: _____

_____

Phone No.: _____ Fax No.: _____

A Corporation

Corporation Name: _____(SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature)

Name (typed or printed): _____

Title: _____

Attest _____ (CORPORATE SEAL)
(Signature of Corporate Secretary)

Business address: _____

Phone No.: _____ Fax No.: _____

A Joint Venture

Joint Venture Name: _____(SEAL)

By: _____
(Signature of joint venture partner)

Name (typed or printed): _____

Title: _____

Business address: _____

_____

Phone No.: _____ Fax No.: _____

Joint Venturer Name: _____(SEAL)

By: _____

(Signature)

Name (typed or printed): _____

Title: _____

Business address: _____

_____

Phone No.: _____ Fax No.: _____

Phone and Fax Number, and Address for receipt of official communications:

_____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above).

Contact Information

Bidders Business Address:_____

_____

Phone: _____ E-mail: _____

Submitted on_____, 20_____.

State Contractor License No._____.

END OF DOCUMENT

SECTION 00 41 20 (REVISED)

BIDDERS PROOF OF RESPONSIBILITY

PART 1 GENERAL

1.01 SUMMARY

A. If requested by Owner, a Bidders Proof of Responsibility must be submitted to the Owner within 5 days.

B. On all contracts, bidder must submit a full and complete statement sworn to before any officer authorized to administer oaths of financial ability, equipment, experience in the work prescribed, and such other matters as the municipality may require for the protection and welfare of the public (Section 66.29 (2), Wisconsin Statutes).

C. The objective of the questionnaire is not to discourage bidding or make it difficult for qualified bidders to file bids. Neither is it intended to discourage beginning contractors. It is intended to make it possible for the Owner to have exact information on financial ability, equipment and experience involved in awarding contracts to parties unfamiliar to the Owner. Owner reserves the right to require additional information before awarding the contract in order to determine qualification for the work.

D. The contents of this questionnaire will be considered confidential.

E. This questionnaire is to be submitted to the Owner; the outside clearly marked "BIDDERS PROOF OF RESPONSIBILITY":

F. **The Bidders Proof of Responsibility must be received by the Public Works Director via registered mail (City of Hudson, ATTN: Public Works Director, 505 Third Street, Hudson, WI 54016), in person at Hudson City Hall (505 Third Street, Hudson, WI 54016), or electronically via email at mmroz@hudsonwi.gov. If returned via mail, the Bidders Proof of Responsibility must be received by the City within the specified time in Part 1.01A.**

G. If the Owner is not satisfied with the sufficiency of the answers to the questionnaire a financial statement may be required or they may reject the bid or require additional information.

H. **If the Statement of Qualifications is not returned within the specified amount of time listed in 1.01A, the City will deem the lowest bidder to be non-responsive and will request the Statement of Qualifications from the next lowest bidder. That bidder will then be required to return the Statement of Qualifications within the specified amount of time. If that bidder does not return the Statement of Qualifications within the specified amount of time, the process will repeat with the next lowest bidder.**

1.02 STATEMENT OF BIDDER'S QUALIFICATIONS

A. Name of Bidder:

B. Bidder's Address:

C. When Organized:

D. Where Incorporated:

E. How many years have you been engaged in the contracting business under the present firm name:

F. Contracts on hand (attach a list of present contracts, including a schedule as to estimate completion date and gross amount of each contract).

G. General character of work performed by your firm.

H. Have you ever failed to complete any work awarded to you:

Yes ____ No ____ If so, attach a statement detailing where and why.

I. Have you ever defaulted on a contract:

Yes ____ No ____ If so, attach a statement detailing where and why.

J. Attach a list of more important contracts completed by your firm, including kind of work and approximate cost.

K. Attach list of your major equipment.

L. Attach a statement of your experience in the construction of work similar in scope to this project.

M. Attach statement of background and experience of the principal members of your personnel, including the officers.

N. Credit availability: Furnish written evidence, preferably from banks.

O. Additional information may also be submitted if desired

END OF SECTION

SECTION 00 43 36

LIST OF PROPOSED SUBCONTRACTORS

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Type of Construction _____

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Type of Construction _____

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Type of Construction _____

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Type of Construction _____

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Type of Construction _____

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Type of Construction _____

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SECTION 00 43 37

LIST OF PROPOSED SUPPLIERS

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Material/Equipment to be Supplied _____

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Material/Equipment to be Supplied _____

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Material/Equipment to be Supplied _____

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Material/Equipment to be Supplied _____

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Material/Equipment to be Supplied _____

Company _____ Telephone No. _____

Name of Contact _____

Address _____

Material/Equipment to be Supplied _____

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SECTION 00 44 14

PROJECT REFERENCES

Below is a listing of the 3 most recent projects of a similar nature to this project which we have completed.

Contracting Agency _____

Description of Work _____

Agency Representative _____

Title _____ Phone _____ Date of Contract_____

Contracting Agency _____

Description of Work _____

Agency Representative _____

Title _____ Phone _____ Date of Contract_____

Contracting Agency _____

Description of Work _____

Agency Representative _____

Title _____ Phone _____ Date of Contract_____

Name of Bidder _____

By _____

At least one project should include <u>Stabilized</u> Full-Depth Reclamation (A project completed by the proposed reclamation subcontractor can be included, if needed).

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SECTION 00 52 10

AGREEMENT FORM

THIS AGREEMENT is by and between the City of Hudson, Wisconsin (hereinafter called Owner) and **{Name of Contractor}** (hereinafter called Contractor).

Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, 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: municipal utility and street construction.

ARTICLE 2 – THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows: **2024 Street Improvements** for the City of Hudson, Wisconsin, City Project No. **24-01**.

ARTICLE 3 – ENGINEER

3.01 The portion of the project titled "Vine Street" has been designed by **Short Elliott Hendrickson, Inc.**

3.02 The portion of the project title "Green Street" has been designed by **Erin McPhee Anderson, PE, City Engineer (Engineer**), who is to act as Owner's representative, assume all duties and responsibilities, and will 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 *Dates for Beginning Project*

A. VINE STREET:
   1. The Contractor must begin by **June 10, 2024** unless otherwise approved by the Engineer in writing. Beginning construction shall be defined as beginning the first directly-measurable bid item. Lump Sum bid items are not considered directly-measurable bid items.
   2. Construction may begin after Contractor has received written notice to proceed from the Owner and as defined below:

      a. The Contractor shall not begin removals or any operations that impact daily traffic or pedestrian flow until on or after **June 3rd, 2024.**

B. GREEN STREET:
   1. This Contract allows for a flexible start date on Green Street. The Contractor must notify the Engineer, in writing, at least two weeks prior to the selected start date.
   2. Construction may begin after Contractor has received written notice to proceed from the Owner.

C. The Contractor may not start construction operations prior to Contract Approval.

4.03 *Dates for Substantial Completion and Final Payment*

A. Substantial Completion
   1. VINE STREET: The Work will be Substantially Complete on or before **August 23, 2024**.
   2. GREEN STREET: The Work will be Substantially Complete on or before **October 6, 2024**.
   3. Substantial Completion shall be defined as the completion of the following items:
      a. Utility Improvements.
      b. Concrete curb and gutter.
      c. Street and trail paving.
      d. Initial turf restoration.
      e. Permanent pavement striping.
      f. Traffic signs.

B. The Work will be completed and ready for Final Payment in accordance with Paragraph 15.06 of the General Conditions on or before **November 3, 2024**. Final Completion shall be defined as the completion of the following items:
   1. Turf restoration establishment.
   2. Punch list work.
   3. Final clean up.
   4. Final payment.

4.04 *Bid Alternate 1: Vine Hills Pond Clean Out*

A. If awarded, the pond cleanout at the southeast corner of Vine Street and Diamond Drive, shall have a flexible start date.
B. Final Completion shall follow the requirements in section 4.03.B.

4.05 *Milestones*

A. All work included in the base bid for the 2024 Street Improvements Project will be completed in accordance with the Milestones listed below.
   a. Initial curb and sidewalk backfill: completed within 3 calendar days, beginning on the date of concrete placement.
   b. Driveways: Patch driveways within 72 hours of curb placement.
   c. Initial base course pavement: complete within 21 calendar days, beginning on the day of the start of pavement removal or pavement reclamation (SFDR).
   d. Final Restoration: complete restoration of boulevards within 3 calendar days, beginning on the day of initial base course paving.
   e. Structure Adjustments: complete within 10 calendar days, beginning on the day of initial base course paving.
   f. Final wearing course pavement: complete within 30 calendar days, beginning on the date of the start of concrete or pavement removal.

4.06 *Liquidated Damages*

A. If the Contractor does not begin work on Vine Street as defined in Paragraph 4.02, the Contractor shall pay Owner **$1,200.00** for each calendar day that expires after the date specified in Paragraph 4.02.A for Beginning Project until the Work begins.

B. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.03 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. 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), Contractor shall pay Owner **$1,200.00** for each calendar day that expires after the time specified in Paragraph 4.03 for Milestones and Substantial Completion until the Work is Substantially Complete.

C. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner **$900.00** for each calendar day that expires after the time specified in Paragraph 4.03 for completion and readiness for Final Payment until the Work is completed and ready for Final Payment.

4.07 *Early Completion Incentive*

A. If the Contractor reaches substantial completion on Vine Street by **August 16, 2024,** the Owner will award the Contractor an additional **$10,000.00** in the form of a lump sum payment above the final payment amount.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds as follows:

A. For all Work at the prices stated in Contractor's Bid, attached hereto as an exhibit. The Bid prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 10.06 of the General Conditions.

B. Original Contract Amount is based on **{fill in amount after Award}.**

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 14 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, monthly during performance of the Work as provided in Paragraphs 6.02.A1 and 6.02.A2 below. All such payments will be measured by the Schedule of Values established in Paragraph 2.07.A of the General Conditions (and in the case of Bid Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided in the General Requirements:
   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 Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 15.01 of the General Conditions:
   a. 95 percent of Work completed (with the balance being retainage).
   b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Article 15 of the General Conditions and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 *Progress Payment to Subcontractors*

A. For contracts within the State of Wisconsin, WI Statute 66.0135 Subd. 3a. shall apply. WI Statute 66.0135 Subd. 3a. requires:

1. The prime contractor shall pay any subcontractor within seven days of the prime contractor's receipt of payment for undisputed services provided by the subcontractor.

2. The prime contractor shall pay interest in accordance with WI Statute 66.0135.3b to the subcontractor on any undisputed amount not paid on time to the subcontractor.

3. The minimum monthly interest penalty payment for an unpaid balance of $100 or more is $10. For an unpaid balance of less than $100, the prime contractor shall pay the actual penalty due to the subcontractor.

4. A subcontractor who prevails in a civil action to collect interest penalties from a prime contractor must be awarded its costs and disbursements, including attorney's fees, incurred in bringing the action.

6.04 *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 moneys not paid when due, as provided in Article 15 of the General Conditions, shall bear interest at the maximum rate allowed by law at the place of the Project.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. Contractor has visited the Site 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 federal, state, and local 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 contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in the Supplementary Conditions as containing reliable "technical data."

E. Contractor considered the information known to Contractor, 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, 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, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precaution 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.
   2. Performance Bond, Payment Bond, and other Bonds.
   3. City of Hudson, Wisconsin Standard Project Manual for Utility and Street Construction, dated April 2019, and all subsequent amendments.
   4. Project Specific Manual.
   5. Drawings bearing the following general title: **2024 Street Improvements**.
   6. Addenda (**{Addendum Letter}** to _____, inclusive).
   7. Exhibits to this Agreement (enumerated as follows):
      a. Contractor's Bid Form.
      b. Documentation submitted by Contractor prior to Notice of Award.

8. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
    a. Notice to Proceed.
    b. Work Change Directives.
    c. Change Order(s).
    d. Field Order(s)

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 Article 3 of 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. 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, moneys that may become due and moneys that are 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 partners, successors, assigns, and legal representatives to the other party hereto, its partners, 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. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

This Agreement will be effective on _____, _____ (which is the Effective Date of the Agreement).

Owner:

City of Hudson, Wisconsin

By: _____
Mayor, Rich O'Connor

By: _____
Interim City Administrator, Mike Johnson

Address for giving notices:

505 Third Street

Hudson, WI 54016-1694

Designated Representative:

Name: _____

Title: _____

Address: 505 Third Street

Hudson, WI 54016-1694

Phone: 715-386-4765

Facsimile: 715-386-0804

Contractor:

_____

By: _____

Attest _____

Address for giving notices:

_____

_____

License No. _____
(Where applicable)

Designated Representative:

Name: _____

Title: _____

Address: _____

_____

Phone: _____

Facsimile: _____

END OF SECTION

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

CONTRACT

Effective Date of Agreement:
Amount:
Description (*Name and Location*):

BOND

Bond Number:
Date (*Not earlier than Effective Date of Agreement*):
Amount:
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ (Seal)	_____ (Seal)
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature (Attach Power of Attorney)
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
_____	_____
Title	Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.

2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
   2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
   2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
   2.3 Owner has agreed to pay the Balance of the Contract Price to:
      1. Surety in accordance with the terms of the Contract; or
      2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.

3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:

   3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
   3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
   3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
   3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
      1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
      2. Deny liability in whole or in part and notify Owner citing reasons therefor.

4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the 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 Owner or its heirs, executors, administrators, or successors.

7. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

8. 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 Contractor Default or within two years after Contractor ceased working or within two years after 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 period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

10. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

11. Definitions.

11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – (*Name, Address and Telephone*) Surety Agency or Broker: Owner's Representative (*Engineer or other party*):

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PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

CONTRACT

Effective Date of Agreement:
Amount:
Description *(Name and Location)*:

BOND

Bond Number:
Date (*Not earlier than Effective Date of Agreement*):
Amount:
Modifications to this Bond Form:

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

_____ (Seal)
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ (Seal)
Surety's Name and Corporate Seal

By: _____
Signature (Attach Power of Attorney)

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to Owner, this obligation shall be null and void if Contractor:

2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

4. Surety shall have no obligation to Claimants under this Bond until:

4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2 Claimants who do not have a direct contract with Contractor:

1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.

5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.

6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:

6.1 Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2 Pay or arrange for payment of any undisputed amounts.

7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, 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 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.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and 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.

15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – (*Name, Address, and Telephone*) Surety Agency or Broker: Owner's Representative (*Engineer or other*):

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This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by







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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

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has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Engineer*—The individual or entity named as such in the Agreement.

21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.

23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

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24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.

26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.

32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.

33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.

35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

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37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.

38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.

45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

46. *Unit Price Work*—Work to be paid for on the basis of unit prices.

47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

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48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*:

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*:

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*:

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

E. *Furnish, Install, Perform, Provide*:

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

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3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.

C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

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3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.

B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

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computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

A. Standards Specifications, Codes, Laws and Regulations

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*:

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

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error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*:

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

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3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

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2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. abnormal weather conditions;

3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and

4. acts of war or terrorism.

D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.

E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

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G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*:

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

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by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and

3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

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5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or

2. is of such a nature as to require a change in the Drawings or Specifications; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

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c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or

b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

c. Contractor failed to give the written notice as required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;

c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

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becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

C. *Engineer's Review*: Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

    a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;

    b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

    c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and

    d. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

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5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

2. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

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F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.

H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

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ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.

B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.

D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.

E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

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maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.

H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.

I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.

J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.

2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).

3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

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4. Foreign voluntary worker compensation (if applicable).

B. *Commercial General Liability—Claims Covered*: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:

1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.

2. claims for damages insured by reasonably available personal injury liability coverage.

3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage:

a. Such insurance shall be maintained for three years after final payment.

b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.

2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.

3. Broad form property damage coverage.

4. Severability of interest.

5. Underground, explosion, and collapse coverage.

6. Personal injury coverage.

7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.

8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.

D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.

E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

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of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.

H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:

1. include at least the specific coverages provided in this Article.

2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.

3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.

4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.

5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.

J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

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6.04 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."

2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

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5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).

6. extend to cover damage or loss to insured property while in transit.

7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

8. allow for the waiver of the insurer's subrogation rights, as set forth below.

9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.

10. not include a co-insurance clause.

11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.

12. include performance/hot testing and start-up.

13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.

B. *Notice of Cancellation or Change*: All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.

C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

E. *Additional Insurance*: If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.

F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

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6.06 *Waiver of Rights*

A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.

D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

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policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

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guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 *"Or Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) it has a proven record of performance and availability of responsive service; and

4) it is not objectionable to Owner.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

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D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

a. shall certify that the proposed substitute item will:

1) perform adequately the functions and achieve the results called for by the general design,

2) be similar in substance to that specified, and

3) be suited to the same use as that specified.

b. will state:

1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,

2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

c. will identify:

1) all variations of the proposed substitute item from that specified, and

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2) available engineering, sales, maintenance, repair, and replacement services.

d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.

B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

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E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.

J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.

K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.

L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

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O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

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7.09 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

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2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

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exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements*:

1. Before submitting a Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings*:

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

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provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples*:

   a. Contractor shall submit the number of Samples required in the Specifications.

   b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Other Submittals*: Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review*:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

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8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures*:

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal;

6. the issuance of a notice of acceptability by Engineer;

7. any inspection, test, or approval by others; or

8. any correction of defective Work by Owner.

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D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.

B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

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Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

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8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. an itemization of the specific matters to be covered by such authority and responsibility; and

3. the extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.

C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

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D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

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9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

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or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.

B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.

C. Engineer's authority as to Change Orders is set forth in Article 11.

D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

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B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

1. *Change Orders*:

a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.

b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. *Work Change Directives*: A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

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adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

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the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.

B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

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the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures*: Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.

2. *Engineer's Action*: Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

3. *Binding Decision*: Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

B. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and

4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

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B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*:

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

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submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

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thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

    c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

    d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

    e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

    f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

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other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

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B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.

E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

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ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

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cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

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B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

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include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*:

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

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a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

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e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*:

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. the Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. the Contract Price has been reduced by Change Orders;

i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;

j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

l. there are other items entitling Owner to a set off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

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remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

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E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.

2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*:

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

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inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

   d. a list of all disputes that Contractor believes are unsettled; and

   e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance*:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

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including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such other adjacent areas;

2. correct such defective Work;

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

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E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

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and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

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expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this Article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and

2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this Article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or

2. agree with the other party to submit the dispute to another dispute resolution process; or

3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

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18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SECTION 00 73 05

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. C-700, 2013 Edition) and other provisions of the Contract Documents as indicated below. All provisions which 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 1 - DEFINITIONS AND TERMINOLOGY

SC-1.01.A.25 Add the following language at the end of the definition of Milestone:

Specific milestones, if any, are described in Section 00 52 10.

SC-1.01.A.40 Add the following language at the end of the definition of Substantial Completion:

Substantial Completion is further described in Section 00 52 10.

SC-1.02 Add the following new paragraph immediately after Paragraph 1.02.F:

G. The Specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

ARTICLE 2 - PRELIMINARY MATTERS

SC-2.02.A Delete Paragraph 2.02A in its entirety, and replace with the following:

SC-2.02.A Owner shall furnish to Contractor 1 printed copy and 1 electronic (PDF) version of the Contract Documents. Additional printed copies may be obtained as directed in the Advertisement for Bids. Limitations of use of electronic and printed documents are described in the Instructions to Bidders, and General Conditions.

ARTICLE 5 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.B:

C. Reports of explorations and tests of subsurface conditions at or contiguous to the Site known to Owner are identified in Division 00.

D. 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.

E. Copies of reports and drawings identified in SC-5.03.C and SC-5.03.D that are not included with the Bidding Documents may be examined at the office of Engineer during regular business hours.

SC-5.05.A Add the following new item immediately after Item 2.d:

3. The subsurface utility information on the Drawings is utility quality level D, unless otherwise noted. This quality level was determined according to the guidelines of CI/ASCE 38-.2, entitled "Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data."

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.

ARTICLE 6 - BONDS AND INSURANCE

SC-6.01 Add the following new paragraph immediately after Paragraph 6.01.F:

G. Separate Performance and Payment Bonds should be submitted utilizing EJCDC Form C-610 and C-615 (2013 Edition) or a similar bond form if approved by Owner.

SC-6.02 Delete Paragraph 6.02.D in its entirety.

SC-6.03 Delete paragraph 6.03.J in its entirety and insert the following:

J. The coverage requirements for specific policies of insurance, including the requirements of SC 6.03.K.2.a, must be met by such policies, with exception that an Excess or Umbrella Liability insurance policy may be used to supplement Contractor's policy limits on a follow-form basis to satisfy the full policy limits required by this Contract

SC-6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:	Statutory
Federal, if applicable (e.g., Longshoreman's):	Statutory
Jones Act coverage, if applicable:	
Bodily injury by accident, each accident	$ Not Applicable
Bodily injury by disease, aggregate	$ Not Applicable
Employer's Liability:	
Bodily injury, each accident	$ 1,000,000.00
Bodily injury by disease, each employee	$ 1,000,000.00
Bodily injury/disease aggregate	$ 1,000,000.00

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: Not Applicable

Foreign voluntary worker compensation Statutory

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

General Aggregate	2,000,000.00
Products - Completed Operations Aggregate	$ 2,000,000.00
Each Occurrence (Bodily Injury and Property Damage)	$ 1,500,000.00
Personal and Advertising Injury	$ 1,500,000.00

a. The aggregate limits under SC-6.03.K.2 (Commercial General Liability) be maintained fully available for this Contract by obtaining and maintaining a Designated Construction Project General Aggregate Limit endorsement, or equivalent

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

Bodily Injury:	
Each person	$ 1,000,000.00
Each accident	$ 1,000,000.00
Property Damage:	
Each accident	$ 1,000,000.00
OR	
Combined Single Limit of	$ 1,000,000.00

4. Excess or Umbrella Liability:

Per Occurrence	$ Not Applicable
General Aggregate	$ Not Applicable

5. Contractor's Pollution Liability:

Per Occurrence	$ Not Applicable
General Aggregate	$ Not Applicable

☒ If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

6. Additional Insureds: Owner and Engineer

SC-6.05.A Add the following new paragraphs immediately after item 13:

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.

15. The Builder's Risk Insurance required herein shall apply to projects involving construction of structures and buildings only. The requirements of this Section shall be waived on projects involving only underground utilities, grading, street improvements, and similar construction work but any damage or loss to property shall be at the sole responsibility of Contractor until final acceptance of the Work

ARTICLE 7 - CONTRACTOR'S RESPONSIBILITIES

SC-7.02.C Add the following new item:

C. No Work shall be done from 7 P.M. to 7 A.M. any day of the week. However, Owner reserves the right to adjust these hours based upon the type and location of the work.

SC-7.08.A Amend the first sentence of Paragraph 7.08.A by replacing the words "Contract Documents" with the words "Division 01."

ARTICLE 8 – OTHER WORK AT THE SITE

SC-8.04 Add the following paragraphs immediately after paragraph 8.03:

8.04 Claims Between Contractors

8.04.A. Should Contractor cause damage to the work or property of any other contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any other contractor against Contractor, Owner, Engineer, or the construction coordinator, then Contractor (without involving Owner, Engineer, or construction coordinator) shall either (1) remedy the damage, (2) agree to compensate the other contractor for remedy of the damage, or (3) remedy the damage and attempt to settle with such other contractor by agreement, or otherwise resolve the dispute by arbitration or at law.

8.04.B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, the construction coordinator and the officers, directors, partners, employees, agents and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any other contractor against Owner, Engineer, consultants, or the construction coordinator to the extent said claim is based on or arises out of Contractor's performance of the Work. Should another contractor cause damage to the Work or property of Contractor or should the performance of work by any other contractor at the Site give rise to any other Claim, Contractor shall not institute any action, legal or equitable, against Owner, Engineer, or the construction coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, or the construction coordinator on account of any such damage or Claim.

8.04.C. If Contractor is delayed at any time in performing or furnishing the Work by any act or neglect of another contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, and construction coordinator for any delay, disruption, interference, or hindrance caused by any other contractor. This paragraph does not prevent recovery from Owner, Engineer, or construction coordinator for activities that are their respective responsibilities

ARTICLE 11 - AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC-11.01.A.2 Amend the second sentence of Paragraph 11.01.A.2 by replacing the words "30 days" with the words "10 days." Amend the third sentence of Paragraph 11.01.A.2 by replacing the words "60 days" with the words "30 days".

SC-11.06.A.1 Amend the first sentence of Paragraph 11.06.A.1 by replacing the words "30 days" with the words "10 days".

ARTICLE 13 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.03 Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. The quantities for each Bid Item shown in the Bid Form have been estimated as accurately as possible based on the best information available at the time of preparation of these Construction Documents. Payment for the Bid Items on a Unit Price basis under this Contract shall be on the basis of quantities actually used in the construction, regardless of the estimated quantities shown in the Bid Form. No revision to the Contract Unit Prices for the Bid Items shall be considered or allowed due to variations of the actual quantities from the estimated amounts. Certain quantities may be expected to vary more than others, such as excavation, asphalt pavement, erosion control, and restoration.

ARTICLE 14 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC-14.05.C.2 Amend the second sentence of Paragraph 14.05.C.2 by replacing the words "30 days" with the words "10 days".

ARTICLE 15 - PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-15.01.B Add the following Paragraph 15.01.B.4 immediately after Paragraph 15.01.B.3:

4. Before final application for payment is made for the work, Contractor must make satisfactory showing of compliance with the provisions of Wisconsin Statutes requiring the withholding of state income taxes for wages paid to employees on this project.

SC-15.01.C.5 Delete Paragraph 15.01.C.5 and replace with the following:

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, or Contractor has failed to make acceptable submittals in accordance with the accepted schedules.

SC-15.08.A Amend the first sentence in Paragraph 15.08.A by replacing the words "one year" with the words "two years".

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

SC-16.01.A Amend the third sentence of Paragraph 16.01.C.2 by replacing the words "30 days" with the words "10 days".

END OF SECTION

SECTION 01 20 00 (REVISED)

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Administrative and procedural requirements for pricing of Work and request for payment procedures.

B. Related Sections:
   1. Section 01 33 00 - Submittal Procedures

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. All Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 BID UNIT PRICES

A. Provide access and assist Engineer in determining actual quantities of Bid Unit Price work.

B. Provide documentation to substantiate Bid Unit Price work.

C. If the Contractor delivers and places more of any material that is paid for on a Bid Unit Price basis than is required to perform the Work and thereby causes the materials to be wasted, the quantity wasted will be deducted from the final measurement for that Bid Item.

1.04 PAYMENT PROCEDURES

A. Engineer will provide initial Application for Payment Form upon request by Contractor.

B. Submit 1 preliminary copy of progress payment application for review, consistent with Article 15 of the General Conditions. Submit 4 signed copies of Application for Payment to Engineer prior to the dates identified at the Preconstruction Conference.

C. Attach the following supporting documentation, in addition to the requirements of Article 15 of the General Conditions:
   1. Documentation to substantiate Bid Unit Price work.
   2. Updated construction schedule consistent with Section 01 33 00.

D. **Prior to the processing of any and all payments to the Contractor pursuant to this Contract, the Contractor shall complete, and file W-9 forms and other IRS and Wisconsin Department of Revenue taxing forms as required.**

END OF SECTION

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SECTION 01 21 00

ALLOWANCES

PART 1 GENERAL

1.01 SUMMARY

A. Administrative and procedural requirements governing handling and processing allowances.

B. Types of Allowances:
   1. Cash allowance.

1.02 DEFINITIONS

A. A monetary amount or product quantity established by Owner to be included in Bid for an otherwise undefined item.

B. Cash Allowance: Reserve amounts to be included in Contract Price to cover items as listed in Part 1.03 of this section.

1.03 CASH ALLOWANCES

A. General Requirements:
   1. Use only as directed for Owner's purposes or as detailed in Drawings.
   2. The following cash allowances will be applicable, but not limited to, the work items listed below:
      a. Landscaping Allowance
         1) Removals, salvaging, and restoration of landscaping areas to a satisfactory state, as determined by the Engineer, utilizing the most practical, cost-effective methods.

B. Prior to payment requests, submit time and material costs to the Owner for work covered under this section.

END OF SECTION

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SECTION 01 31 00 (REVISED)

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. General requirements for overall Project coordination.

B. Related Sections:
   1. Section 01 33 00 - Submittal Procedures

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. All Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 PROJECT COORDINATION

A. Coordinate all Work with the **Project** Engineer**,** City Engineer and Public Works Director. The Public Works Director and staff are located at the Hudson City Hall at 505 Third Street. Regular office hours are 8 A.M. to 4:30 P.M, Monday through Friday.

B. Coordinate the Work of the Contract and the Work of others relating to the Project. Work with others to cause the efficient and timely completion of the Work. These responsibilities include, among others, the following:
   1. Coordinate activities of all sub-contractors.
   2. Inform emergency services (Police, Fire, EMS), ~~Post Office, and~~ Schools **and garbage and recycling services** of traffic situations as appropriate to Project circumstances.
   3. Inform City Public Works Department of Project schedule and upcoming activities that will affect their operations.
   4. Inform non-municipal utilities (gas, telephone, electric, etc.) of Project schedule to allow for planning of any activities they wish to coordinate with the Project.
   5. Maintain and coordinate access needs of adjacent properties.
   6. **Coordinate with the post office so that there will be no interruption of mail service.**

1.04 UTILITIES

A. Notify Wisconsin's Diggers Hotline before starting construction in a given area to request utility locates within the Site:
   1. Engineer has requested information at time of construction document preparation on existing private utilities via design locate request through the Diggers Hotline.
   2. The original version of the information supplied by the utilities is available for viewing at the office of the Engineer.

B. Known Information on Private Utilities: Known information regarding the private utilities is depicted on the Drawings.

C. Project Utility Sources: Coordinate Work with the following utility owners:
   1. Hudson Public Utilities 715-716-5740
   2. City of Hudson Public Works 715-386-4765

3. Diggers Hotline 800-242-8511

D. Owner requires a 48-hour notice for all utility interruptions.

E. Coordinate the relocation or protection of all existing facilities. Any costs for such Work shall be the responsibility of the Contractor.

1.05 PERMITS

A. Comply with the stipulations of the following permits, which have been applied for and will be furnished by the Owner:
   1. Wisconsin Department of Natural Resources (DNR) Permit for Sanitary Sewer Extensions.
   2. Wisconsin Department of Natural Resources (DNR) Permit for Water Main Extensions.
   3. Wisconsin Department of Natural Resources (DNR) General Permit to Discharge Under the Wisconsin Pollutant Discharge Elimination System WPDES Permit No. WI-S067831-5.

B. Apply for, obtain, and comply with the provisions of the following permits, which the Owner will waive the permit application fee:
   1. City Building Permit.

C. Apply for, obtain, and comply with other permits, licenses, and approvals which may be required for the Project.

1.06 SURVEYING AND CONSTRUCTION OBSERVATION

A. Provide Engineer a minimum of 48-hour notice in advance of the need for establishing lines, grades, measurements, grade checks, and observation of Work.

B. Engineer will furnish a Resident Project representative consistent with Paragraph 10.03 of the General Conditions.

C. The Contractor is responsible for:
   1. Grades and elevations for pedestrian ramps.

1.07 PROJECT MEETINGS

A. Administrative Requirements:
   1. Project Superintendent or persons designated by the Contractor to attend and participate in the Project meetings shall have all required authority to commit the Contractor to solutions agreed upon in the Project meetings.
   2. Engineer will set the time, sites, and prepare the agenda for the meetings.
   3. Engineer will prepare meeting minutes and distribute 1 copy to Contractor. Notify Engineer of inaccuracies or discrepancies in the meeting minutes within 5 calendar days of receipt of the minutes.
   4. The attendance and cooperation of subcontractors and suppliers may be required.

B. Preconstruction Conference:
   1. Provisions for the Preconstruction Conference are set forth in the General Conditions.
   2. Requirements for preconstruction submittals are set forth in the General Conditions. Submittal procedures shall be consistent with Section 01 33 00.
   3. The Contractor shall provide the following information at the preconstruction conference:
      a. List of subcontractors with phone numbers.
      b. List of material suppliers with phone numbers.
      c. Construction Staging Plan as specified in Section 01 50 00.
      d. Construction Traffic Management Plan as specified in Section 01 50 00.
      e. Traffic control contact as specified in Section 01 50 00.

f. Materials and Equipment Storage Plan.
g. Contractor's emergency contact list as specified in Section 01 33 00.

C. Progress Meeting Procedures:
1. Weekly Status Meetings will be held during weeks when construction activity is occurring on the Project. The meetings will take place at Hudson City Hall. Day and time will be determined at the preconstruction meeting. If no Work is occurring, no meeting will be required:
a. Weekly Status Meetings are anticipated to be 30 to 60 minutes in length.
b. Furnish a detailed schedule of work for the following week and provide an update on construction activity from the previous week.
c. Developers, private utilities, and others may attend to communicate Project issues.

END OF SECTION

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SECTION 01 33 00 (REVISED)

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. General procedures and requirements for submittals during construction.

B. **Related Sections:**
   1. **Section 01 57 13 – Temporary Erosion and Sediment Control**
   2. **Section 01 70 00 – Execution Requirements**
   3. **Section 06 05 33 – Raceways and Fittings**
   4. **Section 26 05 19 – Wires and Cables**
   5. **Section 26 07 00 – Service Entrance**
   6. **Section 26 56 19 – Lighting**
   7. **Section 31 23 00 – Excavation and Fill**
   8. **Section 32 11 23 – Dense Graded Base**
   9. **Section 32 12 00 – Flexible Paving**
   10. **Section 32 13 14 – Concrete Walks, Medians, and Driveways**
   11. **Section 32 16 13 – Concrete Curb and Gutters**
   12. **Section 32 17 23 – Pavement Markings**
   13. **Section 32 92 00 – Turf and Grasses**
   14. **Section 33 01 30 – Television Inspection of Sewers**
   15. **Section 33 05 20 – Horizontal Directional Drilling (HDD) Pipe Installation**
   16. **Section 33 11 00 – Water Distribution Systems**
   17. **Section 33 31 00 – Sanitary Sewer Systems**
   18. **Section 33 40 00 – Storm Drainage Utilities**

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. All Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 SEQUENCING AND SCHEDULING

A. Schedule submittals consistent with the Contractor's schedule of shop drawings.

1.04 SUBMITTALS

A. Manhole/Catch Basin Elevation Report:
   1. Complete the report attached to the end of this Section for each storm and sanitary sewer structure as it is constructed. Submit complete report each week to the Engineer or the Engineer's designated representative at some mutually agreeable time.

B. Service Data:
   1. Product data for the following items:
      a. Pipe and fittings.
   2. Provide and record information on the "Sewer and Water Service Data Sheet" (Contractor Responsibility. A sample of the Data Sheet for recording required measurements is provided at the end of this Section and a copy can be provided by Engineer.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 CONSTRUCTION SCHEDULE

A. Submit preliminary schedule and progress schedule consistent with the General Conditions.

B. Prepare schedules on 11-inch by 17-inch sheets showing overall sequence of construction. Organize the schedule by work activity. Identify separate stages of each work activity:
   1. List work items in chronological sequence. Show beginning and completion dates of each activity. Include all activities with an estimated duration of 3 days or longer.
   2. Format schedule as a horizontal bar chart. Provide separate bars for each activity or trade.
   3. Provide space for revisions and notations.
   4. Identify interrelations between activities.
   5. **Identify critical path of tasks to be performed.**
   6. Include estimated times for preparation of submittals by Contractor, processing and review of submittals by Engineer, fabrication, delivery, installation, testing, start-up, instruction of Owner, and clean-up.

C. As Work progresses, revise, update, and resubmit schedule as requested by Engineer. At a minimum, update schedule with each Application for Payment. Show all activities started or finished since previous schedule was submitted and show percentage of completion for each activity.

3.02 EMERGENCY CONTACT LIST

A. Before any Work at the Site is started, submit a typed list on 8.5-inch by 11-inch paper outlining 24-hour on-call contacts for the Project. This list shall include the Contractor's safety representative, key representatives from the Contractor, subcontractors, and suppliers. Include the following information for each contact:
   1. Company name.
   2. Contact person(s).
   3. Local and mobile phone numbers.
   4. Fax number.

3.03 SHOP DRAWINGS AND MANUFACTURERS' INFORMATION

A. Conform to the requirements of the General Conditions, except as modified herein.

B. The minimum sheet size shall be 8.5-inch by 11-inch. Non-legible copies will not be reviewed.

C. Submit electronic versions (in PDF format) of shop drawings. Each copy shall contain the following information:
   1. Date of submission and date of any previous submittals.
   2. Project Title.
   3. Names Of: Contractor, subcontractor, supplier, and manufacturer.
   4. Identification of product and Specification Section number.
   5. Identification of revisions from previous submittals.
   6. A 4-inch by 4-inch blank space for the Engineer's stamp.

D. Engineer's review will be in conformance with the requirements of the General Conditions, except as modified herein.

E. Engineer will return reviewed shop drawings and indicate requirements for Contractor's review or re-submittal as follows:
   1. "**Reviewed**" – Appears that items covered by the submittal will, after installation or incorporation into the Work, conform to the Contract Documents and appears to be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
   2. "**Furnish as Corrected**" – Appears that items covered by the submittal will, after installation or incorporation into the Work, conform to the Contract Documents and appears to be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents, except as noted by Engineer.
   3. "Revise and Resubmit" – Appears that items covered by the submittal will not, after installation or incorporation into the Work, conform to the Contract Documents and will not be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Work cannot proceed until the submittal is revised and resubmitted conforming to the re-submittal procedures described in the General Conditions.
   4. "Rejected" – Work covered by the submittal is not complete or it appears that items covered by the submittal will not, after installation or incorporation into the Work, conform to the Contract Documents and will not be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Contractor shall conform to the re-submittal procedures described in the General Conditions.

F. Engineer will return reviewed submittals via email.

3.04 MATERIAL AND SAFETY DATA SHEETS

A. Furnish Owner with current copies of Material Safety Data Sheets for all chemicals and products on Site.

END OF SECTION

MANHOLE/CATCH BASIN FIELD ELEVATION REPORT

Project:	Date:
Owner:	Contractor:
Engineer's Resident Project Representative:	Contractor's Representative:
Engineer's Project No:	Owner Project No:

Contractor is required to complete this form before payment of structure is approved.

Structure Location				Structure Type (circle one)	Design Invert (from Plan)	As-Constructed Invert Elevation *	Difference (+ / -)	Comments/Quality Assurance
Structure No.	Structure Station	Direction of invert/flow	Street Name or Easement Location					
				MH CB Endwall				
				MH CB Endwall				
				MH CB Endwall				
				MH CB Endwall				
				MH CB Endwall				
				MH CB Endwall				
				MH CB Endwall				
				MH CB Endwall				
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				MH CB Endwall				
				MH CB Endwall				
				MH CB Endwall				

*** - As-Constructed Invert Elevation provided by Contractor from measurements taken in the field to nearest 0.01 feet**

SEWER AND WATER SERVICE DATA

RECORD PLAN DATA						CONTRACTOR RESPONSIBILITY							
						RISER			SEWER INVERT ELEVATION AT END	FIELD MEASUREMENTS			
LOT NO.	BLOCK NO.	WYE STATION	COORDINATES OF CURB STOP OR END OF WATER PIPE			INVERT AT TOP OF RISER PIPE	DISTANCE FROM CENTER OF PIPE	LENGTH		SERVICE LENGTH		CURB STOP TO SEWER PLUG	SEWER PIPE TO WATER LINE
			X	Y	Z					WATER	SEWER		

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SECTION 01 40 00 (REVISED)

QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Information required for conformance to regulatory requirements.
   2. Quality assurance.
   3. Procedures to measure and report the quality and performance of the Work.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. All Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCE STANDARDS

A. Whenever reference is made to the Wisconsin Department of Transportation Standard Specifications, such reference shall mean "Standard Specifications for Highway and Structure Construction" ~~2019~~ **2024** Edition (WisDOT Spec.) and all subsequent revisions and supplements. The word "Engineer" is understood to refer to the Engineer for the Owner.

1.04 WORKMANSHIP

A. Comply with industry standards of the region, except where more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

1.05 TESTS AND INSPECTIONS

A. Conform to the requirements of the General Conditions, except as modified herein.

B. Notify Engineer 48 hours prior to expected time for operations requiring tests and inspections.

C. Provide incidental labor and facilities to obtain and handle samples at Site or source, transport samples to laboratory, and facilitate tests and inspections for storing and curing of test samples.

D. Owner shall pay for all required tests, except as indicated in the Specifications:
   1. If any test fails to meet requirements, reimburse Owner for cost of all subsequent tests to ensure compliance.
   2. If any portion of the work fails to meet contract requirements and is altered or replaced, any additional tests required to ensure compliance of altered or replaced work shall be paid for by the Contractor as a deduction to the total Contract amount.

E. Notify Engineer of pit and scale location and other correlated items prior to beginning Work.

F. Following substantial completion of the project and in accordance with Article 15.05 of the General Conditions, the Engineer and Owner will perform a Final Inspection of the work performed under the contract. Based on that Inspection one initial Inspection Notice Report (INR) will be prepared. Contractor shall notify Engineer when items listed in INR have been completed. The Engineer will inspect Contractor's work a second time to verify the items in the initial INR have been completed. If there are items still unacceptable to the Owner/Engineer, a second INR will be prepared. All costs for Owner's/Engineer's time to prepare the second and, if needed, subsequent INRs and to verify that the work has been completed will be the Contractor's responsibility.

1.06 LABORATORY RESPONSIBILITIES

A. Test samples and perform field tests.

B. Provide qualified personnel. Cooperate with Engineer and Contractor in performance of services.
C. Ascertain compliance with the requirements of the Contract Documents.

D. When requested by Engineer, provide interpretation of test results.

1.07 LIMITS ON TESTING LABORATORY AUTHORITY

A. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.

B. Laboratory may not approve or accept any portion of the Work.

C. Laboratory may not assume any duties of Contractor.

D. Laboratory has no authority to stop Work.

1.08 MANUFACTURER'S CERTIFICATES

A. If requested by Engineer, submit manufacturer's certificate with shop drawings certifying that products meet or exceed specified requirements executed by responsible officer.

1.09 MANUFACTURER'S FIELD SERVICES

A. Provide qualified representative to observe field conditions; conditions of surfaces and installation; quality of workmanship; start-up of equipment; and test, adjust, and balance of equipment.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 50 00 (REPLACES STANDARD SPECIFICATION)

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Mobilization
   2. Traffic Control
   3. Miscellaneous temporary facilities required during construction.

B. Products furnished but not installed under this Section or products installed but not furnished under this Section.

C. Related Sections:
   1. Section 01 31 00 – Project Management and Coordination

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Mobilization: Measurement is Lump Sum. Payment will be considered compensation in full for all work and costs of this Bid Item for the entire Project. Partial payment will be made using a percentage based on the table below.

	*Cumulative Percent of Mobilization Item Paid
Percent of original contract amount earned – 5	50
Percent of original contract amount earned – 25	70
Percent of original contract amount earned – 50	90
Percent of original contract amount earned – 75	100
* If the contract unit price for mobilization exceeds 5 percent of the total original contract amount, the Owner may withhold (on any partial estimate) the portion in excess of 5 percent until the Contractor earns at least 95 percent of the original contract amount.	

   2. Traffic Control: Measurement is Lump Sum. This shall be considered payment in full for all labor, equipment, and materials associated with the required Traffic Control devices for the entire Project, including any detours. This Bid Item shall include but not be limited to furnishing, installing, and relocating the Traffic Control due to various road closures, daily maintenance, and ultimate removal of all such devices used over the duration of the Contract or as directed by the Engineer. Partial payment of the Lump Sum Item "Traffic Control" will be made using a percentage based on the table below.

	Cumulative Percent of Traffic Control Item Paid
First Partial Payment	50
Percent of original Contract amount earned – 25	70

Percent of original Contract amount earned – 50	90
Percent of original Contract amount earned – 100	100

3. Traffic Control Plan: Measurement will be per Lump Sum. Payment will include all work in relation to preparation of a traffic control plan(s), regardless of multiple construction phases requiring revisions to original plan and as outlined in this section and drawings.
4. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. The Wisconsin Manual on Uniform Traffic Control Devices (WMUTCD), including the Field Manual on Temporary Traffic Control Zone Layouts – Latest edition.

B. Wisconsin Traffic Engineering, Operations and Safety Manual (WTEOpS).

C. Wisconsin Department of Transportation Work Zone Field Manual – Latest edition.

1.04 SUBMITTALS

A. Traffic Control Plan (Vine Street): The Contractor shall submit a proposed traffic control plan to the Engineer for acceptance for each stage of the project. The initial traffic control plan shall be submitted at least fourteen (14) days in advance of the construction start date. Subsequent traffic control plan revisions shall be submitted at least seven (7) days in advance of desired implementation for review and acceptance by the Engineer. The Contractor will not receive written notice to proceed until the traffic control plan is approved by the Engineer.
   1. Business Access
      a. Businesses, as listed below, must remain accessible during normal operating hours of each particular business. Any restrictions to business access must be coordinated with the Engineer at least 72 hours in advance and will require a written plan from the Contractor, detailing signage and any appurtenant traffic control measures to allow safe access to the business.
         1) Vine Street Professional Building – 2215 & 2217 Vine Street
         2) YMCA – 2211 Vine Street
         3) Emmanuel Lutheran Church – 712 Grandview Drive
         4) First Presbyterian Church – 1901 Vine Street
         5) St. Patrick's Church – 1500 Vine Street
      b. Business Signage
         1) Incorporate specific signage relating to business access, conforming to references listed in Section 1.03 and showing the following information:
            a) Name of business
            b) Arrows indicating route to business access.
   2. Pedestrian Access
      a. Pedestrian Route
         1) Develop a pedestrian route plan, to ensure pedestrians may still access residential areas and businesses along the roadway. Pedestrian route shall have adequate signage and safety measures to allow for navigation through or around the site, with no compromise to the Contractor's work, or the safety of the pedestrians.
      b. Pedestrian Detour
         1) If a pedestrian detour is deemed necessary, provide adequate signage stating the pedestrian detour route. Provide the most efficient, feasible route that can be taken by pedestrians when traversing from one end of the site to the other.
      c. Temporary ADA

1) Provide temporary curb ramps where necessary.

3. Construction Staging
   a. Should staging require changes to the original traffic control plan, provide revised traffic control plan for each additional stage.
4. Detour Route
   a. Provide detour signage for the route shown in the Drawings. Signage shall conform to the references in Section 1.03.
5. Signage
   a. All signage called out in the traffic control plan shall include the following information:
      1) Type of sign being placed.
      2) Size of sign.
      3) Direction in which the sign will be facing.
   b. Additional signage may be requested by the Engineer to accommodate changes in traffic or for vehicle and pedestrian safety.
   c. Advanced Notice of Road Closure
      1) Provide signage at either end of the project site stating the following information:
         a) Road closed
         b) Identification of the street section being closed
         c) Anticipated road closure date
      2) Advanced notice of road closure shall be installed seven (7) days prior to road closure.

1.05 SEQUENCING AND SCHEDULING

A. Notify the Engineer in writing at least 72 hours prior to the start of any construction operation that will necessitate lane closure or internal traffic control signing.

B. The traffic control devices required along the project corridor shall be installed 48 hours prior to the start-up of the work, unless stated otherwise.

C. Schedule the work to cooperate fully with adjacent property owners abutting the project to maintain access to their property by driveway or temporary driveway as coordinated with the property owner. If no access to the property can be maintained, the property owner shall be notified at least 24 hours prior to the closure.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 MOBILIZATION

A. Move personnel, equipment, materials, and all other items required to complete the Work at the Site.

B. Establish Contractor offices, building, or other facilities necessary for Work on the Project.

C. Temporarily hold or relocate utilities and any miscellaneous structures, such as signs, power poles, guy wires, and mailboxes disturbed.

3.02 TRAFFIC CONTROL

A. General:

1. Provide and maintain all traffic control devices in accordance with the approved Traffic Control Plan or Construction Staging Plan. All traffic control devices and other protective measures shall conform to the WMUTCD, latest edition.
2. Do not park vehicles as to obstruct a traffic control device.
3. Do not store materials or equipment within 30 feet of through traffic, unless approved by the Engineer. If materials or equipment must be stored within 30 feet of through traffic, the Contractor shall provide reflective barricades or barriers, as directed by the Engineer, to warn and protect traffic.
4. Maintain all unpaved surfaces. The surface shall be watered and bladed as directed by the Engineer.
5. Remove traffic control devices at the conclusion of the Work. Any ground disturbed from traffic control signage shall be returned to its original condition.
6. Flaggers are required to protect construction vehicles during unloading of construction materials. Conform to the requirements of the WMUTCD, and the WisDOT Work Zone Field Manual latest editions.
7. Provide access through the project site for fire, police and emergency vehicles to all adjacent properties at all times.

B. Traffic Control Devices:
1. The Contractor shall inspect, on a daily basis, all traffic control devices which the Contractor has furnished and installed and ensure that all traffic control devices are in accordance with the Plans, WisDOT Work Zone Field Manual and/or the WMUTCD, latest edition. Any discrepancy between the actual devices in use and the required devices shall be immediately rectified. At least 1 nighttime inspection shall be made each week.
2. The Contractor shall be responsible for the immediate repair or replacement of all traffic control devices that become damaged or moved. The Contractor shall respond with sufficient personnel, equipment, and/or materials to any request from the Engineer to improve or correct the usage of traffic control devices within 1 hour of the time of notification or be subject to a $100 per hour deduction from the time of notification for non-attention.
3. Keep all traffic control signs and devices in a legible condition. This shall include but not be limited to removing grime and dust deposited on any device by traffic, natural causes, or when requested by Engineer.
4. Store at least 10 extra Type 1 barricades with flashers, 5 extra Type III barricades, and 10 extra drums, at a convenient location within the Project limits for use in an emergency, as approved by the Engineer. No direct compensation will be made to the Contractor for furnishing and erecting these traffic control devices.

C. Place traffic control with flashers around areas disturbed by removal and replacement of utility structures, open manholes, and concrete curb and gutter:
1. Place at least one Type 1 barricade with flasher or barrel with flasher per panel of curb removed.

D. Closure of a roadway using Type III barricades will require a sufficient number of barricades to span the entire roadway width, at the discretion of the Engineer.

3.03 TEMPORARY BARRIERS AND ENCLOSURES

A. Temporary Barriers:
1. Provide temporary covers, enclosures, markers, and barriers as necessary to protect Work.
2. Promptly repair any damage to the Site caused by removal of temporary fencing, including postholes. During removal, at no time shall the Work remain unattended if a dangerous condition exists because of incomplete removal or Site requiring repair.

3.04 RESTRICTIONS

A. Temporary stockpiling of materials or debris on any City street overnight is not allowed, unless approved by the Engineer. Proper traffic control is required for stockpiling during the day. If overnight stockpiling is approved by the Engineer, proper precautions must be used to make stockpile visible.

B. Overnight parking of equipment will not be allowed on any City street. Proper traffic control is required for parking during the day.

END OF SECTION

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SECTION 01 54 28

EQUIPMENT RENTAL

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Furnishing labor and/or specific equipment with operators as required.

B. Related Sections:
   1. Section 01 57 13 - Temporary Erosion and Sediment Control
   2. Section 32 12 01 - Flexible Paving

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Equipment:
      a. Measurement will be by time in hours and will only include actual working time and travel time within the Project limits for each equipment type.
      b. Payment shall include one operator and active equipment as required. Payment for labor and equipment shall be at the Contract unit price as listed on the Bid Form. All associated work items shall be considered incidental.
   2. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 PERFORMANCE REQUIREMENTS

A. All equipment and accessories shall be fully operational and in good mechanical condition.

B. All equipment operated on asphalt or concrete surfaces shall be equipped with rubber tires or smooth street plates.

C. Equipment provided shall be rated for, and have sufficient power to effectively complete the work as required.

PART 2 PRODUCTS

2.01 EQUIPMENT

A. Provide the following equipment, as requested by Engineer, which meets the specific requirements and includes the accessories listed:
   1. Street sweeper with mechanism for picking up and containing sweepings. Power broom will not be allowed. The Street Sweeper shall have the minimum bristle length as recommended by the manufacture.
   2. Skidsteer (bobcat).
   3. Wheel-type end loader, minimum 50 hp.
   4. Track-type dozer, minimum 80 hp.
   5. Dump Truck, minimum tri axle with tandem drive axle assembly.

PART 3 EXECUTION

3.01 GENERAL

A. Perform work as requested by Engineer.

B. Perform street sweeping per Section 01 57 13 and 32 12 01.

END OF SECTION

SECTION 01 57 13 (REPLACES STANDARD SPECIFICATION)

TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Managing storm water runoff and other Project related water discharges to minimize sediment pollution during construction.

B. Related Sections:
   1. Section 32 92 00 – Turfs and Grasses
   2. Section 01 33 00 – Submittal Procedures

C. The Contractor and Owner shall identify a person(s) knowledgeable and experienced in the application of erosion and sediment control Best Management Practices (BMPs) who will oversee the implementation of the erosion control plan and associated regulatory requirements.

D. Wisconsin Department of Natural Resources (WisDNR) – Wisconsin Pollutant Discharge Elimination System (WPDES) Construction Site Storm Water General Permit:
   1. The Owner has developed an erosion control plan in accordance with WPDES. The erosion control plan is included in the project plans.
   2. As a condition of the Award, the Contractor shall be responsible for the conditions in the WPDES Permit.
   3. The Owner will initiate the permit and pay the required fee.
   4. Permittee(s) shall ensure that their erosion control plan meets all terms and conditions of this permit and that their activities do not render ineffective another party's erosion prevention and sediment control BMPs.
   5. The Contractor shall maintain copies of the erosion control plan on the project site at all times and comply with all provisions contained therein, including performing the required weekly inspections and inspections within 24 hours after a rainfall event of 0.5 inches or greater. More frequent visual monitoring is recommended for activities such as dewatering and trackout.
   6. The Contractor shall be responsible for keeping the inspection reports current and updated. An inspection report is available on the WisDNR's website at: Construction site storm water permit forms | | Wisconsin DNR

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Payment at the Bid Unit Price will be considered compensation in full for all Work necessary to complete the Bid Item in full, including installation, maintenance, sediment removal, repairs, and removals. Multiple mobilizations that are required to comply with this section are incidental.
   2. Measurement will be based upon the units as listed below for Bid Items removed, abandoned, or salvaged complete as specified. No measurement will be made of any removals that are not required. The actual quantity installed multiplied by the appropriate Bid Unit Price will be compensation in full for all Work and costs of the following Bid Items. 80-percent partial payment will be made upon installation and 20-percent payment will be made upon removal and restoration:
      a. Silt Fence: Payment will be by type. Measurement will be by the linear foot along the base of the fence, from outside to outside of the end posts for each section of fence. Silt fence shall be removed prior to project closeout and final acceptance.
      b. Floatation Silt Fence: Payment will be by type. Measurement will be by linear foot installed.

c. Storm Drain Inlet Protection: Measurement will be per each, according to type furnished, installed, maintenance, including cleaning and reinstallation.
d. Temporary Construction Entrance: Measurement will be per each installed and maintained.
e. Erosion Mat: Payment will be by type installed. Measurement will by square yard.
f. Mulch: Measurement will be by square yard of material installed, including tackifiers; for hauling, treating, placing, spreading, and anchoring of the mulch material.
g. Temporary Hydraulic Matrix: Measurement will be by the acre of material installed.
h. Ditch Check: Payment will be by type. Measurement will be by the linear foot.
i. Sediment Control Logs: Payment will be by type. Measurement will be by the linear foot.
j. Sediment Trap: Shall be considered incidental to the Project.
k. Temporary Pipe Downdrains: Measurement will be by the linear foot. Payment shall include rip rap used to provide an outlet.
l. Erosion Bale: Measurement will be by each.

3. Water for Dust Control: Measurement will be per 1,000 gallons (MGal) applied to the street. Payment will constitute compensation in full for all Work and cost to furnish and install the Water. This Bid Unit Bid Item is intended to pay for water used for dust control only and only at those times that it is requested by either the Engineer or Owner:
   a. Water used for the construction of the streets will be considered incidental to the Project.
4. Street Sweeper with Operator and Skidsteer (Bobcat) With Operator: Measurement shall be by the hour of equipment use, based on the actual amount of time spent cleaning street surfaces. However, if the Contractor is careless in their construction operations, they will be required to clean and sweep streets at their own expense. Payment at the Unit Price shall be considered complete compensation for all work associated with the cleaning, including water as directed by Engineer, and disposal of collected materials:
   a. Anticipate multiple mobilizations to perform this work.
5. When the contract Bid Item requires maintenance, partial payment for installation will be made no greater than 50 percent of the contract unit price. The remaining partial payment will be made after maintenance and final acceptance by the Engineer.
6. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the associated erosion control and excavation items. Such items of work include but are not limited to:
   a. Complying with the Wisconsin Department of Natural Resources (WisDNR) – Wisconsin Pollutant Discharge Elimination System (WPDES) Construction Site Storm Water General Permit.
   b. Inspect, maintain, repair, and remove (if necessary) temporary surface stabilization practices throughout the duration of the project.
   c. Maintaining clean exit areas or roads from the site.
   d. Cleaning storm sewers, drain tiles and culverts that have been partially or completely obstructed by sediment that originated from the site.
   e. Emergency erosion control mobilization.
7. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", 2019 Edition (WISDOT Spec.):
   1. Section 627 - Mulching
   2. Section 628 – Erosion Control

B. Wisconsin DNR Storm Water Management Technical Standards

C. Wisconsin DNR Chapter NR 151 – Runoff Management

D. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.04 SUBMITTALS

A. Requested changes, revisions, and supplementary information to the erosion control plan (including but not limited to):
   1. Locations for Stockpiles, Concrete Washout, and Sanitation Facilities.
   2. Changes to types and/or locations of BMPs.

B. Certification and Sampling:
   1. Furnish a manufacturer's certification stating that the material supplied conforms to the requirements of this Section. The certification shall include or have attached typical results of tests for the specified properties, representative of the materials supplied.

1.05 SEQUENCING AND SCHEDULING

A. Install sediment control measures prior to grading activities.

B. Schedule and coordinate the Work so that permanent erosion and sediment control BMPs, such as basin construction, rip rap placement, and permanent seeding, are directly incorporated into the supplement permanent erosion and sediment control BMPs with temporary BMPs. Place temporary BMPs when permanent erosion control cannot be achieved. Coordinate construction operations so that erosion and sediment control measures (permanent or temporary) are installed and maintained concurrently with the rest of the Work of the Project.

C. Coordinate and schedule the Work of subcontractors such that erosion and sediment control measures are fully executed for each operation and in a timely manner over the duration of the Project. Develop a chain of responsibility for all subcontractors and operators on the Project to ensure that permit provisions are adhered to.

D. Infiltration areas and constructed infiltration systems should not be constructed until the contributing drainage area and/or adjacent construction has been completely stabilized. When this timing of construction is not possible, ensure sediment from exposed soil areas of the Project does not enter into the infiltration area or system. The Contractor shall not utilize proposed infiltration areas to store materials or equipment and shall limit disturbance as much as possible in these areas.

E. Stabilization timeframes shall conform to the WPDES Construction Site Storm Water General Permit.

F. Perform weekly and post-rainfall event inspections in accordance with the WPDES permit.
   1. Complete and keep on site the inspection reports.

G. Prior to Project shutdown for the winter or other periods of a week or more, adequately protect Site from erosion and off-Site damage by covering exposed soils with mulch and establishing perimeter controls.

H. If the Contractor fails to install erosion or sediment measures, the Engineer may withhold payment from related work until the control measures are undertaken by the Contractor:
   1. When the Contractor fails to conduct the inspections required in the WPDES permit or fails to take action ordered by the Engineer to remedy erosion or sediment control problems, the Engineer shall issue a Written Order to the Contractor.
   2. Respond within 24 hours with sufficient personnel, equipment, materials, and conduct the required Work or be subject to a $1,000 per calendar day deduction for noncompliance.

I. Establish permanent turf in accordance with Section 32 92 00 to prevent excessive soil erosion.

PART 2 PRODUCTS

2.01 SILT FENCE:

A. Conform to WisDOT Section 628.2.6 and City Standard Detail Plate ERO-2.

2.02 TEMPORARY CONSTRUCTION ENTRANCE

A. Rock Construction Entrance: Conform to City Standard Detail Plate ERO-1:
   1. 2 inches minimum clear/washed rock.
   2. Underlying Geotextile: Conform to WisDOT Section 645, Type R.
   3. Minimum Thickness of Rock Placed: 6 inches.

B. Wood Slash Mulch Construction Entrance: Conform to City Standard Detail Plate ERO-1:
   1. Raw wood slash only. No chipped-up manufactured wood or chemically treated wood is allowed.
   2. Splinter material to an average approximate length of 6 inches with a maximum length of 20 inches. Bark and wood splinters less than 2 inches long shall not exceed 20 percent by mass of the material.
   3. Underlying Geotextile: Conform to WisDOT Section 645, Type R.
   4. Minimum Thickness of Mulch Placed: 18 inches.

2.03 MULCH: CONFORM TO WISDOT SECTION 627:

A. Straw or hay only. Project specific, refer to WisDOT Spec. for options.

B. Hydraulic erosion control products may be used in lieu of mulch with the approval of the Engineer.

2.04 SOIL STABILIZER

A. Conform to Section 32 92 00.

2.05 EROSION MAT

A. Erosion Mat shall conform to WisDOT Section 628.2.2: Class 1, Urban, Type B.

B. Conform to City Standard Detail Plate ERO-4.

2.06 STORM DRAIN INLET PROTECTION

A. Inlet protection for paved streets with concrete curb and gutter: The following methods are acceptable:
   1. Conform to the details on the Drawings.
   2. Catch Basin Inserts:
      a. Road Drain by Wimco, LLC (www.roaddrain.com), in accordance with City Standard Detail Plate ERO-8, or approved equal.
      b. Filter bag insert subject to Site and approved by the Engineer.

B. Inlet protection for non-paved surfaces without curb or areas where vegetation will be established. The following methods are acceptable:
   1. Conform to the details on the Drawings.
   2. Silt fence box: conform to City Standard Detail Plate ERO-5 and ERO-6, or approved equal.
   3. Sediment control inlet hat:
      a. InfraSafe Sediment Control Barrier by Royal Enterprises (http://www.royalenterprises.net/).
   4. Pop-up head.
   5. Rock filter: conform to City Standard Detail Plate ERO-7 as shown on the Drawings.

2.07 SEDIMENT CONTROL LOGS

A. Straw or wood fiber biorolls, 6 to 7 inches in diameter.

B. Compost or rock logs, 6 to 8 inches in diameter.

2.08 DITCH CHECKS

A. Conform to WisDOT Spec. 628.3.14 and details in Drawings.

2.09 EROSION BALE

A. Conforming to WisDOT Section 628..3.3 and details in Drawings.

2.10 FLOATATION SILT SCREEN

A. Conform to the requirements of WisDOT Section 628.2.7.

B. Curtain depth shall extend to the bottom of the water body.

2.11 DUST CONTROL

A. Water clear and free from suspended fine sediment.

2.12 TEMPORARY SEED

A. Conform to Section 32 92 00.

2.13 DEWATERING SEDIMENT CAPTURE

A. General – Sizing, configuration, capacity, and selection of dewatering sediment capture techniques shall be based on Site and flow conditions. Submit the means and methods for review by the Engineer. Sizing of the sediment capture systems will have to be adjusted such that the ultimate discharge water is not visibly different from the receiving water.

2.14 EQUIPMENT

A. Street sweeper with mechanism for picking up and containing sweepings. Power broom will not be allowed. The Street Sweeper shall have the minimum bristle length as recommended by the manufacture.

B. Skidsteer (bobcat) to assist in street sweeping.

PART 3 EXECUTION

3.01 GENERAL

A. Comply with all applicable laws, ordinances, regulations, permit requirements, orders and decrees pertaining to erosion/sediment control and stormwater discharge during the conduct of the Work.

B. Take necessary precautions against damage to the Project by action of the elements.

C. Implement the Project's erosion control plan and take necessary actions to prevent off Site damage resulting from Work conducted on the Project or Project related stormwater runoff.

D. Minimize the amount of disturbed land that is susceptible to erosion at any time. Delineate areas not to be disturbed:

1. Exclude vehicles and construction equipment from area not to be disturbed to preserve natural vegetation.
2. Maintain and preserve riparian and naturally vegetated buffer strips (10 feet minimum distance) along water courses.

E. Restore all disturbed areas that have not had construction activity for more than 14 calendar days with temporary soil stabilizer per Section 32 92 00. All costs related to furnishing and installing the temporary soil stabilizer will be considered incidental to the Project unless a bid item has been provided for it.

F. Street sweeping operations must include the application of water to effectively remove fine materials from pavement areas, as directed by the Engineer. The appropriate amount of water shall be applied to eliminate dust as part of the sweeping operations.

3.02 INSTALLATION

A. General: Install temporary stormwater management and sediment control devices in conformance with the details, typical sections, and elevations shown on the Drawings.

B. The location of temporary stormwater and sediment control devices may be adjusted from that shown on the Drawings to accommodate actual field conditions and increase the effectiveness of the installation.

C. Silt Fence: Conform to WisDOT Spec. 628.3.4:
1. Install in the locations shown on the Drawings, unless directed otherwise by the Engineer.
2. Use additional measures, such as rock aggregate, placed along the base of the silt fence where the silt fence geotextile cannot be trenched in, i.e. tree roots, frost, bedrock.
3. Use short sections of silt fence placed in J-hook patterns to:
    a. Supplement the perimeter silt fence at corner locations and areas where sediment deposition will occur. No more than 100 feet of silt fence shall be installed per 1/4 acre of drainage.
    b. Break up flow path along silt fence running across contours to be no more than 100 feet between hooks or as directed by the Engineer.
4. Silt fence longer than 600 feet shall be constructed in separate independent units with each unit having a length less than 600 feet. Avoid splices whenever possible. If necessary, make splices at an opposing fence post and according to the manufacturer's specifications.

D. Temporary Construction Entrance:
1. Install at locations shown on the Drawings.
2. Construct construction entrance before grading begins on the Site.
3. Inspect construction entrance daily for mud accumulation to minimize vehicle tracking of sediment onto public roadways. Remove fugitive rock or wood mulch from adjacent roadways daily.

E. Mulch:
1. For seeded Sites, apply at a rate of 2 tons per acre (4,500 kg/ha).
2. For unseeded Sites, apply at a rate of 2 to 3 tons per acre (4,500 to 6,700 kg/ha), covering the entire soil surface.
3. Distribute mulch evenly by hand or machine and cover the exposed area to a uniform depth.
4. Conformance to WisDOT Sect. 627.3.2.3, Method C
5. Anchor mulch immediately to minimize loss by wind or water.

F. Temporary Soil Stabilizer:
1. Conform to WisDOT Spec. 628.3.12.2, Type A, but without seed.

G. Slope (Cat) Tracking:

1. Slope tracking consists of operating a dozer up and down slopes so that the cleats of the tracks create grooves perpendicular to the slope. By operating the dozer up and down, the soil surface is firmed, and miniature interceptor checks are created.
2. Required on all slopes equal to or steeper than 3:1 (H:V).

H. Erosion Mat:
1. Install in accordance with WisDOT Spec. 628.3.2, and as modified below:
    a. Install at locations shown on the plans or as directed by the engineer.
    b. Install per Detail Plate ERO-4 as shown on Drawings.
    c. Raking or harrowing of soil/seed shall be done before installation of erosion control mat.
    d. Install mat parallel to the direction of flow.
    e. If permanent seeding is not available at the time of mat installation, this material will have to be removed, re-seeded, and installed again as a permanent erosion control measure. If permanent seeding is available at the time of initial installation, a one-time proper installation is acceptable.

I. Storm Drain Inlet Protection:
1. Provide effective storm drain inlet protection over the life of the Project until all sources with potential for discharging to inlets have been paved or stabilized.
2. Place devices so that driving hazards or obstructions are not created. The devices must be cleaned out regularly and all devices must have an emergency overflow to reduce flooding potential.

J. Temporary Sediment Basins:
1. Sediment basins shall be excavated as a first priority when grading begins on the Project. The location and outlet configuration are shown on the Drawings.

K. Temporary Sediment Traps:
1. Temporary sediment traps are excavated in conjunction with other grading activities. Temporary traps are approximately 2 feet or less in depth with a length to width ratio of 2:4.
2. Effectiveness of sediment traps can be increased by placing a rock weeper at the outlet.

L. Temporary Diversion Berm:
1. Temporary diversion berm shall be installed at locations shown on the Drawings. The berm shall be located to minimize damage by construction operations and traffic.
2. Temporary diversion berm shall be installed as a first step in the land-disturbing activity and must be functional prior or in conjunction with upslope land disturbance.
3. The berm shall be adequately compacted to prevent failure.
4. Temporary or permanent seeding and mulch shall be applied to the berm immediately following its construction.

M. Ditch Checks and Velocity Checks: Reference detail on Drawings.

N. Floatation Silt Screen:
1. Floatation silt screen shall be installed in locations shown on the Drawings and according to the manufacturer’s specifications:
    a. "Anchor" and secure to prevent any material from passing beneath, over, around, or through the barrier.
    b. Provide sufficient slack to permit the curtain to rise to the maximum expected high-water level, including wave action, without being overtopped and still be in continuous contact with the bottom.
2. Place floatation silt screen as close to the shoreline or work area as possible. Flotation silt screen shall not be placed across flowing rivers, streams, drainage ditches, or across culvert inlets or outlets.

3.03 MAINTENANCE

A. Conform to WisDOT Section 628, WPDES permit, and as follows:
   1. Inspect, maintain, and repair any washouts or accumulations of sediment that occur as a result of the grading or construction. Restoration consists of grade repair, turf re-establishment, and street sweeping of mud and debris tracked from the Site.
   2. Inspection of all erosion and sediment control items will take place immediately after each runoff event and at least daily during prolonged rainfall. Make any required repairs immediately.
   3. Maintain the temporary sediment control devices until they are no longer necessary and are removed:
      a. Maintenance consists of keeping the devices functioning properly.
      b. Repair or replace plugged, torn, displaced, damaged, or non-functioning devices.
   4. Upon final acceptance of the Project and establishment of permanent erosion control measures, remove all temporary erosion control measures:
      a. Catch basin protection becomes property of Contractor.
   5. Temporary soil stabilizing is very effective at controlling erosion. However, it is considered a temporary measure and may need to be re-established several times throughout the duration of the Work.
   6. Floatation silt screen shall remain in place until such time that water contained within is free from turbidity:
      a. Remove screen within 72 hours after this determination has been made.
      b. At the completion of the Project, remove floatation silt screen in such a manner so as to minimize release of sediment adhering to the turbidity curtain.

B. Sediment Removal:
   1. Remove sediment from erosion control devices when sediment reaches one-third of the height of the devices, restore such features to their original condition.
   2. Established areas disturbed by the removal of sediment, will require finish grading and restoration with in-kind materials, such as area disturbed as part of silt fence removal. This work shall be considered incidental to the specific bid item.

C. Control dust blowing and movement on Site and roads as directed by Engineer to prevent exposure of soil surfaces, to reduce on and off-Site damage, to prevent health hazards, and to improve traffic safety.

END OF SECTION

SECTION 01 70 00

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Requirements for overall execution of the Work and closeout of the Contract for Final Payment.

B. Measurement and Payment:
   1. All Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.02 SUBMITTALS

A. Submit the following items consistent with the Conditions of the Contract and Division 01 Sections:
   1. Written Notification of Substantial Completion.
   2. Executed Certificate of Substantial Completion.
   3. Written Notification of Final Completion.
   4. Spare Parts, Operation and Maintenance Manuals, instructions, schedules, warranties, guarantees, Bonds, certificates, certificates of inspection, and other documents.
   5. Final Application for Payment, including accompanying documentation:
      a. Lien wavers per Paragraph 15.06.A.2 of the General Conditions
      b. Written proof of compliance with State income tax income tax withholding requirements per Paragraph 15.4 of the Supplementary Conditions.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 EXAMINATION

A. Acceptance of Conditions: By commencing Work, Contractor construes acceptance of the adjacent work as satisfactory to receive subsequent work.

B. Existing Conditions: Before commencing Work, inspect work completed by others that is adjacent to Work. If adjacent conditions prevent completion of Work, Contractor will not commence Work until the conditions are corrected.

C. Inspect each product immediately prior to installation. Remove damaged products from Site.

3.02 GENERAL INSTALLATION REQUIREMENTS

A. Comply with the manufacturer's instructions for installation of manufactured products to the extent that these instructions are applicable and more explicit or more stringent than requirements indicated in the Contract Documents.

B. Secure Work true to line and level, within recognized industry tolerances, with anchorage devices designed and sized to withstand stresses, vibration, and rocking. Allow for expansion and movement of building.

C. Install each element of work during weather conditions and Project status to ensure coordination of the Work. Isolate each element of work from incompatible work as necessary to prevent deterioration.

D. Record installation details and prepare Record Documents consistent with the General Conditions.

3.03 SITE MAINTENANCE

A. Maintain stockpiles, excavations, access roads, and all other work areas free from dust. Employ dust abatement techniques whenever a dust nuisance or hazard occurs, or as directed by Engineer. Comply with local ordinances.

B. Protect hazardous work areas and hazardous material storage areas.

C. Protect trees, unless specifically indicated on Drawings.

D. Clean access roads and haul routes with mechanical street sweeper.

E. If Contractor fails to maintain Site, Engineer will provide Written Notice of Contractor's defective Work. Contractor will be given 12 hours from the Notice to clean Site. After the 12-hour period, Owner may correct the defective Work consistent with Article 14.07 of the General Conditions.

3.04 CLEANING AND PROTECTION

A. Clean and protect Work in progress and adjoining Work during handling and installation. Apply protective covering on installed Work where it is required to ensure freedom from damage or deterioration.

B. Clean and perform maintenance as frequently as necessary throughout construction period. Adjust and lubricate operable components to ensure operability without damage effects.

3.05 CUTTING AND PATCHING

A. Complete all cutting, fitting, and patching as necessary to join the new Work to existing conditions.

B. Remove or cut existing work only as necessary to join the new work to the existing construction or as required by the Contract Documents.

C. Patch defective and incomplete surfaces caused or exposed by Work of the Project.

D. Repair any damage to existing conditions and patch to match.

E. Existing construction designated by the Contract Documents to remain that is loosened, cracked, or otherwise damaged or defaced beyond repair as a result of Work by the Contractor will be considered unsuitable for the use intended and shall be removed and replaced by the Contractor.

END OF SECTION

SECTION 02 41 13 (REVISED)

SELECTIVE SITE DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Complete or partial removal and disposal or salvage of at grade, above grade, and below grade structures and miscellaneous items.

B. Related Sections:
   1. Section 31 23 00 - Excavation and Fill.
   2. Section 32 13 14 - Concrete Walks, Medians, and Driveways.
   3. Section 32 16 13 - Concrete Curb and Gutters.
   4. Section 33 05 05 - Trenching and Backfilling.
   5. Section 33 10 00 - Water Utilities.
   6. Section 34 41 05 - Traffic Signs and Devices.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Payment at the Bid Unit Price will be considered compensation in full for all Work necessary to complete the Bid Item in full, including removal, salvage, storage, disposal, and reinstallation.
   2. Measurement will be based upon the units as listed below for items removed, abandoned, or salvaged complete as specified. No measurement will be made of any removals that are not required. The actual quantity removed multiplied by the appropriate Bid Unit Price will be compensation in full for all Work and costs of the following Bid Items:
      a. Sawing Concrete (Street, Driveway, Sidewalk): Per lineal foot along the saw cut line as staked, regardless of thickness.
      b. Sawing Asphalt (Street, Trail, Driveway): Per lineal foot along the saw cut line as staked, regardless of thickness.
      c. Remove Asphalt Pavement (Street, Trail, Driveway): Per square yard without regard to thickness. **Sawcutting asphalt pavement full depth at removal limits is incidental to asphalt pavement removal.**
      d. Remove Asphalt Wedge: Per square yard of asphalt wedge removed, regardless of thickness.
      e. Mill Asphalt Pavement: Per square yard, according to depth, including off-site disposal.
      f. Asphalt Joint Milling: Per linear foot of joint.
      g. Remove Concrete Pavement: Per square yard without regard to thickness.
      h. **Remove Concrete Surface**: **Per square yard without regard to thickness. Concrete removal includes concrete walks and concrete driveway pavement. Sawcutting concrete sidewalk full depth at the removal limits is incidental to concrete surface removal.**
      i. Remove Concrete Curb and Gutter: Per linear foot, regardless of type and includes saw cutting at removal limits.
      j. Remove Hydrant: Per each.
      k. Remove Valve and Box: Per each, regardless of size.
      l. Remove Curb Stop and Box: Per each, regardless of size.

m. Remove Storm Structure: Per each, regardless of size or depth of structure, which includes storm sewer catch basins and storm sewer manholes. If removed prior to pavement removal, any necessary pavement or granular base removal is incidental. All casting assemblies salvaged shall be paid for separately under a separate bid item.

n. Remove Pipe or Culvert: Per linear foot of the ~~size and~~ type specified, measured from center of junction fittings, catch basins, or manholes, and will include the length of any aprons.

o. Remove Trash Guard from Flared End Section: Per each, according to size and type.

p. Remove sign post or barricade: Per each.

q. Remove Marking Line: Per linear foot, regardless of type or size.

r. Remove Marking Special Marking: Per each, regardless of type or size. Special markings include arrows, bike lane symbols, and the word Only.

s. Remove Retaining Wall: Per square yard, measured to existing ground level.

t. Remove Fence: Per linear foot, regardless of type.

u. Remove and Replace Concrete Curb and Gutter (High Early): A Bit Item has been provided in Section 32 16 13 – Concrete Curbs and Gutter.

v. Abandon Pipe: Per each end of pipe that is plugged, according to size and type of pipe.

w. Abandon Structure: Per each, regardless of size of structure, and will include furnishing and installing granular material and removal of casting, adjusting rings and top section from Site.

x. Salvage and Reinstall Fence: Per linear foot of the type specified.

y. Salvage and Reinstall Pipe or Culvert: Per linear foot of the type and size specified.

z. Salvage and Reinstall Flared End Section: Per each of the size specified.

aa. Salvage and Reinstall Sign: Per each, including post(s).

bb. Salvage and Reinstall Mailbox: Per each. Payment will include all costs to salvage and re-install the mailbox, including similar footing. Furnishing and installing a temporary mail box at a temporary location to allow continuous mail service will be considered incidental.

cc. Salvage and Reinstall Permanent Barricade: Per each, including sign panel.

dd. Salvage and Reinstall Hydrant: Per each.

ee. Salvage and Reinstall Valve and Box: Per each, according to size & type.

ff. Salvage and Reinstall Reducer: Per each, according to size.

gg. Salvage and Reinstall 6 Inch DIP: Per linear foot. Sawcutting and removing any extra pipe that is not needed at the new hydrant location will be considered incidental.

hh. **Salvage Sign and Post: Per each, regardless of sign panel configuration.**

ii. Reinstall Sign Panel: Per each sign panel reinstalled on new post. Post to be paid for with signage items as specified in Section 34 41 05 and the Drawings.

jj. Salvage and Reinstall Sign Special: Per each. All work in relation to salvaging and reinstalling sign specials as called out in the Drawings, including but not limited to, removal of corresponding concrete bases, storage of materials, electrical, excavation, granular backfill, construction of base in accordance with City of Hudson Standard Plate STR-21, and reinstallation of salvaged signs shall be considered incidental to this item.

kk. Remove Concrete Top Slab: Per each manhole or catch basin.

ll. Salvage Casting Assembly: Per each casting assembly salvaged. Payment shall include all labor, equipment, and materials needed for taking casting assembly off structure and placing at a predetermined location for city staff to pick up.

mm. Remove AT&T Structure: Per lump sum. Work shall include removal of structure, abandoned private utilities located inside structure, removal of

casting, excavation, and granular backfill, at the location shown on the drawings.

3. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction" - latest edition including all current supplements (WisDOT):
   1. Section 204 – Removing of Abandoning Miscellaneous Structures.

1.04 DEFINITIONS

A. Remove: To take away or eliminate from the Site by any method selected by the Contractor, including disposal of material.

B. Salvage: To dismantle, disassemble, or remove carefully without damage so the item can be re-assembled, replaced, or reused in a workable condition equal to that existing before removal.

C. Abandon: To fill, bulkhead, or close off pipes and structures so that no settlement or flow can occur.

1.05 REGULATORY REQUIREMENTS

A. Conform to WisDOT Section 204, with the following modifications:
   1. Dispose of all materials designated for removal outside the Site at locations selected by Contractor.
   2. Stockpile or temporarily store materials designated for salvage at locations provided by Contractor.

1.06 SCHEDULING

A. Prior to starting Work, submit for review by the Engineer and approval by the Owner, a schedule showing the commencement, order, and completion dates of the various parts of this Work.

B. Install temporary erosion control, construction fence, barriers, and warning signs prior to removals.

C. Fill holes or depressions resulting from removal or salvage immediately.

D. Provide temporary surface restoration for traffic continuity where removal or salvage operations are completed within streets, driveways, or parking lots.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 GENERAL

A. Dispose of all items removed, except for those items identified to be salvaged or recycled. Said disposal shall be in accordance with all laws, regulations, statutes, etc.

B. Perform removal work without damage to adjacent retained work. Where such Work is damaged, patch, repair, or otherwise restore same to its original condition at no expense to the Owner.

C. Remove debris from the work area as often as necessary, but not less than at least once at the end of each workday. Debris shall be placed in approved containers to prevent the spread of dust and dirt.

D. Execute the Work in a careful and orderly manner with the least possible disturbance to the public and occupants of buildings.

E. Fill holes resulting from removals consistent with Section 31 23 00.

F. Remove and replace damaged curb as directed by the Engineer.

G. Remove 10 feet of concrete curb and gutter on each side of the catch basin that are adjusted, as directed by the Engineer.

3.02 EXAMINATION

A. Meet with owners of signs to determine requirements for salvage, storage, and replacement.

B. Develop plan acceptable to Engineer and postal service for maintaining mail service. Temporary relocations of mailboxes will be necessary.

3.03 PROTECTION

A. Take all necessary precautions to adequately protect personnel and public and private property in the areas of Work. All Site fencing shall be in place prior to the start of any removal work.

B. Remove, store safely, and replace all street signs, traffic control signs, guy wires, mailboxes, posts, wood fence, etc. that may interfere with construction.

C. Provide approved barriers or warning signs as necessary.

D. Provide and maintain temporary protection of existing structures designated to remain where removal work is being done, connections made, materials handled, or equipment moved.

E. Do not close or obstruct walkways or roadways. Do not store or place materials in passageways or other means of egress. Conduct operations with minimum traffic interference.

F. Take reasonable precautions to limit damage to existing turf.

G. Holes or depressions created by removals shall not be left open for more than 1 day. Any hole within 10 feet of sidewalks shall be filled, suitably marked, or covered immediately.

H. Avoid disturbance to any material beyond the limits required for new construction.

3.04 SAWING PAVEMENT

A. Concrete Pavement: Saw along the removal line to full depth of the existing concrete prior to removal of the pavement.

B. Asphalt Pavement: Saw along the removal line to the full depth of the pavement prior to removal of the pavement.

C. Provide means and method (such as snapping a chalk line) to establish a straight and uniform sawed line.

3.05 REMOVE CONCRETE PAVEMENT

A. Remove in accordance with WisDOT Section 204.3.2.2, except as modified below:
   1. Saw cut concrete pavement and concrete base prior to mechanical pavement removal equipment. Remove concrete in such a manner that the remaining pavement is not damaged.
   2. Prior to restoring trench areas, the edges of the trench shall be trimmed back to a vertical face on a straight line which is parallel with the centerline of the trench.

3.06 REMOVE ASPHALT PAVEMENT

A. Remove in accordance with WisDOT Section 204.3.2.2, except as modified below:
   1. Saw cut asphalt pavement at the removal limits prior to that removal, unless otherwise approved by the Engineer.

3.07 REMOVE CURB AND GUTTER

A. Saw cut at removal limits prior to removing curb and gutter.

B. Limits of removal may vary in length (5 feet minimum) and may be in multiple locations.

3.08 PAVEMENT MILLING

A. Asphalt:
   1. Saw cut at removal limits prior to milling process.
   2. Mill asphalt surface to the depth specified as shown on the Drawings or as directed by the Engineer. The milled surface shall be uniform and consistent, with minimal depth of grooves.
   3. Dispose of millings at an approved off-site disposal location.
   4. Sweeping with pickup broom or vacuum clean the milled surface shall be incidental to the milling process. Perform sweeping until milled surface is accepted by the Engineer.

B. Concrete:
   1. Mill surface to the depth specified as shown on the Drawings or as directed by the Engineer.
   2. Dispose of millings at an approved off-site disposal location.
   3. Sweeping with pickup broom and cleaning the milled surface shall be incidental to the milling process.

3.09 ASPHALT JOINT MILLING:

A. Mill to the depth and width as shown on the detail drawing, at the location marked by the Engineer in the field.

3.10 REMOVE CONCRETE SURFACING

A. Work includes sidewalks, pedestrian ramps, medians, valley gutters, and driveways.

B. Saw cut concrete surfacing prior to removal.

C. Remove concrete in such a manner that the remaining surfacing is not damaged.

D. When removing existing sidewalks, do not disturb any material beyond the limits required for new construction (assumed as 6 inches maximum beyond and 8 inches maximum below existing grade).

E. When removing existing driveways, do not disturb any material beyond the limits required to form for new construction (assumed 12 inches maximum from the back of new Work and 6 inches beyond the edge of new driveways).

F. Prior to restoring trench areas, the edges of the trench shall be trimmed back to a vertical face on a straight line which is parallel with the centerline of the trench.

3.11 REMOVE ASPHALT TRAILS AND DRIVEWAYS

A. Saw cut asphalt surfacing to full depth at the limits of partial removal prior to that removal, unless otherwise approved by the Engineer.

B. Remove asphalt in such a manner that the remaining surfacing is not damaged.

C. Prior to restoring trench areas, the edges of the trench shall be trimmed back to a vertical face on a straight line which is parallel with the centerline of the trench.

D. When removing existing trails and driveways, do not disturb any material beyond the limits required to form for new construction (assumed 12 inches maximum from the back of new work and 6 inches beyond the edge of new driveways).

3.12 REMOVE ASPHALT WEDGE

A. Remove asphalt wedge as shown on the Drawings or as directed by the Engineer.

B. Mill asphalt wedge in a manner that does not disturb the existing asphalt.

3.13 REMOVE/ABANDON MANHOLES AND CATCHBASINS

A. Remove Structure:
   1. Remove entire structure, including casting and adjusting rings.
   2. Fill void left by structure with suitable material per Section 33 05 05.

B. Abandon Structure per WisDOT Section 204.3.3, except as modified below:
   1. Remove casting, adjusting rings, and cone section or manhole section of structure, a minimum of 3 feet below final grade.
   2. Place and compact granular material within the remaining in place structure and the excavated area to finish grade.

3.14 REMOVE/ABANDON SECTIONS OF EXISTING PIPE

A. Remove Pipe:
   1. Remove entire pipe to limits shown on the Drawings or as directed by the Engineer.
   2. Fill void left by pipe with suitable material per Section 33 05 05.

B. Abandon Pipe per WisDOT Section 204.3.3, except as modified below:

1. Bulkhead pipe with an 8-inch thick, non-shrink concrete grout plug at the upstream and downstream ends, and at locations as determined by the Engineer. On pipes 18 inches diameter and larger, brick or concrete block masonry may be used with non-shrink grout to construct the bulkhead.
2. Remove pipe to be abandoned if the top of pipe is within 3 feet of final surface elevation.

3.15 REMOVE RETAINING WALL

A. Avoid damage to sections of wall to remain.

B. Dispose of materials off the Site at a predetermined location.

C. Remove wall in its entirety, including footings and tiebacks.

3.16 REMOVE FENCE

A. Avoid damage to sections of fence to remain.

B. Dispose of materials off the Site.

3.17 REMOVE SIGNS AND BARRICADES

A. Remove signs and barricades, including posts as shown on the Drawings or as directed by the Engineer.

B. Provide Engineer or Owner 48 hours notice prior to removing posts or barricades.

3.18 REMOVE PAVEMENT MARKINGS AND MESSAGES

A. Remove to the limits shown on the Drawings or as directed by the Engineer.

B. Removal of markings and messages shall be accomplished with suitable water blasting equipment, unless other means are authorized by the Engineer. Grinding is not an acceptable method of removal. The asphalt street surface shall not be damaged by the removal operations.

3.19 SALVAGE AND REINSTALL

A. Signs and Barricades:
   1. In no case shall a traffic sign or street sign be removed or disturbed by Contractor without prior notification being given to Engineer and then only after satisfactory arrangements have been made for a temporary installation or its disposition:
      a. Maintain temporary post mounted street identification signage at all times due to its importance to the 911 Emergency Response System.
      b. Maintain temporary post mounted traffic signage on all streets open to traffic.
      c. Temporary post mounted installation shall be considered incidental to the Project.
   2. Salvage sign panel or barricade and post(s) and temporarily store until reinstallation.
   3. Install temporary post mounted signs as described above.
   4. Reinstall salvaged sign panel or barricade and post(s).
   5. Remove signs and barricades that are damaged during construction and replace with new signs as incidental to the Project.
   6. Contact the County directly related to all signs within the County right-of-way that may need to be temporarily or permanently removed.

7. Salvaged signs and posts not designated to be reinstalled shall be delivered to Owner's Maintenance Facility.

B. Mailboxes:
   1. Remove and salvage existing mailboxes that interfere with the Work or whose access is restricted by the construction activities.
   2. Place at temporary locations as directed by Engineer or as shown on Drawings.
   3. Removal, furnishing and installing a temporary mailbox, and replacement shall occur such that mail delivery is not interrupted.
   4. Reinstall in locations as shown on Drawings or as directed by Engineer.
   5. Replace mailboxes, posts, and appurtenances damaged during construction at no charge to Owner.

C. Fences:
   1. Salvage and store fence and post material where they are in conflict with the Work.
   2. After completion of Work, reinstall fence to the condition existing prior to removal.
   3. Install temporary snow fence or similar barrier at the end of the working day while the permanent fence is removed.

D. Culverts and Flared End Sections:
   1. Where possible, salvage existing pipe in areas to be disturbed by the construction.
   2. Reinstall in original condition and location as shown on the Drawings.
   3. If requested by the Owner, deliver salvaged material to Owner's Maintenance Facility.

E. Hydrants, Gate Valves, and Hydrant Lead:
   1. Salvage existing hydrants, gate valves, and ductile iron pipe leads at locations shown on the Drawings or as determined by the Engineer.
   2. Reinstall in original condition at the location shown on the Drawings or as directed by the Engineer.
   3. Reinstall per Section 33 10 00 and the standard details shown on the Drawings.

F. **Sign Special:**
   1. This item includes the signs as called out in the Drawings and listed below:
      a. Flashing LED stop sign.
      b. Speed display sign.
      c. Rectangular Rapid Flashing Beacon sign.

3.20 REMOVE AND REPLACE

A. Concrete Sidewalk and Concrete Curb and Gutter:
   1. It is anticipated that sections of concrete sidewalk and curb and gutter may be damaged from utility, building, other activity during the period between placement of the initial and final asphalt base courses, or identified by the Engineer as part of a street rehabilitation type project.
   2. Prior to placement of the asphalt wear course surfacing, remove and replace damaged sections of concrete sidewalk and curb and gutter as directed by the Engineer.
   3. Sawcut at removal limits.
   4. Do not disturb any material beyond the limits required to form for new construction (assumed 12 inches maximum from the back and 6 inches beyond the edge of new work).
   5. Install new sidewalk as per Section 32 13 14.
   6. Install new curb and gutter per Section 32 16 13.

3.21 FIELD QUALITY CONTROL

A. Salvaged items to be reinstalled shall be of the same shape, dimension, location, and quality of the original item prior to construction.

B. Items damaged during removal or salvaging operations shall be replaced with new material of equal type and quality of the damaged item when it was new.

3.22 DISPOSING OF MATERIAL

A. Dispose of all materials outside of the Site at disposal location selected by Contractor in compliance with state and local regulations. Burying of material and debris is not allowed within the Site.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Removal and trimming of vegetation and trees, and stripping and stockpiling of sod and topsoil.

B. Related Sections:
   1. Section 31 23 00 – Excavation and Fill

1.02 PRICE AND PAYMENT PROCEDURES

A. Measure and Payment:
   1. Payment at the Unit Price will be considered compensation in full for all work necessary to complete the Bid Item in full.
   2. Clearing and Grubbing:
      a. Measurement will be by physical count of each tree cleared and grubbed having a diameter of more than 4 inches at a point 24 inches above the ground surface. Payment will constitute compensation in full for all removal, disposal work, and costs.
      b. Measurement will be by lump sum for all Project Clearing and Grubbing. Payment will constitute compensation in full for all removal, disposal work, and costs.
      c. Measurement will be by acre of trees cleared and grubbed. Measurements shall be made horizontally to points 10 feet outside the trunks of trees or stumps on the perimeter of the area being measured. Any separate area smaller than 1/20 acre will be considered to be 1/20 acre:
         1) Whenever isolated trees or stumps are removed outside the areas designated to be cleared and grubbed, the acre payment will be made by:
            a) Each tree measuring more than 4 inches, but less than 36 inches in diameter, at a point 2 feet above the ground surface, and each stump measuring more than 4 inches, but less than 36 inches, at the point of cutoff will be considered as being 1/20 acre.
            b) Each tree or stump measuring 36 inches or more in diameter will be considered as being 1/10 acre.
      d. Payment will constitute compensation in full for all removal, disposal, and costs.
   3. Clearing:
      a. Measurement will be by physical count of each tree cleared having a diameter of more than 4 inches at a point 24 inches above the ground surface. Payment will constitute compensation in full for all removal, disposal, and costs.
      b. Measurement will be by acre of trees cleared. Measurements shall be made horizontally to points 10 feet outside the trunks of trees or stumps on the perimeter of the area being measured. Any separate area smaller than 1/20 acre will be considered to be 1/20 acre.
   4. Grubbing:
      a. Measurement will be by physical count of each tree or stump grubbed. Payment will constitute compensation in full for all removal, disposal, and costs.
      b. Measurement will be by acre of trees or stumps grubbed. Measurements shall be made horizontally to points 10 feet outside the trunks of trees or stumps on the perimeter of the area being measured. Any separate area smaller than 1/20 acre will be considered to be 1/20 acre.
   5. Sod Removal: This Work is considered incidental to the other Work of the Contract.

6. Windfall/Deadfall Removal: This Work shall be incidental to the Project with no direct compensation.
7. Brush Removal: This Work shall be incidental to the Project.
8. Stripping and Stockpiling of Soil: This Work shall be considered incidental to other Work in the Contract.
9. Any tree trimming necessary to perform other work in the Contract shall be considered incidental.
10. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", 2019 Edition (WisDOT Spec.):
   1. 201 – Clearing and Grubbing.
   2. 202 – Roadside Clearing

1.04 DEFINITIONS

A. Brush: All bushes, shrubs, and other vegetation that can be cut with a brush scythe or mowing machine, including small isolated trees having a diameter of 4 inches or less at a point 2 feet above the ground surface.

B. Clearing: Cutting, removing, and disposing of trees, shrubs, bushes, windfalls, and other vegetation in the designated areas.

C. Grubbing: Removing and disposing of stumps, roots, and other remains in the designated areas.

D. Tree Trimming/Pruning: Cutting broken, damaged, or obstructing branches and installing wound dressing. Includes the uplift of branches along the roadway to allow for street construction.

1.05 SITE CONDITIONS

A. Work consists of removing trees generally along the easement lot lines designated for utilities.

B. The Drawings do not specifically show all trees to be removed or transplanted.

C. Protect specimen trees close to Work that are designated to remain but may be damaged by Work.

1.06 SEQUENCING AND SCHEDULING

A. Install temporary erosion control measures prior to Work of this Section.

B. Complete before or sufficiently ahead of on-going rough grading, excavation, backfill, and compacting for utilities.

PART 2 PRODUCTS

2.01 WOUND DRESSING

A. Asphalt base tree paint.

B. Other acceptable materials per Engineer's approval.

PART 3 EXECUTION

3.01 GENERAL

A. Review removals in the field with the Engineer prior to doing Work. Clearing limits will be clearly marked by the Engineer.

B. Assume multiple mobilizations for the Work of this Section.

C. Stockpile soil to eliminate contamination with other on Site materials.

3.02 CLEARING AND GRUBBING

A. Clearing Trees: Cut off, remove, and dispose of trees and brush in the areas designated as a clearing operation. When grubbing is not required, the point of cut off shall be 6 inches above the ground.

B. Clearing Brush: Cut even with the ground surface.

C. Grubbing: Remove brush, stumps, roots, and other remains to a minimum depth of 6 inches below subgrade for all proposed sections.

D. Backfill all depressions resulting from the grubbing operations in accordance with Section 31 23 00.

3.03 TRIMMING AND PRUNING

A. As directed by the Engineer, trim trees that are to be saved but interfere with the proposed construction. Paint all cuts with wound dressing.

3.04 STRIPPING

A. After clearing and grubbing have been completed, strip sod and topsoil to a line 2 feet outside of areas to be occupied by structures, walks, roadways, areas to be excavated or filled, and other areas shown.

B. As directed by Engineer, Stockpile sufficient topsoil to re-spread at a uniform depth of 4 inches to all disturbed areas identified for seeding or sodding:
   1. Do not strip within the drip line (branch spread) of trees identified to remain.

3.05 DISPOSAL LIMITATIONS

A. Conform to WisDOT Spec. 201.3, or as modified herein:
   1. Dispose of all cleared and grubbed material and debris outside the right-of-way at a location selected by the Contractor, except for trees and logs identified to be salvaged.
   2. Disposal site should be a properly designated landfill area as determined by appropriate governmental agencies or lands under direct control of the Contractor.
   3. Stripped materials not used for embankments shall be disposed off the Site.
   4. On Site burial of any debris is not permitted.
   5. On site burning of debris is not permitted.

3.06 PROTECTION

A. Conduct operations so as not to damage surrounding private property.

B. Protect trees intended to be saved from injury or defacement during operations:
   1. Restrict widths of utility trenches.

2. Provide protective bracing, sheeting, or box to insure safe Work conditions as incidental to Contract.

C. Exercise care to keep salvaged material as clean as possible during operations.

D. Install temporary fencing at the construction limits and drip lines of trees to be protected prior to any construction activities in order to protect vegetation.

END OF SECTION

SECTION 31 23 00 (REVISED)

EXCAVATION AND FILL

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Excavation and fill for roadways, foundations, channels, ponds, and other areas.

B. Related Sections:
   1. Section 01 33 00 – Submittal Procedures
   2. Section 01 57 13 - Temporary Erosion and Sediment Control
   3. Section 02 41 13 - Selective Site Demolition
   4. Section 31 10 00 - Site Clearing
   5. Section 32 92 00 - Turf Establishment

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Measurement and payment shall be at the Bid Unit Price consistent with WisDOT Spec. 205.4 and 5, except as modified below.
   2. Common Excavation (EV): Measurement will be by volume of material in its original position, based on pre-construction cross sections and the design grading grade profile performed by the Engineer. Quantity shall be calculated and computed by the average end area method, using the original cross sections. Payment will include placing and compacting suitable material on Site and disposal of excess material off the Site:
      a. Removal of existing asphalt pavement will be paid separately per Section 02 41 13.
   3. Common Excavation (P): Measurement will be per plan quantity. Payment will include placing and compacting suitable material on Site and disposal of excess material off Site:
      a. Removal of existing asphalt pavement will be paid separately per Section 02 41 13.
   4. **Pond Excavation (EV): Measurement will be by volume of material in its original position, based on pre-construction and post-construction elevations taken by the Engineer. Quantity shall be calculated by the surface comparison method. Payment will include excavation, disposal of material off the Site in accordance with Chapter NR 528 (Management of Accumulated Sediment From Storm Water Management Structures), and tolerancing the bottom of the excavated area.**
   5. Subgrade Excavation (EV): Measurement will be by volume of material in its original position, based on pre-construction and post-construction cross sections taken by the Engineer. Quantity shall be calculated by the average end area method. Payment will include excavation, disposal of excess material off the Site, and tolerancing the bottom of the excavated area.
   6. Granular Backfill **Grade 1 (P)**: Measurement will be **per cubic yard** ~~by the ton~~ **as a plan quantity** of material compacted in place ~~as determined from weight tickets delivered to the Engineer~~. Payment will include all costs related to furnishing and installing the material complete in place as specified:
      ~~a. If the material is being wasted or placed excessively thick, the Owner reserves the right to deduct quantities that are in excess of plan thickness. Said quantities shall be based on material weighing 110 pounds per square yard of area per inch of thickness.~~
   7. Granular Backfill – Trail or Sidewalk: Measurement will be by the ton of material compacted in place as determined from weight tickets delivered to the Engineer. Payment will include all costs related to furnishing and installing the material complete in place as specified:

a. If the material is being wasted or placed excessively thick, the Owner reserves the right to deduct quantities that are in excess of plan thickness. Said quantities shall be based on material weighing 110 pounds per square yard of area per inch of thickness.

8. Boulevard Grading: Payment for this final Boulevard Grading, including placing, grading, and compacting topsoil, shall be made under the Bid Item included in the Bid Form based upon the **area graded in square yards**:
   a. Initial backfilling of the curb is considered incidental to the installation of the curb.
   b. Payment for furnishing of topsoil will be made under the Topsoil Borrow Bid Item, per Section 32 92 00.
9. Haul and Disposal of Excess Material Offsite: Considered incidental to the work covered under this Section.
10. Payment for Placing Topsoil Borrow has been made in Section 32 92 00 – Turf and Grasses.
11. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.
12. **Soil Correction (Cut and Fill): Payment for this item includes excavation of subgrade materials and replacement with Granular Backfill Grade 1 as directed by the Engineer. Measurement will be by cubic yard as determined by depth below proposed pavement section and area of excavation, as measured in the field.**
13. **Borrow (P): Payment for this item will be per plan quantity. Payment will be full compensation for providing borrow material; excavating, sloping, shaping, trimming, loading, hauling, placing; compacting; disposing of surplus and unsuitable material; and for salvaging, stockpiling, rehandling, and spreading salvaged material for covering the surfaces of excavated areas within borrow sites.**
14. **Haul Excess Reclaimed Material Offsite (EV): Measurement will be by the cubic yard of excess reclaim material that is hauled off the project site as measured in the stockpile. Payment for this bid item shall be considered payment in full for all equipment, labor, materials, and all else needed to haul excess reclaimed material from the project area to the stockpile location as described in this Project Specific Manual or as directed by the Engineer.**

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", 2019 Edition (WisDOT Spec.):
   1. 205 – Roadway and Drainage Excavation
   2. 207 – Embankment
   3. 208 – Borrow
   4. 209 – Granular Backfill
   5. 211 – Preparing the Foundation

1.04 SUBMITTALS

A. Submit the following items consistent with Section 01 33 00:
   1. Gradation tests for borrow materials.

1.05 DEFINITIONS

A. The definitions of the different classifications of excavation and borrow material shall conform to WisDOT Spec. 205.2, or as modified herein:
   1. Grading Grade: Bottom of the dense graded base as shown on the Drawings.
   2. Common Excavation: In locations where the design cross section is in a cut section, common excavation shall be classified as all excavation above the grading grade that has not been classified as another form of excavation in this Section. In areas where the design cross section is in a fill section, common excavation shall consist of excavation of topsoil.
   3. Subgrade Excavation:

a. Excavation below the grading grade that has not been classified as another form of excavation in this Section.
b. Within a development where mass Site grading has been completed:
1) Excavation and removal of soft and unstable soils below grading grade within an established rough graded roadway section. Such excavation will be as directed by Engineer during construction.

4. Rock Excavation: Includes rocks exceeding 1 cubic yard that are not decomposed, weathered, or shattered, and which require blasting, barring, wedging, or use of air tools for removal. Also included are any boulders, concrete, or masonry structure (except concrete pavement, curb, gutter and sidewalk).
5. Topsoil borrow material shall conform to Section 32 92 00 – Turf and Grasses.

1.06 QUALITY ASSURANCE

A. Assist testing laboratory by excavating for density tests. Assist testing laboratory with obtaining material samples.

1.07 SEQUENCING AND SCHEDULING

A. Perform excavation as soon as possible after public utility construction.

B. Complete subgrade for streets, driveways, walks, and parking lots immediately after trench backfill and compaction.

C. Provide notice by 3:00 pm of any granular backfill placement for the following day, to allow time for scheduling subgrade inspection and compaction tests prior to any granular backfill being placed.

D. Granular backfill placement shall not occur until the Boulevard has been graded to within 6" of finished grade per typical section.

PART 2 PRODUCTS

2.01 MATERIALS

A. Borrow: Conform to WisDOT Spec. 208.2:
1. Soil which is capable of attaining specified compaction levels, excluding soils which contain organics, contain debris or are potentially expansive (CH or MH per the Unified Soil Classification System).

B. Granular Backfill: Conform to WisDOT Spec. 209.2.2 Grade ~~2~~ **1**.

PART 3 EXECUTION

3.01 GENERAL

A. Conform to WisDOT Spec. 205.3, or modified herein:
1. Establish traffic control prior to excavations.
2. Establish the specified erosion control devices according to Section 01 57 13 prior to all excavations.
3. Notify utility companies of progress schedule so they can accomplish relocations, removals, and holding of lines.
4. Perform removals consistent with Section 02 41 13.
5. Strip topsoil consistent with Section 31 10 00.
6. No borrow areas are allowed within City right-of-way.

3.02 PREPARATION OF EMBANKMENT

A. Conform to WisDOT Spec. 207.3, or as modified herein:
   1. Engineer's approval is required of all areas where preparation work has been performed prior to the placement of the embankment or fill material.
   2. Where embankment is to be constructed over swamp, marsh, or other locations where the foundation material is unstable, the foundation shall be excavated to remove all or part of the unstable material.

3.03 EXCAVATION OPERATIONS

A. Conform to WisDOT Spec. 205.3, or as modified herein:
   1. Perform excavations to the alignment, cross section, and grade as shown on the Drawings and staked by the Engineer.
   2. Excavation of unstable material below grade shall be done under the direction of the Engineer as the subsurface conditions are disclosed.
   3. Remove muck excavation material so as to minimize disruption to the bottom of the excavation.
   4. Notify Engineer immediately of any large boulders or ledge rocks encountered so proper measurement or profile can be made for pay quantities.
   5. No solid rock will be allowed within 12 inches of the subgrade.
   6. Provide and maintain temporary drainage facilities until permanent facilities are completed.
   7. After the roadway excavation is complete and prior to backfilling operations, notify the Engineer 24 hours in advance so all excavation areas can be cross sectioned to determine quantities.
   8. Cut, fill, and grade Site to elevations and contours shown on the Drawings with allowances for pavements, topsoil, and structures.
   9. Mining of material in boulevards for use in street construction will not be allowed.
   10. Excess reclaimed material above and beyond that needed for the aggregate base shall be properly disposed of at a location off of the Site:
      a. The resulting reclaimed material could contain diesel range organics (DRO) which must be disposed of in accordance with WDNR requirements.
      b. Excess reclaimed material not utilized within the project, shall be delivered to the City of Hudson property located at 2101 O'Neil Road, Hudson, WI in a location as designated by the Public Works Director or his designee, and shall become property of the City of Hudson following hauling.

B. On street rehabilitation projects, excavation and disposal of the existing boulevard material to allow for the placement of the new concrete curb and gutter, and specified depth of topsoil/compost shall be considered incidental to the concrete curb removal Bid Item.

3.04 DISPOSITION OF EXCAVATED MATERIAL

A. Conform to WisDOT Spec. 205.3, or as modified herein:
   1. No disposition of asphalt millings will be permitted, unless thoroughly mixed with other on-Site materials.
   2. If a reclamation process is used to remove pavement, the resulting reclaimed material could contain diesel range organics (DRO) which must be disposed of in accordance with WDNR requirements.
   3. Excavated material not used for embankments shall be disposed of off Project Site or as directed by the Engineer.

3.05 PLACING EMBANKMENTS

A. Conform to WisDOT Spec. 207:
   1. Topsoil placement shall conform to Section 32 92 00.

3.06 COMPACTING EMBANKMENTS

A. Conform to WisDOT Spec. 205.3.6, or as modified herein:
   1. Compaction required for embankment materials shall conform to the Special Compaction (nuclear) with the testing location and rates being determined by the Engineer.
   2. Backfilling of embankments shall be performed using on Site materials: If the Contractor is unable to meet the specified density requirements using that material due to excess moisture content, they shall immediately notify the Engineer of this condition.
   3. Recognize that inclement weather (sometimes heavy) occurs during the construction season and be responsible for protecting the moisture condition of soils during the construction phase. Such protection measures include sloping of exposed surfaces to promote runoff (avoid ponding) and compacting exposed surfaces prior to rain events to minimize infiltration.
   4. Compaction required for granular backfill materials shall conform to the Special Compaction (nuclear) with the testing location and rates being determined by the Engineer.

3.07 FINISH OPERATIONS

A. Conform to WisDOT Spec. 211, or as modified herein:
   1. Finish grading of grading grade prior to placement of dense graded base shall conform to the following tolerances:
      a. Not vary by more than 0.05 feet above or below he prescribed elevation at any point where a measurement is made.
   2. Finish grading of subgrade grade prior to placement of granular backfill shall conform to the following tolerances:
      a. Not vary by more than 0.10 feet above or below the prescribed elevation at any point where a measurement is made.
   3. Grading of the soils beneath the proposed topsoil shall be reviewed and approved by the Engineer prior to the start of the topsoil placement.

3.08 BOULEVARD GRADING

A. Backfill Curb After It Has Hardened:
   1. Leave the boulevards within a tolerance of 0.3 feet plus or minus of finish grade prior to installation of private underground utilities.
   2. Compact the backfill material directly behind the concrete curb to meet the requirements of "Standard Compaction."

B. Following installation of private underground utilities by others, re-grade entire boulevard area to the right-of-way, including the re-spreading of topsoil stockpiles located adjacent to the boulevard areas:
   1. It is intended that this work be done with 1 small dozer.
   2. The extent of the final work and the hours of work shall be reviewed with the Engineer prior to any grading being done.
   3. Compaction is required as part of the backfill procedure.

C. Reconstruction Projects:
   1. Grade, shape, and prepare boulevards disturbed by construction for topsoil and sod placement.
   2. Place, grade, and compact topsoil, minimum ~~4~~ **6** inches thick.

3.09 FIELD QUALITY CONTROL

A. The Owner shall have an independent testing laboratory perform the following tests. The location of the tests shall be determined by the Engineer:
   1. Granular Backfill Material: 1 gradation test per 1,000 tons of material placed.
   2. 1 density test, monitored by Specified Density Method (nuclear), per 2,000 square yard of street constructed.

END OF SECTION

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SECTION 31 23 13 (REVISED)

SUBGRADE PREPARATION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Grading, shaping, and compacting subgrade prior to placing a base or surface course.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Subgrade Preparation: Measurement shall be by the units of square yards and shall be based on a width ~~of 1 foot~~ behind the back of curb **extending to the base or subbase**, except as modified below. Payment at the Unit Price shall include all costs related to performing the Work in accordance with these Specifications, including shaping, grading, compacting, test rolling, and tolerancing.
   2. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", 2019 Edition (WisDOT Spec.):
   1. 205 – Roadway and Drainage Excavation.
   2. 207 – Embankment.
   3. 211 – Preparing the Foundation.
   4. 650 – Construction Staking.

1.04 SEQUENCING AND SCHEDULING

A. Perform subgrade preparation prior to placement of the aggregate base or aggregate backfill material.

B. Complete subgrade preparation for streets, driveways, walks, and parking lots immediately after installation of pipe as part of trench backfill and compaction.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 GENERAL

A. Subgrade preparations shall be performed to produce the required density, grade, and cross-section.

3.02 PREPARATION

A. Inspection of subgrade by test rolling:
   1. The equipment used for test rolling shall be a Tandom Truck with a gross weight of 45,000 pounds.
   2. If rutting is greater than 1/2-inch, sub-grade excavation and aggregate backfill will be required.

3.03 COMPACTION

A. Conform to WisDOT Spec. 207.3.6.3, or as modified herein:
   1. For the Special Compaction, the Engineer will sample and test the soils to determine the Maximum Density and Optimum Moisture.
   2. The Owner will have an independent testing laboratory perform the following test, as minimum. The tests will be taken on the compacted subgrade at the location and testing rates designated by the Engineer. Nuclear density testing shall be considered an approved method:
      a. 1 density test for every 600 feet of street in the upper 3 feet of subgrade (100 percent density zone) at varying distances either side of centerline. Note: This is done if sub-grade excavation is not required.

3.04 FINISH OPERATIONS

A. Subgrade tolerance shall conform to WisDOT Spec. 650.3.3.3.6.2

END OF SECTION

SECTION 32 11 23 (REVISED)

DENSE GRADED BASE

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Requirements for dense graded base course on a prepared subgrade and gravel driveway patching.

B. Related Sections:
   1. Section 31 23 00 - Excavation and Fill
   2. Section 21 23 13 - Subgrade Preparation

1.02 PRICE AND PAYMENT PROCEDURE

A. Conform to WISDOT Spec. 305.4 and 305.5 for measurement and payment or as modified herein:
   1. Base Aggregate Dense 1 1/4 Inch **– Street (P)**: This Bid Item is for dense graded base placed in the streets. Measurement will be by the **cubic yard in plan quantity (P)** ~~ton~~ of material compacted in place.
   2. Finish Grading - Street: Measurement will be by the square yard of surface area to be paved on urban street sections or by the square yard of the surface area of the aggregate graded on rural street sections.
   3. Finish Grading - Trail or Sidewalk: Measurement will be by the square yard of surface area of the aggregate.
   4. Patch Gravel Driveway: Measurement will be by the ton of material compacted in place as determined from weight tickets delivered to the Engineer. Payment will include all costs related to patching the driveway, including excavation and dense graded base.
   5. If the material is being wasted or placed excessively thick, the Owner reserves the right to deduct quantities that are in excess of Drawing thickness. Said quantities shall be based on material weighing 110 pounds per square yard of area per inch of thickness.
   6. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.
   7. **Base Aggregate Dense 1 1/4 Inch – Trail (P): This Bid Item is for dense graded base placed in the trail section. Measurement will be by the cubic yard in plan quantity (P) ~~ton~~ of material compacted in place.**

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", 2019 Edition (WISDOT Spec.):
   1. 301 - Base, Subbase, and Subgrade Aggregate.
   2. 305 - Dense-Graded Base.

1.04 SUBMITTAL

A. Submit gradation report on sample of aggregate base to be used.

1.05 DEFINITIONS

A. Finish Grading: Grading, shaping, compacting, and tolerancing of existing dense graded base, pulverized material, existing dense graded base that has been supplemented with dense graded base, or pulverized material that has been supplemented with dense graded base.

1.06 SEQUENCING AND SCHEDULING

A. Construct dense graded base only after all of the following have been completed:
   1. Subgrade excavation, common excavation, and/or subgrade preparation has been completed and toleranced (string lined).
   2. Subgrade has been corrected for instability problems and successfully passed a "roll test" performed by the Contractor and witnessed by the Engineer, and checked for conformance to line and grade tolerances (string lined).
   3. The Boulevard has been graded to within 6 inches of finished grade per typical section.
   4. Minimum 400 LF of roadway granular backfill has been placed, compacted, shaped, graded, and checked for conformance to line and grade tolerances (string lined).

B. Provide notice by 3:00 pm of any dense graded base placement for the following day, to allow time for scheduling subgrade or granular backfill compaction testing prior to any dense graded base being placed.

C. Final grading and shaping of dense graded base prior to placing pavement surface shall not be performed until initial curb backfilling is complete.

PART 2 PRODUCTS

2.01 MATERIALS

A. Streets, Trails and Sidewalks:
   1. Dense Graded Base: Conform to WisDOT Spec. 305, 1 1/4-inch, 100 percent crushed stone:
   2. Crushed concrete allowed up to 30 percent by weight.

B. Driveway and Shouldering:
   1. Dense Graded Base: Conform to WisDOT Spec. 305, 3/4-inch, 100 percent crushed stone.

C. **Vine Street: The Contractor may use reclaimed asphalt from the project area with 100 percent passing a 1 ¼-inch sieve as 1 ¼-inch base. The engineer will assess gradation primarily by visual inspection but may test questionable material.**

PART 3 EXECUTION

3.01 GENERAL

A. Finish Grading:
   1. Grading, shaping, compacting, and tolerancing existing material from 0 to 2-inch depth.

3.02 PREPARATION

A. Street:
   1. Prepare the subgrade in accordance with Section 31 23 13.
   2. Prepare the surface of the granular backfill in accordance with Section 31 23 00.

B. Subgrade or surface of granular backfill to be completed and approved by the Engineer prior to installation of dense graded base.

3.03 CONSTRUCTION REQUIREMENTS

A. Conform to WisDOT Spec 305.3, except as modified below:
   1. Streets and Shoulders: Compaction shall conform to 301.3.4.3 – Special Compaction, except each layer shall be compacted to 100 percent of the determined maximum density using a Standard Project Test.
   2. Trails, Sidewalks, Driveways: Compaction shall conform to 301.3.4.2 – Standard Compaction.
   3. Install dense graded base in accordance with details on Drawings.
   4. Deliver weight tickets to Engineer daily.
   5. Patch gravel driveways to the thickness shown on the Drawings.

3.04 FIELD QUALITY CONTROL

A. The Owner shall perform Quality Verification Testing (QV) by use of an independent testing laboratory to sample the dense graded base materials, determine the moisture/density relationships, gradations, and perform nuclear density testing to determine field moisture and field density at locations determined by Engineer. The following are minimum testing rates:
   1. 1 gradation test per 500 ton of material placed.
   2. 1 density test per 2,000 square yards of gravel surface, minimum 3 density tests per Project.
   3. 1 moisture test per Project during compaction.
   4. Density testing at the curb lines prior to concrete curb and gutter placement is at the discretion of the Engineer.

B. The Owner shall perform Quality Verification Testing (QV) by use of an independent testing laboratory to sample pulverized dense graded base materials, determine the moisture/density relationships, gradations, and perform nuclear density testing to determine field moisture and field density at locations determined by Engineer. The following are minimum testing rates:
   1. 1 gradation test per 500 ton of material placed.
   2. 1 density test per 2,000 square yards of gravel surface, minimum 3 density tests per Project.
   3. Full depth reclamation (Shear Strength Method) density testing if depth of reclaimed gravel is greater than 8 inches.

C. The Owner will not allow a "Roll Test" as a method of measuring acceptance of the final dense graded base surface.

D. Line and Grade Tolerance for Dense Graded Base or Pulverized Dense Graded Base: The final surface will be checked for conformance to specified tolerances by the "stringline" method. Grade shall be ± 0.03 feet of grade. Notify Engineer a minimum of 4 hours (one half day) prior to paving to allow for the "Field Quality Control" tolerance check.

E. Line and Grade Tolerance for Trail and Sidewalk: The final dense graded base surface needs to be graded and toleranced. Grade tolerance shall be ±3/8 inch as measured with a 10-foot straight edge. Notify Engineer a minimum of 4 hours (one half day) prior to paving to allow for the "Field Quality Control" tolerance check.

3.05 PROTECTION

A. Protect dense graded base until it is covered by surface pavement.

B. Keep dense graded base free of ruts and irregularities until covered by surface paving.

C. Place water on dense graded base for dust control as required, to eliminate nuisance conditions for adjacent properties.

END OF SECTION

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SECTION 32 11 25 (REPLACES STANDARD SPECIFICATION)

ASPHALTIC PAVEMENT PULVERIZING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Pulverization of the existing asphalt pavement and a portion of the underlying existing base material.

B. Related Sections:
   1. Section 31 23 00 - Excavation and Fill.
   2. Section 32 11 23 – Dense Graded Base.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment
   1. Full Depth Reclamation: Measurement will be by the square yard, based on the width of the existing pavement, regardless of depth of reclamation required. Payment for this bid item shall be considered payment in full for all equipment, labor, materials, and all else needed to reclaim the existing pavement in locations as shown on the plans or as directed by the Engineer, including, but not limited to, preparation of surface prior to reclamation, grinding the existing pavement and top portion of underlying aggregate layer, leveling and compaction of the material immediately after it is reclaimed, addition of any water needed to provide adequate compaction or dust control, any costs associated with maintaining the reclaimed surface until it is paved, and fixing any defective areas in the reclamation area.
   2. Stabilized Full Depth Reclamation: Measurement will be by the square yard, based on the width of the existing pavement, per the depth of reclamation required, and per the type of stabilization required. Payment for this bid item shall be considered payment in full for all equipment, labor, materials, and all else needed to reclaim the existing pavement in locations as shown on the plans or as directed by the Engineer, including, but not limited to, grinding the existing pavement and top portion of underlying aggregate layer, leveling and compaction of the material immediately after it is reclaimed, addition of any water needed to provide adequate compaction or dust control, any costs associated with maintaining the reclaimed surface until it is paved, and fixing any defective areas in the reclamation area.
   3. Stabilizing Agent (Foamed Asphalt): Measurement will be by ton of material incorporated into the stabilized full depth reclamation pass. Labor, tools, equipment, and materials necessary for incorporation of the stabilizing agent shall be considered incidental to this item.
   4. Finish grading and tolerancing of the pulverized material prior to paving shall be per Section 32 11 23.
   5. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", latest edition including all current supplements (WisDOT):
   1. Section 305 – Dense Graded Base
   2. Section 325 – Pulverized and Re-laid Pavement

1.04 DEFINITIONS

A. All references to "full depth reclamation" and "pulverization" shall be considered the same activity and the terms considered interchangeable.

B. "Reclaimed material" or "RAP" refers to the ground up existing asphalt and top portion of the base layer that are mixed during the reclamation process.

1.05 SEQUENCING AND SCHEDULING

A. Pulverizing will be performed at locations shown on the drawings.

B. Provide a 48-hours notice prior to beginning the pulverizing process.

C. Initial grading/leveling and interim compaction of the pulverized material by a motor grader and padfoot roller is required immediately following the pulverizing process.

D. Maintain access to all residents during the pulverizing and tolerancing process.

E. Stabilized full depth reclamation may only occur next to new curb and gutter once compressive strength test results for that section of curb and gutter yield 3,000 PSI or 72 hours have passed since placement.

F. The contractor shall complete final grading, as outlined in Part 3.02.A, a minimum of 48 hours prior to stabilized full depth reclamation, to allow for the Engineer to inspect grade.

G. Immediately following stabilized full depth reclamation, contractor shall grade and compact material to meet cross sections as shown on Drawings. Grading and compaction shall occur in a timely manner to ensure materials are workable and have not reached initial curing.

PART 2 PRODUCTS

2.01 MATERIALS

A. Reclaimed material – Pulverized Aggregate:
   1. Pulverize the full depth of the existing asphalt pavement and underlying base materials until 97% or more pass 2-inch sieve size.

B. Contractor's Gradation Quality Control (QC):
   1. The Contractor shall be responsible for gradation control by testing the pulverized material at a rate of 1 test per 5,000 square yards, with a minimum 1 test per day.
      Provide the Engineer a verification sample for Quality Assurance testing at the discretion of the Engineer. This shall be a split sample taken by the Contractor.

C. Stabilizing Agent:
   1. The asphalt stabilizing agent used for Pulverized Asphalt Base Layer shall be foamed asphalt PG 52-34 or PG 46-34.
   2. Foamed asphalt shall be produced in accordance with WisDOT Standard Specification 455.
   3. Asphalt binder for foaming shall be a minimum temperature of 290°F and not to exceed 375°F.

D. Water:
   1. Water shall be in accordance with WisDOT Specification 501.2.4.

E. Mix Design:
    1. Foamed Asphalt: Beginning operations of the stabilized full depth reclamation shall yield an application rate of 3% by mass of the stabilized layer. The Engineer may direct the contractor to vary the application rate by +/- 0.5% in the field, as determined through inspection.

F. Tack Coat:
    1. Conform to WisDOT Spec. 455:
        a) Emulsified Asphalt, CSS-1 or CSS-1h.

PART 3 EXECUTION

3.01 GENERAL

A. Create an aggregate base course composed of the existing asphalt pavement and a portion of the existing underlying base material.

B. The reclamation process cannot be performed during rain events. Compact reclaimed material prior to rain events.

C. The pulverizing process cannot be performed during rain events. Compact pulverized material prior to rain events.

D. Oversized asphalt pavement pieces shall either be re-ground by the reclamation machine or shall be removed from the project site by the Contractor and disposed of in an approved location outside of the project area.

E. Roadway must be clean and free of debris, heavy sediment buildup, vegetation, standing water or any foreign materials prior to beginning the reclamation process.

F. Manholes and gate valve boxes shall be lowered to below the full depth reclamation depth and covered with a steel plate, where it is feasible to do so. Manholes and gate valve boxes not able to be lowered to this depth will need to be adequately marked prior to the reclamation process. Marking of the manholes or gate valve boxes should be done in a way where the operator of the reclaimer is able to clearly identify each structure. The contractor shall take all precautions necessary to not damage these items during the reclamation process.

G. The ambient air temperature must be at lease 50°F in order to perform reclamation operations.

H. SFDR may not occur if freezing temperatures are forecasted by the National Weather Service within 48 hours after placement.

I. Tack coat may be placed a maximum of 48 hours in advance of placement of the HMA layer.

J. SFDR should be as close as feasible to the curb flag line, to ensure uniform mixing and base materials. A maximum deviation of one foot away from the curb flag line will be allowed for protection of curb.

K. Place bituminous no sooner than 3 calendar days and no later than 14 calendar days after SFDR at any location that has been injected and compacted.

3.02 PREPARATION

A. Finish grading and tolerancing of the pulverized material shall be per Section 32 11 23.

B. Removal of excess pulverized material shall be per Section 31 23 00.

3.03 COMPACTION

A. Control moisture content of pulverized material 3 to 7 percent by dry weight during the initial leveling/compaction and final shaping and tolerancing process as incidental to pulverizing.

B. The maximum reclaimed layer thickness for compaction shall be 8 inches.

C. FDR Layer
   1. Immediately compact material following the full depth reclamation pass.
      a) Compacted RAP material from full depth reclamation pass must be able to pass a roll test, utilizing a tandem truck with a gross weight of 45,000 pounds.
      b) If rutting is greater than ½-inch, recompact material and perform a roll test again.
      c) If rutting continues, a subgrade correction may be needed, as outlined in Part 3.06.

D. SFDR Layer
   1. Control Strips:
      a) On the first day of production, construct a control strip to identify the target wet density of the SFDR layer. The control strip construction and density testing will occur under the direct observation of the Engineer or designated third party entity hired by the Engineer.
      b) Unless the Engineer approves otherwise, construct control strips to a minimum dimension of 500 feet long and one full lane width.
      c) Completed control strips may remain in-place to be incorporated into the final roadway cross-section.
      d) Construct control strips using equipment and methods representative of the operations to be used for construction of the SFDR layer.
      e) After compacting the control strip with a minimum of 2 passes, mark and take density measurements at 3 random locations, at least 1 ½ feet from the edge of the SFDR layer. Subsequent density measurements will be taken at the same 3 locations.
      f) After each subsequent pass of the compaction equipment over the entirety of the control strip, take density measurements at the 3 marked locations. Continue compacting and testing until the increase in density measurements is less than 2.0 lb/ft3, or density measurements begin to decrease. Upon completion of the control strip compaction, take 10 randomly located density measurements within the limits of the control strip, at lease 1 ½ feet from the edge of the base. The final measurements recorded at the 3 locations shall be included as part of the 10 randomly selected density measurements. Average the 10 measurements to obtain the control strip target density.
      g) Additional control strips, as outlined above, may be necessary to obtain a new target density. This may occur due to the following:
         i. Variations in RAP to base aggregate ratio are visually significant, as determined by the Engineer.
         ii. Variations in RAP gradations are present, as determined by the Engineer.
         iii. The compaction requirements are not met on 2 consecutive tests.
         iv. Changes in application rate of the foamed bituminous stabilizing material are greater than 0.3 percent.
   2. Compaction Requirements:
      a) Compact the SFDR layer to 97 percent of the target density, as determined by the control strip.
      b) Do not over-roll areas to the point where cracking or checking of the SFDR layer occurs.
   3. Compaction Testing Frequency:

a) Compaction testing shall occur at the minimum rate(s):
   i. 1 per 1000 square yards
   ii. 10 per day of production
   iii. 1 test per ¼ lane mile
b) Locations for compaction testing shall be determined by the Engineer or his/her designee.
c) Locations and results shall be recorded and submitted to the Engineer.

3.04 EQUIPMENT

A. Notify the Engineer of the equipment to be used at the preconstruction conference:
   1. Equipment to be hydrostatically driven.
   2. Computerized operation controls.
   3. Rotating cutter drum to operate parallel to the existing road surface, providing a uniform section across the entire roadway.
   4. Capable of cutting up to a 12-inch depth in 1 pass.
   5. Uniformly blend the pulverized material.
   6. Equipment exhaust must be on the top and not the side.
   7. Tankers supplying hot stabilizing agent components shall be equipped to constantly monitor temperature within the tank.

3.05 THICKNESS REQUIREMENTS

A. All other streets:
   1. Typical reclaimed section varies. Refer to typical sections on Drawings.

3.06 SUBGRADE CORRECTIONS UNDER FDR LAYER

A. Applicable when the conditions of Part 3.03.C.1.c are met.
   1. The area to receive the subgrade correction will be determined and marked out by the Engineer.
   2. Material to be stripped and placed to the side, with careful operations as not to mix RAP material with existing base material or subgrade material.
   3. Excavation and replacement of the subgrade material shall follow the provisions of Section 31 23 00.
      a) Payment shall be made in accordance with the Soil Correction (Cut and Fill) pay item, as detailed in Section 31 23 00.

END OF SECTION

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SECTION 32 12 01 (REVISED)

FLEXIBLE PAVING (MUNICIPAL PROJECTS)

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Hot plant mixed asphalt-aggregate mixtures for hot mix asphalt courses.
   2. Tack coat.

B. Related Sections:
   1. Section 01 57 13 - Temporary Erosion and Sediment Control
   2. Section 02 41 13 - Selective Site Demolition
   3. Section 31 23 00 - Excavation and Fill
   4. Section 32 11 23 - Dense Graded Base
   5. Section 33 05 17 - Adjust Miscellaneous Structures

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Method of measurement and payment shall conform to WISDOT Specification 450.4, 450.5, 455.4, 455.5, 460.4, 460.5, 465.4, and 465.5, except as modified herein.
   2. Tack Coat:
      a. Measured by volume in gallons at 60 degrees F.
      b. Payment for asphalt material used for Tack Coat includes compensation in full for all costs incidental to the furnishing and application at the Bid Unit Price per gallon.
      c. Cleaning of all debris and dirt from the previous asphalt surfaces prior to placement of Tack Coat is included in the Bid Unit Price for Tack Coat.
      d. Payment for the accepted quantity of asphalt emulsion shall be at the Contract price per unit of measure for undiluted asphalt emulsion.
      e. Payment for tacking exposed edges of existing asphalt surfaces and concrete curb and gutter in conjunction with initial lift placement is considered incidental to the placement of the initial lift.
   3. Hot Mix Asphalt:
      a. Measured by the weight in tons of material placed and accepted for each specified Bid Item as stated in the Bid Form. Payment shall be made in accordance with the acceptance and payment schedules provided in WisDOT Specification 460 Hot Mix Asphalt Pavement.
      b. The Bid Unit Price includes both the asphalt course mixture and asphalt binder material.
      c. Partial payment will not exceed 70 percent of the total calculated payment until the required testing and product documentation is received and found to be acceptable to the Engineer.
      d. Payment for the asphalt final lift will not be made until the corresponding signing and pavement markings have been installed.
      e. No recycled material is allowed in Bid Items labeled special.
   4. Preparation of Asphalt Initial Lift consists of final clean-up of the asphalt initial lift prior to paving final lift:
      a. Street Sweeper with power pickup broom, including operator: per hour.
      b. Skidsteer (Bobcat), including operator: per hour.

   5. Patch Asphalt Driveway and Patch Asphalt Trail: Measurement will be by the square yard. Payment will include all costs related to patching the driveway or trail to the thicknesses shown on the Drawings, including excavation, **sawcutting,** subgrade preparation, dense-graded base, and the asphalt surface course:

~~a. Saw cutting just prior to paving will be paid separately, per Section 02 41 13.~~
b. Removing asphalt pavement will be paid separately, per Section 02 41 13.

6. Remove and Replace Asphalt Driveway and Remove and Replace Asphalt Trail: Measurement will be by the square yard. Payment will include all costs related to patching the driveway or trail to the thicknesses shown on the Drawings, including sawcutting just prior to paving per Section 02 41 13, removing asphalt pavement per Section 02 41 13, excavation and subgrade preparation, dense-graded base, and the asphalt surface course.
7. Patch Asphalt Street: Measurement will be by the square yard. Payment will include all costs related to patching the street to the thicknesses shown on the Drawings, including excavation, **sawcutting,** aggregate backfill, dense-graded base, asphalt initial lift(s), tack coat(s), and asphalt final lift:
   ~~a. Saw cutting just prior to paving will be paid separately, per Section 02 41 13.~~
   b. Removing asphalt pavement will be paid separately, per Section 02 41 13.
8. Remove and Replace Asphalt Street: Measurement will be by the square yard. Payment will include all costs related to patching the street to the thicknesses shown on the Drawings, including sawcutting just prior to paving per Section 02 41 13, removing asphalt pavement per Section 02 41 13, excavation and subgrade preparation, aggregate backfill, dense-graded base, asphalt initial lift(s), tack coat(s), and asphalt final lift.
9. Asphalt Wedge: Measurement will be by weight in tons of material placed and accepted. Payment will include all costs related to constructing the Asphalt Wedge per the Standard Detail and as specified:
10. Asphalt saw cutting or milling that is required for joint construction will be paid per Section 02 41 13:
    a. Removal of temporary asphalt ramps is considered incidental to the sawing asphalt pavement or milling Bid Item.
11. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction" 2019 Edition (WisDOT Spec.) and "Construction and Materials Manual" 2018 Edition (WISDOT Spec.):
   1. 450 - General Requirements for Asphaltic Pavements.
   2. 455 - Tack Coat.
   3. 460 - Hot Mix Asphalt Pavement.
   4. 465 - Asphaltic Surface.

1.04 SUBMITTALS

A. Submit mixture design report(s) to the Engineer at the preconstruction conference that will be used on the Project If mix design is not available at the time of the preconstruction conference, submit mix design at least 15 days prior to commencement of paving.

B. Submit mix design report for all projects, regardless of the size of the project.

C. Submit Q/C results in accordance with WisDOT Spec. 460.2.8 - Quality Management Program.

1.05 SEQUENCING AND SCHEDULING

A. Prime Contractor is responsible for scheduling an onsite pre-paving meeting with the Owner, Engineer, Paving Subcontractor (if appropriate), including the Paving Forman a minimum 24 hours prior to the paving operations.

B. Provide 48-hour notice for scheduling and noticing of the residents prior to paving operations.

C. Provide notice by 2:00 pm the day prior to any asphalt placement to allow for scheduling of the following activities. Notice must include mix designation, start time of placement, plant producing mix, and Forman onsite during paving operations:
   1. Dense-graded base tests (per Section 32 11 23) prior to any asphalt being placed.
   2. Inspection of paving operations by a City representative, no paving will be allowed or accepted without inspection.
   3. Asphalt plant testing if required.

D. Dense graded base and concrete curb and gutter to be completed and approved by the Engineer prior to placement of asphalt surfaces.

E. Concrete pedestrian ramps to be completed and approved by the Engineer prior to placement of asphalt trail:
   1. Concrete pedestrian ramps must be protected during paving of asphalt trail. Method of protection must be approved by the Engineer.

F. Sweeping of pavement must occur immediately prior to placement of the final lift. Swept surface must be approved by the Engineer prior to the placement of the final lift.

G. Adjust structures prior to placement of asphalt wedge as specified in Section 33 05 17.

H. Asphalt wedge must be completed before private utility installation begins.

I. Adjust structures prior to placement of asphalt final lift as specified in Section 33 05 17.

J. Nuclear density testing shall be taken within 48 hours after paving operations.

K. Patch asphalt driveways within 7 calendar days of initial removal, or per applicable Milestones in Section 00 52 10, Article 4.

L. Sidewalks, trails, and final restoration must be completed prior to final lift paving.

PART 2 PRODUCTS

2.01 MATERIALS

A. Mixture Designation: Conform to WisDOT Section 460.3.1, except as modified in the typical section and Bid Form:
   1. Residential Streets (Low Volume):
      a. Initial Lift = 4 LT 58-34 H
      b. Final Lift = 5 LT 58-34 H
   2. All other streets: refer to the Bid Form and the typical sections on the Drawings.
   3. Driveways, Trails, Parking Lots, and Patching: 4 LT 58-28 S
   4. Asphalt Wedge = 4 LT 58-28 S.

B. Conform to WisDOT Section 460.2.2 Aggregate for Hot Mix Asphalt except as modified herein:
   1. Recycled Asphalt Shingles (RAS) are not allowed in the upper course mixtures.

C. Tack Coat:
   1. Tack Coat: Conform to WisDOT Spec. 455:
      a. Emulsified Asphalt, CSS-1 or CSS-1h.

D. Asphalt Binder Material: Conform to WisDOT Spec. 455.2.4.1 and as identified in the Mix Designation.

E. Mixture Design: Conform to WisDOT Spec. 460.2.7.

F. Mixture Quality Management (Quality Control/Quality Verification): Conform to WisDOT Spec. 460.2.8., except as modified herein:
   1. Quality Verification testing will be completed at the discretion of the Engineer, testing rates will not exceed Spec. 460.2.8.2.1.3.1.

PART 3 EXECUTION

3.01 GENERAL

A. Conform to the requirements of WisDOT Spec. 460.3, except as modified herein.

B. Review the proposed paving sequence with the Engineer prior to placement of each asphalt course (lift).

C. The proposed sequence shall address the: longitudinal seams, compaction, traffic control, hauling routes, and placement of pavement markings.

D. Preparation of Asphalt Lower Lift:
   1. Final clean up of the asphalt surface with the use of a power pickup broom and front-end loader/skidsteer.
   2. Street sweeping operations must include the application of water to effectively make the pavement free and clear of material and debris to allow for successful application and adhesion of tack coat to the pavement. The appropriate amount of water shall be applied, eliminating dust as part of the sweeping operations.

E. Adjust structures conforming to the requirements of Section 33 05 17:
   1. Have a valve wrench on site during the paving operations for the purpose of final adjustments to the valve boxes to meet the specified tolerances. This work shall be considered incidental to the valve box adjustment bid item.

F. Joints: Where new construction meets existing asphalt surfacing, the existing surface shall be uniformly milled or saw-cut straight, and tack coat applied prior to placement of each asphalt course (lift):
   1. For joint construction, an existing asphalt surface shall be considered to include any asphalt surface not paved on the same day as the new construction. The Owner may require milling or sawcuting on surfaces paved the same day, if, in the opinion of the Owner, the mix has cooled to a point where a new milled or sawed edge is necessary.
   2. Construct 2-foot wide (min.) ramp where new construction does not match existing construction (i.e. initial lift to final lift).

G. Finish asphalt surface shall be flush with concrete surface at curb depression for pedestrian curb ramps.

3.02 RESTRICTIONS

A. Conform to WisDOT Section 450.3.2.1.1, except as modified herein.

B. Following the street sweeping operations, the condition of the pavement surface must be approved by the Engineer prior to paving.

C. Existing asphalt surfaces must be dry prior and during placement of any asphalt pavements.

D. Asphalt surfaces shall not be constructed on frozen gravel base.

E. Final Lift shall not be placed when the air temperature in the shade and away from artificial heat is 50 degrees or less, unless otherwise approved by City Engineer.

3.03 EQUIPMENT

A. Conform to WisDOT Section 450.3.1, except as modified herein.
   1. Patching asphalt trails greater than 20 feet in length requires the use of a self-propelled paver.
   2. Patching asphalt street greater than 20 feet in length and 10 feet in width requires the use of a self-propelled paver.

3.04 TREATMENT OF SURFACE

A. Tack Coat shall conform to WisDOT Spec. 455, except as modified herein.

B. Restrictions:
   1. The tack coat shall not be applied when the road surface is wet or when the weather conditions are unsuitable.
   2. The area for tack coat application shall be limited as directed by the Engineer.
   3. The Contractor shall have sole responsibility of claims of tack coat on personal property due to lack of notification or signage of the area being tack coated.
   4. No tack coat prior to placement of asphalt wedge.
   5. Cleanup of tack coat material tracked and build up onto adjacent roadway surfaces by truck hauling shall be performed on a daily basis, or as directed by the Engineer.

C. Tack Distributors: Conform to WisDOT Spec. 455.3.2.2, except as modified herein:
   1. The Engineer at anytime can direct the Contractor to perform test strip to determine if the equipment is applying the specified application rate for the emulsion. All cost associated with this test strip is considered incidental to the tack application.

D. Road Surface Preparation: Conform to WisDOT Spec. 455.3.2.3.

E. Application:
   1. At a uniform rate conforming to WisDOT Spec. 455.3.2.4, but not greater than 0.07 gallon per square yard, new asphalt.
   2. Along the front edge of the concrete curb and gutter, prior to placement of asphalt initial lift.
   3. **At a uniform rate conforming to WisDOT Spec. 455.3.2, but not greater than 0.07 gallon per square yard, on stabilized full depth reclamation areas, prior to asphalt initial lift.**

3.05 PAVEMENT DENSITY

A. Conform to WisDOT Spec. 460.3.3, except as modified herein:
   1. Trails, Driveways, Small Parking Lots, Leveling Courses, Asphalt Wedge, and Patching shall conform to Section 450.3.2.6.2 – Ordinary Compaction.
   2. All other Pavement Density shall conform to Section 460.3.3 – HMA Pavement Density Maximum Density Method.
   3. Contractor shall provide the target maximum density to the Engineer at the start of paving operations.

B. Vibrating steel drum roller and a pneumatic tired roller employed in conjunction with each other during compaction of the final surface course.

3.06 THICKNESS REQUIREMENTS

A. Conform to WisDOT Section 460.3.2 and the typical sections on the Drawings.

B. After compaction, the thickness of each course shall be within 1/4 inch of the thickness shown on the Drawings.

C. The portion of any course constructed more than the maximum allowable 1/4 inch will be excluded from pay quantities or may require removal and replacement at the direction of the Engineer.

D. The Engineer may require end of Project core samples for verification of pavement thickness and uniformity.

E. Structure Adjustment - Conform to Section 33 05 17 for tolerances.

3.07 TEMPORARY ASPHALT WEDGE

A. Where concrete curb and gutter is installed, construct a temporary asphalt mat meeting the following requirements:
   1. Construct with a 4 LT mixture.
   2. 8 or 10 feet wide from front edge of concrete curb and gutter.
   3. Thickness to be 1/4 inch over curb and taper to meet the lower asphalt mat elevation.

B. Install silt fence behind curb adjacent to asphalt wedge per Section 01 57 13 and the Standard Detail.

3.08 PATCH ASPHALT STREET, DRIVEWAY, OR TRAIL

A. Perform patching at locations shown on the Drawings or as directed by Engineer:
   1. Remove existing asphalt per Section 02 41 13.
   2. Saw cut existing asphalt per Section 02 41 13.
   3. Excavate to the bottom of the dense graded base or granular backfill layer as shown on the Drawings and dispose of material per Section 31 23 00.
   4. Place granular backfill, as required, per Section 31 23 00.
   5. Place dense graded base per Section 32 11 23.
   6. Place asphalt pavement.

END OF SECTION

SECTION 32 13 14 (REVISED)

CONCRETE WALKS, MEDIANS, AND DRIVEWAYS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Cast-in-place concrete walkways, medians, driveways, and valley gutters.

B. Related Sections:
   1. Section 00 52 10 – Agreement
   2. Section 02 41 13 – Selective Site Demolition
   3. Section 31 23 00 – Excavation and Fill
   4. Section 31 23 13 – Subgrade Preparation
   5. Section 32 11 23 – Dense Graded Base
   6. Section 32 12 01 – Flexible Paving (Municipal Projects)

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Concrete Sidewalk: Measurement shall be on the basis of in-place ~~square yard~~ **square foot**, according to thickness of sidewalk:
      a. Payment of the Bid Item shall include the following:
         1) Concrete materials
         2) Subgrade and base preparation
         3) Placement of materials
         4) Labor and equipment
         5) Finishing
         6) Curing and protection
         7) Backfilling
         8) **Dense graded base aggregate**
      b. Excavation for concrete sidewalk shall be measured and compensated per Section 31 23 00.
      ~~c. Dense graded base beneath concrete sidewalk shall be measured and compensated per Section 32 11 23.~~
   2. Remove and Replace Concrete Sidewalk: This Bid Item shall be used for all concrete sidewalk removed and replaced on this Project without regard to thickness and is assumed to be all hand placed. Measurement shall be on the basis of in-place square yard of sidewalk removed and replaced:
      a. Payment of the Bid Item shall include the following:
         1) Sawcutting at the removal limits
         2) Removal and disposal of existing concrete and excess aggregate materials per Section 02 41 13
         3) Excavation and subgrade preparation
         4) Dense graded base placement and preparation
         5) Concrete materials
         6) Placement of materials
         7) Labor and equipment
         8) Finishing

9) Curing and protection
10) Backfilling

3. Concrete Pedestrian Curb Ramp: Measurement shall be on the basis of square feet of ramp actually constructed:
   a. Measurement of ramp shall not include adjacent concrete curb and gutter, which shall be measured and compensated separately.
   b. Payment shall include the following:
      1) Sawcutting and removal of existing asphalt trail pavement, and disposal of excess material off the Site.
      2) Dense graded base preparation.
      3) Concrete materials, including material under truncated dome.
      4) Placement of materials.
      5) Labor and equipment.
      6) Finishing.
      7) Curing and protection.
      8) Backfilling.
   c. Excavation for concrete pedestrian ramp shall be measured and compensated per Section 31 23 00.
   d. Dense graded base beneath concrete sidewalk shall be measured and compensated per Section 32 11 23.
4. Remove and Replace Concrete Pedestrian Curb Ramp:
   a. Measurement of ramp shall be the final finished square feet of concrete placed.
   b. Measurement of ramp shall not include adjacent concrete curb and gutter, which shall be measured and compensated separately.
   c. Payment shall include the following:
      1) Sawcutting and removal of existing concrete pedestrian ramp, existing concrete sidewalk, or existing asphalt trail required to achieve the final size and shape as directed by the Engineer.
      2) Removal and disposal of existing concrete and excess aggregate materials per Section 02 41 13.
      3) Excavation and subgrade preparation
      4) Dense graded base placement and preparation
      5) Concrete materials, including material under truncated dome
      6) Placement of materials
      7) Labor and equipment
      8) Finishing
      9) Curing and protection
      10) Backfilling
5. Curb Ramp Detectable Warning Field: Measurement shall be on the basis of square feet installed:
   a. Payment shall include the following:
      1) Materials
      2) Placement of panels
      3) Joint sealing material
      4) Protection of panels during construction
   b. Radial Truncated domes will be measured along the long cord and multiplied by 2 feet to compute square footage.
6. Concrete Driveway Apron 6-Inch (Residential), Concrete Driveway Apron 7-Inch (Alley or Commercial): Measurement shall be on the basis of in-place ~~square yard~~ **square foot**:
   a. Payment of the Bid Item shall include the following:
      1) ~~Excavation and~~ subgrade preparation
      2) Dense graded base placement and preparation
      3) Concrete materials (high early)

4) Placement of materials
5) Labor and equipment
6) Finishing
7) Curing and protection
8) Backfilling
9) **Saw cutting at removal limits**

~~b. Saw cutting at the removal limits and removal and disposal of existing concrete and aggregate materials will be measured and compensated per Section 02 41 13.~~

c. **Excavation for concrete driveway apron shall be measured and compensated per Section 31 23 00.**

7. Remove and Replace Concrete Driveway Apron 6-Inch (Residential), Concrete Driveway Apron 7-Inch (Alley or Commercial): Measurement shall be on the basis of in-place square yard of Concrete Driveway Apron removed and replaced:
   a. Payment of the Bid Item shall include the following:
      1) Sawcutting at the removal limits
      2) Removal and disposal of existing concrete pavement and excess aggregate materials per Section 02 41 13
      3) Excavation and subgrade preparation
      4) Dense graded base placement and preparation
      5) Concrete materials (high early)
      6) Placement of materials
      7) Labor and equipment
      8) Finishing
      9) Curing and protection
      10) Backfilling
8. Concrete Median: Measurement shall be on the basis of in-place ~~square yard~~ **square foot**, according to thickness of median:
   a. Payment of the Bid Item shall include the following:
      ~~1) Excavation~~
      2) Dense graded base
      3) Concrete materials
      4) Subgrade and base preparation
      5) Placement of materials
      6) Labor and equipment
      7) Finishing
      8) Curing and protection
      9) Backfilling.
   b. **Excavation for concrete median shall be measured and compensated per Section 31 23 00.**
9. Remove and Replace Concrete Median: Measurement shall be on the basis of in-place square yard of median removed and replaced, regardless of thickness:
   a. Payment of the Bid Item shall include the following:
      1) Sawcutting at the removal limits
      2) Removal and disposal of existing concrete and excess aggregate materials per Section 02 41 13
      3) Excavation and subgrade preparation
      4) Dense graded base placement and preparation
      5) Concrete materials
      6) Placement of materials
      7) Labor and equipment
      8) Finishing
      9) Curing and protection
      10) Backfilling

10. Concrete Median Approach Nose: Measurement shall be on the basis of in-place ~~square yard~~ **square foot**:
    a. Payment of the Bid Item shall include the following:
        ~~1) Excavation~~
        2) Dense graded base
        3) Concrete materials
        4) Subgrade and base preparation
        5) Placement of materials
        6) Labor and equipment
        7) Finishing
        8) Curing and protection
        9) Backfilling
    b. **Excavation for concrete median approach nose shall be measured and compensated per Section 31 23 00.**
11. Remove and Replace Concrete Median Approach Nose: Measurement shall be on the basis of in-place square yard of median approach nose removed and replaced:
    a. Payment of the Bid Item shall include the following:
        1) Sawcutting at the removal limits
        2) Removal and disposal of existing concrete and excess aggregate materials per Section 02 41 13
        3) Excavation and subgrade preparation
        4) Dense graded base placement and preparation
        5) Concrete materials
        6) Placement of materials
        7) Labor and equipment
        8) Finishing
        9) Curing and protection
        10) Backfilling
12. Concrete Valley Gutter: Measurement shall be on the basis of in-place square yard:
    a. Payment of the Bid Item shall include the following:
        1) Saw cutting of existing pavement
        2) Removal and disposal of existing asphalt and all excess materials per Section 02 41 13
        3) ~~Excavation and~~ subgrade preparation
        4) Dense graded base
        5) Concrete materials (high early)
        6) Subgrade and dense graded base preparation
        7) Placement of materials
        8) Labor and equipment
        9) Reinforcement
        10) Finishing
        11) Curing and protection
        12) Patching adjacent asphalt pavement per Section 32 12 01
    b. **Excavation for concrete valley gutter shall be measured and compensated per Section 31 23 00.**
13. Remove and Replace Concrete Valley Gutter: Measurement shall be on the basis of in-place square yard:
    a. Payment of the Bid Item shall include the following:
        1) Sawcutting of existing pavement
        2) Removal and disposal of existing concrete, asphalt, and excess aggregate materials per Section 02 41 13
        3) Excavation and subgrade preparation
        4) Dense graded base
        5) Concrete materials (high early)

6) Subgrade and dense graded base preparation
7) Placement of materials
8) Labor and equipment
9) Reinforcement
10) Finishing
11) Curing and protection
12) Patch adjacent asphalt pavement per Section 32 12 01

14. High Capacity Concrete Apron: Measurement shall be on the basis of each:
    a. Payment of the Bid Item shall include the following:
        1) Dense graded base
        2) Concrete materials (6" thick)
        3) Subgrade and dense graded base preparation
        4) Placement of materials
        5) Labor and equipment
        6) Reinforcement
        7) Finishing
        8) Curing and protection
        9) Backfilling
15. Concrete Spillway: Measurement will be by the square foot of spillway constructed:
    a. Payment of the Bid Item shall include the following:
        1) Excavation and subgrade preparation
        2) Removal and disposal of all excess materials per Section 02 41 13
        3) Dense graded base placement and preparation
        4) Concrete materials
        5) Placement of materials
        6) Labor and equipment
        7) Finishing
        8) Curing and protection
        9) Backfilling
16. Concrete Truck Apron: Measurement shall be on the basis of in-place square yard, according to thickness of apron:
    a. Payment of the Bid Item shall include the following:
        1) Concrete materials and tie bars
        2) Subgrade and base preparation
        3) Placement of materials
        4) Placement of tie bars at 36" spacing o.c. between the concrete pavement and any adjacent curb and gutter
        5) Finishing
        6) Curing and protection
        7) Backfilling
    b. Dense graded base beneath concrete pavement shall be measured and compensated per Section 32 11 23.
17. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", 2019 Edition (WisDOT Spec.):
    1. 105 – Control of the Work
    2. 207 - Embankment
    3. 415 – Concrete Pavement
    4. 501 – Concrete

5. 602 – Concrete Sidewalks, Loading Zones, Safety Islands and Steps
6. 716 – QMP Ancillary Concrete

1.04 SUBMITTALS

~~A. Submit one (1) 7-day and two (2) 28-day concrete cylinder test results per concrete mix per day.~~

~~B. Submit WisDOT approved design mix for each concrete mix designation used. If a WisDOT approved mix design is unavailable, the Engineer will establish the job mix proportions.~~

C. **Submit mix design stating the following information:**
   1. **Mix design identification**
   2. **Target air content**
   3. **Weights and volumes of each constituent part of the mix, including aggregates, admixtures, and cementitious materials**
   4. **Maximum w/cm ratio**
   5. **28-day compressive strength target**
   6. **Total yield of the mix design**

D. **Submittals for all aggregates used in concrete, Portland cement, supplemental cementitious materials, and admixtures proposed to be used in concrete items must be submitted to the Engineer at least 7 days prior to the intended first use of the corresponding item on the project. Each submittal must be approved by the Engineer prior to use on the project.**

E. **Historical strength data of the mix design showing 28-day compressive strength results within the past year must be submitted unless the mix design has not been used within the past year.**

1.05 SEQUENCING AND SCHEDULING

A. Prime Contractor is responsible for scheduling an onsite pre-pour meeting with the Owner, Engineer, Concrete Subcontractor (if appropriate), including the Concrete Forman a minimum 24 hours prior to the pouring operations.

B. Provide notice by 2:00 pm of the day prior to any concrete curb and placement to allow for scheduling of the following activities. Notice must include mix designation, start time of placement, plant producing concrete, and Forman onsite during placement:
   1. Dense graded base density tests (per Section 32 11 23) prior to any concrete curb being placed.
   2. Inspection of curbing operations by a City representative. No curbing will be allowed or accepted without inspection.
   3. Concrete field and plant testing if required.

C. Complete construction of concrete pedestrian ramps prior to the paving of asphalt path and construction of the concrete sidewalk.

D. Complete construction of concrete sidewalks following the paving of the asphalt lower lift and following the installation of Private Utilities.

E. Begin construction of the concrete driveway aprons no sooner than 24 hours after placement of the adjacent concrete curb and gutter with completion within 5 days of curb placement, or per applicable in Milestones per Section 00 52 10.

F. Construct concrete medians no sooner than 72 hours after placement of the concrete curb and gutter.

G. Construct concrete valley gutter after asphalt lower lift placement and prior to placement of asphalt upper lift:
   1. On street rehabilitation projects, Valley Gutters shall be constructed in halves to provide access for residents.

H. Complete the Patch Concrete Driveway to allow access to driveway within 7 calendar days, beginning on the day of the removals, or per applicable in Milestones per Section 00 52 10.

I. All concrete placed after October 1 must be high early strength concrete, unless otherwise approved by City Engineer.

J. Concrete placement will not be allowed after October 15, unless otherwise approved by City Engineer.

PART 2 PRODUCTS

2.01 MATERIALS

~~A. Concrete to conform to WisDOT Spec. 501, except as modified herein:~~
   ~~1. Portland Cement: Conform to WisDOT Spec. 501.2.1:~~
      ~~a. Concrete shall be air-entrained.~~
   ~~2. Air Entraining Admixtures: conform to WisDOT Spec. 501.2.2:~~
      ~~a. Not to be added to the concrete mixtures in the field without approval from Engineer.~~
   3. Mix Designation and Classification:
      ~~a. Sidewalk, Driveways, Pedestrian Ramps, and Medians: Grade A.~~
      b. Valley gutters: Must use high early strength.
      c. 28-day compressive strength requirement: 4,500 psi.

B. **Concrete mix design for walks, medians, and driveways shall conform to the following:**
   1. **Cementitious Materials:**
      a. **Portland cement: Conform to WisDOT 501.2.4.1 or MnDOT 3101.**
      b. **Fly Ash: Conform to WisDOT 501.2.4.2.2.1 or MnDOT 3115.**
         1) **Maximum fly ash percentage: 15%**
      c. **Maximum total cementitious content shall not exceed 750 pounds per cubic yard.**
   2. **Water:**
      a. **Conform to WisDOT 501.2.6 or MnDOT 3906.**
   3. **Admixtures:**
      a. **Air entrainment admixture: Product must be on the WisDOT or MnDOT APL.**
         1) **Air content shall be 5.0% to 8.5%**
      b. **Water reducing, retarding, non-chloride accelerating, and hydration controlling admixtures: Conform to WisDOT 501.2.5 or MnDOT 3113.**
   4. **Fine Aggregate:**
      a. **Furnish fine aggregate from a WisDOT or MnDOT approved source.**
   5. **Coarse Aggregate:**
      a. **Furnish coarse aggregate from a WisDOT or MnDOT approved source.**
   6. **Water to cementitious ratio (w/cm):**
      a. **Maximum: 0.45**

C. Curb Ramp Detectable Warning Field: Approved products:

1. East Jordan Iron Works – Natural Patina
2. Neenah Foundry Company – Natural Patina

D. Joint Filler: Conform to WisDOT Spec. 415.2.3.

E. Curing Compound: Conform to WisDOT Spec. 415.2.4:
   ~~1. Curing compound shall contain a fugitive dye.~~
   2. **Concrete curing compounds shall be poly-alpha-methylstyrene (PAM) curing compound, white colored, for non-colored, non-stamped Portland cement concrete surfaces exposed to the air.**

F. Sub-Grade Base Material:
   1. Granular Backfill: Conform to Section 31 23 00.
   2. Dense Graded Base: Conforming to Section 32 11 23.

G. High Early Concrete:
   1. Conform to WisDOT 501.2, except as modified herein:
      a. High early concrete shall be designed to provide a maximum water/cementitious ratio of 0.40.
      b. High early concrete shall be designed to provide a minimum flexural strength of 500 psi and a minimum compressive strength of 3,000 psi in 48 hours.
      c. Concrete valley gutter shall be constructed using high early concrete.
      d. High early concrete may be included as a separate Bid Item or as an Engineer ordered material. In absence of a separate Bid Item for high early strength concrete, compensation will be at an agreed upon price not to exceed 20 percent above the Contract cubic yard price for standard strength concrete for the quantity ordered by the Engineer. The price shall be agreed upon prior to placement.

PART 3 EXECUTION

3.01 GENERAL

A. Provide copies of batch tickets for concrete mix at the time of material delivery to Site.

B. **All deliveries of concrete to the project site shall come with a computerized Certificate of Compliance containing the following information at a minimum:**
   1. **Name of concrete plant**
   2. **Name of Contractor**
   3. **Date**
   4. **Project name and/or number**
   5. **Time concrete was batched**
   6. **Truck number**
   7. **Quantity of concrete in the delivered load**
   8. **Color of concrete (for colored concrete only)**
   9. **Running total of each type of concrete per each day for each project**
   10. **Mix design identification**
   11. **Identification of each material that correlates with the approved mix design with standard abbreviations**
   12. **Aggregate source(s)**
   13. **Admixture quantity in ounces per cubic yard**
   14. **Target batch weights**
   15. **Actual batch weights**
   16. **Total water (batch water + free moisture) in pounds**

17. **Water available to add [(mix design water X batch size) – Total water) in gallons**
18. **Space to note water adjustment information, including**
    a. **Water in gallons added to truck at plant after batching (producer to fill in information, if applicable)**
    b. **Water in gallons added to truck at jobsite**
19. **The following information printed with enough room beside each item to allow the Engineer to record test results:**
    a. **Air content**
    b. **Air temperature**
    c. **Concrete temperature**
    d. **Slump**
    e. **Cylinder number(s)**
    f. **Location**
    g. **Time discharge**
    h. **Name and/or signature of inspector**
    i. **Location for producer signature**

C. Construct concrete sidewalk, pedestrian ramps, driveways, medians, median approach noses, and valley gutters at the locations and elevations indicated on the Drawings.

D. Construct sidewalks and medians to conform to the typical section shown on the Drawings.

E. Construct concrete driveway aprons to conform to Standard Detail Plates STR-3, STR-4 and STR-5.

F. Construct concrete median approach nose per Standard Plate STR-33.

G. Construct concrete valley gutters to conform to Standard Detail Plate STR-11.

H. Construct High Capacity Concrete Apron to conform to Standard Detail Plate STR-34 and STR-35.

I. Construct concrete curb ramp to conform to WisDOT Standard Details, current version.

J. Verify locations with Engineer in the field prior to construction.

K. The completed concrete work shall give the appearance of uniformity in surface contour and texture, and shall be accurately constructed to line and grade. The required joints, edges, and flow lines shall show neat workmanship. The concrete work shall be in full accordance with the Standard Detail Drawings. Any deviations from the Standard Detailed Drawings may be cause for removal and replacement at the Contractor's expense. No price reductions will be allowed as a means to correct deviations.

L. Re-tempering of concrete which has partially hardened with or without additional materials or water is prohibited.

M. Remove and Replace Concrete Sidewalks, Concrete Pedestrian Ramps, Concrete Driveways, Concrete Medians, Concrete Median Approach Noses:
    1. Perform patching at locations shown on the Drawings or as directed by the Engineer per Standard Detail STR-12, STR-13 and STR-14.
    2. Remove existing concrete per Section 02 41 13.
    3. Saw cut existing concrete per Section 02 41 13.
    4. Excavate to the bottom of the dense graded base layer and dispose of the material per Section 31 23 00.
    5. Place dense graded base per Section 32 11 23.

6. Place concrete pavement.

N. Construct Concrete Spillway:
   1. Construct a concrete spillway at locations shown on the Drawings or as directed by the Engineer.
   2. 6 inches thick (minimum).
   3. 5 feet wide (minimum).
   4. Construct spillway such that the storm water is conveyed directly to the bottom of the drainage way, thereby minimizing erosion in the general area.

O. Concrete washout locations shall conform to the requirements of the NPDES Permit.

3.02 FOUNDATION PREPARATIONS

A. Placement of the dense graded base or granular material to support the concrete work shall conform to Section 32 11 23 or Section 31 23 13. Compaction of subgrade base shall conform to WisDOT Spec. 207.3.6.3, Special Compaction.

B. The foundation shall be approved by the Engineer prior to placement of concrete material.

3.03 FORMS

A. Conform to WisDOT Spec. 602.3.2.2.

3.04 JOINT CONSTRUCTION

A. Conform to WisDOT Spec. 602.3.2.5, except as modified herein:
   1. Match joints of adjacent concrete work.
   2. Transverse expansion joints for sidewalk:
      a. Concrete areas that are poured separately.
   3. Contraction joints shall be sawed.

3.05 METAL REINFORCEMENT

A. Conform to WisDOT Spec. 602.3.2.4:
   1. Install 3 No. 4 steel reinforcing rods in lower portion of the valley gutter section with minimum 2-inches coverage on all sides.

3.06 PLACING AND FINISHING

A. Conform to WisDOT Spec. 602.3.2.3, except as modified herein:
   1. Any deviation in the design curvature of concrete edges in excess of 3/8 of an inch, measured with a 10-foot straight edge, will be considered unacceptable.
   2. Any surface area allowing the entrapment of water at a depth 1/8 inch or greater will be considered unacceptable.
   3. Unacceptable work shall be removed and replaced with acceptable Work as directed by the Engineer. Acceptance of Work by price reduction will not be allowed.

B. Curb Ramp Detectable Warning Field:
   1. Panels - Conform to the manufacturer's recommendations for placement.
   2. Panels shall be placed (wet set) on a minimum of 6-inches concrete and prior to finishing the adjacent concrete surface of the pedestrian ramp. The joint between the panel and concrete shall be finished with 1/2-inch radius edging tool.

3. Conform to WisDOT Standard Detail Drawing 8D5-19f for specified surface pattern dimensions. Refer to the Drawings for actual ramp size, shape, and slopes.
4. Multiple panels shall be rectangular or radial plates of equal size and shall be joined together per the manufacturer's recommendation.
5. Joint space between panels shall be no greater than 1/4-inch in width.

3.07 CONCRETE CURING AND PROTECTION

A. Conform to WisDOT Spec. 415.3.12.1 and 415.3.12.2 (Impervious Coating Method), except as modified herein:
   1. Coat all surfaces with membrane curing compound within 30 minutes after finishing at the specified rate.
   2. The curing compound must contain a fugitive dye and be applied at 2 different directions perpendicular to each other to provide a uniform solid white opaque coverage (equal to a white sheet of typing paper) on all exposed concrete surfaces.
   ~~3. A second application of membrane curing compound shall be applied 4 to 8 hours after the first application at the specified rate.~~
   4. Protect concrete against hot weather conditions as defined in the PCA Design and Control of Concrete Mixtures as when the rate of evaporation of bleed water per hour exceeds 0.2 lb. of water per square foot per hour. A chart published by the ACI and PCA can be used to predict the bleed water rate
   5. Cold weather curing, when temperatures fall below 40 degrees F during placement or within the following 24 hours, shall conform to WisDOT Spec. 415.3.15, except as modified below:
      a. If temperatures are projected to fall below 32 degrees within 24 hours of concrete placement, insulated blankets shall be using for curing.
      b. All costs associated with blanket curing shall be incurred by the Contractor.
   6. Failure to comply with these provisions will result in a price reduction for the concrete Bid Item involved in accordance with WisDOT Spec. 105.3.
      The freshly finished surface shall be protected, surfaces pitted by rain will be considered unacceptable.
   7. The Contractor is responsible for protecting their work until final acceptance. Removal and replacement of any concrete section damaged by pedestrians, bicycles, automobile traffic, rain, cold weather, or other causes occurring prior to final acceptance shall be the responsibility of the Contractor.

3.08 BACKFILLING

A. Conform to WisDOT Spec. 602.3.2.7, except as modified herein,
   1. Backfill to protect the concrete no sooner than 72 hours after placement of the concrete.

3.09 FIELD QUALITY CONTROL

A. Any sidewalk, driveway, pedestrian ramp, etc. damaged by the Contractor shall be removed and replaced by the Contractor, and will be incidental to the Project.

B. Visual Inspection – Placement of any concrete panel with defects or damage caused during construction as noted below shall be removed and replaced by the Contractor, and will be incidental to the Project:
   1. Pop outs exceeding 7 occurrences per square yard.
   2. Mortar Flaking.
   3. Scaling.
   4. Any cracking not following contraction or expansion joints.
   5. Shrinkage cracking.

C. Conform to WisDOT Spec. 716.2.1, except as modified herein:
   1. 1 set of ~~three~~ **five** compressive strength cylinders per mix, per placement method, per day.

D. The Owner may have an independent testing laboratory perform random QV testing. The test locations shall be determined by the Engineer:
   1. 1 air entrainment test per day, per Project (per concrete mix).
   2. 1 slump test per day, per Project (per concrete mix).
   3. 1 set of cylinders for compression tests per day, per Project (per concrete mix):
      a. An additional cylinder will be cast to be tested when concrete has reached maturity.

END OF SECTION

SECTION 32 16 13 (REVISED)

CONCRETE CURBS AND GUTTERS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Cast-in-place concrete curb and gutter.

B. Related Sections:
   1. Section 00 52 10 – Agreement Form
   2. Section 02 41 13 – Selective Site Demolition
   3. Section 31 10 00 – Site Clearing
   4. Section 32 11 23 – Dense Graded Base
   5. Section 32 12 01 – Flexible Paving (Municipal Projects)
   6. Section 32 12 14 – Concrete Walks, Medians, and Driveways

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Concrete Curb and Gutter: Measurement shall be by the linear foot measured along the face of the curb at the gutter line for each type. Payment shall include materials, preparation, placement, finishing, curing, protection, reinforcement, and backfilling. Measurement shall not include frames/castings that are located along the face of curb.
   2. Remove and Replace Concrete Curb and Gutter: This Bid Item shall be used for all concrete curb and gutter removed and replaced on this Project without regard to type or size and is assumed to be all hand placed. Measurement will be per linear foot along the face of curb. Payment will include all costs, including labor, materials, and equipment necessary to complete the work, including sawcutting at the removal limits and disposal of the material per Section 02 41 13, stripping and offsite disposal of soil per Section 31 10 00, construction of new curb and gutter, and patching of adjacent street.
   3. No separate measurement or payment for modifications at driveways, pedestrian ramps, transition sections, or D24 curb installed at catch basins and radii.
   4. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. American Society of Testing Materials (ASTM):
   1. C260 - Air-Entraining Admixtures for Concrete

B. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", 2019 Edition (WisDOT Spec.):
   1. 415 – Concrete Pavement
   2. 501 – Concrete
   3. 601 – Concrete Curb and Gutter
   4. 716 – QMP Ancillary Concrete

1.04 SUBMITTALS

~~A. Submit one (1) 7-day and two (2) 28-day concrete cylinder test results per concrete mix per day.~~

~~B. Submit WisDOT approved design mix for each concrete mix designation used. If a WisDOT approved mix design is unavailable, the Engineer will establish the job mix proportions.~~

C. **Submit mix design stating the following information:**
   1. **Mix design identification**
   2. **Target air content**
   3. **Weights and volumes of each constituent part of the mix, including aggregates, admixtures, and cementitious materials**
   4. **Maximum w/cm ratio**
   5. **28-day compressive strength target**
   6. **Total yield of the mix design**

D. **Submittals for all aggregates used in concrete, Portland cement, supplemental cementitious materials, and admixtures proposed to be used in concrete items must be submitted to the Engineer at least 7 days prior to the intended first use of the corresponding item on the project. Each submittal must be approved by the Engineer prior to use on the project.**

E. **Historical strength data of the mix design showing 28-day compressive strength results within the past year must be submitted unless the mix design has not been used within the past year.**

1.05 SEQUENCING AND SCHEDULING

A. Prime Contractor is responsible for scheduling an onsite pre-pour meeting with the Owner, Engineer, Concrete Subcontractor (if appropriate), including the Concrete Forman a minimum 24 hours prior to the pouring operations.

B. Provide notice by 2:00 pm of the day prior to any concrete curb and placement to allow for scheduling of the following activities. Notice must include mix designation, start time of placement, plant producing concrete, and Forman onsite during placement:
   1. Dense graded base density tests (per Section 32 11 23) prior to any concrete curb being placed.
   2. Inspection of curbing operations by a City representative, no curbing will be allowed or accepted without inspection.
   3. Concrete field and plant testing if required.

C. All temporary stockpiles located within the boulevard area or other areas behind the concrete curb and gutter must be removed prior to curb placement.

D. Concrete curb and gutter construction precedes installation of pavement.

E. Horizontal and vertical alignment established with "stringline" and or forms for concrete curb and gutter placement shall be approved by the Engineer prior to concrete placement. Notify the Engineer a minimum of 4 hours (one half day) prior to placement of concrete to allow for review and approval of "stringline" or forms.

F. All concrete placed after October 1 must be high early strength concrete, unless otherwise approved by City Engineer.

G. Concrete placement will not be allowed after October 15, unless otherwise approved by City Engineer.

PART 2 PRODUCTS

2.01 MATERIALS

~~A. Concrete to Conform to WisDOT Spec. 501, except as modified herein:~~
~~1. Portland Cement: Conform to WisDOT Spec. 501.2:~~
~~a. Concrete shall be air-entrained.~~
~~2. Air-Entraining Admixtures: Conform to WisDOT Spec. 501.2.2:~~
~~a. Not to be added to the concrete mixtures in the field without approval from Engineer.~~
~~3. Mix Designation and Classification for Concrete Curb and Gutter:~~
~~a. Manual Placement: Grade A.~~
~~b. Slip Form Placement: Grade A or A-S2.~~
~~c. 28-day compressive strength requirement: 4,500 psi.~~

B. **Concrete mix design for walks, medians, and driveways shall conform to the following:**
1. **Cementitious Materials:**
a. **Portland cement: Conform to WisDOT 501.2.4.1 or MnDOT 3101.**
b. **Fly Ash: Conform to WisDOT 501.2.4.2.2.1 or MnDOT 3115.**
1) **Maximum fly ash percentage: 15%**
c. **Maximum total cementitious content shall not exceed 750 pounds per cubic yard.**
2. **Water:**
a. **Conform to WisDOT 501.2.6 or MnDOT 3906.**
3. **Admixtures:**
a. **Air entrainment admixture: Product must be on the WisDOT or MnDOT APL.**
1) **Air content shall be 5.0% to 8.5%**
b. **Water reducing, retarding, non-chloride accelerating, and hydration controlling admixtures: Conform to WisDOT 501.2.5 or MnDOT 3113.**
4. **Fine Aggregate:**
a. **Furnish fine aggregate from a WisDOT or MnDOT approved source.**
5. **Coarse Aggregate:**
a. **Furnish coarse aggregate from a WisDOT or MnDOT approved source.**
6. **Strength Requirements:**
a. **28 day compressive strength (f'c) of 4,500 psi.**
7. **Water to cementitious ratio (w/cm):**
Maximum: 0.45

C. High Early Strength Concrete
1. Conform to WisDOT Spec. 501.2, except as modified herein:
a. High early concrete shall be designed to provide a maximum water/cementitous ratio of 0.40.
b. High early concrete shall be designed to provide a minimum flexural strength of 500 psi and a minimum compressive strength of 3,000 psi in 48 hours.
c. High early concrete may be included as a separate Bid Item or as an Engineer ordered material. In absence of a separate Bid Item for high early strength concrete, compensation will be at an agreed upon price not to exceed 20 percent above the Contract cubic yard price for standard strength concrete for the quantity ordered by the Engineer. The price shall be agreed upon prior to placement.

D. Joint Filler: Conform to WisDOT Spec. 415.2.3.

E. Curing Compound: Conform to WisDOT Spec. 415.2.4:
   1. ~~Curing compound shall contain a fugitive dye~~.
   2. **Concrete curing compounds shall be poly-alpha-methylstyrene (PAM) curing compound, white colored, for non-colored, non-stamped Portland cement concrete surfaces exposed to the air.**

PART 3 EXECUTION

3.01 GENERAL

A. Provide copies of batch tickets for concrete mix at the time of material delivery to the Site.

B. **All deliveries of concrete to the project site shall come with a computerized Certificate of Compliance containing the following information at a minimum:**
   1. **Name of concrete plant**
   2. **Name of Contractor**
   3. **Date**
   4. **Project name and/or number**
   5. **Time concrete was batched**
   6. **Truck number**
   7. **Quantity of concrete in the delivered load**
   8. **Color of concrete (for colored concrete only)**
   9. **Running total of each type of concrete per each day for each project**
   10. **Mix design identification**
   11. **Identification of each material that correlates with the approved mix design with standard abbreviations**
   12. **Aggregate source(s)**
   13. **Admixture quantity in ounces per cubic yard**
   14. **Target batch weights**
   15. **Actual batch weights**
   16. **Total water (batch water + free moisture) in pounds**
   17. **Water available to add [(mix design water X batch size) – Total water) in gallons**
   18. **Space to note water adjustment information, including**
      a. **Water in gallons added to truck at plant after batching (producer to fill in information, if applicable)**
      b. **Water in gallons added to truck at jobsite**
   19. **The following information printed with enough room beside each item to allow the Engineer to record test results:**
      a. **Air content**
      b. **Air temperature**
      c. **Concrete temperature**
      d. **Slump**
      e. **Cylinder number(s)**
      f. **Location**
      g. **Time discharge**
      h. **Name and/or signature of inspector**
      i. **Location for producer signature**

C. Construct concrete curb and gutter at the locations and elevations indicated on the Drawings. Any concrete curb and gutter that is longer than 200 linear feet continuously, shall be placed using slip form placement.

D. Construct the style or type of curb and gutter as shown on the Drawings.

E. Construct intersection curb radii and transitions sections to conform to the detail on the Drawings.

F. Construct transition sections at inlet structures to conform to the detail on the Drawings.

G. Construct concrete curb ramp depressions to conform to the detail on the Drawings.

H. Construct curb transitions for driveways to conform to the detail on the Drawings. Locations to be verified by Engineer at the time of construction.

I. The completed concrete work shall give the appearance of uniformity in surface contour and texture, and shall be accurately constructed to line and grade. The required joints, edges, and flow lines shall show neat workmanship. The concrete curb shall be in full accordance with the Standard Detail Drawings. Any deviations from the Standard Detailed Drawings may be cause for removal and replacement at the Contractor's expense. No price reduction will be allowed as a means to correct the deviations.

J. Re-tempering of the concrete which has partially hardened with or without additional materials or water is prohibited.

K. Concrete curb and gutter damaged by the Contractor during construction operations shall be removed and replaced in accordance to the City's Standard Detail Drawings and requirements.

L. Concrete washout locations shall conform to the requirements of the NPDES.

3.02 FOUNDATION PREPARATIONS

A. Support on a compacted dense graded base extending 1 foot behind the back of curb:
   1. Conform to typical sections as shown on the Drawings.
   2. Conform to Section 32 11 23 and WisDOT Spec. 301.3.4.3.

3.03 FORMS

A. Conform to WisDOT Spec. 601.3.3.

3.04 JOINT CONSTRUCTION

A. Conform to WisDOT Spec. 601.3, except as modified herein:
   1. Contraction joints: 10-foot intervals.
   2. Transverse expansion joints:
      a. 10' from inlet
      b. 300' intervals
      c. Adjacent to hand placed curb
   3. Contraction joints shall be formed.

3.05 METAL REINFORCEMENT

A. Conform to WisDOT Spec. 415.2.2:
   1. Metal reinforcement not required 10' on each side of catch basins or service trenches.

3.06 PLACING AND FINISHING

A. Conform to WisDOT Spec. 601.3.4 and 601.3.5, except as modified herein:
   1. The top surface of the curb and gutter shall have a brush finish at right angles to the curb line.

3.07 CONCRETE CURING AND PROTECTION

A. Conform to WisDOT Spec. 415.3.12.1 and 415.3.12.2 (Impervious Coating Method), except as modified herein:
   1. Coat all surfaces with membrane curing compound within 30 minutes of concrete placement unless otherwise directed by Engineer.
   2. The curing compound must be applied in 2 different directions perpendicular to each other to provide a uniform solid white opaque coverage (equal to a white sheet of typing paper) on all exposed concrete surfaces.
   3. ~~A second application of membrane curing compound shall be applied 4 to 8 hours after the first application at the specified rate.~~
   4. Protect concrete against hot weather conditions as defined in the PCA Design and Control of Concrete Mixtures as when the rate of evaporation of bleed water per hour exceeds 0.2 lb. of water per square foot per hour. A chart published by the ACI and PCA can be used to predict the bleed water rate.
   5. Cold weather curing, when temperatures fall below 40 degrees during placement or within the following 24 hours, shall conform to WisDOT Spec. 415.3.15, except as modified below:
      a. If temperatures are projected to fall below 32 degrees within 24 hours of concrete placement, insulated blankets shall be using for curing.
      b. All costs associated with blanket curing shall be incurred by the Contractor.
   6. Failure to comply with these provisions will result in a price reduction for the concrete curb and gutter Bid Item involved in accordance with WisDOT Spec. 105.3.
   7. The freshly finished surface shall be protected. Surfaces pitted by rain will be considered unacceptable.
   8. The Contractor is responsible for protecting their work until final acceptance. Removal and replacement of any curb section damaged by pedestrians, bicycles, automobile traffic, rain, cold weather, or other causes occurring prior to final acceptance shall be the responsibility of the Contractor.

3.08 BACKFILLING

A. Initial Backfilling:
      a. Follow the 72-hours curing period with completion within 6 days of original placement, or per applicable in Milestones per Section 00 52 10.
      b. Must be flush with top of curb elevation.

B. Final Grading:
      a. Following completion of private utility work by others.

C. Curb damaged during backfilling is the responsibility of the Contractor.

3.09 WORKMANSHIP AND FINISH

A. Conform to WisDOT Spec. 601.3, except as modified herein:
   1. Any deviation in the design curvature of concrete edges in excess of 3/8 of an inch, measured with a 10-foot straight edge, will be considered unacceptable.
   2. Acceptance of Work by price reduction will not be allowed.

3.10 FIELD QUALITY CONTROL

A. Any curb damaged by the Contractor shall be removed and replaced by the Contractor, and will be incidental to the Project.

B. Visual Inspection – Placement of any concrete panel with defects or damage caused during construction as noted below shall be removed and replaced by the Contractor, and will be incidental to the Project:
   1. Popouts exceeding 7 occurrences per square yard
   2. Mortar Flaking
   3. Scaling
   4. Any cracking not following contraction or expansion joints
   5. Shrinkage cracking

C. Conform to WisDOT Spec. 716.2.1, except as modified herein:
   1. 1 set of ~~three~~ **five** compressive strength cylinders per mix, per placement method, per day.

D. The Owner may have an independent testing laboratory perform random QV testing. The test locations shall be determined by the Engineer:
   1. 1 air entrainment test per day, per Project (per concrete mix).
   2. 1 slump test per day, per Project (per concrete mix).
   3. 1 set of cylinders for compression tests per day, per Project (per concrete mix):
      a. An additional cylinder will be cast to be tested when concrete has reached maturity.

END OF SECTION

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SECTION 32 17 23 (REVISED)

PAVEMENT MARKINGS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Pavement markings for control and guidance of traffic.

B. Related Sections:
   1. Section 01 33 00 - Submittal Procedures
   2. Section 02 41 13 – Selective Site Demolition

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Lines:
      a. Lines shall be measured by the linear foot on the basis of length actually applied, regardless of color:
         1) Separate measurement will be made on the basis of type and nominal width.
         2) ~~Double lines shall be measured to include both lines per linear feet of quantity because they are applied simultaneously.~~ **Double lines shall be measured per each linear foot of line actually applied. Example: A section of 10 linear feet of roadway receiving double lines shall be measured and paid for as 20 linear feet.**
         3) Broken, dotted, dashed lines: measurement will only include the painted length.
         4) Ladder Pattern (for crosswalk): measurement will be square feet of paint applied.
   2. Messages:
      a. Messages shall be measured on the basis of each applied, according to type (i.e. word, arrow, symbol, etc.).
   3. Marking Island Nose Paint (Yellow): Measurement will be per each regardless of island nose size.
   4. Payment of each Bid Item shall be compensation in full for all costs incidental thereto, including but not limited to surface preparation, traffic control measures, maintaining the Work, removal of temporary pavement markers, together with any other expenses incurred in completing the Work that are not specifically included for payment under the Contract Bid Items.
   5. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", latest edition including all current supplements (WisDOT).
   a. Section 646

B. Wisconsin Department of Transportation Facilities Development Manual.

C. Wisconsin Manual on Uniform Traffic Control Devices (MUTCD), latest edition.

1.04 SUBMITTALS

A. Submit the following consistent with Section 01 33 00:
   1. Conform to WisDOT Section 646.2.
   2. 1 copy of the chosen epoxy lot or batch formulation.
   3. Pavement Marking Contractor Qualifications/Certifications.

1.05 SEQUENCING AND SCHEDULING

A. Complete application of pavement markings within 7 calendar days of placement of the pavement to which the markings are to be applied.

PART 2 PRODUCTS

2.01 MATERIALS

A. Epoxy:
   1. Conform to WisDOT Section 646.2.4
   2. Furnish paint from WisDOT's Approved Products List

B. Glass Beads:
   1. Conform to WisDOT Section 646.2.3

2.02 EQUIPMENT

A. General: All equipment shall conform to the applicable requirements of WisDOT Section 646.3.2:
   1. Vehicles used shall be deployed and equipped with traffic control devices set forth in the "Wisconsin Manual on Uniform Traffic Control Devices."
   2. Shadow vehicle with truck-mounted attenuator shall be used on streets with posted speed equal to or greater than 40 m.p.h. or ADT greater than 1,500 vehicles per day.
   3. Equipment used for spray applications shall be capable of applying glass beads by a pressurized system at a rate of at least 25 lbs/gal.
   4. Capable of accumulating footage applied per gun.
   5. Stainless steel components in the delivery system required for water-based materials.

PART 3 EXECUTION

3.01 GENERAL

A. Conform to WisDOT Section 646.3

B. Notify Engineer at least 48 hours prior to commencing work, so spotting of pavement marking locations can be completed.

C. The pavement marking crew shall include at least 1 technical expert knowledgeable in each of the following areas:
   1. Equipment operation.
   2. Application techniques.
   3. Traffic control.
   4. Safety regulations.

D. The filling of tanks, pouring of materials, or cleaning of equipment shall not be performed on unprotected pavement surfaces, unless adequate provisions are made to prevent spillage of material.

E. All preparation shall conform to WisDOT Section 646.3.3.

3.02 SCHEDULE

A. Prime Contractor is responsible for scheduling an onsite pre-signing meeting with the Owner, Engineer, and Marking Subcontractor (if appropriate) a minimum of 24 hours prior to the installation of any pavement markings.

B. Permanent Epoxy Markings:
   1. Place following completion of the final asphalt course:
      a. No sooner than 24 hours after placement of asphalt.
      b. Within 7 calendar days of completion of asphalt placement, or per manufacturer recommendations on WisDOT's approved products list.

C. Temporary Pavement Markings:
   1. Temporary markings can be placed immediately after paving and allowing pavement surface to cool.

3.03 PREPARATION

A. Locations:
   1. In general accordance with the Drawings:
      a. Location of marking designating no passing zones to be coordinated with corresponding traffic signs.
   2. The Engineer will place necessary "Spotting" at appropriate points:
      a. Horizontal control.
      b. Starting and stopping points.
      c. Broken line intervals will not be marked.
      d. Longitudinal joints, pavement edges, and existing markings shall serve as horizontal control when so directed.
      e. Notify Engineer at least 48 hours in advance when requesting spotting locations.
   3. Edge lines and lane lines are to be broken only at intersections with public roads and at private entrances if they are controlled by a yield sign, stop sign, or traffic signal.
   4. The break point is to be at the start of the radius for the intersection or at marked stop lines or crosswalks.

B. Street Surface:
   1. Engineer may direct cleaning of surface as necessary immediately prior to marking application:
      a. Brushing with non-metallic rotary broom.
      b. Other cleaning method approved by Engineer.
      c. Air blast following cleaning.
   2. Surface must be dry.
   3. Minimum surface temperature is 50 degrees F.

C. Traffic Control:
   1. Conform to Wisconsin MUTCD
   2. Shadow vehicle with truck-mounted attenuator shall be used on streets with posted speed equal to or greater than 40 m.p.h. or ADT greater than 1,500 vehicles per day.

3.04 APPLICATION

A. General: Conform to WisDOT Spec. 646.3 and the following:
   1. Tolerance:
      a. Width: A tolerance of 1/4 inch under or 1/4 inch over the specified width will be allowed for striping provided the variation is gradual and does not detract from the general appearance.
      b. Length: Broken line segments may vary up to 2-3/4 inches from the specified lengths provided the over and under variations are reasonably compensatory.
      c. Alignment: Deviations from the control guide shall not exceed 2 inches.
      d. Establishment of application tolerances shall not relieve the Contractor of his responsibility to comply as closely as practicable with the planned dimensions.
   2. Material shall not be applied over longitudinal joints.
   3. 4-inch broken line consists of 10 feet of paint and 40 feet space (1 cycle).
   4. 4-inch dotted line consists of 3 feet of paint and 12 feet of space (1 cycle)
   5. If same equipment used for different color material with change in color, an amount of material equal to fifteen 10-foot long stripes shall be wasted prior to beginning application with the new color.
   6. Conditions:
      a. Markings shall not be applied when wind or other conditions cause a film of dust to be deposited on the pavement surface after cleaning and before the marking material can be applied.
      b. Except when used as a temporary marking, pavement markings shall only be applied in seasonable weather when air temperature is 50 degrees F or higher.

B. Glass Beads:
   1. Shall be applied immediately after application of epoxy markings.
   2. Rate of application shall be 8 lbs. per gallon.

3.05 CORRECTION OF DEFECTS

A. All pavement markings not conforming to the requirements of the Specifications shall be removed and replaced, or otherwise repaired to the satisfaction of the Engineer.

B. Where yield computations show a deficiency in material usage of not more than 20 percent, Owner may require satisfactory repair or may accept the Work at a reduced Bid Unit Price that is in direct proportion to the percent of the deficiency.

C. Where yield computations show a deficiency in material usage in excess of 20 percent, Owner will require removal and replacement to the satisfaction of the Engineer, unless other means are approved by the Engineer.

D. If removal and replacement is required, at least 90 percent of the deficient line shall be removed:
   1. Width of removal shall be 1 inch wider on all sides than the nominal width of the marking to be removed.
   2. Remove marking per Section 02 41 13.

E. Removal of unacceptable Work shall be accomplished with sand or water blasting equipment, unless other means are authorized by the Engineer. Street surfacing shall not be damaged by the removal operation.

END OF SECTION

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SECTION 32 92 00 (REVISED)

TURF AND GRASSES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
1. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to turf restoration as indicated on the drawings or as specified herein.
2. A variety of different seeding mixtures may be utilized on this project. The Contractor shall refer to the plan for the locations of the different turf establishment areas.
3. Temporary seeding may be necessary during construction in erosion sensitive areas. The Contractor shall do temporary seeding work as specified herein or as directed by the Engineer.

B. Related Sections:
1. Section 01 33 00 - Submittal Procedures.
2. Section 01 57 13 - Temporary Erosion and Sediment Control.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
1. All the items in this Section shall follow the below payment schedule:
   a. Contractor shall be paid 50 percent of contract unit price upon installation of Bid Items included within this Section.
   b. Contractor shall be paid remaining contract unit price after proper maintenance and acceptance of the vegetative cover.
2. Seeding: Measurement will be based upon pounds of seed placed as specified, according to type of seed mixture. Payment will include soil amendments, furnishing and installing seed, preparation of surface, and all incidental items associated with the work.
3. Sod: Measurement will be based upon units of square yards of sod installed complete in place as specified, including soil amendments, furnishing and installing sod, preparation of surface, and all incidental items associated with the work.
4. Mulch: Measurement will be based upon units of acres, according to type, complete in place as specified. Payment will include preparation of seedbed, fertilizer, furnishing and installing mulch including disk anchoring, and all correlated activity.
5. Erosion Mat: Measurement will be based upon units of square yards of area restored, according to the type of mat installed. Payment will include all costs related to furnishing and placing fertilizer, mat, and all correlated activity.
6. Soil Stabilizer: Measurement will be by the square yard of area restored, according to type of soil stabilizer. Payment shall include the costs for furnishing and placing fertilizer, soil stabilizer, and all correlated activity.
7. Topsoil Borrow: Measurement will be per cubic yard (loose volume) of material hauled to the Site. Payment will include all costs related to furnishing the topsoil:
   a. All costs related to placing, shaping, and compacting the topsoil at locations shown on the Drawings or as directed by the Engineer shall be incidental to the Boulevard Grading Bid Item. Where a Bid Item is not provided for Boulevard Grading, all costs are considered incidental to the various Seeding or Sod Bid Items.
8. Furnishing and installation of items to secure required restoration materials, including staples for sod or erosion mat, shall be considered included in the Bid Item for that particular item.

9. All costs related to sweeping and cleaning any pavement, driveways, trails, sidewalks, etc. that are impacted by restoration activities shall be considered incidental to the restoration Bid Items. No payment will be made under the Street Sweeper With Operator and Skidsteer (Bobcat) With Operator Bid Items for this work.
10. Maintenance (i.e. weed control, watering, etc.) of newly seeded and sodded areas shall be included in the Bid Item for that particular item. No separate measurement and payment will be made for this work.
11. Measurement of restored areas shall be on the area actually covered. No additional compensation will be made for overlapping of restoration materials, such as erosion mat.
12. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.
13. **Water For Seed: Measurement will be by thousand gallons (MGAL) of water provided for seeded area establishment. Payment will include all costs for furnishing and placing of water of seeded areas. Quantity must be able to be verified by Engineer for payment of this item.**

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", latest edition including all current supplements (WisDOT):
   1. WisDOT 625 – Topsoil and Salvaged Topsoil
   2. WisDOT 627 – Mulching
   3. WisDOT 628 – Erosion Control
   4. WisDOT 629 – Fertilizer
   5. WisDOT 630 – Seeding
   6. WisDOT 631 – Sodding
   7. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.04 SUBMITTALS

A. Provide the following submittals consistent with Section 01 33 00:
   1. Provide source and invoice for seed to be used for this Project.
   2. Producer's certificate of compliance – Written documentation verifying compliance of mixture of seed furnished. Include percentage of various seed species, year of production, germination rate, seed bag tags, and weed seed content. Submit to the Engineer at least 5 days prior to delivery.
   3. Provide Engineer with seed bag tags used for identification purposes.
   4. Provide documentation for tests of topsoil, and submit this information at the preconstruction meeting.

1.05 PLANT ESTABLISHMENT PERIOD

A. The Establishment Period for plants shall begin for immediately after installation, with the approval of the Engineer, and continue until the date that the Engineer performs a final inspection:
   1. The establishment period for sod is 30 days.
   2. The establishment period for seeded areas is 45 calendar days.
   3. The germination period for seed is 14 calendar days.

PART 2 PRODUCTS

2.01 TOPSOIL BORROW

A. Unless otherwise indicated on the plans, imported topsoil borrow for general use as a turf growing medium shall comply with WisDOT 625.2.

B. Unless otherwise indicated on the plans, imported topsoil borrow for use as a plant growing medium in designated areas such as landscape beds shall meet the requirements of 625.2

2.02 FERTILIZER

A. Provide slow release fertilizer with the following characteristics:
   1. Provide plant fertilizer that conforms to WisDOT Spec. 629.2.1.1.
   2. Specifically processed to release nitrogen at a slow rate over a growing season.
   3. Contains 10 percent nitrogen by weight, 10 percent of phosphorous by weight, and 10 percent of potassium by weight.
   4. The primary nitrogen sources shall be in a coated, prilled urea form.
   5. At least 70 percent of the nitrogen component shall be slow-release water-insoluble nitrogen.

2.03 SOD

A. Unless otherwise indicated on the plans, sod shall be Lawn Sod as defined in the referenced specification except when located within WisDOT right-of-way where Salt Tolerant Sod shall be utilized.

2.04 SEED

A. The seed mixture to be used shall be General Use Mixture No. ~~30~~ **40** conforming to WisDOT Spec 630.2.1.5.

B. Unless otherwise specified on the plans, all application rates for WisDOT mixes, except temporary seed, are 150 percent the specified rate.

C. Type 1 mulch shall consist of clean straw with no pasture hay.

D. All seed shall be supplied as pure-live seed (PLS)

E. All seed and seed mixes shall conform to State seed requirements for noxious weed content.

F. All seed and seed mixes shall conform to State labeling requirements. For all species in the mix, the label and or invoice shall include the county of origin, and if from Canada, the province.

G. **The seed mixture to be used for areas around ponds or as indicated on the drawings shall be MnDOT seed mixture 33-261. The application rate shall be 150 percent the specified rate, as shown in MnDOT Table 3876.2-1: State Seed Mixes. For MnDOT seed mixture 33-261, all provisions of MnDOT Standard Specification 3876 shall be followed.**

2.05 MULCH

A. Mulch shall conform to WisDOT Spec 627.3.2.2, Method B, Tackifier.

2.06 SOIL STABILIZER

A. Soil Stabilizer shall conform to WisDOT Spec. 628.3.12.2, Type A

2.07 EROSION MAT

A. Conform to section 01 57 13.

2.08 **WATER**

A. **Conform to WisDOT Spec 630.2.2.**

PART 3 EXECUTION

3.01 EXAMINATION

A. Review restoration areas with the Engineer. Determine locations for seed or sod. Schedule for restoration of areas may be revised to fit field conditions:
   1. No compensation will be allowed for areas considered to be needlessly restored if restoration activities are performed without the authorization of the Engineer.

B. Notify the Engineer at least 3 days in advance of hauling topsoil borrow on Site so the Engineer may visually inspect and sample for testing if deemed necessary.

C. Finish grades are to be inspected and approved by the Engineer prior to start of restoration.

3.02 DELIVERY AND STORAGE

A. Delivery:
   1. Notify the Engineer of the delivery schedule in advance so the plant material may be inspected upon arrival at the Site. Remove unacceptable plant material from the Site immediately.
   2. Deliver fertilizer to the Site in the original, unopened containers bearing the manufacturer's guaranteed chemical analysis, name, trade name or trademark, and in conformance to state and federal law. In lieu of containers, fertilizer may be furnished in bulk and a certificate indicating the above information shall accompany each delivery.
   3. During Delivery: Protect sod from drying out and seed from contamination.

B. Storage:
   1. Sprinkle sod with water and cover with moist burlap, straw, or other approved covering, and protect from exposure to wind and direct sunlight. Covering should permit air circulation to alleviate heat development.
   2. Keep seed and fertilizer in dry storage away from contaminants.

3.03 PREPARATION

A. Shape the subgrade to the approximate contour of the finished surface. All construction debris shall be removed from the area prior to the placement of the topsoil. The subgrade shall be loosened with a disc or harrow to a depth of six-inches prior to application of the topsoil.

B. Shape the topsoil to the approximate contour of the finished surface, with a minimum depth of 4-inches, unless otherwise shown on the plan. All construction debris, rocks and trash shall be removed from the area prior to seeding or sodding. The topsoil shall be loosened with a disc or harrow to its full depth prior to seeding or sodding.

C. The Contractor shall be responsible for providing water and maintenance for a period of 30 calendar days, or until final acceptance by the Engineer or Owner, to firmly establish the seed or sod. The term maintenance shall include mowing, weed control and watering, as necessary.

Failure to perform this work within 24 hours of notification of non-compliance may result in the Owner or Engineer arranging for completion of the work by others. A contract deduction shall be made equal to the total of all costs to perform such work so arranged, including but not limited to, labor, materials, equipment and administrative costs.

D. Where dormant seeding or sodding is authorized by the Engineer the maintenance period shall be extended to include the first 30 calendar days after the beginning of the growing season. The beginning of growing season shall be defined as bud burst.

3.04 TOPSOIL BORROW

A. Subgrade to be inspected and approved by Engineer prior to placement of topsoil borrow.

B. ~~4 inch~~ **6-inch** minimum compacted thickness.

3.05 SOWING SEED

A. Turf establishment by seeding shall be done utilizing the various combinations of seed mixtures (including aquatic plants), fertilizing and mulching at disturbed areas as shown on the plans.

B. Areas prepared for seeding shall be free of rocks, debris and clumps of soil. The areas shall be graded uniformly and vegetated areas shall be raked free of chunks exceeding ½ inch diameter.

C. Seed shall be applied with a drill seeder, unless otherwise approved in writing by the Engineer.

D. The Contractor shall furnish weight tickets documenting pounds of soil stabilizer placed, pounds of fertilizer placed, and pounds of seed placed. The seed tickets shall show individual plant species along with the percent purity and percent germination. The fertilizer tickets shall show mix proportions. The Contractor shall also furnish its QA/QC data to the Engineer.

E. Final acceptance of seeding shall be based on an established growth of 6-inches with a uniform density to cover 90% of the designated area, free of weeds and bare spots. Any re-seeding necessary shall be performed at the Contractor's expense.

F. Prior to placing soil stabilizers:
   1. Install seed prior to soil stabilizer using a "brillian type" seeder to evenly spread seed over the entire Site.
   2. The Site shall be harrowed or raked parallel to the slope contours following seeding.
   3. The Site shall be packed using a culti-packer or equivalent, following harrowing.
   4. Apply fertilizer.

3.06 PLACING SOD

A. Place, shape, and compact 4 inches of topsoil prior to placement of sod.

3.07 MULCH: Conform to Section 01 57 13.

3.08 SOIL STABILIZER

A. Conform to WisDOT Spec. 628.3.12.2, Type A, except as modified below:
   1. Raking or harrowing of soil/seed and slope (cat) tracking shall be done before installation of hydraulic matrix.

2. Apply hydraulic matrix in at least 2 opposing directions so that a shadowing effect leaving the back side of a soil clod unprotected is minimized.
3. Apply hydraulic matrix immediately following seeding.

3.09 EROSION MAT

A. Conform to section 01 57 13.

3.10 SWEEPING AND CLEANUP

A. Immediately following the topsoil, seed, and sod placement, sweep and clean all pavement, driveways, trails and sidewalks impacted by these operations:
   1. Final clean up of the asphalt surface with the use of a power pickup broom and front-end loader/skidsteer.
   2. Street sweeping operations must include the application of water to effectively remove fine materials from pavement areas. The appropriate amount of water shall be applied, eliminating dust as part of the sweeping operations.
   3. Respond within 24 hours of a request by the Engineer, with the necessary street sweeping equipment to perform the cleanup operations.

3.11 MAINTENANCE

A. Restored areas that have been satisfactorily completed and are disturbed by additional construction activity required by the timing and sequencing of the Work shall be restored over to the same requirements of the original work.

B. Any sod that does not show definite growth and establishment 30 days after installation shall be replaced and established at the proper season by the Contractor at their expense.

C. Water the seeded areas **to follow WisDOT Spec. 630.3.6.**

D. Weed control shall be the responsibility of the contractor during the establishment period. Weed control may include spot spraying and mowing to control weed growth.

E. Seeded areas that do not show seed germination 14 days after installation shall be replaced at the proper season by the Contractor at their expense and watering will be required every day at a minimum.

F. Seeded areas that do not show definite growth and establishment 45 days after installation shall be replaced and established at the proper season by the Contractor at their expense.

G. Watering of sod areas shall be done for a minimum period of 30 days from installation sufficient to ensure establishment of permanent vegetation:
   1. At the end of the 30-day maintenance period, Engineer will make an inspection of all restored areas. Engineer may direct Contractor to continue watering of any area if deemed necessary. Frequency of watering shall be as directed and modified by the Engineer. Duration of watering shall continue at the directed frequency until Contractor is directed by Engineer to cease.

3.12 FIELD QUALITY CONTROL

A. TOPSOIL BORROW:
   1. Source testing:

a. The Contractor shall split and test a sample from prospective source with the Owner prior to the preconstruction meeting.
b. The Contractor's QC sample and Owner's QA sample shall meet the requirements of section 2.01A. If the requirements are not met the Contractor must provide material from another source.

2. Placement testing:
   a. The Contractor shall split and test a sample onsite at the time of placement with the Owner.
   b. The Contractor's QC sample and Owner's QA sample shall meet the requirements of section 2.01A. If the requirements are not met the material will be rejected. The Contractor is responsible for all costs associated with additional testing due to failing materials.

3.13 INSPECTION AND ACCEPTANCE

A. Seeding and turf work will be inspected for acceptance in parts agreeable to the Engineer, provided Work offered for inspection is complete, including maintenance for the portion in question.

B. Seeded areas will be inspected for germination and growth 14 days after placement. Any restored areas that do not show definite germination and growth, as determined by the Engineer, shall be replaced and re-established by the Contractor at their expense.

C. At the conclusion of the establishment period(s), a final inspection of planting(s) will be made to determine the conditions of areas specified for landscaping.

D. When inspected landscape work does not comply with requirements, replace rejected Work and continue specified maintenance until re-inspected by Engineer and found to be acceptable. Remove rejected materials from the Site.

E. Seed evaluation at the conclusion of the establishment period related to acceptance, shall be based on at least 1 species per square foot with 90 percent of seeding per square foot being of the permanent seed species within the applied mix.

F. Boulevard settlements that occur during the correction period and are greater than 1 inch as measured by a 10-foot straight edge will be repaired in a manner acceptable to the Owner at the Contractor's expense.

END OF SECTION

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SECTION 33 01 30 (REVISED)

TELEVISION INSPECTION OF SEWERS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes inspection of sewer lines by means of closed-circuit television.

B. Related Sections:
   1. Section 33 31 00 - Sanitary Sewer Systems
   2. Section 33 41 00 - Storm Sewer Systems

C. Method of Measurement:
   1. Measure by length in linear feet of sewer televised regardless of size or type.

D. Basis of Payment:
   1. Payment for acceptable quantities of televised sewer inspection shall be at the Contract Unit Price as listed on the Bid Form. All associated Work items shall be considered incidental.
   2. All information generated and the media on which it is provided shall become property of the Owner.

1.02 REFERENCES

A. NASSCO – National Association of Sewer Service Companies

1.03 DEFINITIONS

A. Pipe Segment: The length of pipe connecting 2 manholes.

1.04 SUBMITTALS

A. Video Inspection:
   1. Provide 2 copies of visual and audio record of inspection on DVD or USB Flash Drive.
   2. Features:
      a. Color, digital file format compatible with Microsoft Windows Media Player capable of recording audio and video components of inspection.
      b. Video display of footage counter continuously showing distance from reference point.
      c. Slow and stop motion.
      d. Speed: Maximum televising velocity of 30 to 35 feet of pipe per minute.
   3. Audio record should include:
      a. Date and time of inspection.
      b. Operator name.
      c. Street or surface location of reference manhole.
      d. Size and type of pipe being inspected.
      e. Direction of camera.
      f. Description of all significant items including:
         1) Broken or damaged pipe.
         2) Points of infiltration.
         3) Root intrusions.

4) Scale and corrosion.
5) Service connections.
6) Pipe deflections.
7) Other discernable features.

g. Distance of each item from the reference manhole.
h. Location of each item with respect to pipe axis.

4. Audio record shall correspond with written log.
5. Identify location and date of inspection on digital file storage media DVD or USB Flash Drive.

B. Written Logs:
1. Supply typewritten record of inspection on a standard format.
2. Written record should correspond with audio record.
3. Written record should include all information required for audio record.
4. Furnish 2 copies.

C. Photographs:
1. Supply photographs of specific items as requested by the City and as follows:
a. Pipe conditions of concern observed.
2. Features:
a. Digital.
b. Standard size, color.
3. Include with written log.
4. Furnish 2 copies.

1.05 QUALIFICATIONS

A. All Work shall be performed by NASSCO PACP-certified personnel who have been specifically trained for equipment used and who have experience in televised inspections.

PART 2 PRODUCTS

2.01 EQUIPMENT

A. Television Camera:
1. Specifically designed and constructed for operations associated with sewer inspection.
2. Adequate quality to accurately reproduce all colors and provide a clear, focused picture of the entire pipe interior for all conditions encountered.
3. Operative in 100 percent humidity conditions.
4. Adjustable mounting in order to center lens in a variety of pipe diameters.
5. Built-in light source positioned to minimize reflective glare.
6. Adjustable focal distance from 6 inches to infinity.
7. Articulating feature to provide for viewing of up to 90 degrees in all directions.
8. Variable speed operation propelled by:
a. Power winch.
b. Hand winch.
c. Self propelled.
9. Footage counter to measure distance traveled.

B. Television Monitor:
1. Vehicle mounted for viewing in a weather-protected environment.
2. Minimum Screen Size: 9-inch.

3. Minimum 350 line resolution color picture.
4. Display footage counter superimposed on screen.

2.02 ACCESSORIES

A. Provide:
1. Vehicles, as required.
2. 2-way radio/telephone communication equipment.
3. Video and audio signal cable.
4. Digital color video equipment.
5. Equipment to generate photographs from individual video frames.
6. Power source.
7. Winches and cables.

PART 3 EXECUTION

3.01 PREPARATION

A. **Existing Pipe:** Preliminary Work Performed by City:
1. Locate and expose all manholes required for access to sewer system.
2. Clean and flush pipe segments to be inspected.
3. Provide access to manholes with adequate area for operation of inspection equipment and personnel.

B. **New Pipe:**
1. **Provide sufficient water to run through the new system prior to televising lines to be able to distinguish any sags or alignment problems with the pipe.**
2. **Immediately clean any lines found to be dirty prior to televising. Costs for all such cleaning shall be the responsibility of the Contractor.**
3. Comple**te all required mandrel and air testing prior to televising.**
4. **All private utilities shall be installed by others prior to televising storm sewer.**
5. **Start televising no sooner than 30 days, but no later than 60 days after all utility, excavation, and street subgrade work is completed as part of this contract.**
6. **Final acceptance of the video report will require the pipe to be clean as a new pipe.**

3.02 PERFORMANCE

A. Description of Work:
1. Propel closed-circuit television camera through designated pipe segments to document condition of pipe, joints, and service connections.
2. Use in-place manholes for access to pipe segments.
3. Operate camera from remote video monitor display.
4. Record camera from remote video monitor display.
5. Record camera output on digital video media for future viewing.
6. Pipe segments to be inspected are shown on maps provided by the City.

B. Sewage Flow Control:
1. When sewage flows in pipe segment to be inspected exceed minimum levels for a complete inspection of the pipe interior, perform one of the following control methods.
a. Plugging and blocking:
1) Provide plugs which will allow a controlled release of sewage flow.

2) Insert plugs in the upstream manhole of the pipe segment to be inspected.
3) As the inspection is performed, shut off or reduce flows to minimum acceptable level for adequate inspection.

b. Bypass pumping:
1) Eliminate flow in pipe segment to be inspected by inserting solid plugs in upstream manhole.
2) Provide pumping equipment and conduits to transfer sewage flows from upstream side of the plug to a downstream manhole, around the pipe segment during the inspection.

2. When excessive flow is entering pipe segment being inspected from outside source, Contractor shall proceed with one of the following methods:
a. Coordinate with source owner to stop or reduce flow to acceptable levels.
b. Reschedule inspection of pipe segment to when flows are at acceptable levels.

3.03 INSPECTION PROCEDURE

A. Move camera through entire pipe segment in a downstream direction.
B. Winches:
1. Winch assembly shall not obstruct camera view.
2. If non-remote control winch is used, provide 2-way communication between television monitor and winch operator.
C. Center lens in pipe area.
D. Maximum Camera Speed: 30 feet per minute.
E. Relay video signal from camera to monitor and digital video recorder.
F. Produce audio record concurrently with video record.
G. Stop camera when necessary to properly document significant items and take photographs as requested by Owner.
H. Use articulating feature to obtain the best possible view of service connections and other items.
I. Zero footage counter at inside wall of manhole in each pipe segment.
J. In case of obstruction in pipe segment, reset camera in downstream manhole and propel upstream to opposite side of obstruction.

3.04 FIELD QUALITY CONTROL

A. Verify accuracy of footage counter by measuring surface distance between manholes with a measuring wheel.

B. Footage counter shall be accurate to within 1 percent of the length of pipe segment.

C. **New Pipe: Immediately correct any defects, faulty joints, cracked pipe, or other deficiency noted by the television inspection:**
1. A plan for repair shall be presented to and approved by the Owner and Engineer prior to the repair occurring.
2. Re-televise all corrected pipe runs after correction.
3. Any costs associated with correction and re-televising of the sewer system will be paid by the Contractor.

END OF SECTION

SECTION 33 05 05

TRENCHING AND BACKFILLING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
1. Trenching requirements for underground piping and appurtenances, including requirements for excavation, backfill, and compaction.

B. Related Sections:
1. Section 01 33 00 - Submittal Procedures

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
1. Trench Excavation: Excavation and backfilling of trench and associated excavation for pipe bedding shall be included in the price of pipe provided.
2. Pipe Bedding for PVC: All costs associated with providing the bedding material as shown on the Drawings and Standard Detail Plate No. BED-2 shall be considered incidental to the pipe material.
3. Rock Excavation: Measured from the top of the rock to a point 12 inches below the outside barrel of pipe and 12 inches from each side of outside diameter of pipe (at bell). The minimum trench width of Rock Excavation shall be 48 inches. For measurement purposes, volume will be computed based on vertical walls for the width specified above. Payment for Rock Excavation shall be at the Unit Price per cubic yard. Any additional Rock Excavation required for shelving or OSHA Standards will not be measured for payment and will be considered incidental to the Rock Excavation Bid Item:
   a. The estimated quantity of Rock Excavation shown in the various parts of the Bid Form were calculated as described above, based on the top of rock elevations determined by either soil borings and/or test hole excavations. No guarantee is made as to the actual quantity of Rock Excavation that will be encountered in this Project. No variation from the Unit Price for Rock Excavation will be considered or allowed due to quantity variation.
   b. Separate Bid Items have been provided for Rock Excavation – Soft Rock and Hard Rock. Payment will be made based on the method or rock excavation actually used in the field. Any excavation performed with a standard backhoe bucket will not be considered rock excavation.
4. Haul Excess Rock Off Site (LV): Measurement will be by the cubic yard of material hauled off site, based on a truck count. Payment will include all costs related to hauling and disposing of the material off the Site.
   a. Any excess rock hauled off site must be approved by Engineer prior to removing.
5. Sand Cushion: Measurement shall be by the units of linear feet. Payment at the Unit Price shall include all costs related to providing the material as shown on the Drawings and Standard Detail Plate.
6. Granular Backfill: Measurement shall be by the ton of material compacted in place as determined from weight tickets delivered to the Engineer and shall include all costs related to providing the material as shown on the Drawings and Standard Detail Plate.
7. Improved Pipe Foundation: Measurement shall be by the linear foot for each 6-inch layer placed below pipe bedding, not including the first 6 inches:

a. For example, if 2 feet of foundation material is required under a pipe; 6 inches of material is required for bedding, and payment will be made for 3 linear feet of pipe foundation material, 6 inches deep, per foot of pipe installed.
b. No payment will be made without the knowledge or consent of the Engineer.
c. No payment will be made for subgrade rock installed for de-watering purposes only, unless specified.
d. No payment will be made for disposing of excavated material off the Site that has been created by placement of improved pipe foundation.

8. Temporary Bracing and Sheeting: Considered part of the excavation costs with no additional compensation to Contractor, unless provided for otherwise.
9. Density Tests:
   a. Passing Tests: All costs paid by Owner.
   b. Failing Tests: All costs charged to and paid by the Contractor.
10. Dewatering: No explicit, direct payment is made for this work. Include the costs in the Unit Prices for the pipe or structure installed.
11. Private Utility Crossings: All costs related to exposing, protecting, and crossing an existing private utility line will be considered part of the excavation costs with no additional compensation to Contractor, unless a Bid Item has been specifically provided on the Bid Form for the crossing.
12. Excavation Special (Pothole Existing Private Utility): This Bid Item is for potholing and exposing existing private utilities that may be in conflict with the proposed public utilities for purposes of relocating by others or redesigning by the Engineer. Measurement will be per each location exposed regardless of the number of utilities in the respective location. Payment will include all cost related to exposing the potential conflict:
    a. The quantity shown on the Bid Form is an estimated amount. Payment will be based on the quantity actually used, regardless of the estimated quantity. No revision to the Contract Unit Price shall be considered or allowed due to variations of the actual quantity from the estimated amount.
13. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", 2019 (WisDOT Spec.):
   1. 207 – Embankment
   2. 209 – Granular Backfill
   3. 501 – Concrete

B. American Society of Testing Materials (ASTM):
   1. A798 -Standard Practice for Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications.
   2. D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.

C. American Water Works Association (AWWA):
   1. C150 - Thickness Design of Ductile-Iron Pipe.
   2. C151 - American National Standard for Ductile-Iron Pipe, Centrifugally Cast for Water.

1.04 SUBMITTALS

A. Provide the following submittals consistent with Section 01 33 00:
   1. Product Data for each Borrow Material:

a. Name and location of source.
b. Results of gradation tests.

1.05 DEFINITIONS

A. Bedding: The soil material adjacent to the pipe which makes contact with the pipe foundation, walls of the trench, and upper level of backfill. The purpose of bedding is to secure the pipe to true line and grade, and to provide structural support to the pipe barrel.

B. Foundation: Soil material beneath the pipe bedding.

C. Improved Pipe Foundation: Foundation provided by importing material from sources outside the Site. Required when foundation is soft or unstable.

D. Course Filter Aggregate: Free draining mineral product used around draintile pipe.

E. Rock Excavation (Hard Rock): Includes such rocks that are **not** decomposed, weathered, or shattered, and which will require blasting, hydro-hammering, barring, wedging, or use of air tools for removal. Also included are any boulders, concrete, or masonry structure (except concrete pavement, curb and gutter, and sidewalk) exceeding 1 cubic yard.

F. Rock Excavation (Soft Rock): Includes such rocks that are decomposed, weathered, or shattered, and which will require the use of ripping equipment, such as rock buckets and ripper hooks.

G. Pipe Zone: That part of the trench below a distance of 1 foot above the top of the pipe.

H. Sand Cushion: Aggregate bedding material used around pipe in areas where rock excavation is encountered, where pipe insulation is used, and when crossing existing utilities.

I. Granular Backfill: Includes the area below the subgrade and above the pipe zone when shallow pipe is installed in areas of rock excavation.

1.06 SEQUENCING AND SCHEDULING

A. Known existing underground utilities are shown on the Drawings in a general way. Owner does not guarantee the locations as shown on the Drawings. Anticipate variations in both the vertical and horizontal locations of underground utility lines from those shown on the Drawings.

B. Uncover utilities and verify both horizontal and vertical alignments sufficiently in advance of construction to permit adjustments in the Work. Determine location of existing utilities and identify conflicts before excavating trench for pipe installation.

C. Notify Diggers Hotline before starting construction in a given area, requesting utility locations in the field.

D. Provide continuance of flow of existing sewer and other facilities.

E. Backfill and compact all trench excavations promptly after the pipe is laid.

F. Salvage and re-spread existing topsoil within trench and spoil pile areas. This work shall be considered incidental to the pipe installation.

1.07 WARRANTY

A. Trench settlements that occur during the correction period and are greater than 1/2 inch as measured by a 10-foot straight edge will be repaired in a manner acceptable to the Owner at the Contractor's expense.

PART 2 PRODUCTS

2.01 PIPE BEDDING MATERIAL

A. Polyvinyl Chloride (PVC) Pipe and High Density Polyethylene (HDPE) Pipe:
   1. Comply with WisDOT Spec. 209.2.2 for granular backfill, modified with the following:
      a. No existing onsite granular material encountered during construction may be used unless approved by Engineer, based on quality control gradations provided by the Contractor for the onsite material being placed. The rate of testing will be determined based on changes of the existing material, or as determined by Engineer.
      b. 1 inch maximum aggregate size.
      c. Only virgin materials allowed.

B. Ductile Iron Pipe (DIP) and Reinforced Concrete Pipe (RCP):
   1. Comply to Detail Plate BED-1, Installation Type 3 or as identified on the drawings.

2.02 IMPROVED PIPE FOUNDATION MATERIAL

A. Comply with WisDOT Spec. 501.2:
   1. Course Aggregate: Comply with WisDOT Spec. 501.2.5.4, Size No. 1
   2. Crushing Requirements: At least 50 percent of the material by weight retained on the No. 4 sieve shall have 1 or more crushed faces.

2.03 SAND CUSHION MATERIAL

A. Comply with WisDOT Spec. 501.2.5.3, modified with the following:
   1. No existing onsite granular material encountered during construction may be used unless approved by Engineer, based on quality control gradations provided by the Contractor for the onsite material being placed. The rate of testing will be determined based on changes of the existing material, or as determined by Engineer.
   2. 1 inch maximum aggregate size.
   3. Only virgin materials allowed.

2.04 BACKFILL MATERIAL

A. Suitable materials selected from the excavated materials to the extent available and practical.

B. Suitable materials are mineral soils free of rubbish, trees, stumps, branches, debris, frozen soil, oversize stone (greater than 1 cubic foot), concrete and asphalt chunks, and other similar unsuitable material.

C. When suitable materials are not available, as determined by the Engineer, comply with WisDOT Spec. 209 for Granular Backfill.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to construction, inspect existing utility structures and surface features, and document condition.

B. Re-inspect foundation soils if rain fall or snow has occurred after initial inspection but prior to placing pipe and bedding.

C. Prior to construction, perform the Excavation Special (Pothole Existing Utility) for the purpose of determining possible conflicts between existing private utilities and proposed public utilities. Allow sufficient time for private utility companies to relocate facilities or Engineer to redesign public utilities.

3.02 PREPARATION

A. Notify Utility Owners to field mark their utility locations.

B. Protect as necessary surface features, such as utility poles, trees, structures, pavement, retaining walls, etc., that are not designated on the Drawings to be removed.

C. Notify utility companies of progress schedule so they can accomplish any necessary relocations and removals that they have agreed to relocate, remove, or support.

D. Implement traffic control.

E. Complete temporary removal or relocation of surface features, such as fences, shrubs, signs, and mailboxes.

F. Strip off existing topsoil from within the trench excavation limits and stockpile. Separate vegetative strippings from salvageable topsoil and dispose of appropriately.

G. Crossing Under Existing Utility Lines:
   1. Use extreme care when excavating in the vicinity of underground utility lines to avoid damage to protective coatings or surfaces.
   2. Where possible and as authorized by the utility, temporarily remove the utility line, install the new pipe, and reinstall the utility line.
   3. Where existing line cannot be removed or is not feasible to remove, securely support, excavate under, backfill under and around the utility line to 100-Percent Standard Proctor Density.
   4. Report and repair damaged lines prior to backfilling trench.

H. Rock Excavation:
   1. Contractor shall submit a blasting plan for review and approval by the Engineer.

3.03 CONSTRUCTION

A. Conform to ASTM D2321 and C1479, or modified herein.

B. Trench Excavation:
   1. Excavate trench to alignment and grade shown on the Drawings.

2. The trench width at the surface may vary and depends on the depth of trench and nature of the excavated material encountered. However, it shall be of ample width to permit the pipe to be laid and jointed properly and the backfill to be placed and compacted properly.
3. Correct any part of the trench that is inadvertently excavated below grade with approved material compacted to 100-Percent Standard Proctor Density.
4. Brace, shore, or sheet trench and provide drainage. Comply with applicable State Regulations relating to industrial safety to a safe angle of repose. Angle of repose may be no less than that required by the Accident Prevention Division of the State Industrial Commission or the requirements of the Occupational Safety and Health Act (OSHA), whichever is most restrictive.
5. Pile all excavated material in a manner that will not endanger the Work or obstruct sidewalks, driveways, gutters, etc.
6. Segregate soils in the excavated material that are not suitable for trench backfill and dispose of in a manner that is consistent with the requirements specified herein under "Backfill Above Pipe Zone."
7. Dispose of excess excavated materials off of right-of-ways and easements in a suitable site selected by the Contractor.
8. Haul materials, other than natural soil materials that are suitable as backfill material, to an approved landfill as directed by the Engineer.
9. It is anticipated that private utility crossings will be encountered and may interfere with the proposed public utilities:
    a. Pothole and expose existing private utility crossings to determine location and elevation.
    b. Perform construction activities in the vicinity of the private utilities so as not to disturb the existing crossings.
10. If frost thickness exceeds 6 inches, all frost chunks must be removed from the Site and non-frozen material must be used to backfill the excavation.

C. Water Control:
    1. Dewater the ground as necessary to excavate the trench and install the pipe. All pipe and structures shall be laid in a dry condition prior to backfill. Maintain groundwater level a minimum of 1 foot below the pipe invert. Measure the rate of flow from dewatering pumps at the beginning of the dewatering operation(s) and once per week thereafter. Keep a daily log of hours pumped.

D. Trench Bottom:
    1. Excavate to a sufficient depth to insure adequate foundation when the bottom of the trench is soft or where in the opinion of the Engineer unsatisfactory foundation conditions exist. Bring excavation up to pipe grade with thoroughly compacted granular materials meeting the requirements of Improved Pipe Foundation Material.
    2. Provide temporary support, remove, relocate, or reconstruct existing utilities located within the trench excavation. Utility shall designate method employed. Use particular care and provide compacted fill or other stable support for utility crossings to prevent detrimental displacement, rupture, or failure.
    3. Excavate to expose existing utilities that cross in close proximity to the planned pipe line to determine the utilities' exact location sufficiently ahead of pipe installation to plan for the avoidance of grade conflict. Measure to determine the utilities' location relative to the planned pipe line location. A deviation from the alignment, grade, and location to avoid conflict may be ordered by the Engineer.
    4. In locations where rock affects the pipe foundation, excavate the trench 12 inches below the pipe and place sand cushion material up to the top of the pipe zone. Blend suitable on Site backfill material with any rock (1 cubic foot maximum size) that is placed back in trench. Dispose of excess rock at a suitable location outside the Site:

a. Sand Cushion: The removal and disposal of the unsuitable material within the trench and below the invert elevation, and the replacement up to invert elevation with the appropriate bedding material.
b. Granular Backfill: The removal and disposal of unsuitable material within the trench, above the pipe zone, and replacement up to the subgrade with appropriate backfill material, per Detail BED-4. No additional compensation will be allowed for wider or deeper trenches in rock excavations.
c. For PVC and HDPE Pipe, the sand cushion shall be placed to 1 foot above the pipe and shall be paid as pipe bedding. The remainder of the trench up to the top of the rock shall be backfilled with granular backfill material.

5. Improved Pipe Foundation: When unsatisfactory foundation conditions exist, excavate to a depth consisting of solid materials. Fill to pipe grade with thoroughly compacted granular materials meeting the requirements of Improved Pipe Foundation Material.

3.04 PIPE BEDDING

A. PVC Pipe: Bed pipe in accordance with ASTM D2321.
1. In accordance with Standard Detail Plate BED-2.

B. RCP: Bed pipe in accordance with ASTMC1479.
1. In accordance with Standard Detail Plate BED-1.

C. DIP: Bed pipe in accordance with AWWA Standard C150 and C151.
1. In accordance with Standard Detail Plate BED-1.

D. HDPE Pipe: Bed pipe in accordance with ASTM D2321.
1. In accordance with Standard Detail Plate BED-2.

E. Corrugated Metal Pipe: Bed pipe in accordance with ASTM A798.
1. In accordance with Standard Detail Plate BED-1.

F. The trench directly under the pipe shall be loosely placed un-compacted material per the Standard Detail Plates.

G. Use only selected materials free from rock, boulders, debris, or other high void content substances to a level 1 foot above the top of pipe. Remove ledge rock, boulders, and large stones to provide at least 6-inch clearance from pipe.

H. Dig bell holes of ample dimension at each joint such that the pipe barrel rests continuously on the bedding.

3.05 BACKFILL WITHIN PIPE ZONE

A. Backfill immediately after pipe is laid. Restrain pipe as necessary to prevent their movement during backfill operations.

B. Place material completely under pipe haunches in uniform layers not exceeding 4 inches in depth.

C. Hand (shovel/slice) and tamp along pipe within haunch zone to provide a solid pipe foundation.

3.06 BACKFILL ABOVE PIPE ZONE

A. Use suitable materials meeting the requirements of Backfill Material.

B. Place in uniform depth layers not to exceed 12 inches before compaction. Complete the compaction of each layer before placing material for the succeeding layer.

C. Compact each layer by mechanical means until it meets the requirements of WisDOT Spec. 207.3.6.3 "Special Compaction," except as modified herein:
   1. Trenches shall be compacted to a minimum of 95 percent, except to 100 percent in the upper 3 feet.
   2. Trenches between existing or future buildings or structures shall be compacted to a minimum of 100 percent for the entire depth of the trench.

D. The method and means of placement and type of compaction equipment used is at the discretion of the Contractor. However, all portions of the trench backfill must meet minimum specified compaction requirements.

E. Any deficiency in quantity of backfill material (caused by shrinkage or settlement) shall be supplied at no additional cost to the Owner.

F. Excavated material not suitable or required for backfill shall be disposed of outside of the Site.

G. It is assumed that all backfilling of trenches will be performed using on Site, excavated trench material. If the Contractor is unable to meet the specified density requirements using that material due to excess moisture content or other circumstance beyond their control, they shall immediately notify the Engineer of such condition. Following investigation of the circumstances, the Engineer, Contractor, and Owner shall mutually agree upon the proper course of action to address the issue.

H. Any excavated rock that is placed back in the trench shall be crushed to a maximum rock size of 12 inches and adequately mixed with suitable on Site backfill material before being placed and compacted in the trench.

3.07 FIELD QUALITY CONTROL

A. Density Tests: To be performed by an approved soils testing firm at various locations and depths throughout the Site as directed by the Engineer. Cooperate fully and provide assistance as necessary to complete these tests.

B. Failed density test areas shall be excavated and re-compacted until the density requirements are met.

END OF SECTION

SECTION 33 05 17 (REVISED)

ADJUST MISCELLANEOUS STRUCTURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Adjustment of utility structures.

B. Related Sections:
   1. Section 01 57 13 – Temporary Erosion and Sediment Control
   2. Section 33 11 00 – Water Distribution Systems

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Bid Items have been provided for various adjustments. Payment at the Bid Unit Price for all items is considered compensation in full for all materials and Work required to furnish and install the Bid Item in place.
   2. Adjust Manhole Casting and Adjust Valve Box:
      a. New and Existing Manholes and Valve Boxes Within Paved Areas:
         1) Payment for adjustment to initial asphalt grade shall be made for new and existing manholes and valve boxes where no reconstruction of the structure is performed on the basis of each structure adjusted as specified.
         2) Payment for adjustment to final grade for new and existing manholes and valve boxes shall be made for each structure adjusted as specified.
         3) Adjust Manhole Casting (Cast Iron Manhole Adjusting Ring): Measurement will be per each structure adjusted by means of furnishing and installing steel adjusting ring as specified.
         4) No separate payment for initial adjustment to initial asphalt grade will be made for existing structures that are reconstructed. Initial adjustment of the structure shall be considered incidental to the Bid Items for the reconstruction of each type of structure.
         5) **Payment for adjustment of valve boxes shall include the addition of a riser to meet final grade.**
      b. New Manhole and Valve Boxes In Non-Paved Areas:
         1) No separate payment for adjustment to final grade will be made. Adjustment of the structure shall be considered incidental to the Bid Items for the furnishing and installation of each type of structure.
      c. Existing Valve Boxes In Non-Pavement Areas:
         1) Payment for adjustment of the valve box to final grade shall be made for each valve box as specified.
   3. Adjust Catch Basin Casting:
      a. New and Existing Catch Basins:
         1) Payment for adjustment to final concrete curb and gutter grade shall be made for new and existing catch basins on the basis of each structure adjusted, as specified:
            a) Furnishing and installing erosion control around structure will be paid in accordance with Section 01 57 13.
   4. Extend Hydrant Barrel: Measurement will be by the linear foot of adjustment made, including the heavy-duty rod assembly, if required.

5. Valve Box Extension: Payment for the furnishing and installation of valve box extension sections on either new or existing valve boxes shall be made on the basis of the linear feet of extension sections installed.
6. All work associated with the surfacing removal, excavation, material replacement, compaction, and patching necessary for the adjustment of structures within asphalt surfaced areas shall be considered incidental to the adjustment.
7. For street reconstruction or rehabilitation projects, or if required by the Engineer, use of parachute is incidental to manhole adjustment.
8. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. American Society of Testing and Materials (ASTM):
   1. ASTM A48 – Specification for Gray Iron Casting.
   2. ASTM D1248 – Polyethylene Plastics Molding and Extrusion Materials.

B. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", latest edition including all current supplements (WisDOT):
   1. Section 611 – Catch Basins, Manholes, and Inlets.

1.04 DEFINITIONS

A. Adjust Manhole or Catch Basin Casting: A change in rim elevation accomplished for manholes or catch basins through the addition or removal of adjustment rings only. Adjustment does not include the addition or removal of sections from the structure.

B. Adjust Valve Box: A change in elevation of the top of the valve box accomplished through the raising or lowering of the existing top section of the valve box only. Adjustment does not include the addition or removal of sections from the valve box. **Adjustment includes the placement and addition of risers on all valve boxes.**

C. Remove and Replace Adjustment Rings: The process of removing the existing concrete adjustment rings from an existing structure and placing new rings on manholes and catch basins.

1.05 SEQUENCING AND SCHEDULING

A. Contractor, Engineer, and Owner shall inspect all existing structures prior to beginning construction.

B. Owner will remove any foreign material found in the existing structures prior to construction. Remove any foreign material that enters the structures during construction. Notify owner any time foreign materials enter structures regardless of the amount of material.

C. When temporarily removing existing castings and valve box top sections, place castings and valve top sections in the boulevard area directly behind the curb, and in line with the existing structure for the purpose of locating the plated structure and valve box.

D. Use care when removing asphalt surfacing around existing structures to avoid damage to existing materials. Replace any castings or valve box materials damaged during the surfacing removal with equal materials at no cost to the Project.

E. Asphalt street patching associating with the structure adjustment shall be completed the same day as the structure is adjusted, including manhole casting protection.

PART 2 PRODUCTS

2.01 ADJUSTING RING

A. High-Density Polyethylene (HDPE):
   1. Molded high-density polyethylene conforming to ASTM D1248.

B. Cast Iron Manhole Adjusting Ring:
   1. R-1979 Series adjusting ring as manufactured by Neenah Foundry, or approved equal.

2.02 ADHESION MATERIALS

A. Ram-Nek material, or approved equal.

B. Cast Iron Manhole Adjustment Ring Adhesive per manufacture recommendations.

C. Sealant (For HDPE Rings):
   1. DOW 999 – A building caulking and glazing sealant, or approved equal.
   2. Open cell polyurethane foam sealant with adhesive backing.

2.03 HYDRANT EXTENSIONS

A. Sections: Match existing hydrant manufacturer and model.

2.04 CASTINGS

A. Manhole, Catch Basin Frames, and Covers:
   1. Requirement: ASTM A48.
   2. Material: Class 35 cast iron. Best grade. Free from injurious defects and flaws.
   3. Finish: Coal tar pitch varnish.
   4. Finish Preparation: Sandblast.
   5. Machine cover and frame contact surface for non-rocking protection.
   6. Type and Style:
      a. Sanitary Manholes:
         1) NEENAH R-1642 Type "B", Platen Lid **with Self-Sealing application**, 2 concealed pick holes, or approved equal. Covers stamped with "SANITARY SEWER". Use 2-inch letters.
      b. Storm Manholes:
         1) NEENAH R-1642 Type "B", Platen Lid, Open Hole, or approved equal. Covers stamped with "STORM SEWER". Use 2-inch letters
      c. Catch Basin Manholes and Catch Basins:
         1) NEENAH R-3067-**L**, ~~and R-3067-VB~~, or approved equal.
      d. Off Road Catch Basin Manholes (Beehives):
         1) NEENAH R-4342, or approved equal.
      e. Miscellaneous:
         1) Short casting for Manholes: NEENAH R-1642-A, short casting – 5" height, as approved by Engineer.
         2) Catch Basins within Driveways: NEENAH R-3290-A (Type A grate), or approved equal,

3) Water Tight Casting: NEENAH R-1755 G.

2.05 VALVE BOX

A. Risers: Conform to Section 33 11 00.

2.06 GEOTEXTILE

A. Non-woven geotextile fabric for use in conjunction with HPDE rings.

2.07 EXTERNAL SEAL

A. Manufactured by Adaptor, Inc., or approved equal.

PART 3 EXECUTION

3.01 GENERAL

A. Conform to WisDOT Section 611, except as modified below.

B. The necessary vertical alignment will be determined by the Engineer and generally as indicated on the schedule of adjustments.

C. Where existing frame is within 0.10 feet of grade, no adjustment is to be made.

D. Raise or lower the frame to match the street or gutter.

E. Protect existing structures from damage.

F. Prevent sand, concrete, or any other debris from entering the structures.

G. HDPE rings to be used on all structures.

H. Adjust all structures located in non-pavement surface areas to final design grade.

I. Existing structures: Immediately following removal of existing casting and adjusting rings, cover structure opening with suitable steel plate to prevent foreign debris from entering structure. Secure plate to top slab or cone with Ram-Nek.

J. For street reconstruction/rehabilitation projects, or if required by the Engineer, use parachute or approved equal to prevent debris from entering structures while active work is being done on or near an existing structure.

K. Utilize ½ inch thick pucks on valves and ½ inch thick circular plates on manhole castings for all paving of streets, driveways, trails, and parking areas.

3.02 PREPARATION

A. Call Diggers Hotline for field marking of utility locations.

3.03 ADJUST MANHOLE AND CATCH BASIN FRAME

A. HDPE Adjusting Ring:

1. See Details STR-16 and STR-17.
2. Remove all dirt, debris, dust, and other deleterious material from surface prior to placement of first ring.

3. Install adhesive for manhole adjusting rings as per the following:

Location of Sealant	Type of Sealant
Between casting and last ring:	3/4 inch by 3/4 inch open cell polyurethane foam sealant and 1/2-inch bead of DOW 999
Between intermediate rings:	1/2-inch bead of DOW 999
Between cone/top slab and first ring:	3/4 inch by 3/4 inch open cell polyurethane foam sealant and 1/2-inch bead of DOW 999

4. Sealant to be placed around entire circumference of each unit with no gaps.
5. Utilize a variety of thickness of flat units and sloping units to match the required grade and slope of the area at the location of the structure:
   a. Shims are not allowed.
6. Total Thickness of Rings Allowed: Minimum of 3 inches, maximum of 12 inches.
7. Wrap entire casting and ring system with geotextile. For structures with cone section, geotextile wrap to extend over a minimum length of 18 inches of the cone.
8. For manholes outside of paved areas, an external seal shall be installed to cover the entire height of rings and per manufacturer recommendation.

B. New adjusting rings shall be used on all casting adjustments, regardless of whether casting is salvaged, existing, or new.

C. Patch road to match existing pavement section.

D. Cast Iron Manhole Adjusting Ring:
   1. Install per manufacturer's recommendations.
   2. Apply adhesive as recommended by the manufacture.
   3. Only 1 steel ring allowed for adjustment from initial lift wearing course grade to final wearing course grade.

3.04 ADJUST VALVE BOX

A. Adjust box by screwing top section up or down. **Initial adjustment by screwing top section up or down shall be made to the elevation of the base lift of asphalt and shall be flush to ½-inch below the base lift.**

B. Prevent sand, chunks of concrete, or any other debris from entering the valve box:
   1. Short sections inserted inside the existing top section are not allowed to perform adjustment, unless specified.

C. Install approved sections as needed for extension by removing top section, installing additional extension, and re-installing top section.

D. Patch road to match existing pavement section.

E. **All valve box adjustments must include a riser when setting to final grade. Risers on existing valve boxes may be reused if the condition of them is deemed satisfactory by the Engineer. Riser thickness shall allow for tolerances as described in Section 33 05 17 Part 3.06.G.E to be met when riser is placed.**

3.05 HYDRANT EXTENSIONS

A. Remove upper section.

B. Install extension kit as per manufacturer's requirements.

C. Replace upper and lower rod assemblies with heavy-duty for extensions in excess of 18 inches.

D. Replace the upper section.

3.06 SCHEDULE OF ADJUSTMENTS

A. Manholes Outside of Paved Areas:
   1. Permanently adjust casting to design rim elevation at time of structure installation or reconstruction.

B. Manholes Within Street Areas with Concrete Curb and Gutter (Final Asphalt Course Paved the Same Year as the Initial Course):
   1. At time of structure installation or reconstruction, install casting directly upon top slab or cone section with Ram-Nek material.
   2. Prior to street construction, remove casting from all new and existing manholes and cover structure opening with suitable steel plate. Secure plate to top slab or cone with Ram-Nek.
   3. Following initial asphalt paving perform adjustment:
      a. Locate structure and expose.
      b. Remove steel plate. Permanently place HDPE rings on structure. Permanently place casting on top ring with adhesive. Wrap filter fabric over casting and rings. For structures with cone section, fabric shall extend a minimum of 18 inches down cone.
      c. Replace and compact gravel base material with a vibratory plate compactor. Patch initial asphalt course around structure per Detail STR-17.
      d. Top of casting to be 3/8 to 5/8 inch lower than the final asphalt pavement grade, as measured with a 6-foot straight edge centered on the structure.
      e. Perform adjustment no more than 5 working days prior to placement of final asphalt pavement, unless approved by Engineer.

C. Manholes Within Street Areas with Concrete Curb and Gutter (Final Asphalt Course Paved the Following Year or Later):
   1. At time of structure installation or reconstruction, install casting directly upon top slab or cone section with Ram-Nek material.
   2. Prior to street construction, remove casting from all new and existing manholes and cover structure opening with suitable steel plate. Secure plate to top slab or cone with Ram-Nek.
   3. Following initial asphalt paving perform adjustment:
      a. Locate structure and expose.
      b. Remove steel plate. Permanently place HDPE rings on structure. Permanently place casting on top ring with adhesive. Wrap filter fabric over casting and rings. For structures with cone section, fabric shall extend a minimum of 18 inches down cone.
      c. Replace and compact gravel base material with a vibratory plate compactor. Patch initial asphalt course around structure per Detail STR-17.

d. Top of casting to be 3/8 to 5/8 inch lower than the initial asphalt course grade, as measured with a 6-foot straight edge centered on the structure.
e. Adjustment of all manholes must be completed within 15 working days after the start of placement of the initial asphalt course. Adjustment will not be allowed prior to initial asphalt paving.

4. Prior to final asphalt paving (the following year or later), perform adjustment:
   a. Permanently adjust casting to final grade with steel adjusting ring.
   b. Top of casting to be 3/8 to 5/8 inch lower than the final asphalt grade, as measured with a 6-foot straight edge centered on the structure.
   c. Perform adjustment no more than 5 working days prior to placement of final asphalt course, unless approved by Engineer.

D. Street Catch Basins:
   1. At time of structure installation, place HDPE rings and casting on dry.
   2. Establish erosion control around structure per Section 01 57 13. Structure to be allowed to accept runoff during this condition. Basin grate shall not be covered with fabric or other impervious material.
   3. Immediately prior to concrete curb and gutter installation, remove erosion control and permanently adjust casting to proper grade.
   4. Pour concrete curb and gutter adjacent to structure, permanently setting casting into curb line.

E. Valve Boxes Outside of Paved Areas:
   1. Permanently adjust box to design rim elevation at time of valve installation.

F. Existing Valve Boxes Outside of Paved Areas:
   1. Permanently adjust box to design rim elevation prior to final restoration work.

G. Valve Boxes Within Street Areas with Concrete Curb and Gutter (Final Asphalt Course Paved the Same Year as the Initial Course):
   1. At time of valve installation, install box.
   2. Prior to street construction, lower top section of box sufficiently to avoid damage during street base construction.
   3. Perform adjustment prior to final asphalt paving:
      a. Locate box and expose.
      b. Adjust box to ~~final~~ **first lift of** asphalt pavement grade by raising of top section.
      c. If top section cannot be raised to proper grade, install valve box extension section.
      d. Replace and compact gravel base material with a vibratory plate compactor. Patch initial asphalt course around structure per Detail STR-17.
      e. Top of box to be 3/8 to 5/8 inch lower than the final asphalt pavement grade, as measured with a 6-foot straight edge centered on the box.
      f. Perform adjustment no more than 5 working days prior to placement of final asphalt pavement, unless approved by Engineer.

H. Valve Boxes Within Street Areas with Concrete Curb and Gutter (Final Asphalt Course Paved the Following Year or Later):
   1. At time of valve installation, install box.
   2. Prior to street construction, lower top section of box sufficiently to avoid damage during street base construction.
   3. Perform adjustment following initial asphalt paving:
      a. Locate box and expose.
      b. Adjust box to initial grade by raising of top section.
      c. If top section cannot be raised to proper grade, install valve box extension section.

d. Replace and compact gravel base material with a vibratory plate compactor. Patch initial asphalt course around structure per Detail STR-17.
e. Top of box to be 3/8 to 5/8 inch lower than the initial asphalt grade, as measured with a 6-foot straight edge centered on the box.
f. Adjustment of valve boxes must be completed within 15 working days after the start of placement of the initial asphalt pavement. Adjustment will not be allowed prior to paving.

4. Prior to final asphalt paving (the following year or later), perform adjustment:
   a. Remove asphalt around valve box. Remove sufficient material to allow for compaction of the gravel base.
   b. Adjust box to final asphalt pavement grade by raising of top section.
   c. If top section cannot be raised to proper grade, install valve box extension section.
   d. Replace and compact gravel base material with a vibratory plate compactor. Patch initial asphalt course around structure per Detail STR-17.
   e. Top of box to be 3/8 to 5/8 inch lower than the final asphalt pavement grade, as measured with a 6-foot straight edge centered on the box.
   f. Perform adjustment no more than 5 working days prior to placement of final asphalt pavement, unless approved by Engineer.

3.07 TRAFFIC CONTROL

A. Place construction advisory signs, 36 inches by 36 inches, stating "Construction Zone" and "Proceed at Your Own Risk" in black letters on an orange field at all entrances to the Project prior to beginning final adjustment of structures within paved areas.

B. Exposed edges of manhole castings and valve boxes raised prior to final asphalt paving shall be painted with "White" or "Pink" paint.

C. Provide appropriate traffic control devices to protect the traveling public during all phases of the structure adjustment work.

3.08 FIELD QUALITY CONTROL

A. For adjustments made within paved areas, any settlements of the pavement surfacing below the rim of the adjustment structure will require removal and replacement of the pavement surfacing at the expense of the Contractor.

B. Secure manholes and structures immediately after completion or before suspension of operations at the end of working day with castings or suitable alternative device.

C. Adjust manhole and catch basin frames as described above. Thorough tamping of the material around manhole and catch basin frames is required. Where existing frame is within 0.10 feet of grade, no adjustment is to be made. In such cases the crown or gutter shall be either lowered or raised, as the case may be, to put the street and frame at the same grade.

D. No shims of any material will be allowed.

E. Adjust valve boxes as described above. Thorough tamping of the material around the valve box is required. All valve boxes shall be clean, straight, plumb, and keyable allowing a pipe to be placed and centered over the valves operating nut from the street surface per Section 33 11 00, paragraph 3.01.D. This alignment check will be performed on all valves after the final adjustment of the valve box and prior to placement of the final pavement. Supply the alignment tool and perform this test with the Owner's representative.

F. Settlements around structure adjustments that occur during the correction period and result in the casting being higher than the final pavement will be repaired in a manner acceptable to the Owner at the Contractor's expense.

G. Clean all lids of all gravel and asphalt during paving operations while asphalt is hot.

END OF SECTION

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SECTION 33 11 00

WATER DISTRIBUTION SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Water main pipe and fittings.
   2. Valves and boxes.
   3. Hydrants.
   4. Services.
   5. Insulation.

B. Related Sections:
   1. Section 31 23 33 - Trench Excavation and Backfill
   2. Section 33 05 50 - Surface Facility Restoration
   3. Section 33 05 20 - Horizontal Directional Drilling (HDD) Pipe Installation

C. Method of Measurement:
   1. Water Main:
      a. Measure each size and type by distance in linear feet.
      b. Measure along pipe axis with no deduction for fittings or valves.
      c. Measure in the horizontal plane unless pipe grade exceeds 15 percent.
   2. Connection to Existing System:
      a. Water Main:
         1) Measure connection to an existing water main pipe as a unit.
         2) Measure each size separately.
         3) Unit includes labor, equipment, and materials required to make connection including removal and disposal of existing plug.
      b. Service Pipe:
         1) Measure connection to an existing water service pipe as a unit, regardless of size or type of existing pipe.
         2) Unit includes labor, equipment, and materials required to make connection on the back side (i.e., house side) of the new curb stop, including all coupling materials required to make the connection.
   3. Fittings:
      a. Measure by weight in pounds.
      b. Basis of Weight:
         1) Fittings: Meet AWWA C153.
         2) Exclude weights of glands, gaskets, rods, bolts, and other accessories.
   4. Valves and Boxes: Measure valve and box of each size and type as a unit.
   5. Hydrants:
      a. Measure hydrants of each size and type as a unit.
      b. Unit includes installation of hydrant, base, blocking, and crushed rock.
   6. Corporation Stops: Measure corporation stops of each size and type as a unit.
   7. Curb Stops and Boxes: Measure curb stops and boxes of each size and type as a unit.
   8. Service Pipe:
      a. Measure by distance in linear feet.
      b. Measure each size separately.
      c. Measure from center of water main to center of curb stop plus 1-foot for slack.
   9. Insulation: Measure by quantity of 2-inch by 4-foot by 8-foot sheets.
   10. Water Main Offset:
      a. Measure each size as a unit.
      b. Includes all fittings, insulation and appurtenances required for installation.

D. Basis of Payment:
   1. Payment for acceptable quantities of water main and appurtenances shall be at the Contract Unit Price as listed on the Bid Form. All associated Work items shall be considered incidental.

1.02 REFERENCES

A. ASTM:
   1. A126 - Gray Iron Castings for Valves, Flanges, and Pipe Fittings
   2. A307 - Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
   3. A536 - Ductile Iron Castings
   4. A563 - Carbon and Alloy Steel Nuts
   5. B88 - Seamless Copper Water Tube
   6. B152 - Copper Sheet, Strip, Plate, Rolled Bar
   7. D429 - Tests for Rubber Adhesion to Rigid Surfaces
   8. D2842 - Test for Water Absorption of Rigid Cellular Materials
   9. D1248 - Polyethylene Plastics Extrusion Materials for Wire and Cable

B. AWWA:
   1. C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
   2. C116 - Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings
   3. C150 - Thickness Design of Ductile Iron Pipe
   4. C151 - Ductile-Iron Pipe, Centrifugally Cast for Water or other Liquids
   5. C153 - Ductile-Iron Compact Fittings for Water Service
   6. C502 - Dry-Barrel Fire Hydrants
   7. C504 - Rubber-Seated Butterfly Valves
   8. C509 - Resilient-Seated Gate Valves for Water Supply Service
   9. C515 - Reduced-Wall, Resilient-Seated Gate Valves, for Water Supply Service
   10. C600 - Installation of Ductile Iron Water Mains and their Appurtenances
   11. C605 - Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water

C. NSF/ANSI 61: Drinking Water System Components

1.03 DEFINITIONS

A. Utility: Refers to the City of Hudson Public Utilities

1.04 SUBMITTALS

A. Submit Certificate of Compliance for products listed under Article 1.04.

B. Submit proposed method of joint conductivity.

C. Submit proposed method and type of thrust restraint.

1.05 QUALITY ASSURANCE

A. All work on water system infrastructure shall be witnessed by Utility personnel, Engineer or authorized Resident Project Representative before acceptance by the Utility.

B. Developer’s Responsibility - Furnish Utility with:
   1. “As-Built” drawings in the following formats within 60 days of acceptance by the Utility:
      a. Hard copy.
      b. Electronic PDF scaled for full-size printing.
      c. Electronic suitable for use with GIS (i.e., ArcGIS shapefile).
   2. Copies of recorded easements.
   3. Copies of conductivity tests, pressure tests, and bacteriological confirmation sampling results.
   4. Statement saying construction was accomplished according to these approved specifications.
   5. Payment for costs of inspections by the City.

6. Payment for costs (i.e., labor, materials, transportation, and laboratory analyses) attributed to the proper methods and procedures involved with abandonment, installation, valving, flushing, conductivity tests, pressure tests, bacteriological sampling, and punch lists.

C. Provide Certificates of Compliance from the manufacturer certifying that the following products meet the respective requirements listed in Article 1.02:
   1. Water Main Pipe
   2. Fittings
   3. Valves
   4. Hydrants

1.06 DELIVERY, STORAGE, AND HANDLING

A. Inspection:
   1. Inspect all pipe and products during the unloading process.
   2. Notify Utility and Engineer of any cracked, flawed or otherwise defective products.
   3. Remove all products found to be defective by the Utility or Engineer from the Site.

B. Handling and Storage: Handling and storage of products shall be in accordance with Section 2.2 of AWWA C600.

PART 2 PRODUCTS

2.01 COUNTRY OF ORIGIN

A. All materials must be manufactured in the United States unless approved by Utility.

2.02 WATER MAIN PIPE

A. Ductile Iron: AWWA C151.

B. Cement-Mortar Lining: AWWA C104.

C. Thickness Class: 52 unless otherwise noted.

D. Joints:
   1. Tyton push joint, or approved equal.
   2. Gasket joint restraint system shall be installed for Tyton push joints in all situations that require thrust restraint. At a minimum, this shall include three full-length pipe joints prior to dead ends; three full-length pipe joints upstream and downstream of valves, tees, and fittings; and all joints in poor foundation areas and grades 10 percent or greater as determined a necessity by the City.
      a. Field Lok 350 by U.S. Pipe of Birmingham, AL.
      b. Or approved equal.
   3. Anti-thrust restraint glands on all mechanical joints.
      a. Megalug by Ebaa Iron of Eastland, TX

E. Joint Conductivity:
   1. Conductive gaskets as manufactured by American Ductile Iron Pipe Co.
   2. Field Application Methods:
      a. Burndy - Thermoweld by Burndy Corp., Norwalk, Connecticut.
      b. Cadweld by Erico Products Co., Cleveland, Ohio.
   3. Copper Jumpers:
      a. Minimum 1/16-inch by 1/2-inch-wide flat copper strip.
      b. Annealed round copper wire conforming to ASTM B152, Type DHP.
   4. Nuts and Bolts: Silicon Bronze.

2.03 FITTINGS

A. Ductile Iron:
   1. AWWA C151 for 3-inch to 16-inch pipe.
   2. AWWA C110 for larger than 16-inch pipe.

B. Protective Fusion-Bonded Epoxy Coatings: AWWA C116.

C. Mechanical Joints:
   1. Tyton push joint or approved equal.
   2. Gasket joint restrain syste shall be installed on all Tyton push joints.
      a. Field Lok 350 by U.S. Pipe of Birmingham, AL.
   3. Anti-thrust restraint glands on all mechanical joints.
      a. Megalug by Ebaa Iron of Eastland, TX

D. Solid D.I. sleeves shall be a minimum 12 inches long.

E. Nuts and Bolts: Cor-Blue or approved equal.

2.04 VALVES AND BOXES

A. Gate Valves:
   1. Waterous AFC 2500 compact D.I. or approved equal.
   2. Resilient Seated: AWWA C515.
   3. Working Pressure: 250 psi.
   4. Ends:
      a. Mechanical Joint: Tyton push on joint with Cor-Blue bolts and nuts,
      b. Alpha Restrained Joint by American Flow Control,
      c. Approved equal.
   5. Operating Stem: Non-rising with O-ring seals.
   6. Operating Nut: 2-inch Square, Open Left.
   7. Markings to be cast on the bonnet or body:
      a. Open indicating arrow.
      b. Manufacturer’s name.
      c. Pressure rating.
      d. Year of manufacture.
      e. Size.
   8. Any valve greater than 9.5 foot bury depth shall be provided with approved valve box operating nut extensions.
   9. Valves 16 inches or larger shall be provided with appropriate gearbox and/or 6-inch valved bypass.

B. Butterfly Valves:
   1. Shall be used on all pipe greater than 30 inches in diameter.
   2. Rubber Seated: AWWA C504.
   3. Class: 150B.
   4. Body Type: Mechanical - Joint-End with anti-restraint gland.
   5. Disc:
      a. 316 stainless steel edge
      b. 3-inch thru 24-inch: ASTM A126 Class B Cast Iron
      c. 30-inch and larger: ASTM A536 Ductile Iron
   6. Seat:
      a. 3-inch through 20-inch: Bond to body per ASTM D429, Method B.
      b. 24-inch and larger: Retain in body without use of metal retainers.
   7. Operator:
      a. Traveling nut actuator
      b. Open left.
   8. Operating Stem: Non-rising with O-ring seals.
   9. Operating Nut: 2-inch square.

10. Markings to be cast on the body:
    a. Open indicating arrow.
    b. Manufacturer's name.
    c. Class.
    d. Year of manufacture.
    e. Size.

C. Boxes:
1. Cast Iron, 5-1/4-inch shaft.
2. Vertical, 3-piece, Buffalo type. Tyler 6860 Series Style "F" or approved equal with two bottom length sections.
3. Box length adjustable from 63 inches to 84 inches so as to maintain 7.5 feet minimum pipe cover.
4. Adjustable to 6 inches up or down from finished grade.
5. No "threaded insert" sections allowed. Tyler 2-to-4-inch riser with approved sealant are acceptable.
6. Valve boxes outside the roadway (such as right-of-ways and easements) shall be marked with U-style steel fence post 4 feet above grade painted blue.
7. All valves shall include a Gate Valve Adaptor as manufactured by Adaptor Inc. or approved equal. The adaptor shall be constructed of 1/4-inch steel with UP polyurethane coating and 3/4-inch rubber gasket attached to the adaptor.

2.05 HYDRANTS

A. Dry Barrel: AWWA C502.

B. Waterous Pacer WB67-250 all D.I. or approved equal.

C. Hose Connections: 2 each at 2-1/2-inch diameter.

D. Steamer Connection: 1 each at 4-1/2-inch diameter.

E. Threads: National Standard.

F. Operating Stem: Two-piece Open Left with O-ring Seals.

G. Cap Nuts: Pentagon (1 1/2-inch F.T.P.) with weather shield.

H. Traffic flange (with 16-inch break-off).

I. Hub: Epoxy coated mechanical joint with ASTM F593 and F594 Type 304 Stainless Steel bolts and nuts.
1. 6-inch.
2. Gasket joint restraint system shall be installed on all Tyton push joints.
    a. Field Lok 350 by U.S. Pipe of Birmingham, AL.
    b. Or approved equal.
3. Anti-thrust restraint glands on all mechanical joints.
    a. Megalug by Ebaa Iron of Eastland, TX.
    b. Or approved equal.
4. All joints in a hydrant lead shall be restrained to the tee, and all leads shall be valved. 8-inch mechanical joint may be required as directed by engineer.

J. Main Valve Opening: 5 1/4-inch diameter.

K. Barrel Diameter: 7-inch.

L. Drain to operate only when hydrant is closed.
1. Where groundwater is present, the hydrant shall not have weep holes in the brass valve seat; and a "Pump After Use" tag must be affixed to the hydrant nozzle section. Factory tapped and plugged drain holes are allowed.

M. Bury Depth: 8.5 feet (ground line groove to bottom of hub).

N. Color: Red.

O. Provide permanent markings which indicate:
   1. Manufacturer's name.
   2. Year of manufacture.
   3. Bury depth.

P. Five-foot E-Z Guide Safety Marker w/red and white reflective markings and spring base or approved equal.

Q. Accessories
   1. Where required, extensions shall not be greater than 42-inch long.
      a. Hydrant extension kits shall be manufactured by Waterous/AFC of Saint Paul, MN.
   2. Food grade oil must be replaced in reservoir.
   3. Break-off rod coupling to be moved to proper location.
   4. Hydrant shall be operated and pressurized for proper operation and visual inspection for leaks.
   5. Bury depth extension tab reinstalled.
   6. Extension size tab installed.

2.06 SERVICE PIPE

A. Copper: ASTM B88.

B. Type: K, Soft: 1-inch to 1 1/2-inch only. (2-inch services are not allowed)

C. Ductile Iron - ANSI/AWWA C151/A21.51.
   1. Cement - Mortar Lined - ANSI/AWWA C104/A21.4.
   2. Thickness Class 52.

2.07 CORPORATION STOPS

A. Type: Mueller B-25008, or equal.
   1. Inlet: AWWA taper thread.
   2. Outlet:
      a. Conductive compression connection.
      b. Compression joint.
   3. All fittings shall conform to ANSI/AWWA Standard C800, latest revision.
   4. All brass components in contact with potable water must be made from no-lead brass. Brass alloys not listed in ANSI/AWWA C800 Paragraph 4.1.2 are not approved. Brass saddles shall be made from CDA/UNS C83600.
   5. All service fittings shall be certified as suitable for contact with drinking water by an ANSI accredited organization accordance with ANSI/NSF Standard 61, Drinking Water Systems Components - Health Effects.
   6. All fittings shall be stamped or embossed with a mark or name indicating that the product is manufactured from the low-lead alloy as specified in paragraph 4.

2.08 CURB STOPS AND BOXES

A. Curb Stop (Valve)
   1. Type: Mueller 300 Ball B-25154, B-25155 or approved equal.
   2. Inlet: Copper Service Thread compression joint.
   3. Outlet: Copper Service Thread compression joint.
      a. There shall be 15 feet of copper service pipe installed beyond the curb stop with the copper end flared and installed with flare nut and plug. End shall be marked with 4-inch by 4-inch timber to 12 inches above grade. (See Detail Plate SER-5)
   4. All fittings shall conform to ANSI/AWWA Standard C800, latest revision.

5. All brass components in contact with potable water must be made from no-lead brass. Brass alloys not listed in ANSI/AWWA C800 Paragraph 4.1.2 are not approved. Brass saddles shall be made from CDA/UNS C83600.
6. All service fittings shall be certified as suitable for contact with drinking water by an ANSI accredited organization accordance with ANSI/NSF Standard 61, Drinking Water Systems Components - Health Effects.
7. All fittings shall be stamped or embossed with a mark or name indicating that the product is manufactured from the no-lead alloy as specified in Paragraph 5.

B. Box
1. Type: Minneapolis Pattern, Extension.
2. Length: 7.0 feet (78 inches) to 8.0 feet (90 inches) adjustable.
3. Installed to be adjustable to 6 inches up or down from finished grade.
4. 1-inch services - 1 1/4-inch upper section box Mueller H-10300 or approved equal.
5. 1 1/2 services - 1 1/2-inch upper section Box Mueller H-10302, or approved equal.
6. Marked w/T-style steel fence post 4 feet above grade painted blue in boulevard ROW (see Detail Plate WAT-11).

2.09 INSULATION

A. Rigid, extruded polystyrene board insulation.

B. Thermal Resistance (R): 5.0.

C. Thickness: 2-inch.

D. Board Size: 48-inch by 96-inch.

E. Compressive Strength: Minimum 25 psi.

F. Water Absorption in accordance with ASTM D2842: 0.1 percent by volume, maximum.

G. Edges: Square.

PART 3 EXECUTION

3.01 CONSTRUCTION REQUIREMENTS

A. All construction shall be in accordance with Hudson Standard Detail Plates.

B. Connection to Existing System:
1. Pressure Tap:
   a. Install tap in location shown on the Drawings.
   b. Use approved tapping machine designed specifically for tapping under pressure.
   c. Install tapping sleeve and gate valve as part of assembly. Tapping sleeve shall be all-stainless full circle Smith-Blair 662 Series or approved equal for all C.I. and D.I. applications.
   d. All tapping sleeve and flange bolts and nuts shall be stainless steel.
   e. Install blocking as required.
   f. Install conductivity straps on existing and new main and fittings.
   g. Provide conductor from connection to above-grade location to allow conductivity testing to be completed.
   h. Disinfect all fittings.
2. Cut-In Connection:
   a. Isolate segment of pipe to be cut and drain water from the line.
   b. Connect tee and sleeve (minimum 12-inch D.I. sleeve) assembly to pipe ends.
   c. Install blocking and thrust restraint as required.
   d. Install conductivity straps on existing and new main and fittings.

e. Interruption of Service.
    1) Customer notification by contractor 48 hours previous to interruption.
    2) Utility must be notified 48 hours previous to scheduled operation of valves.
    3) Valves to be operated by Utility personnel only.
f. Provide conductor from connection to above-grade location to allow conductivity testing to be completed.
g. Disinfect all fittings.

3. Connect to Inplace Fitting:
    a. Isolate segment of inplace pipe and remove blocking as required.
    b. Remove plug and drain water from the line.
    c. Install blocking and thrust restraint as required.
    d. Install conductivity straps on existing and new main and fittings.
    e. If joints cannot be pressure tested, visual inspection of joints at static pressure must be conducted prior to placing backfill.
    f. Interruption of Service.
        1) Customer notification by contractor 48 hours previous to interruption.
        2) Utility must be notified 48 hours previous to scheduled operation of valves.
        3) Valves to be operated by Utility personnel only.
    g. Provide conductor from connection to above-grade location to allow conductivity testing to be completed.
    h. Disinfect all fittings.

C. Pipe Installation:
1. Install pipe at the alignment and grade shown on the drawings.
2. Provide 7.5 feet of cover over the pipe. Any cover less than 7.5 feet or more than 8.5 feet shall be approved by the City.
    a. Pipes shall be insulated with closed cell insulation to maintain 7.5 feet of cover (1 inch of closed cell insulation equals 1 foot of soil) or as approved by the Utility in all situations that apply to prevent freezing.
3. Install appurtenances in the locations shown on the drawings.
4. Remove all dirt and foreign material from the pipe interior prior to installation of the pipe. After installation of each pipe, the gasket shall be examined for proper seating.
5. See Section 33 05 05 for pipe foundation and backfill procedures.
6. See Section 33 05 05 in case of conflicts with existing pipes.
7. Absolutely NO ROCKS within 2 feet of pipe zones.
8. All storm sewer conflicts or intersections between the water and storm shall be insulated as approved by the City to equate to 7.5 feet of cover (1-inch closed cell insulation = 1 foot of soil).
9. Any soil inconsistencies as determined by the City in the pipe foundation area shall be bedded with approved granular within 1 foot of pipe zone.
10. All other utility construction such as natural gas, power, telephone, and cable TV, etc. in right-of-ways and easements (minimum 30 foot) shall be coordinated so to maintain 10-foot horizontal distance from water lines.
11. Easements shall be minimum 30 feet wide with water lines constructed 10 feet from one side and 20 feet from other side.
12. The City must approve any cuts or fills in easements.
13. Dead ends shall be kept to an absolute minimum.
14. All dead-end services larger than 1 1/2 inches shall be installed with minimum 1 inch corp., stop, stand, and copper pigtail to facilitate testing and flushing.
15. All water main dead-ends shall be installed with a hydrant to facilitate flushing.
16. All water mains shall be flushed at a minimum velocity of 10 feet per second.
17. All grades (10% or greater) shall be analyzed by the City to determine the necessity of installing thrust restraint.

D. Valve and Box Installation:
1. Verify that subgrade material is adequate to support valve assembly.
2. Install valves with stems vertical and plumb.
3. Install boxes plumb and centered over the valve nut.

4. Verify that box remains plumb and centered during backfill. This shall be verified by sliding the gate valve alignment tool up and down the valve box with no restrictions and centered on operating nut.
    a. Gate valve alignment tool shall be Schedule 3034 - 4 1/4-inch OS diameter thin wall PVC sewer pipe (furnished by the Utility, refer to Detail Plate WAT-10).
5. Adjust box cover to required grade. This will be accomplished so box is adjustable 6 inches up or down.
6. Valve boxes located in concrete shall be sleeved and adjusted 1/2 inch below grade.
7. Valve boxes located in asphalt shall be adjusted 1/2 inch below grade.
8. Any valve greater than 9½ foot bury shall be installed with an approved valve operating nut extension.
9. No “threaded insert” sections allowed. Tyler 2 to 4-inch risers with approved sealant are acceptable.
10. Valve boxes outside the roadway (such as right-of-ways and easements) shall be marked w/U-style steel fence post 4 feet above grade painted blue.
11. Valve boxes shall not be located in stormwater features such as rain gardens.

E. Hydrant Installation:
1. All joints in a hydrant lead shall be restrained to the tee, and all leads shall be valved.
2. Verify that subgrade material is adequate to support hydrant.
3. All storm sewer conflicts or intersections between the water and storm shall be insulated as approved by the City to equate to 7.5 feet of cover (1-inch closed cell insulation = 1 foot of soil).
4. Place concrete block, washed drain rock and 4-mil polyethylene in accordance with Hudson Standard Plates (WAT-2).
5. Install and maintain hydrant in a plumb position.
6. Where groundwater is present, the hydrant shall not have weep holes in the brass valve seat; and a “Pump After Use” tag must be affixed to the hydrant nozzle section. Only factory-made drain holes will be allowed.
7. Hydrant ground flange shall be 3 to 6 inches above finished grade.
8. Install marker on back nozzle section bolt opposite bury depth tag.
9. Provide permanent markings that indicate:
    a. Manufacturer’s name.
    b. Year of manufacture.
    c. Bury depth.
10. All hydrants shall be cleaned properly and finish coated upon completion of utility construction to the original equipment manufacturers (OEM) specifications.
    a. Use power tools to clean all rust and other contamination from the hydrant body.
    b. Apply two coats of touch up paint where prime coating has been damaged.
    c. Paint shall meet the original equipment manufacturers (OEM) specifications.
11. Hydrants shall be marked with approved ”Out of Service” tags when installed.
12. Extensions
    a. Install adjustment fitting on all fire hydrants.
    b. Where required, extensions shall not be greater than 42-inch long.
    c. Waterous food grade oil must be replaced in reservoir.
    d. Break-off rod coupling to be moved to proper location.
    e. Hydrant shall be operated and pressurized for proper operation and visual inspection for leaks.
    f. Bury depth extension Tab reinstalled.
    g. Extension size tab shall be installed.
    h. The Utility must be notified 24 hours in advance and witness all hydrant maintenance. Failure to notify Utility will result in non-acceptance.

F. Joint Conductivity:
1. Provide electrical bond across all joints between pipes and appurtenances.
2. Epoxy coated fittings, valves, and hydrants and stainless steel appurtenances shall have an electrical bond from pipe to pipe across the entire appurtenance.
3. Install copper jumpers by either shop or field applications. (Minimum 1/16-inch by 3/4-inch)
4. Fasten multiple jumper strips with silicon bronze bolts and nuts.

5. Welding:
    a. Grind surfaces to be welded to remove coating and oxide and to provide clean metal surface.
    b. Use metallic-arc process for stop applications.
    c. Use exothermic process for field applications.
        1) Utilize Cadweld system by Erico International of Solon, OH or approved equal.
    d. Refinish welded areas, and areas impacted by grinding, with anticorrosive protective coating after connection is made and welded area has cooled to the touch.
        1) Gunk T1617R Tite-Seal Rubberized Auto Body Undercoating or approved equal.

G. Thrust Restraint:
1. Submit method and type to the City for approval, minimum of 5 working days prior to starting construction.
2. Install in accordance with “Thrust Restraint Design for Ductile Iron Pipe”, 6th Ed., Ductile Iron Pipe Research Association.
3. Install thrust restraints at all bends, tees, plugs, sleeves, valves and hydrants.
    a. At a minimum, this shall include three full length pipe joints prior to dead ends; three full length pipe joints upstream and downstream of valves, tees, and fittings; and all joints in poor foundation areas and grades 10 percent or greater as determined to be a necessity by the City.
    b. Fill areas shall require thrust restraint as determined by the City.
4. Gasket joint restraint system shall be installed on all Tyton push joints.
5. Anti-thrust restraint glands on all mechanical joints.
6. All Tyton push joints with gasket joint restraint system shall be marked with plastic tape that indicates “Restrained Joint.” If plastic tape is unavailable, the top of hub and spigot shall be painted “Blaze Orange” with the initials “R-J.”
7. Concrete Blocking
    a. Concrete blocking for thrust restraint is not allowed unless approved by City.
    b. Place between the fitting and undisturbed trench wall with fabric between concrete and fitting to allow no concrete to be in contact with bolts, fittings, flanges, and pipe.
    c. Minimum thickness: 12 inches.
    d. Minimum area in square feet shall be in accordance with the following:

Pipe	Tee or Plug	1/4 Bend	1/32 and 1/8 Bend	1/16 Bend
6-inch	2.9	3.1	1.6	0.8
8-inch	3.7	5.3	2.9	1.4
10-inch	5.7	8.1	4.4	2.2
12-inch	8.1	13.4	6.6	3.2
16-inch	15.1	21.4	11.6	5.9
20-inch	23.2	30.2	18.1	9.3
24-inch	33.6	48.5	26.1	13.3

    e. Size blocking based on the larger main.
    f. Verify that bolts are accessible after concrete is poured.

H. Service Installation:
1. Corporation Stops:
    a. Provide watertight connection with approved tapping machine.
    b. Install in upper quadrant of water main pipe under pressure.
    c. Place a double wrap of Teflon tape around the threads prior to installation.
    d. 1 1/4 and 1 1/2-inch taps (and any size taps in 4-inch DIP) shall be installed w/double strap tapping service saddle Ford Style F202, (W/AWWA CC Thread) or approved equal.
    e. No taps allowed in hydrant leads.
    f. Interruption of Service.
        1) Customer notification by contractor 48 hours previous to interruption.
        2) Utility must be notified 48 hours prior to scheduled operation of valves.
        3) Valves to be operated by Utility personnel only.

2. Copper Service Pipe:
    a. Install pipe between corporation stop and curb stop with no joints or unions.
    b. Bury Depth: 7.5 feet.
    c. Where 7.5 feet of cover cannot be provided, as approved by City, services shall be insulated with closed cell insulation to maintain the equivalent insulation value of 7.5 feet of cover.
        1) 1 inch of closed cell insulation equals 1 foot of soil.
        2) Or as approved by the City.
    d. Provide minimum 1-foot of slack in the pipe to allow for settlement and movement.
    e. There shall be 15 feet of copper service pipe installed at minimum cover beyond the curb stop with a pigtail with cap extended above grade for flushing. End shall be marked with 4-inch by 4-inch timber to 12 inches above grade. (See Detail Plate SER-5).
    f. Following testing and flushing, pump the service pigtail dry and cap with compression fitting.
    g. All storm sewer conflicts or intersections between the water and storm shall be insulated as approved by the City.
    h. All copper connections shall be reamed and sized by approved sizing tool and any approved joints shall be installed with Mueller H-15400, H-15403, or approved equal.
3. Curb Stop and Box:
    a. Install at the location shown on the Drawings.
    b. Verify that subgrade material is adequate to support the curb box assembly.
    c. Install boxes plumb and centered over the tee head.
    d. Verify that box remains plumb and properly aligned during backfill.
    e. Adjust box cover to required grade.
    f. Key all curb stops after backfill to ensure proper operation.
    g. Any curb box greater than 9-1/2 foot bury shall be installed with an approved curb stop operating extension.
    h. Curb stop boxes shall not be located in stormwater features such as rain gardens.
4. Ductile Iron Service Pipe:
    a. Bury Depth: 7.5 feet - any cover less than 7.5 feet or greater than 8.5 feet shall be approved by the City.
    b. Where 7.5 feet of cover cannot be provided, as approved by City, services shall be insulated with closed cell insulation to maintain the equivalent insulation value of 7.5 feet of cover.
        1) 1 inch of closed cell insulation equals 1 foot of soil.
        2) Or as approved by the City.
    c. Ductile iron services will be valved within 3 feet to 5 feet of the main (unless wet tap), and all joints in the service line shall be restrained. These services shall have conductivity and be included in the conductivity test.
    d. Ductile iron services (stub to lot) shall be installed with minimum 1-inch corporation stop, stand, and copper pigtail to facilitate testing, voiding of air, and flushing. The end of the ductile iron service shall be marked with 4-inch by 4-inch timber to 48 inches above grade.
    e. Ductile iron services (main to building, tapped or connected) shall be flushed clean and voided of air.
    f. Full pipe flush at a minimum of 10 feet per second velocity is required.
    g. Pressure test, conductivity test, and bacteria test shall be completed.
    h. After installation of each pipe, the gasket shall be examined for proper seating.
    i. All storm sewer conflicts or intersections between the water and storm sewer shall be insulated as approved by the City.
5. Fire Sprinkler Services: Where fire sprinkling is required, separate fire and domestic service lines shall be installed from the main into the building. Joint fire/domestic water services are not allowed.

3.02 FIELD QUALITY CONTROL

A. Complete the following tests on trench backfill:
    1. Compaction: Owner shall employ an independent testing laboratory to perform, at a minimum the following tests in locations determined by the Engineer:
        1) Water Main: 1 density test for every 300 feet of trench.
        2) Water Services: 1 density test for every 4 services installed.

B. Perform the following tests upon completion of the system and prior to being placed into service. Each test shall be witnessed by authorized City personnel.
   1. Prior to initiating test sequence, the disinfection process (as noted later in this Section) must be completed through the flushing step.
   2. Test Sequence.
      a. Tests shall be conducted in the following order:
         1) Conductivity.
         2) Pressure.
         3) Bacteriological.
      b. Electrical Conductivity Test:
         1) Perform electrical conductivity test to verify that electrical thawing of the system may be accomplished by Utility.
         2) Test Parameters:
            a) Perform test prior to pressure testing.
            b) Perform test after back-filling is completed and while line is at normal operating pressure.
            c) Test Current: 350 amperes DC plus or minus 10 percent.
            d) Test Duration: 5 minutes.
            e) Test between hydrants in segments of convenient length.
         3) Procedures:
            a) Furnish DC current source, cable and all required equipment of adequate capacity to accomplish the test.
            b) Clamp cables to hydrant flange bolts.
            c) Conduct test with hydrant in the open position and caps on.
            d) Measure current continuously throughout the test with a DC ammeter hooked on a cable lead.
            e) Start test at minimum current level and increase to test level.
            f) Drain hydrant and tighten caps after test.
         4) Failure and Correction:
            a) Failure of a segment shall be determined by current measurements that are insufficient, intermittent or unsteady.
            b) Isolate and correct defective contact points as indicated by failed tests.
            c) Retest failed segments after correction.
      c. Pressure Test:
         1) Test shall be accomplished through corporation stop.
         2) All air shall be voided from the system.
         3) Perform pressure and leakage test in accordance with AWWA C600.
         4) Test Pressure: 150 psi.
         5) Test Duration: 2 hours.
         6) Gage Requirements:
            a) Size: 4-1/2-inch dial.
            b) Range: 0 to 200 psi.
            c) Gradation: 2 psi.
            d) Accuracy: 1/2 percent.
         7) Do not allow pressure to vary more than 3 psi during the test.
         8) Do not allow pressure to vary more than 2 psi during the last hour of the test.
         9) Pressure drop exceeding 3 psi shall be considered a failure.
         10) Test shall be repeated until the pressure drop is within the 3-psi limit including retesting following corrective measures.
         11) The total water main system installed shall be tested for pressure requirements in sections and sequence as approved by the City.
         12) Pressure test apparatus, hose, barrels, and water shall be safe for potable water, disinfected by the contractor and approved by authorized City representative prior to starting test.
      d. Testing Water Services:
         1) Perform separate pressure and leakage test on the services with the corporation stops open.
         2) Test Pressure: 100 psi.
         3) Duration: 2 hours.

4) Allowable Pressure Drop: None.
5) At Contractor's option, service testing may be done concurrent with main testing.

3. Before the system is placed into service, all valve boxes, curb stop boxes, and hydrants shall be accessible, adjusted to grade, operational, and marked according to these specifications.

3.03 DISINFECTION

A. Disinfect all newly installed water mains, appurtenances and services in accordance with AWWA C651.

B. Utility shall be notified 48 hours before any operation of valves, hydrants, and sampling.
1. Valves to be operated by Utility personnel only.

C. Fill water main slowly with appropriate hydrants and other accessible locations, usually locations at the highest elevation, open to void the system of as much air as possible.

D. Tablet or Continuous Feed Method:
1. Granular calcium hypochloride shall be used.
2. Hold chlorine solution in pipe for a minimum period of 24 hours and a maximum of 48 hours.
a. Initial dosage: 50 ppm minimum.
b. Residual dosage after hold period: 10 ppm minimum.

E. Flush system with a high velocity flush (ten feet per second) within 24 hours after disinfectant contact time is completed.

F. System shall be flushed after conductivity and pressure tests, but before bacteriological sampling. Chlorine residuals shall match existing system residuals in the area.

G. Sampling and Testing:
1. Bacteriological water samples (at least one) shall be taken a minimum of 24 hours after the flush at locations to be determined by the Utility. A coliform test will be performed on each sample.
a. Utility personnel will furnish the lab form and sample bottle, take the sample, and deliver to the lab.
2. Each sample set shall include:
a. One sample for every 1,000 feet of main.
b. One sample at each dead-end less than 1,000 feet in length.
c. Ensure that 1 sample is obtained from each branch of main.
d. Minimum samples required: 2.
3. Perform coliform tests on each sample.
4. Rechlorinate as approved by the Utility if any sample tests positive for coliform.
5. For developer projects: all costs associated with testing will be borne by the Developer.

END OF SECTION

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SECTION 33 40 00 (REVISED)

STORM DRAINAGE UTILITIES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Storm sewer pipe, manholes, catch basins, fittings, and miscellaneous appurtenances.

B. Related Sections:
   1. Section 01 33 00 - Submittal Procedures
   2. Section 01 57 13 - Temporary Erosion and Sediment Control
   3. Section 32 11 23 – Dense Graded Base
   4. Section 32 16 13 - Concrete Curbs and Gutters
   5. Section 33 01 30 – Television Inspection of Sewers
   6. Section 33 05 05 - Trenching and Backfilling
   7. Section 33 05 17 - Adjust Miscellaneous Structures
   8. Section 34 41 05 – Traffic Signs and Devices

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Storm Sewer Pipe: Measurement will be based upon units of linear feet for each size, type, class, and depth increment 0 feet to 10 feet, 10 feet to 15 feet, and in 5 foot increments thereafter of pipe furnished and installed complete in place as specified, including excavation, backfilling, and compaction. Pipe will be measured from centerline of structure to centerline of structure and will not include end sections:
      a. Pipe bedding will be per Section 33 05 05.
      b. Improved pipe foundation material, if necessary, will be per Section 33 05 05.
   2. Catch Basin, Catch Basin Manhole, and Manhole Structure: Measurement will be per each, according to type and size, to a depth of 8 feet, for furnishing and installing structures complete in place as specified, including casting frame and cover, adjusting rings, and concrete stool grate frame per Detail STO-9 (if required). Grouting invert per the standard details shall be incidental to the structure installation:
      a. 70-percent partial payment will be made upon installation and 30-percent payment will be made upon final completion of doghouses and inverts.
   3. Structure Overdepth: Measurement will be per linear foot for depths greater than 8 feet for each diameter. Measurement will be made from final rim elevation to center of invert. Payment will include the cost of furnishing and installing the manhole sections:
      a. For structures with a sump, the linear feet of sump will not be included in the overdepth measurement.
   4. Apron Endwall with trash guard: Measurement will be per each size installed, according to type, at locations indicated in the Drawings complete in place as specified, including excavation, backfilling, compaction and trash guard:
      a. Where a sewer line is terminated with an endwall, tying the last 3 joints per Detail STO-11 is considered incidental to the installation of the pipe.
   5. Apron Endwall without trash guard: Measurement will be per each size installed, according to type, at locations indicated in the Drawings complete in place as specified, including excavation, backfilling, and compaction:

a. Where a sewer line is terminated with an endwall, tying the last 3 joints per Detail STO-11 is considered incidental to the installation of the pipe.

6. Riprap: Measurement will be per cubic yards of riprap placed, according to class. Payment of the Bid Item shall include placement of geotextile fabric as required per Detail STO-12.
7. Grouted Riprap: Measurement will be per cubic yards of riprap placed, according to class. Payment of the Bid Item shall include placement of geotextile fabric, and 6" concrete layer as required per Detail STO-13.
8. Connect to Existing Pipe: Measurement shall be per each connection made, according to size and type of existing pipe, and regardless of type of existing bulkhead or plug, or type of connection made. Payment will include all costs related to making the connection, including removal and disposal of the existing bulkhead or plug, and construction of concrete collar if necessary.
9. Connect Existing Pipe to New Structure: Measurement shall be per each pipe connected to the new structure, regardless of size of existing pipe. Payment will include all costs related to making the connection, including removal and replacement of existing pipe as directed by Engineer.
10. Connect to Existing Structure: Measurement shall be per each connection made, regardless of size of opening, type of existing bulkhead, or type of existing structure. Saw cutting of the pipe installed in the opening if necessary shall be considered incidental. Core cutting the connection and reconstruction of existing structure invert if necessary shall also be considered incidental to the connection.
11. Bulkhead Storm Sewer Pipe: Measurement will be per each bulkhead installed according to size. Payment will include all costs related to bulkheading or plugging the pipe as described in this Section.
12. Poured-In-Place Concrete Seepage Collar: Measurement will be per each collar constructed according to size of pipe it is constructed around. Payment at the Unit Price shall include all costs related to constructing the collar in accordance with Detail STO-15, including excavation, forms, and material.
13. Construct Manhole Over Existing Pipe: Measurement will be based on the diameter of each manhole constructed over the existing pipe, up to a depth of 8 feet. Payment will include the cost of the manhole and installation over the existing line, casting frame and cover, and adjusting rings in place as specified.
14. Patch Structure: Measurement will be per each storm sewer or sanitary sewer structure patched, regardless of the size of structure or areas patched. Payment will include all cost associated to patching the structure as specified.
15. RC LR Bend: Measurement will be per each, according to size and class. Payment will include all costs related to furnishing and installing the bend, including excavation, backfilling, and compaction.
16. Televise Storm Sewer: Measurement and Payment will be per Section 33 01 30.
17. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.
18. **Manhole Top Slab: Measurement will be per each, according to size and type of top slab furnished and installed. Payment will include all costs related to furnishing and installing the top slab, including excavation, backfilling, and compaction.**

1.03 REFERENCES

A. American Society of Testing and Materials (ASTM):
   1. A153 - Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
   2. C76 - Specification for Reinforced Concrete Culvert, Drain, and Sewer Pipe
   3. C361 - Specification for Reinforced Concrete Low Head Pressure Pipe
   4. C443 - Specification for Joints for Circular Concrete Sewer and Pipe, Using Rubber Gaskets
   5. C478 - Specification for Precast Reinforced Concrete Manhole Sections

B. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", 2019 (WisDOT Spec.):
   1. 606 – Riprap
   2. 645 – Geosynthetics

C. National Association of Sewer Service Companies (NASSCO):
   1. PACP – Pipeline Assessment Certification Program

1.04 SEQUENCING AND SCHEDULING

A. Maintain existing storm sewer flows during construction. This may require a temporary pipe connection during periods of time when construction is not occurring.

B. Set up traffic control to prior to removals. Maintain traffic during storm sewer improvements unless otherwise approved by Owner.

C. Do not pursue work-causing shut off of utility service (gas, water, electric, telephone, TV, etc.) to consumers until the utility owner is contacted and all consumers are notified of the shut-off schedule.

D. Successfully complete required inspections and tests before commencement of Section 32 11 23 and Section 32 16 13.

E. Coordinate inspection of completed sump structures with City prior to acceptance. May require pumping water and vacuuming dirt out of structure prior to inspection.

F. Televise Storm Sewer:
   1. Notify Engineer 48 hours in advance of the televising of all pipes.
   2. Conform to Section 33 01 30

1.05 SUBMITTALS

A. Submit Shop Drawings for storm sewer structures consistent with Section 01 33 00.

B. Shop drawings shall indicate complete information for fabrication and installation of units. Include the following:
   1. Plans and elevations locating and defining all material furnished by manufacturers.
   2. Sections and details showing connections, cast-in items, and field installed lifting devices, capacities, all openings, and their relation to the structure.

C. Submit Manufacturer's Certificate of Compliance for the following items:
   1. Gray iron castings.
   2. Precast manhole sections.
   3. Riprap.

D. Manhole/Catch Basin Elevation Report:
   1. Complete the report in Section 01 33 00.

E. Televising Report:
   1. Conform to Section 33 01 30.

F. Submit Product Data for the following items consistent with Section 01 33 00:
   1. Mortar mix.

PART 2 PRODUCTS

2.01 MATERIALS

A. Ready Mix Mortar Materials:
   1. Sand Mix, 4,000 PSI

B. Mortar:
   1. Non-Shrink Grout: Pre-mix bag material. Minimum compressive strength of 3,000 psi.

2.02 STORM MANHOLE AND CATCH BASIN FRAMES AND COVERS

A. Conform to Section 33 05 17.

2.03 STORM MANHOLES AND CATCH BASINS

A. Precast concrete sections conforming to ASTM C478 and this section:
   1. No structure constructed either partially or completely from segmental block will be accepted:
      a. Shallow structures that cannot be constructed in the standard manner shall be fabricated in a precast design similar to Detail Drawing STO-10.
   2. Preformed inverts are not allowed.
   3. No structures with any cracks will be accepted.
   4. All sections shall be cured by an approved method and shall not be shipped nor subjected to loading until the concrete compressive strength has attained 3,000 psi.
   5. The date of manufacture and the name and trademark of the manufacture shall be clearly marked on the inside of each precast section.

B. Size: Dimensions as indicated on the Drawings.

C. Special requirements are shown on the Drawings.

D. Manhole Joints: Rubber gasketed joint forming a watertight seal conforming to ASTM C443.

E. Manhole Steps: Reinforced polypropylene plastic steps with No. 2 deformed grade steel rod.

F. Design:
   1. Have the manhole sections and top and bottom slabs designed and the detailed drawings prepared by a Professional Engineer, experienced in precast concrete manhole design, who is registered in the Project's state.

2.04 PIPE MATERIALS

A. Reinforced Concrete Pipe (RCP) and Fittings:
   1. General Requirement: ASTM C76.
   2. Profile gaskets: shall be synthetic rubber, circular reinforcing in cross-section, and shall conform to ASTM C443.
   3. Pipe Joints: Bell and spigot ASTM C361.
   4. Pipe Class: As shown on the Drawings.

5. Marking: Each pipe shall be identified with the name of the manufacturer trade name or trademark and code, identification of plant, date of manufacture, and the pipe class and specification design.

2.05 TRASH GUARDS

A. General Requirement: ASTM A153.

B. Materials: Galvanized steel rods meeting the requirements in ASTM A153.

C. Bar size and configuration as shown on the Drawings.

D. Securely attached to end section.

2.06 RIPRAP

A. General Requirement: Conform to WisDOT Spec. 606:
   1. Granular Filter: Conform to WisDOT Spec. 209.2, Grade 1
   2. Geotextile: Conform to WisDOT Spec. 645.2.2.6, Type HR
   3. Concrete: Conform to WisDOT Spec. 606.2.2

2.07 CONCRETE STOOL GRATE FRAME FOR OFF STREET CATCH BASIN

A. General Requirement: Conform to Standard Detail Plate STO-9.

PART 3 EXECUTION

3.01 PREPARATION

A. Trench Excavation and Backfill shall conform to Section 33 05 05.

3.02 EXAMINATION

A. Commence test procedures only when pipe and structures are clean and free of dirt, water, or other foreign matter. Pipe cleaning shall be performed in accordance with NASSCO Jetter Code of Practice.

3.03 INSTALLATION

A. Connect to Existing Structure:
   1. Connect to existing structure at location shown on the Drawings.
   2. Core the hole in the structure and saw cut the pipe per the Standard Details:
      a. Pipe shall protrude past inside wall of structure a minimum of 2 inches and maximum of 4 inches from a distance half the pipe diameter measured from invert.
   3. Bulkhead void between outside wall of pipe and edge of opening with non-shrink grout and block/brick.
   4. Reconstruct manhole bench/invert.

B. Connect Existing Pipe to New Structure:
   1. Where an existing structure is removed and replaced with a new structure, connect all existing pipes to the new structure.

2. Remove pipe segments that are damaged during the structure replacement with new pipes of the same size and type, or as directed by Engineer.
3. Saw cut existing or new pipes per the Standard Details:
    a. Pipe shall protrude past inside wall of structure a minimum of 2 inches and maximum of 4 inches from a distance half the pipe diameter measured from invert.
    b. Bulkhead void between outside wall of pipe and edge of opening with non-shrink grout and block/brick.

C. Connect to End of Existing Pipe:
1. Connect to existing pipe at locations shown on the Drawings.
2. Locate and expose end of existing pipe.
3. Remove existing bulkhead or plug and dispose of off Site:
    a. Take care not to damage existing pipe.
    b. Any segment of pipe damaged by Contractor shall be replaced with new materials at no expense to the Project.
4. Utilize standard bell and spigot joint with rubber profile gasket if possible.
5. If butt connection must be made to existing pipe, construct concrete collar around joint. Collar shall be minimum 12 inches thick in all locations and shall extend a minimum of 12 inches each way of the joint.

D. Pipe Installation:
1. Lay and maintain pipe appurtenances to the alignment, grade, and location shown on the Drawings and/or staked in the field. No deviation from the Drawing and/or staked alignment, grade, or location is allowed, unless approved by Engineer. Deviation from grade in excess of 0.05 percent (with no intermediate high points, level sections, or reverse invert slope) may be cause for removal and relaying pipe at the Contractor's expense.
2. General Pipe Installation Procedures:
    a. Wipe joints clean; apply the manufacturer's recommended lubricant compound over the entire joint surface; center spigot in bell and push spigot home; take care to prevent dirt from entering the joint space; bring pipe to proper line and grade, and secure pipe in place by properly bedding.
3. Lay pipe upgrade with spigot ends pointing in the direction of flow.
4. All joints must be watertight.
5. Remove all foreign matter or dirt from inside the pipe. Keep the bell and spigot clean during and after installation. Take care to prevent dirt from entering the joint space. Remove any superfluous material from inside the pipe after pipe installation by means of an approved follower or scraper.
6. Where cut-ins make it impossible to construct bell and spigot joints or when dissimilar pipe materials are joined, a reinforced concrete collar shall be placed completely surrounding the joint or the connection shall be made by using an approved adapter.
7. Any pipe which has been disturbed after being laid must be taken up, the joint cleaned and properly re-laid as directed by the Engineer.
8. Where a sewer line outlets to grade or where the line is terminated with an endwall:
    a. Fasten at least the last 3 joints together using 2 "U" bolt fasteners per joint approved and as recommended by the pipe manufacturers, on the outside of the pipe.

E. Structures and Appurtenances Installation:
1. Furnish and install structures in accordance with the Drawings.
2. Excavate to depth and size as shown in the Drawings.
3. Structure inverts:
    a. Construct inverts of manholes and catch basins using a Ready Mix mortar material (sand mix 4,000 PSI).

b. Construct inverts shaped to the half section of equivalent size pipe conforming to the inlet and outlet pipe so as to allow for a free, uninterrupted flow with all surfaces sloping to the flow line.

4. Concrete pipes entering manholes:
   a. End of pipes must be cut with a concrete saw.
   b. Annular space between the outside of the pipe and opening in the structure shall be filled with a non-shrink grout on the interior and exterior of the structure. Construct an interior collar/doghouse around the pipe from the wall of the structure to the end of the pipe with non-shrink grout.
5. Steps:
   a. Locate on the downstream side, except for pipe 24 inches in diameter or greater. Install in the most appropriate place, to provide suitable access.
   b. Secure and neatly mortar in place 16 inches on center spacing.
6. Position vertical wall of the eccentric cone on the downstream side.
7. On structures with a build that contains more than 1 barrel section, the section immediately below the precast top slab shall be maximum 24 inch height.
8. Lift holes shall be neatly mortared up.
9. Remove all debris from structures, invert, and benches prior to final inspection and acceptance.
10. Remove all water and debris from Sump Manhole Structures, to allow for final inspection and acceptance.
11. Install Adjustment Rings and Adjust Casting: Conforming to Section 33 05 17.

F. Construct Manhole Over Existing Pipe:
1. Construct manhole over existing pipe at locations shown on the Drawings.
2. Saw cut existing pipe per Standard Details:
   a. Pipe shall protrude past inside wall of structure a minimum of 2 inches and maximum of 4 inches from a distance half the pipe diameter measured from invert.
3. Seal any openings in manhole.

G. Riprap:
1. General: Conform to WisDOT Spec. 606.3.3.
2. Install Rip Rap per Detail Plate STO-12 and STO-13 prior to placement of apron endwall.
3. Place 6” thick layer of concrete at the midpoint of the Rip Rap per Detail Plate STO-13.

H. Bulkhead Pipe:
1. Bulkhead pipe at locations shown on Drawings with brick, non-shrink concrete grout, or concrete block masonry 8 inches thick.
2. Precast concrete plugs may be used in lieu of bulkhead. Plug must fit snugly into pipe opening and be watertight.

I. Seepage Collar:
1. Construct at location indicated on Drawings.
2. Construct per Detail on Drawings.

J. Patch Structure Walls, Doghouse, Invert, or Rings:
1. Clean areas to be patched by removing debris, loose concrete, and any other foreign materials.
2. Patch area with mortar to provide smooth patch that seals the structure.

K. Concrete Stool Grate Frame:
1. Construct on off street catch basins as shown on the plans or as directed by Engineer.
2. Construct per Detail on Drawings.

L. Storm Structure Location Marker:
   1. Off street structures shall be marked permanently with the specified sign and sign post as indicated on the plans.
   2. Install sign in accordance with Spec. Section 34 41 05.

M. **Manhole Top Slab:**
   1. **Shall be installed in accordance with manufacturers' guidelines and City Standards.**
   2. **Top slab opening for manholes with no inlet shall be positioned so that steps shall be easily accessible, and casting is not in trail or concrete gutter (if possible).**
   3. **Top slab opening for structures with inlets shall be positioned so that the frame and casting align with the curb line and will not cause offsetting of adjustment rings.**

3.04 FIELD QUALITY CONTROL

A. Scope:
   1. All pipeline testing is considered incidental to the Bid cost of the pipe.
   2. Engineer to observe and verify that all tests and visual inspections have been completed prior to final acceptance.

B. Cleaning:
   1. Consists of Cleaning the Pipe and Structures:
      a. If newly installed mains and structures are kept clean during construction, cleaning will not be required.
      b. If newly installed mains and/or structures become dirty due to negligence of the Contractor, cleaning will be performed at the sole expense of the Contractor.
   2. The bailing or flushing method of cleaning pipe is acceptable only if adequate provisions acceptable to the Engineer for keeping dirt and debris out of the existing sewer system or ponds are employed. Jetting may be required.
   3. Complete prior to final inspection for acceptance.

C. Required Tests and Inspections:
   1. Infiltration:
      a. To determine the amount of ground water infiltration into the sewers.
      b. Test waived if no visible infiltration is observed during the lamping inspection.
      c. Measurement made by means of 90 degree v-notch weirs placed in the lines as directed by the Engineer.
      d. Measurements taken at the points where in the Engineer's opinion the flow of water in the sewer is greater than the maximum allowable leakage.
      e. Maximum Allowable Rate of Leakage: Not more than 100 gallons per mile per inch diameter per day.
      f. Tests may be taken between individual manholes and the infiltration in any given line must not exceed the specified maximum allowable rate.
      g. Method of Measurement: Measurement of time for a predetermined volume of flow to occur.
   2. Trench Backfill Compaction:
      a. The Owner shall have an independent testing laboratory perform, as minimum, the following tests. The location of the tests shall be determined by the Engineer:
         1) 1 density test for every 300 feet of trench at varying depths (per each 10' depth increment).
   3. Alignment:

a. Horizontal deviation in excess of 3 inches from back of curb to back of structure opening (for casting and rings) is not allowed. Deviation in excess of 3 inches will be cause for reinstallation of structure at the Contractor's expense.
b. The vertical and horizontal alignment of the casting adjustment shall be approved by the Engineer prior to constructing the 10-foot concrete curb and gutter transition on either side of the casting.

4. Lamping:
   a. Verify installation is true to line and grade.
   b. Verify installed pipe is structurally sound.
   c. Verify there are no broken or defective pipes.
   d. Verify that joints are all home.
   e. Verify that structures conform to specified requirements.

3.05 STORM SEWER CLOSED CIRCUIT TELEVISION INSPECTION

1. Conform to Section 33 01 30.

3.06 PROTECTION

A. Plug all entrances and openings to the system promptly and before suspension of operations at the end of working day.

B. Secure manholes and structures immediately after completion or before suspension of operations at the end of working day with castings or suitable alternative device.

C. Mark all structures to avoid being hit by construction or vehicular traffic.

D. Mark each plug location with 4 inches by 4 inches timbers to above grade to aid in marking the future connection.

E. Establish erosion control measures as per Section 01 57 13.

END OF SECTION

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SECTION 34 41 05 (REVISED)

TRAFFIC SIGNS AND DEVICES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Signs, signposts, and hardware.
   2. Permanent barricades.

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment:
   1. Sign Type II: Measurement shall be per square feet, according to type of sign. Payment shall be for furnishing and installing sign and post(s) at the staked location.
      a. There shall be no additional compensation for posts regardless of length or required configuration.
      b. There shall be no additional compensation for posts installed in concrete or asphaltic surfaces.
   2. Street Name Sign: Measurement shall be per each assembly installed. A complete assembly shall include all applicable street name blades, hardware, and post(s). Payment shall be for all costs for furnishing and installing sign, hardware, and post(s) at the staked location.
      a. There shall be no additional compensation for posts regardless of length or required configuration.
      b. There shall be no additional compensation for posts installed in concrete or asphaltic surfaces.
   3. Permanent Barricade: Measurement will be per each. Payment will include all costs related to furnishing and installing the barricade per the Standard Detail:
      a. The future road extension sign, if required, will be paid separately as a new sign under the appropriate Bid Item.
   4. Structure Marker Sign: Measurement will be per each. Payment will include all costs related to furnishing and installing the sign and sign post per the Standard Detail.
   5. **Rectangular Rapid Flashing Beacon (RRFB): Measurement will be per each new RRFB sign installed. Payment will include all costs related to furnishing and installing the RRFB as specified herein, including control cabinet, push button, post, concrete base, and sign panels.**
   6. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

1.03 REFERENCES

A. Wisconsin Department of Transportation "Standard Specifications for Highway and Structure Construction", latest edition including all current supplements (WisDOT):
   1. Section 209 – Granular Backfill
   2. Section 634 – Wood and Tubular Steel Sign Posts
   3. Section 637 – Signing

B. Wisconsin Manual for Uniform Traffic Control Devices (WMUCTD).

C. Wisconsin Department of Transportation Sign Plate Manual.

D. Wisconsin Traffic Engineering, Operations and Safety Manual (TEOpS):
   1. Chapter 2 – Signs.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Upon delivery to the Site, store the materials at least 10 feet away from any construction or traveled roadways areas. Vehicles and equipment shall not be stored, even temporarily, in the buffer zone of the work area or where it would be so close to moving traffic that it is in the judgment of the Engineer a potential hazard to motorists.

1.05 SEQUENCING AND SCHEDULING

A. Notify the Engineer at least 48 hours prior to commencing the work under this Section of the Contract for required staking of sign locations.

B. Schedule an onsite pre-signing meeting with the Owner, Engineer, and Signing Subcontractor (if appropriate) a minimum of 24 hours prior to the installation of any signing.

C. Schedule private utility locates through the Diggers Hotline, prior to sign post installation.

D. Contact St. Croix County for all signs within the County right-of-way that will require temporary or permanent removal.

E. Install signs within 7 calendar days after placement of the pavement adjacent to the sign locations.

F. Install signs concurrently with paving done under traffic.

PART 2 PRODUCTS

2.01 MATERIALS

A. Sign Panels:
   1. Sign Panel Base Material: sheet aluminum alloy conforming to WisDOT Spec. 637.2.1.3.
   2. Sign Face Materials: All sign reflective sheeting backgrounds shall be Type H conforming to WisDOT Spec. 637.2.2 with the following exceptions:
      a. School signs: Type F (Yellow-Green)
      b. Pedestrian Crossing Signs: Type F (Yellow-Green)

B. Street Name Signs:
   a. Street name blades base material shall be 9-inch aluminum extrusion conforming to WisDOT Spec. 637.2.1.1.
   b. First Letter of suffix shall be 6 inch uppercase with all letters remaining 4.5 inch lowercase
   c. If required on the Drawings, address numbers provided at a later date.
   d. Public Streets: signs to be "green" in color with "white" lettering.
   e. Private Streets: signs to be "blue" in color with "white" lettering.

C. Sign Posts:
   1. General:
      a. All sign post material shall be steel tubular square conforming to WisDOT Spec. 634.2.5.
      b. Holes shall be 7/16 inch pre-punched.

D. Hardware:
   1. Sign Panel:

a. No rivets:
b. Bolt: 5/16 inch – 18 by 3 inch grade 5 zinc plated.
c. Nut: 5/16 inch – 18 grade 5 zinc plated.
d. Nylon Washers: 5/16 inch inside diameter, 7/8 inch outside diameter.
e. Washers: 5/16 inch grade 5 zinc plated.

2. Street Name Signs:
a. Square Post Top Bracket: 5-1/4 inch minimum wide slot, unpainted.
b. Cross Piece Bracket: 5-1/4 inch minimum wide slot, unpainted.

E. Anchor System Hardware:
1. Bolt: 5/16 inch – 18 by 3-1/4 inch grade 5 zinc plated.
2. Nut: 5/16 inch – 18 grade 5 zinc plated.
3. Corner Bolt with Nut: 5/16 inch diameter medium corner, grade 5 zinc plated.

F. Box-out:
1. Removable concrete forming tube: 12-inch inside diameter to the depth of pavement shown on plans.
2. Granular Backfill: Grade 1 conforming to WisDOT 209.2.2

G. Permanent Barricade:
1. Per Standard Detail STR-18.

H. Structure Marker Sign:
1. Per Standard Detail Plate WAT-11
2. Per Standard Detail Plate STO-16

I. Concrete Surface Mount Assesmbly:
1. **Per Standard Detail Plate shown in the Drawings.**
2. **Kleen Break Model 425 for Concrete Installations, or approved equal.**

J. Rectangular Rapid Flashing Beacon (RRFB):
1. **As manufactured by Tapco, or approved equal.**
2. **Solar powered RRFB-XL2.**
3. **55W/48Ah side-of-pole control cabinet.**
4. **Push button: XAV2-LED**
5. **Sign post: Match existing RRFB system at Diamond Drive.**
6. **Sign panels: S1-1(YG) (36”x36”) and W16-7P(YG) (24”x18”)**
7. **Concrete base: City of Hudson Standard Detail Plate STR-21**

PART 3 EXECUTION

3.01 GENERAL

A. Unless otherwise noted or modified herein, all sections of WisDOT Spec. 634 and 637, all sections of WisDOT’s Sign Plate Manual, and Chapter 6 of WMUTCD shall apply.

B. The fabrication of all signs and devices shall conform to WisDOT Spec. 634 and 637, the WisDOT Sign Plate Manual, and the latest edition of the WMUTCD.

3.02 PREPARATION

A. Submit shop drawings for street name sign blades to the Owner and Engineer for review and approval prior to fabrication:

3.03 CONSTRUCTION

A. Sign locations shown on the Drawings are only approximate. The final locations shall be determined in the field by the Engineer. Have all underground utilities located prior to installing all signposts. Provide Engineer 48-hour notice prior to sign installations to allow for adequate staking time:
   1. See WisDOT Sign Plate Manual: Series A4-3, for installation details.
   2. Standard location for street name sign posts shall be a minimum 8 feet behind the back of curb or edge of traveled road at mid-radius.

B. Fabricate, hole punch, and mount sign panels in accordance with the standard drawings in the WisDOT Sign Plate Manual. Date the back of each newly installed sign panel with a theft warning sticker stating the month and year using inventory/I.D. stickers approved by the Owner.

C. Installation of Sign Panel to Post:
   1. Order: nut, zinc plated washer, sign post, sign panel, nylon washer, zinc plated washer, bolt
   2. Do not over tighten bolts to the point where the sign sheeting separates form the sign backing, which would be cause for rejection and replacement with no additional cost to the Contract.
   3. Street Name Blade Post shall not extend above the street name blades.

D. Installation Anchorage System:
   1. Install inside anchor tube so two bolt holes are accessible above finish grade.
   2. Install outside anchor tube flush with ground post. Bolt stabilizing sleeve and ground post together 12 inches below finish grade.
   3. Insert upper tube (minimum 6 inches) into inside anchor tube and secure with corner bolt.

E. Within Concrete surfacing:
   1. Contractor is responsible for furnishing, installing, and removing removable concrete forming tube to create a box-out for the sign post.
   2. After installation of sign posts in box-outs, backfill voids with specified granular material

F. Permanent Barricade:
   1. Install at locations shown on Drawings and per Standard Detail STR-18.
   2. Barricades to span entire roadway.
   3. If shown on Drawings or required by Engineer, attach "Future Road Extension Sign".
   4. If shown on Drawings or required by the Engineer, attach "end of road marker", 9 button, red on black sign.

G. Structure Marker Sign:
   1. Install at locations shown on the plans and per Standard Detail Plates WAT-11 and STO-16.

H. Rectangular Rapid Flashing Beacon (RRFB):
   1. **Install per manufacturer's recommendations at locations shown on the Drawings.**

3.04 FIELD QUALITY CONTROL

A. All work shall conform to WisDOT Spec. 634 and 637.

3.05 CLEANING

A. Clean any sign after installation if requested by the Engineer.

END OF SECTION

Appendix A

REPORT OF GEOTECHNICAL EXPLORATION

Proposed Pavement Reconstruction
Vine Street
(Wisconsin Street to Diamond Drive)
Hudson, Wisconsin

AET Project No. P-0027467

Date: November 16, 2023

Prepared for:
City of Hudson
505 3rd Street
Hudson, Wisconsin 54016

Geotechnical • Materials
Forensic • Environmental
Building Technology
Petrography/Chemistry

American Engineering Testing
1837 County Highway OO
Chippewa Falls, Wisconsin 54729
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November 16, 2023

Ms. Erin McPhee Anderson, P.E., City Engineer
City of Hudson
505 3rd Street
Hudson, Wisconsin 54016

RE: Report of Geotechnical Exploration
Proposed Pavement Reconstruction
Vine Street (Wisconsin Street to Diamond Drive)
Hudson, Wisconsin
AET Project No. P-0027467

Dear Ms. Anderson:

We are pleased to present the results of our subsurface exploration program for your Vine Street project in Hudson, Wisconsin. These services were performed according to our proposal to you dated October 3, 2023.

We are submitting an electronic (PDF) version of this geotechnical report to you. Unless you request otherwise, we will not submit any hard copies of the report.

We appreciate the opportunity to work with you on this phase of the project. Please contact us if you have questions about this report or require further assistance.

Sincerely,
American Engineering Testing, Inc.

Blake E. Snyder, P.E.
Geotechnical Engineer

1837 County Highway OO | Chippewa Falls, Wisconsin 54729
Phone 715-861-5045 | Fax 651-659-1379 | teamAET.com | AA/EEO
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SIGNATURE PAGE

Prepared for:

City of Hudson
505 3rd Street
Hudson, Wisconsin 54016

Attn: Ms. Erin McPhee Anderson, P.E.

Prepared by:

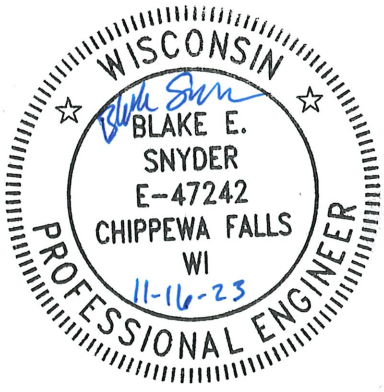
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APPENDIX B Geotechnical Report Limitations and Guidelines for Use

1.0 INTRODUCTION

The City of Hudson is planning the pavement reconstruction of Vine Street from Wisconsin Street to Diamond Drive in Hudson, Wisconsin. To assist with planning and design, Ms. Erin McPhee Anderson, P.E., City Engineer for the City of Hudson authorized American Engineering Testing, Inc. (AET) to conduct a subsurface exploration program at the site and perform a geotechnical engineering review for the project. This report presents the results of the above services and provides our engineering recommendations based on this data.

2.0 SCOPE OF SERVICES

AET's services were performed according to our proposal to the City of Hudson dated October 3, 2023. The authorized scope consists of:

- Five standard penetration test borings to depths of 10 feet each
- Visual/manual classification and limited laboratory testing of the recovered soil samples
- Geotechnical engineering review based on the gained data and preparation of this report

These services are intended for geotechnical purposes. The scope is not intended to explore for the presence or extent of environmental contamination.

3.0 PROJECT INFORMATION

The project is proposed to include pavement reconstruction of about 0.6 miles of Vine Street from Wisconsin Street to Diamond Drive in Hudson, Wisconsin. No utility improvements, road widening, or alignment changes are planned with this project.

The above-stated information represents our understanding of the project and is an integral part of our engineering review. It is important we be contacted if there are changes from that described so we can evaluate if modifications to our recommendations are appropriate.

4.0 SUBSURFACE EXPLORATION AND TESTING

4.1 Field Exploration Program

Our subsurface exploration program for this project consisted of drilling five borings with standard penetration testing on November 2, 2023. The City of Hudson selected the number, depths, and the approximate locations of the borings. AET selected the final locations to avoid underground utilities. The boring locations are shown on Figure 1 in Appendix A.

Prior to drilling, we contacted Wisconsin Diggers Hotline to locate public underground utilities at the site. We drilled the borings using 3¼-inch-inside-diameter hollow-stem augers. Refer to Appendix A for details on the drilling and sampling methods, the classification methods, and the water level measurement details.

The boring logs are found in Appendix A and contain information concerning soil layering, geologic description, moisture condition, and USCS classifications. Relative density or consistency is also noted for the natural soils, which are based on the standard penetration resistance (N-value).

4.2 Laboratory Testing

We performed one moisture content test on the recovered soil samples; this test result is shown on the boring logs, adjacent to the sample on which it was performed. We also performed two sieve analysis tests on the recovered soil samples, including a composite sample of the apparent base course layers from all the borings. The sieve analysis results are found after the boring logs in Appendix A.

5.0 SUBSURFACE CONDITIONS

5.1 Pavement and Soils

We measured 5.0 to 8.0 inches of bituminous pavement at the surface of our borings, overlying about 8.25 to 13 inches of apparent limestone base course. Underlying the apparent base course, we encountered fill to depths of 2 to 10 feet consisting of mostly sand with varying silt and gravel contents; we also encountered one layer of sandy silt in B-4. We did not encounter any fill beneath the apparent base course in B-3. Fill was observed to the boring termination depth of 10 feet in B-5.

The underlying, naturally-occurring soils in B-1 through B-4 were coarse alluvium consisting of loose to medium dense sand with varying silt and gravel contents.

5.2 Groundwater

We did not observe a water level in any of the borings we drilled for this project. Because the sandy soils we encountered are relatively fast draining, it is our opinion the static water table was below the depths of our borings at the time of drilling. Groundwater levels will fluctuate due to varying seasonal and annual rainfall and snow melt amounts, as well as other factors. Piezometers would be needed to obtain long-term groundwater level measurements, which was beyond our scope of service.

6.0 DISCUSSION AND PAVEMENT DESIGN PARAMETERS

We do not anticipate any EBS will be required for Vine Street at our boring locations.

Prior to placement of any new fill, base course, or pavement, we recommend the exposed soils be surface compacted, and proof rolled with a fully-loaded tandem-axle dump truck (or other appropriate heavy machinery) and observed for signs of poor performance. Areas of excessive deflection or rutting should be corrected. We recommend that new fill (below the base course), if any is needed, consist of additional base course or soils similar to the existing subgrade. Each lift should be mechanically compacted to at least 95% of its maximum modified Proctor dry density.

Our recommended WisDOT pavement design parameters are provided in Table 1. These recommendations are based on the soil conditions found in our borings. If the subgrade conditions vary from those encountered in our borings, we should be contacted to review our recommendations.

Table 1 – Pavement Design Parameters

Design Parameter	Recommended Value
Frost Index	F-3
Wisconsin Design Group Index	7
Soil Support Value	4.9
Modulus of Subgrade Reaction	225 pci

7.0 ASTM STANDARDS

When we refer to an ASTM Standard in this report, we mean that our services were performed in general accordance with that standard. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

8.0 LIMITATIONS

Within the limitations of scope, budget, and schedule, we have endeavored to provide our services according to generally accepted geotechnical engineering practices at this time and location. Other than this, no warranty, express or implied, is intended. Important information regarding risk management and proper use of this report is given in Appendix B entitled “Geotechnical Report Limitations and Guidelines for Use.”

Appendix A

Geotechnical Field Exploration and Testing
Boring Log Notes
Unified Soil Classification System
Figure 1 – Boring Locations
Subsurface Boring Logs
Gradation Curves

Appendix A
Geotechnical Field Exploration and Testing
Project No. P-0027467

A.1 FIELD EXPLORATION

The subsurface conditions at the site were explored by drilling five geotechnical borings. The locations are shown on Figure 1.

A.2 SAMPLING METHODS

A.2.1 Split-Spoon Samples (SS) - Calibrated to N_{60} Values

Standard penetration (split-spoon) samples were collected in general accordance with ASTM: D1586. The ASTM test method consists of driving a 2-inch O.D. split-barrel sampler into the in-situ soil with a 140-pound hammer dropped from a height of 30 inches. After an initial set of 6 inches, the number of hammer blows to drive the sampler the next 12 inches is known as the standard penetration resistance or N-value.

In the past, standard penetration N-value tests were performed using a rope and cathead for the lift and drop system. The energy transferred to the split-spoon sampler was typically limited to about 60% of its potential energy due to the friction inherent in that system. That converted energy provided what is known as an N60 blow count.

Most drill rigs today incorporate an automatic hammer lift and drop system, which has higher energy efficiency and subsequently results in lower N-values than the traditional N60 values. We use a Pile Driving Analyzer (PDA) and an instrumented rod to measure the actual energy generated by the automatic hammer system. The drill rig (AET rig number 101) we used for this project has a measured energy transfer ratio of 80%. The N-values reported on the boring logs and the corresponding relative densities and consistencies are from the field blow counts and have not been adjusted to N60 values.

A.2.2 Disturbed Samples (DS)/Spin-up Samples (SU)

Sample types described as “DS” or “SU” on the boring logs are disturbed samples, which are taken from the flights of the auger. Because the auger disturbs the samples, possible soil layering and contact depths should be considered approximate.

A.2.3 Sampling Limitations

Unless actually observed in a sample, contacts between soil layers are estimated based on the spacing of samples and the action of drilling tools. Cobbles, boulders, and other large objects generally cannot be recovered from test borings, and they may be present in the ground even if they are not noted on the boring logs.

Determining the thickness of “topsoil” layers is usually limited, due to variations in topsoil definition, sample recovery, and other factors. Visual-manual description often relies on color for determination, and transitioning changes can account for significant variation in thickness judgment. Accordingly, the topsoil thickness presented on the logs should not be the sole basis for calculating topsoil stripping depths and volumes. If more accurate information is needed relating to thickness and topsoil quality definition, alternate methods of sample retrieval and testing should be employed.

A.3 CLASSIFICATION METHODS

Soil descriptions shown on the boring logs are based on the Unified Soil Classification System (USCS). The USCS is described in ASTM: D2487 and D2488. Where laboratory classification tests (sieve analysis or Atterberg Limits) have been performed, accurate classifications per ASTM: D2487 are possible. Otherwise, soil descriptions shown on the boring logs are visual-manual judgments. Charts are attached which provide information on the USCS, the descriptive terminology, and the symbols used on the boring logs.

The boring logs include descriptions of apparent geology. The geologic depositional origin of each soil layer is interpreted primarily by observation of the soil samples, which can be limited. Observations of the surrounding topography, vegetation, and development can sometimes aid this judgment.

A.4 WATER LEVEL MEASUREMENTS

The ground water level measurements are shown at the bottom of the boring logs. The following information appears under “Water Level Measurements” on the logs:

- Date and Time of measurement
- Sampled Depth: lowest depth of soil sampling at the time of measurement
- Casing Depth: depth to bottom of casing or hollow-stem auger at time of measurement
- Cave-in Depth: depth at which measuring tape stops in the borehole
- Water Level: depth in the borehole where free water is encountered
- Drilling Fluid Level: same as Water Level, except that the liquid in the borehole is drilling fluid

The true location of the water table at the boring locations may be different than the water levels measured in the boreholes. This is possible because there are several factors that can affect the water level measurements in the borehole. Some of these factors include: permeability of each soil layer in profile, presence of perched water, amount of time between water level readings, presence of drilling fluid, weather conditions, and use of borehole casing.

A.5 TEST STANDARD LIMITATIONS

Field and laboratory testing is done in general conformance with the described procedures. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

A.6 SAMPLE STORAGE

Unless notified to do otherwise, we routinely retain representative samples of the soils recovered from the borings for a period of 30 days.

BORING LOG NOTES

DRILLING AND SAMPLING SYMBOLS

Symbol	Definition
B, H, N:	Size of flush-joint casing
CA:	Crew Assistant (initials)
CAS:	Pipe casing, number indicates nominal diameter in inches
CC:	Crew Chief (initials)
COT:	Clean-out tube
DC:	Drive casing; number indicates diameter in inches
DM:	Drilling mud or bentonite slurry
DR:	Driller (initials)
DS:	Disturbed sample from auger flights
FA:	Flight auger; number indicates outside diameter in inches
HA:	Hand auger; number indicates outside diameter
HSA:	Hollow stem auger; number indicates inside diameter in inches
LG:	Field logger (initials)
MC:	Column used to describe moisture condition of samples and for the ground water level symbols
N (BPF):	Standard penetration resistance (N-value) in blows per foot (see notes)
NQ:	NQ wireline core barrel
PQ:	PQ wireline core barrel
RD:	Rotary drilling with fluid and roller or drag bit
REC:	In split-spoon (see notes) and thin-walled tube sampling, the recovered length (in inches) of sample. In rock coring, the length of core recovered (expressed as percent of the total core run). Zero indicates no sample recovered.
REV:	Revert drilling fluid
SS:	Standard split-spoon sampler (steel; 1" is inside diameter; 2" outside diameter); unless indicated otherwise
SU	Spin-up sample from hollow stem auger
TW:	Thin-walled tube; number indicates inside diameter in inches
WASH:	Sample of material obtained by screening returning rotary drilling fluid or by which has collected inside the borehole after "falling" through drilling fluid
WH:	Sampler advanced by static weight of drill rod and 140-pound hammer
WR:	Sampler advanced by static weight of drill rod
94mm:	94 millimeter wireline core barrel
▼:	Water level directly measured in boring
▽:	Estimated water level based solely on sample appearance

TEST SYMBOLS

Symbol	Definition
CONS:	One-dimensional consolidation test
DEN:	Dry density, pcf
DST:	Direct shear test
E:	Pressuremeter Modulus, tsf
HYD:	Hydrometer analysis
LL:	Liquid Limit, %
LP:	Pressuremeter Limit Pressure, tsf
OC:	Organic Content, %
PERM:	Coefficient of permeability (K) test; F - Field; L - Laboratory
PL:	Plastic Limit, %
q_p:	Pocket Penetrometer strength, tsf (approximate)
q_c:	Static cone bearing pressure, tsf
q_u:	Unconfined compressive strength, psf
R:	Electrical Resistivity, ohm-cms
RQD:	Rock Quality Designation of Rock Core, in percent (aggregate length of core pieces 4" or more in length as a percent of total core run)
SA:	Sieve analysis
TRX:	Triaxial compression test
VSR:	Vane shear strength, remolded (field), psf
VSU:	Vane shear strength, undisturbed (field), psf
WC:	Water content, as percent of dry weight
%-200:	Percent of material finer than #200 sieve

STANDARD PENETRATION TEST NOTES

The standard penetration test consists of driving the sampler with a 140 pound hammer and counting the number of blows applied in each of three 6" increments of penetration. If the sampler is driven less than 18" (usually in highly resistant material), permitted in ASTM: D1586, the blows for each complete 6" increment and for each partial increment is on the boring log. For partial increments, the number of blows is shown to the nearest 0.1' below the slash.

The length of sample recovered, as shown on the "REC" column, may be greater than the distance indicated in the N column. The disparity is because the N-value is recorded below the initial 6" set (unless partial penetration defined in ASTM: D1586 is encountered) whereas the length of sample recovered is for the entire sampler drive (which may even extend more than 18").

UNIFIED SOIL CLASSIFICATION SYSTEM
ASTM Designations: D 2487, D2488

AMERICAN ENGINEERING TESTING, INC.

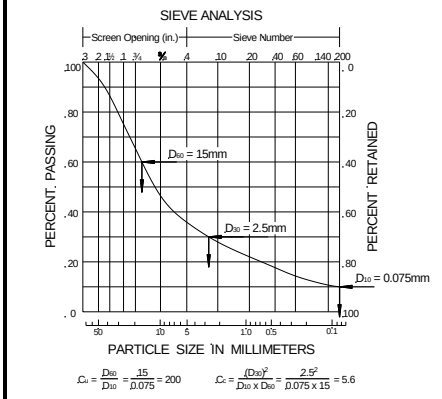
Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification: Group Symbol	Soil Classification: Group Name[B]
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines[C]	Cu≥4 and 1≤Cc≤3[E]	GW	Well graded gravel[F]
			Cu<4 and/or 1>Cc>3[E]	GP	Poorly graded gravel[F]
		Gravels with Fines more than 12% fines[C]	Fines classify as ML or MH	GM	Silty gravel[F,G,H]
			Fines classify as CL or CH	GC	Clayey gravel[F,G,H]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines[D]	Cu≥6 and 1≤Cc≤3[E]	SW	Well-graded sand[I]
			Cu<6 and/or 1>Cc>3[E]	SP	Poorly-graded sand[I]
		Sands with Fines more than 12% fines[D]	Fines classify as ML or MH	SM	Silty sand[G,H,I]
			Fines classify as CL or CH	SC	Clayey sand[G,H,I]
Fine-Grained Soils 50% or more passes the No. 200 sieve (see Plasticity Chart below)	Silts and Clays Liquid limit less than 50	inorganic	PI>7 and plots on or above "A" line[J]	CL	Lean clay[K,L,M]
			PI<4 or plots below "A" line[J]	ML	Silt[K,L,M]
		organic	Liquid limit–oven dried / Liquid limit – not dried <0.75	OL	Organic clay[K,L,M,N] / Organic silt[K,L,M,O]
	Silts and Clays Liquid limit 50 or more	inorganic	PI plots on or above "A" line	CH	Fat clay[K,L,M]
			PI plots below "A" line	MH	Elastic silt[K,L,M]
		organic	Liquid limit–oven dried / Liquid limit – not dried <0.75	OH	Organic clay[K,L,M,P] / Organic silt[K,L,M,Q]
Highly organic soil			Primarily organic matter, dark in color, and organic in odor	PT	Peat[R]

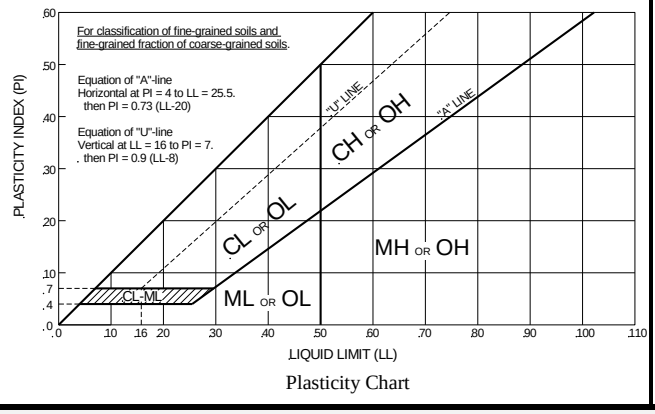
Notes

[A]Based on the material passing the 3-in (75-mm) sieve.
[B]If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C]Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
[D]Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay

[E]$Cu = D_{60} / D_{10}$, $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[F]If soil contains ≥15% sand, add "with sand" to group name.
[G]If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H]If fines are organic, add "with organic fines" to group name.
[I]If soil contains ≥15% gravel, add "with gravel" to group name.
[J]If Atterberg limits plot is hatched area, soil is a CL-ML silty clay.
[K]If soil contains 15 to 29% plus No. 200 add "with sand" or "with gravel", whichever is predominant.
[L]If soil contains ≥30% plus No. 200, predominantly sand, add "sandy" to group name.
[M]If soil contains ≥30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N]PI≥4 and plots on or above "A" line.
[O]PI<4 or plots below "A" line.
[P]PI plots on or above "A" line.
[Q]PI plots below "A" line.
[R]Fiber Content description shown below.





Plasticity Chart

ADDITIONAL TERMINOLOGY NOTES USED BY AET FOR SOIL IDENTIFICATION AND DESCRIPTION

Grain Size

Term	Particle Size
Boulders	Over 12"
Cobbles	3" to 12"
Gravel	#4 sieve to 3"
Sand	#200 to #4 sieve
Fines (silt & clay)	Pass #200 sieve

Gravel Percentages

Term	Percent
A Little Gravel	3% - 14%
With Gravel	15% - 29%
Gravelly	30% - 50%

Consistency of Plastic Soils

Term	N-Value, BPF
Very Soft	less than 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	Greater than 30

Relative Density of Non-Plastic Soils

Term	N-Value, BPF
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	Greater than 50

Moisture/Frost Condition

(MC Column)

D (Dry): Absence of moisture, dusty, dry to touch.
M (Moist): Damp, although free water not visible. Soil may still have a high water content (over "optimum").
W (Wet/ Waterbearing): Free water visible, intended to describe non-plastic soils. Waterbearing usually relates to sands and sand with silt.
F (Frozen): Soil frozen

Layering Notes

Laminations: Layers less than ½" thick of differing material or color.
Lenses: Pockets or layers greater than ½" thick of differing material or color.

Peat Description

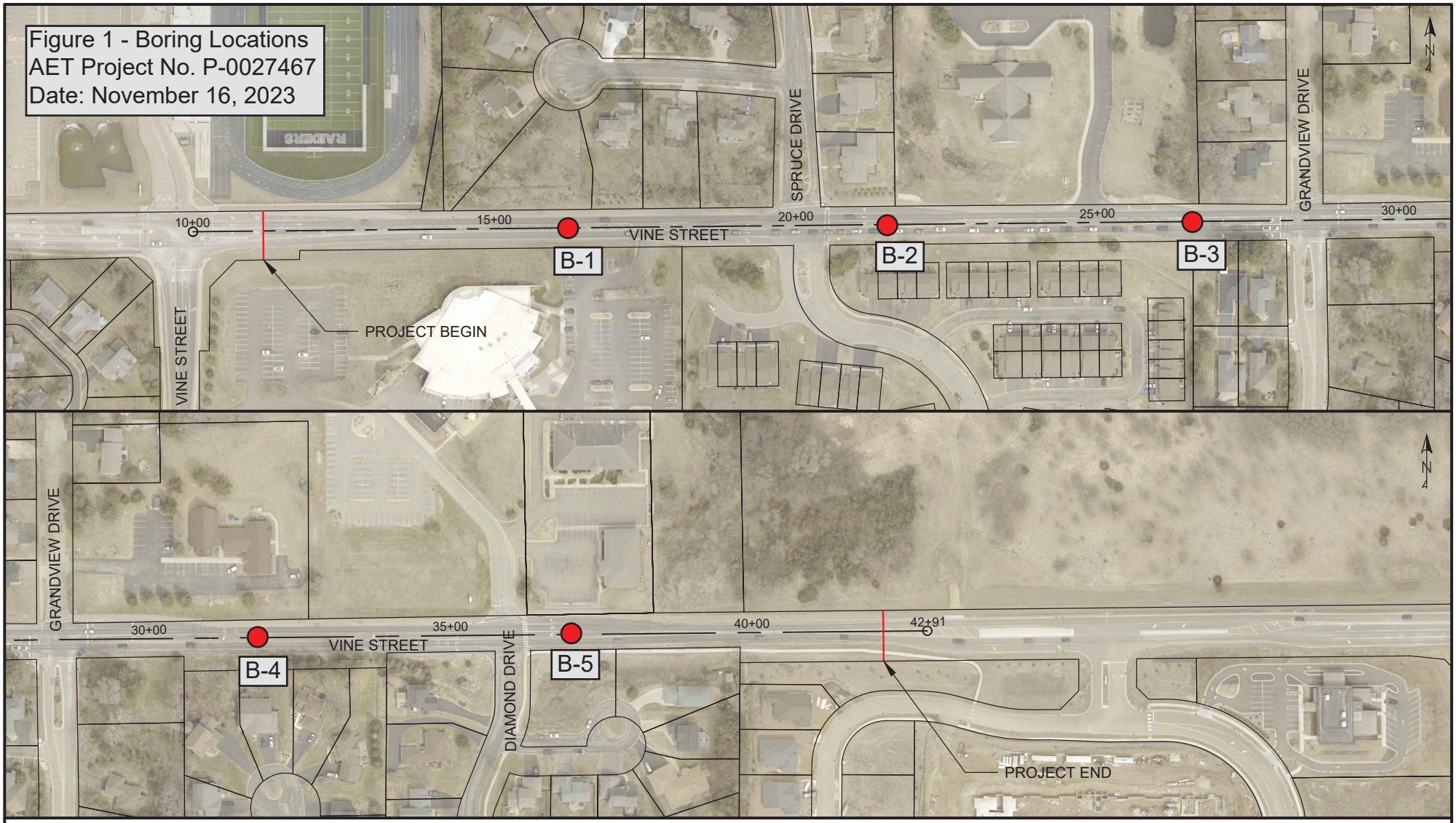
Term	Fiber Content (Visual Estimate)
Fibric Peat:	Greater than 67%
Hemic Peat:	33 – 67%
Sapric Peat:	Less than 33%

Organic Description (if no lab tests)

Soils are described as *organic*, if soil is not peat and is judged to have sufficient organic fines content to influence the Liquid Limit properties. *Slightly organic* used for borderline cases.

Root Inclusions

With roots: Judged to have sufficient quantity of roots to influence the soil properties.
Trace roots: Small roots present, but not judged to be in sufficient quantity to significantly affect soil properties.



CITY OF HUDSON, WI
ST.CROIX COUNTY

0 150 300 Feet

2024 STREET RECONSTRUCTION PROJECT
VINE ST (WISCONSIN ST TO DIAMOND DR)
BORING MAP
SEPTEMBER 2024

SUBSURFACE BORING LOG

AET No: **P-0027467** Log of Boring No. **B-1 (p. 1 of 1)**

Project: **Proposed Pavement Reconstruction; Vine Street (Wisconsin Street to Diamond Drive); Hudson, WI**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	qp	LL	PL	%-#200
	6.5 inches of bituminous pavement	PAVEMENT									
1	FILL (about 10 inches of apparent limestone base course), gravelly silty sand, fine to coarse grained, yellowish brown, moist (SM)	FILL	17	M	SS	14					18
	FILL, sand with silt, fine to medium grained, a little gravel, dark brown, moist (SP-SM)										
2	FILL, silty sand, fine to medium grained, a little gravel, brown and dark brown, moist (SM)										
3			7	M	SS	14	10				28
4											
5			6	M	SS	20					
	FILL, sand, fine to medium grained, brown, moist, with lenses of silty sand (SP)										
6	SILTY SAND, fine grained, grayish brown, moist, medium dense (SM)	COARSE ALLUVIUM									
7	SAND with gravel, fine to coarse grained, brown, moist, medium dense (SP)		11	M	SS	18					
8	Gravelly SAND, fine to coarse grained, brown, moist, medium dense (SP)										
9			16	M	SS	14					
10	*End of boring at 10.0 feet*										

DEPTH: DRILLING METHOD **0-8.0' 3.25" HSA**

BORING COMPLETED: **11/2/23**

DR: **GM** LG: **LD** Rig: **101**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
11/2/23	**0955**	**10.0**	**8.0**	**9.7**	**None**	**None**

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP P-0027467 - VINE STREET PAVEMENT RECONSTRUCTION.GPJ AET+CPT+WELL.GDT 11/16/23

SUBSURFACE BORING LOG

AET No: **P-0027467** Log of Boring No. **B-2 (p. 1 of 1)**

Project: **Proposed Pavement Reconstruction; Vine Street (Wisconsin Street to Diamond Drive); Hudson, WI**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	qp	LL	PL	%-#200
	6.0 inches of bituminous pavement	PAVEMENT									
1	FILL (about 13 inches of apparent limestone base course), gravelly silty sand, fine to coarse grained, yellowish brown, moist (SM)	FILL	27	M	SS	14					
2	FILL, sand with silt, fine to medium grained, a little gravel, dark brown, moist (SP-SM)										
	SAND, fine to coarse grained, a little gravel, brown, moist, medium dense (SP)	COARSE ALLUVIUM									
3			18	M	SS	16					
4	Gravelly SAND, fine to coarse grained, brown, moist, loose (SP)										
	SAND, fine to medium grained, brown, moist, loose, with a lens of silt near 5.75 feet (SP)										
5			8	M	SS	14					
6											
7			6	M	SS	18					
8											
9			5	M	SS	16					
10	*End of boring at 10.0 feet*										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-8.0'	**3.25" HSA**	**11/2/23**	**1020**	**10.0**	**8.0**	**9.8**	**None**	**None**
BORING COMPLETED:	**11/2/23**							
DR: **GM**	LG: **LD** Rig: **101**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP P-0027467 - VINE STREET PAVEMENT RECONSTRUCTION.GPJ AET+CPT+WELL.GDT 11/16/23

SUBSURFACE BORING LOG

AET No: **P-0027467** Log of Boring No. **B-3 (p. 1 of 1)**

Project: **Proposed Pavement Reconstruction; Vine Street (Wisconsin Street to Diamond Drive); Hudson, WI**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	qp	LL	PL	%-#200
	8.0 inches of bituminous pavement	PAVEMENT									
1	FILL (about 11 inches of apparent limestone base course), gravelly silty sand, fine to coarse grained, yellowish brown, moist (SM)	FILL	19	M	SS	12					
2	SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SP)	COARSE ALLUVIUM									
3			12	M	SS	16					
4	SAND, fine to coarse grained, a little gravel, brown, moist, medium dense (SP)										
5			11	M	SS	16					
6	SAND with gravel, fine to coarse grained, brown, moist, loose (SP)										
7			8	M	SS	8					
8	SAND, fine to medium grained, brown, moist, loose (SP)										
9			6	M	SS	16					
10	*End of boring at 10.0 feet*										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-8.0'	**3.25" HSA**	**11/2/23**	**1055**	**10.0**	**8.0**	**10.0**	**None**	**None**
BORING COMPLETED:	**11/2/23**							
DR: **GM**	LG: **LD** Rig: **101**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP P-0027467 - VINE STREET PAVEMENT RECONSTRUCTION.GPJ AET+CPT+WELL.GDT 11/16/23

SUBSURFACE BORING LOG

AET No: **P-0027467** Log of Boring No. **B-4 (p. 1 of 1)**

Project: **Proposed Pavement Reconstruction; Vine Street (Wisconsin Street to Diamond Drive); Hudson, WI**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	qp	LL	PL	%-#200
	5.0 inches of bituminous pavement	PAVEMENT									
1	FILL (about 13 inches of apparent limestone base course), gravelly silty sand, fine to coarse grained, yellowish brown, moist (SM)	FILL	20	M	SS	14					
2	FILL, sand, fine to medium grained, brown, moist, with lenses of silty sand (SP)										
3			7	M	SS	16					
4	FILL, silty sand, fine to medium grained, a little gravel, dark brown, moist (SM)										
	FILL, sandy silt, grayish brown, moist (ML)										
5	FILL, sand with gravel, fine to medium grained, brown, moist (SP)		12	M	SS	18					
6	FILL, silty sand, fine grained, brown, moist, with lenses of sand (SM)										
7	SAND with gravel, fine to coarse grained, brown, moist, medium dense (SP)	COARSE ALLUVIUM	15	M	SS	16					
8	SAND, fine to medium grained, brown, moist, loose (SP)										
9			10	M	SS	16					
10	*End of boring at 10.0 feet*										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-8.0' 3.25" HSA	**11/2/23**	**1120**	**10.0**	**8.0**	**9.9**	**None**	**None**
BORING COMPLETED: **11/2/23**							
DR: **GM** LG: **LD** Rig: **101**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP P-0027467 - VINE STREET PAVEMENT RECONSTRUCTION.GPJ AET+CPT+WELL.GDT 11/16/23

SUBSURFACE BORING LOG

AET No: **P-0027467** Log of Boring No. **B-5 (p. 1 of 1)**

Project: **Proposed Pavement Reconstruction; Vine Street (Wisconsin Street to Diamond Drive); Hudson, WI**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	qp	LL	PL	%-#200
	6.25 inches of bituminous pavement	PAVEMENT									
1	FILL (about 8.25 inches of apparent limestone base course), gravelly silty sand, fine to coarse grained, yellowish brown, moist (SM)	FILL	25	M	SS	16					
2	FILL, sand with silt and gravel, fine to medium grained, brown and dark brown, moist, with lenses of sandy silt (SP-SM)										
3			15	M	SS	16					
4											
5			12	M	SS	16					
6											
7			18	M	SS	4					
8											
9			15	M	SS	16					
10	*End of boring at 10.0 feet*										

DEPTH:	DRILLING METHOD
0-8.0'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

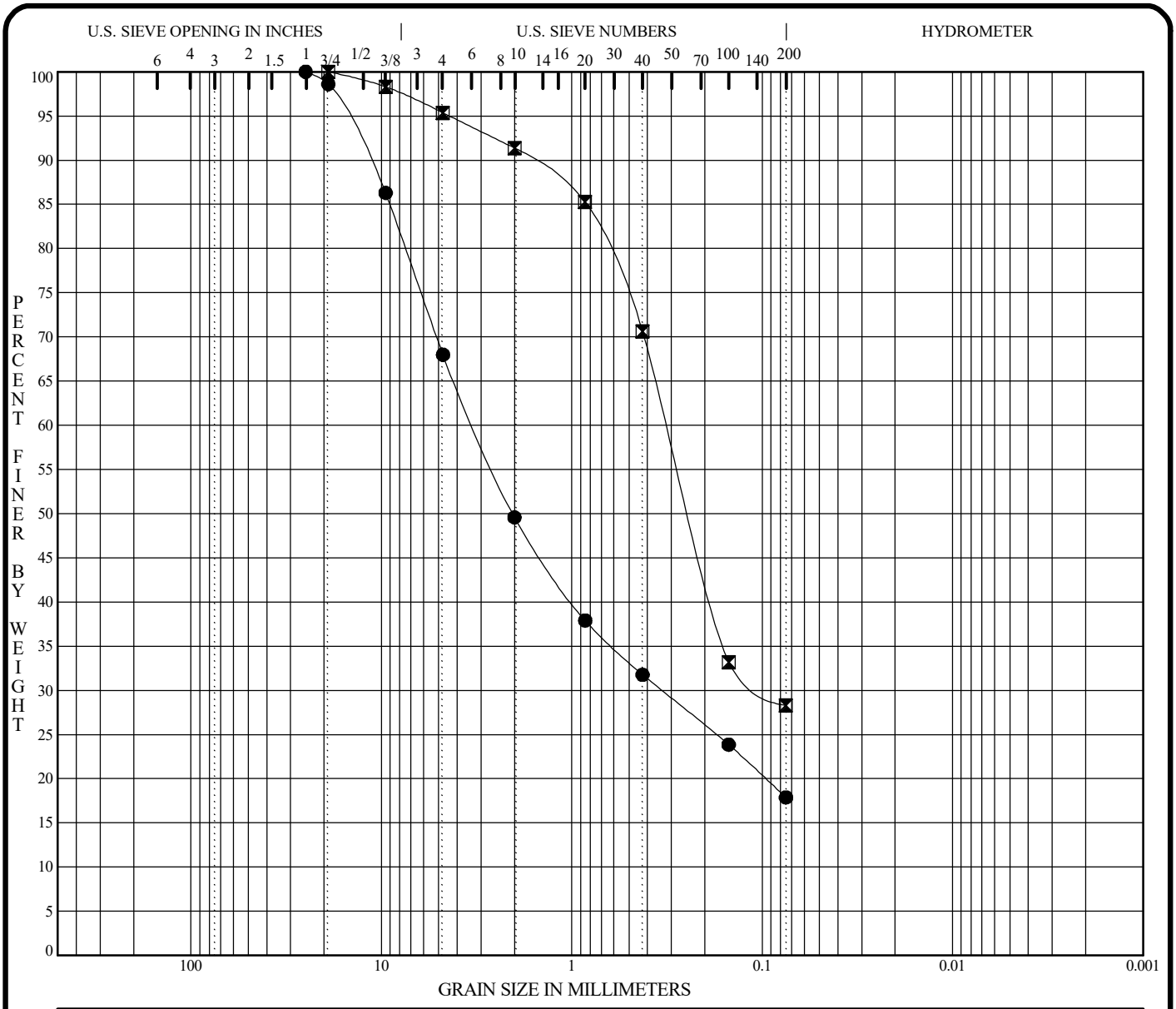
DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
11/2/23	**1145**	**10.0**	**8.0**	**9.6**	**None**	**None**

BORING COMPLETED: **11/2/23**

DR: **GM** LG: **LD** Rig: **101**

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP P-0027467 - VINE STREET PAVEMENT RECONSTRUCTION.GPJ AET+CPT+WELL.GDT 11/16/23



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**Base combo**	**~1.0'**	**Gravelly silty sand, f to c grained (SM)**						
⊠	**B-1**	**3.0'**	**Silty sand, f to m grained, a little gravel (SM)**	**10**					

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**Base combo**	**~1.0'**	**25.00**	**3.26**	**0.337**		**32.0**	**50.1**	**17.9**	
⊠	**B-1**	**3.0'**	**19.00**	**0.32**	**0.096**		**4.6**	**67.1**	**28.3**	

PROJECT **Proposed Pavement Reconstruction; Vine Street (Wisconsin Street to Diamond Drive); Hudson, WI**

AET JOB NO. **P-0027467**

DATE **11/2/23**

AMERICAN ENGINEERING TESTING

GRADATION CURVES

Appendix B

Geotechnical Report Limitations and Guidelines for Use

Appendix B
Geotechnical Report Limitations and Guidelines for Use
Project No. P-0027467

B.1 REFERENCE

This appendix provides information to help you manage your risks relating to subsurface problems which are caused by construction delays, cost overruns, claims, and disputes. This information was developed and provided by GBA[1], of which we are a member firm.

B.2 RISK MANAGEMENT INFORMATION

B.2.1 Understand the Geotechnical Engineering Services Provided for this Report

Geotechnical engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical engineering services is typically a geotechnical engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

B.2.2 Geotechnical Services are Performed for Specific Purposes, Persons, & Projects, & at Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared solely for the client.

Likewise, geotechnical engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do <u>not</u> rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

1 Geoprofessional Business Association, 15800 Crabbs Branch Way, Suite 300, Rockville, MD 20855 Telephone: 301/565-2733: www.geoprofessional.org

B.2.3 Read the Full Report

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. Read and refer to the report in full.

B.2.4 You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, always inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

B.2.5 Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

B.2.6 This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations only after observing actual subsurface conditions exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.

B.2.7 This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

B.2.8 Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical engineering report, along with any attachments or appendices, with your contract documents, but be certain to note conspicuously that you've included the material for information purposes only. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, only from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and be sure to allow enough time to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

B.2.9 Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions. Your geotechnical engineer should respond fully and frankly.

B.2.10 Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical engineering study. For that reason, a geotechnical engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated subsurface environmental problems have led to project failures. If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

B.2.11 Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. Geotechnical engineers are not building-envelope or mold specialists.

Appendix B

REPORT OF
GEOTECHNICAL EXPLORATION

Proposed Reconstruction
Green Street (11th Street to cul-de-sac)
Hudson, Wisconsin

AET Project No. P-0027466

Date: November 16, 2023

Prepared for:
City of Hudson
505 3rd Street
Hudson, Wisconsin 54016

Geotechnical • Materials
Forensic • Environmental
Building Technology
Petrography/Chemistry

American Engineering Testing
1837 County Highway OO
Chippewa Falls, Wisconsin 54729
teamAET.com • 715.861.5045

November 16, 2023

Ms. Erin McPhee Anderson, P.E., City Engineer
City of Hudson
505 3rd Street
Hudson, Wisconsin 54016

RE: Report of Geotechnical Exploration
Proposed Reconstruction
Green Street (11th Street to cul-de-sac)
Hudson, Wisconsin
AET Project No. P-0027466

Dear Ms. Anderson:

We are pleased to present the results of our subsurface exploration program for your Green Street reconstruction project in Hudson, Wisconsin. These services were performed according to our proposal to you dated October 3, 2023.

We are submitting an electronic (PDF) version of this geotechnical report to you. Unless you request otherwise, we will not submit any hard copies of the report.

We appreciate the opportunity to work with you on this phase of the project. Please contact us if you have questions about this report or require further assistance.

Sincerely,
American Engineering Testing, Inc.

Blake E. Snyder, P.E.
Geotechnical Engineer

1837 County Highway OO | Chippewa Falls, Wisconsin 54729
Phone 715-861-5045 | Fax 651-659-1379 | teamAET.com | AA/EEO
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AMERICAN ENGINEERING TESTING

SIGNATURE PAGE

Prepared for:

City of Hudson
505 3rd Street
Hudson, Wisconsin 54016

Attn: Ms. Erin McPhee Anderson, P.E.

Prepared by:

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Boring Log Notes
Unified Soil Classification System
Figure 1 – Boring Locations
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Gradation Curves

APPENDIX B Geotechnical Report Limitations and Guidelines for Use

1.0 INTRODUCTION

The City of Hudson is planning the reconstruction of Green Street from 11th Street to the cul-de-sac in Hudson, Wisconsin. To assist with planning and design, Ms. Erin McPhee Anderson, P.E., City Engineer for the City of Hudson authorized American Engineering Testing, Inc. (AET) to conduct a subsurface exploration program at the site and perform a geotechnical engineering review for the project. This report presents the results of the above services and provides our engineering recommendations based on this data.

2.0 SCOPE OF SERVICES

AET's services were performed according to our proposal to the City of Hudson dated October 3, 2023. The authorized scope consists of:

- Two standard penetration test borings to depths of 14 feet each
- Visual/manual classification and limited laboratory testing of the recovered soil samples
- Geotechnical engineering review based on the gained data and preparation of this report

These services are intended for geotechnical purposes. The scope is not intended to explore for the presence or extent of environmental contamination.

3.0 PROJECT INFORMATION

The project is proposed to include reconstruction of about 0.2 miles of Green Street from 11th Street to about 0.2 miles west to the cul-de-sac in Hudson, Wisconsin. In addition to a new pavement section, the project will also include new storm sewer utilities.

The above-stated information represents our understanding of the project and is an integral part of our engineering review. It is important we be contacted if there are changes from that described so we can evaluate if modifications to our recommendations are appropriate.

4.0 SUBSURFACE EXPLORATION AND TESTING

4.1 Field Exploration Program

Our subsurface exploration program for this project consisted of drilling two borings with standard penetration testing on November 2, 2023. The City of Hudson selected the number, depths, and the approximate locations of the borings. AET selected the final locations to avoid existing utilities. The boring locations are shown on Figure 1 in Appendix A.

Prior to drilling, we contacted Wisconsin Diggers Hotline to locate public underground utilities at the site. We drilled the borings using 3¼-inch-inside-diameter hollow-stem augers. Refer to Appendix A for details on the drilling and sampling methods, the classification methods, and the water level measurement details.

The boring logs are found in Appendix A and contain information concerning soil layering, geologic description, moisture condition, and USCS classifications. Relative density or consistency is also noted for the natural soils, which are based on the standard penetration resistance (N-value).

4.2 Laboratory Testing

We performed four moisture content tests and one unconfined compressive strength test (q_p, pocket penetrometer) on the recovered soil samples; these test results are shown on the boring logs, adjacent to the sample on which each test was performed. We also performed two sieve analysis tests on the recovered soil samples; these results are found after the boring logs in Appendix A.

5.0 SUBSURFACE CONDITIONS

5.1 Pavement and Soils

We measured 4.0 and 1.25 inches of bituminous pavement at the surface of our borings B-1 and B-2, respectively, overlying 1 and 5 inches of apparent (recycled and/or gravel) base course. In boring B-1 we encountered fill underlying the apparent base course to a depth of 5.5 feet, which consisted of silt with varying sand contents and sand with varying silt and gravel contents.

Underlying the fill in boring B-1 we encountered coarse alluvium consisting of loose to medium dense sand with varying gravel contents. In boring B-2 we encountered buried topsoil underlying the apparent base course, followed by fine and coarse alluvium. The fine alluvium was very loose silt with varying sand and gravel contents, and silty clay. The coarse alluvium consisted of loose to dense sand with varying gravel contents.

5.2 Groundwater

We did not observe a water level in any of the borings we drilled for this project. Because the coarse alluvium is relatively fast draining, it is our opinion the static water table was below the depths of our borings at the time of drilling. Groundwater levels will fluctuate due to varying seasonal and annual rainfall and snow melt amounts, as well as other factors. Piezometers would be needed to obtain long-term groundwater level measurements, which was beyond our scope of service.

6.0 OPEN CUT UTILITY RECOMMENDATIONS

6.1 Excavations

The sidewall slopes for all excavations must comply with OSHA regulations; we recommend that the soils be classified as OSHA Type C, but the final decision of the OSHA soil type should be made by the earthworks contractor's "competent person." For design and estimating purposes, we recommend that the sidewalls of unsupported excavations for this project be planned at no steeper than 1.5 units horizontal to 1 unit vertical (1.5H:1V), provided they are not below the water table.

The overburden soils exposed in the trench excavation will be susceptible to disturbance from traffic of construction equipment and workmen. If the equipment the contractor selects causes disturbance of the soils, it is the contractor's responsibility to switch to other types of equipment and/or earthwork methods. The responsibility to properly select construction equipment to avoid disturbing the soil on this site lies solely with the contractor.

If groundwater seepage, precipitation, or surface runoff accumulates in the excavations for utilities, the water should be promptly pumped out before the utilities or compacted fill are placed. The contractor should not be allowed to place compacted fill into standing water or over softened soils in an attempt to displace these materials. This technique can result in trapping softened soils under utilities or pavements, resulting in excessive post-construction settlement, even if the softened zone is only a few inches thick.

Depending on the groundwater levels (static and/or perched) at the time of construction, temporary construction dewatering may be required. The contractor is responsible for the selection of a proper dewatering system.

6.2 Trench Base Preparation and Pipe Bedding

If any soft soils are encountered during construction, we recommend subcutting them to 2 feet below the new pipe inverts. Subcutting of the soft soils must allow for appropriate lateral oversizing; the lateral zone of subcutting should extend out horizontally at least ½ foot from the outside edge of the pipe for every foot of fill required below the base of the pipe. This lateral oversize is to be measured at the base of the subcut, not at the surface.

Additionally, if oversized materials (cobbles and/or boulders) are encountered at pipe inverts, we recommend overexcavating to allow placement of a minimum of 6 inches of granular pipe bedding below the pipe.

After cutting or subcutting to the required subgrade elevation and before placement of bedding material and pipe installation, we recommend that the exposed soils be surface compacted with a manually-operated vibratory plate compactor. The contractor must be careful to not disturb the subgrade or to cause softening (pumping) of the subgrade with the compactive effort.

Where cohesive or semi-cohesive soils are present at the pipe invert, the soil at the bottom of the trench should be overexcavated to allow placement of a minimum of 6 inches of granular pipe bedding below the pipe. Similarly, if any cohesive or semi-cohesive soils are present at pipe subgrade elevation and are soft and susceptible to disturbance, we recommend placing a geotextile separation fabric between the subgrade and the pipe bedding to reduce mixing of the subgrade and the bedding.

Pipe bedding material should generally be medium to coarse grained sand with a fines content less than 5%. Pipe bedding material should be carefully placed and hand-compacted under the haunches of the pipes, around the pipes, and to a minimum of 6 inches above the crowns of the pipes.

6.3 Trench Backfill

We anticipate that the existing non-organic granular soils at the site will be suitable for re-use as trench backfill. The existing silt soils should not be re-used because they are very sensitive to moisture and will be difficult to adequately compact. Depending on weather patterns leading up to and during construction, some moisture conditioning of the fill will probably be required to meet compaction requirements.

The fill should be compacted in thin lifts such that the entirety of each lift is compacted to at least 95% of its maximum modified Proctor dry density (ASTM D1557). We anticipate a lift thickness of 6 inches will be appropriate, but this will depend on the compaction equipment, moisture content of the fill, and soil type. It is the contractor’s responsibility to select compaction equipment that will not damage the utilities. Field density testing should be performed as the fill is placed, not after the fill is placed.

If the soil is not properly moisture conditioned and compacted, the trench backfill will not provide adequate roadway support, potentially causing pavement (and utility) settlement and/or premature pavement cracking and fatigue.

7.0 PAVEMENT DISCUSSION AND DESIGN PARAMETERS

The shallower silts and organic soils we encountered in our borings could be considered for EBS due to their poor frost and drainage characteristics. If the silts are left in place the design team should anticipate a potentially reduced pavement lifespan and/or other detrimental effects. Additionally, these soils are highly susceptible to disturbance, especially when wet.

Prior to placement of any new fill, base course, or pavement, we recommend the exposed soils be surface compacted, and proof rolled with a fully-loaded tandem-axle dump truck (or other appropriate heavy machinery) and observed for signs of poor performance. Areas that show excessive deflection or rutting of more than 1 inch should be corrected.

Our recommended WisDOT pavement design parameters are provided in Table 1. These recommendations are based on the soil conditions found in our borings. If the subgrade conditions vary from those encountered in our borings, we should be contacted to review our recommendations.

Table 1 – Pavement Design Parameters

Design Parameter	Recommended Value
Frost Index	F-3
Wisconsin Design Group Index	13
Soil Support Value (without Select Materials)	4.1
Soil Support Value (with Select Materials)	4.7
Modulus of Subgrade Reaction	125 pci

8.0 CONSTRUCTION CONSIDERATIONS

8.1 Groundwater

Based on the conditions found in our borings, it is our opinion the contractor will probably not encounter groundwater in excavations for the new storm sewer. If water is encountered in the excavations, or if precipitation or surface runoff accumulates in the excavations, it should be promptly pumped out before compacted fill or utilities are placed. The contractor should not be allowed to place fill into standing water, or over softened soils in an attempt to displace these materials. This technique can result in trapping softened soils under pavements and/or utilities, resulting in excessive post-construction settlement, even if the softened zone is only a few inches thick.

8.2 Disturbance of Soils

The soils at this site are sensitive to disturbance and will become easily disturbed under construction traffic, especially when wet. If soils become disturbed, they should be subcut to the underlying undisturbed soils, followed by placement of new compacted fill.

8.3 Excavation Slopes

If excavation faces are not retained, the excavations should maintain maximum allowable slopes in accordance with *OSHA Regulations (Standards 29 CFR), Part 1926, Subpart P, "Excavations"* (can be found on www.osha.gov). Even with the required OSHA sloping, water seepage or surface runoff can potentially induce sideslope erosion or running which could require slope maintenance.

8.4 Observation and Testing

The recommendations in this report are based on the subsurface conditions found at our test boring locations. Since the soil conditions can be expected to vary away from the soil boring locations, we recommend on-site observation by a geotechnical engineer/technician during construction to evaluate these potential changes. Soil density testing should also be performed on new fill placed in order to document that project specifications for compaction have been met.

9.0 ASTM STANDARDS

When we refer to an ASTM Standard in this report, we mean that our services were performed in general accordance with that standard. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

10.0 LIMITATIONS

Within the limitations of scope, budget, and schedule, we have endeavored to provide our services according to generally accepted geotechnical engineering practices at this time and location. Other than this, no warranty, express or implied, is intended. Important information regarding risk management and proper use of this report is given in Appendix B entitled "Geotechnical Report Limitations and Guidelines for Use."

Appendix A

Geotechnical Field Exploration and Testing
Boring Log Notes
Unified Soil Classification System
Figure 1 – Boring Locations
Subsurface Boring Logs
Gradation Curves

Appendix A
Geotechnical Field Exploration and Testing
Project No. P-0027466

A.1 FIELD EXPLORATION

The subsurface conditions at the site were explored by drilling two geotechnical borings. The locations are shown on Figure 1.

A.2 SAMPLING METHODS

A.2.1 Split-Spoon Samples (SS) - Calibrated to N_{60} Values

Standard penetration (split-spoon) samples were collected in general accordance with ASTM: D1586. The ASTM test method consists of driving a 2-inch O.D. split-barrel sampler into the in-situ soil with a 140-pound hammer dropped from a height of 30 inches. After an initial set of 6 inches, the number of hammer blows to drive the sampler the next 12 inches is known as the standard penetration resistance or N-value.

In the past, standard penetration N-value tests were performed using a rope and cathead for the lift and drop system. The energy transferred to the split-spoon sampler was typically limited to about 60% of its potential energy due to the friction inherent in that system. That converted energy provided what is known as an N60 blow count.

Most drill rigs today incorporate an automatic hammer lift and drop system, which has higher energy efficiency and subsequently results in lower N-values than the traditional N60 values. We use a Pile Driving Analyzer (PDA) and an instrumented rod to measure the actual energy generated by the automatic hammer system. The drill rig (AET rig number 101) we used for this project has a measured energy transfer ratio of 80%. The N-values reported on the boring logs and the corresponding relative densities and consistencies are from the field blow counts and have not been adjusted to N60 values.

A.2.2 Disturbed Samples (DS)/Spin-up Samples (SU)

Sample types described as “DS” or “SU” on the boring logs are disturbed samples, which are taken from the flights of the auger. Because the auger disturbs the samples, possible soil layering and contact depths should be considered approximate.

A.2.3 Sampling Limitations

Unless actually observed in a sample, contacts between soil layers are estimated based on the spacing of samples and the action of drilling tools. Cobbles, boulders, and other large objects generally cannot be recovered from test borings, and they may be present in the ground even if they are not noted on the boring logs.

Determining the thickness of “topsoil” layers is usually limited, due to variations in topsoil definition, sample recovery, and other factors. Visual-manual description often relies on color for determination, and transitioning changes can account for significant variation in thickness judgment. Accordingly, the topsoil thickness presented on the logs should not be the sole basis for calculating topsoil stripping depths and volumes. If more accurate information is needed relating to thickness and topsoil quality definition, alternate methods of sample retrieval and testing should be employed.

A.3 CLASSIFICATION METHODS

Soil descriptions shown on the boring logs are based on the Unified Soil Classification System (USCS). The USCS is described in ASTM: D2487 and D2488. Where laboratory classification tests (sieve analysis or Atterberg Limits) have been performed, accurate classifications per ASTM: D2487 are possible. Otherwise, soil descriptions shown on the boring logs are visual-manual judgments. Charts are attached which provide information on the USCS, the descriptive terminology, and the symbols used on the boring logs.

The boring logs include descriptions of apparent geology. The geologic depositional origin of each soil layer is interpreted primarily by observation of the soil samples, which can be limited. Observations of the surrounding topography, vegetation, and development can sometimes aid this judgment.

A.4 WATER LEVEL MEASUREMENTS

The ground water level measurements are shown at the bottom of the boring logs. The following information appears under “Water Level Measurements” on the logs:

- Date and Time of measurement
- Sampled Depth: lowest depth of soil sampling at the time of measurement
- Casing Depth: depth to bottom of casing or hollow-stem auger at time of measurement
- Cave-in Depth: depth at which measuring tape stops in the borehole
- Water Level: depth in the borehole where free water is encountered
- Drilling Fluid Level: same as Water Level, except that the liquid in the borehole is drilling fluid

The true location of the water table at the boring locations may be different than the water levels measured in the boreholes. This is possible because there are several factors that can affect the water level measurements in the borehole. Some of these factors include: permeability of each soil layer in profile, presence of perched water, amount of time between water level readings, presence of drilling fluid, weather conditions, and use of borehole casing.

A.5 TEST STANDARD LIMITATIONS

Field and laboratory testing is done in general conformance with the described procedures. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

A.6 SAMPLE STORAGE

Unless notified to do otherwise, we routinely retain representative samples of the soils recovered from the borings for a period of 30 days.

BORING LOG NOTES

DRILLING AND SAMPLING SYMBOLS

Symbol	Definition
B, H, N:	Size of flush-joint casing
CA:	Crew Assistant (initials)
CAS:	Pipe casing, number indicates nominal diameter in inches
CC:	Crew Chief (initials)
COT:	Clean-out tube
DC:	Drive casing; number indicates diameter in inches
DM:	Drilling mud or bentonite slurry
DR:	Driller (initials)
DS:	Disturbed sample from auger flights
FA:	Flight auger; number indicates outside diameter in inches
HA:	Hand auger; number indicates outside diameter
HSA:	Hollow stem auger; number indicates inside diameter in inches
LG:	Field logger (initials)
MC:	Column used to describe moisture condition of samples and for the ground water level symbols
N (BPF):	Standard penetration resistance (N-value) in blows per foot (see notes)
NQ:	NQ wireline core barrel
PQ:	PQ wireline core barrel
RD:	Rotary drilling with fluid and roller or drag bit
REC:	In split-spoon (see notes) and thin-walled tube sampling, the recovered length (in inches) of sample. In rock coring, the length of core recovered (expressed as percent of the total core run). Zero indicates no sample recovered.
REV:	Revert drilling fluid
SS:	Standard split-spoon sampler (steel; 1" is inside diameter; 2" outside diameter); unless indicated otherwise
SU	Spin-up sample from hollow stem auger
TW:	Thin-walled tube; number indicates inside diameter in inches
WASH:	Sample of material obtained by screening returning rotary drilling fluid or by which has collected inside the borehole after "falling" through drilling fluid
WH:	Sampler advanced by static weight of drill rod and 140-pound hammer
WR:	Sampler advanced by static weight of drill rod
94mm:	94 millimeter wireline core barrel
▼:	Water level directly measured in boring
▽:	Estimated water level based solely on sample appearance

TEST SYMBOLS

Symbol	Definition
CONS:	One-dimensional consolidation test
DEN:	Dry density, pcf
DST:	Direct shear test
E:	Pressuremeter Modulus, tsf
HYD:	Hydrometer analysis
LL:	Liquid Limit, %
LP:	Pressuremeter Limit Pressure, tsf
OC:	Organic Content, %
PERM:	Coefficient of permeability (K) test; F - Field; L - Laboratory
PL:	Plastic Limit, %
q_p:	Pocket Penetrometer strength, tsf (approximate)
q_c:	Static cone bearing pressure, tsf
q_u:	Unconfined compressive strength, psf
R:	Electrical Resistivity, ohm-cms
RQD:	Rock Quality Designation of Rock Core, in percent (aggregate length of core pieces 4" or more in length as a percent of total core run)
SA:	Sieve analysis
TRX:	Triaxial compression test
VSR:	Vane shear strength, remolded (field), psf
VSU:	Vane shear strength, undisturbed (field), psf
WC:	Water content, as percent of dry weight
%-200:	Percent of material finer than #200 sieve

STANDARD PENETRATION TEST NOTES

The standard penetration test consists of driving the sampler with a 140 pound hammer and counting the number of blows applied in each of three 6" increments of penetration. If the sampler is driven less than 18" (usually in highly resistant material), permitted in ASTM: D1586, the blows for each complete 6" increment and for each partial increment is on the boring log. For partial increments, the number of blows is shown to the nearest 0.1' below the slash.

The length of sample recovered, as shown on the "REC" column, may be greater than the distance indicated in the N column. The disparity is because the N-value is recorded below the initial 6" set (unless partial penetration defined in ASTM: D1586 is encountered) whereas the length of sample recovered is for the entire sampler drive (which may even extend more than 18").

UNIFIED SOIL CLASSIFICATION SYSTEM
ASTM Designations: D 2487, D2488

AMERICAN ENGINEERING TESTING, INC.

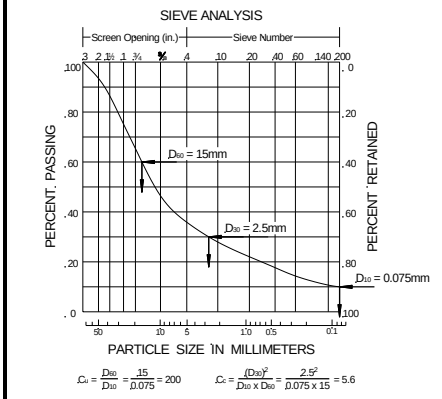
Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification: Group Symbol	Soil Classification: Group Name[B]
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines[C]	Cu≥4 and 1≤Cc≤3[E]	GW	Well graded gravel[F]
			Cu<4 and/or 1>Cc>3[E]	GP	Poorly graded gravel[F]
		Gravels with Fines more than 12% fines[C]	Fines classify as ML or MH	GM	Silty gravel[F,G,H]
			Fines classify as CL or CH	GC	Clayey gravel[F,G,H]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines[D]	Cu≥6 and 1≤Cc≤3[E]	SW	Well-graded sand[I]
			Cu<6 and/or 1>Cc>3[E]	SP	Poorly-graded sand[I]
		Sands with Fines more than 12% fines[D]	Fines classify as ML or MH	SM	Silty sand[G,H,I]
			Fines classify as CL or CH	SC	Clayey sand[G,H,I]
Fine-Grained Soils 50% or more passes the No. 200 sieve (see Plasticity Chart below)	Silts and Clays Liquid limit less than 50	inorganic	PI>7 and plots on or above "A" line[J]	CL	Lean clay[K,L,M]
			PI<4 or plots below "A" line[J]	ML	Silt[K,L,M]
		organic	Liquid limit–oven dried / Liquid limit – not dried <0.75	OL	Organic clay[K,L,M,N] / Organic silt[K,L,M,O]
	Silts and Clays Liquid limit 50 or more	inorganic	PI plots on or above "A" line	CH	Fat clay[K,L,M]
			PI plots below "A" line	MH	Elastic silt[K,L,M]
		organic	Liquid limit–oven dried / Liquid limit – not dried <0.75	OH	Organic clay[K,L,M,P] / Organic silt[K,L,M,Q]
Highly organic soil			Primarily organic matter, dark in color, and organic in odor	PT	Peat[R]

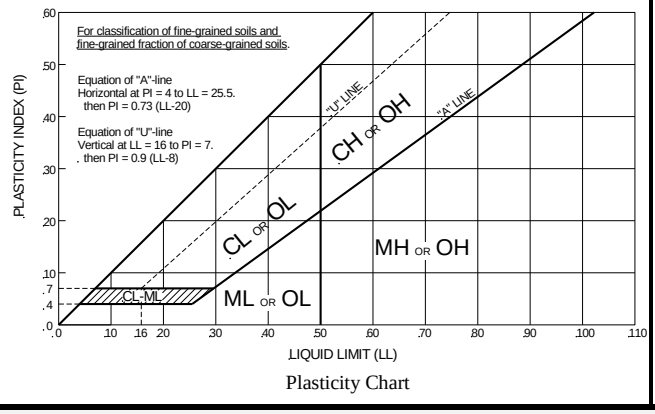
Notes

[A]Based on the material passing the 3-in (75-mm) sieve.
[B]If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C]Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
[D]Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay

[E]$Cu = D_{60} / D_{10}$, $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[F]If soil contains ≥15% sand, add "with sand" to group name.
[G]If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H]If fines are organic, add "with organic fines" to group name.
[I]If soil contains ≥15% gravel, add "with gravel" to group name.
[J]If Atterberg limits plot is hatched area, soil is a CL-ML silty clay.
[K]If soil contains 15 to 29% plus No. 200 add "with sand" or "with gravel", whichever is predominant.
[L]If soil contains ≥30% plus No. 200, predominantly sand, add "sandy" to group name.
[M]If soil contains ≥30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N]PI≥4 and plots on or above "A" line.
[O]PI<4 or plots below "A" line.
[P]PI plots on or above "A" line.
[Q]PI plots below "A" line.
[R]Fiber Content description shown below.





Plasticity Chart

ADDITIONAL TERMINOLOGY NOTES USED BY AET FOR SOIL IDENTIFICATION AND DESCRIPTION

Grain Size

Term	Particle Size
Boulders	Over 12"
Cobbles	3" to 12"
Gravel	#4 sieve to 3"
Sand	#200 to #4 sieve
Fines (silt & clay)	Pass #200 sieve

Gravel Percentages

Term	Percent
A Little Gravel	3% - 14%
With Gravel	15% - 29%
Gravelly	30% - 50%

Consistency of Plastic Soils

Term	N-Value, BPF
Very Soft	less than 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	Greater than 30

Relative Density of Non-Plastic Soils

Term	N-Value, BPF
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	Greater than 50

Moisture/Frost Condition

(MC Column)

D (Dry): Absence of moisture, dusty, dry to touch.
M (Moist): Damp, although free water not visible. Soil may still have a high water content (over "optimum").
W (Wet/ Waterbearing): Free water visible, intended to describe non-plastic soils. Waterbearing usually relates to sands and sand with silt.
F (Frozen): Soil frozen

Layering Notes

Laminations: Layers less than ½" thick of differing material or color.
Lenses: Pockets or layers greater than ½" thick of differing material or color.

Peat Description

Term	Fiber Content (Visual Estimate)
Fibric Peat:	Greater than 67%
Hemic Peat:	33 – 67%
Sapric Peat:	Less than 33%

Organic Description (if no lab tests)

Soils are described as *organic*, if soil is not peat and is judged to have sufficient organic fines content to influence the Liquid Limit properties. *Slightly organic* used for borderline cases.

Root Inclusions

With roots: Judged to have sufficient quantity of roots to influence the soil properties.
Trace roots: Small roots present, but not judged to be in sufficient quantity to significantly affect soil properties.


Figure 1 - Boring Locations
AET Project No. P-0027466
Date: November 16, 2023
SUMMER STREET
10+00
15+00
20+00
22+30
GREEN STREET
B-1
B-2
11TH STREET
CITY OF HUDSON, WI
ST.CROIX COUNTY
0
100
200
Feet
2024 STREET RECONSTRUCTION PROJECT
GREEN ST
BORING MAP
SEPTEMBER 2024

SUBSURFACE BORING LOG

AET No: **P-0027466** Log of Boring No. **B-1 (p. 1 of 2)**

Project: **Proposed Pavement Reconstruction; Green Street (11th Street to cul-de-sac); Hudson, Wisconsin**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	qp	LL	PL	%-#200
	4.0 inches of bituminous pavement	PAVEMENT									
	FILL (about 1 inch of apparent recycled bituminous base course), silty sand with gravel, fine to medium grained, very dark brown, moist (SM)	FILL									
1	FILL, silty sand, fine to medium grained, brown, moist (SM)										
	FILL, silt with sand, brown, moist (ML)		9	M	SS	14	17				80
2	FILL, sand with silt, fine to medium grained, a little gravel, brown, moist, with lenses of silt near 3 feet and 5 feet, possible coarse alluvium (SP-SM)										
3			7	M	SS	14					
4											
5											
	SAND, fine to coarse grained, a little gravel, brown, moist, loose (SP)	COARSE ALLUVIUM	5	M	SS	14					
6											

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-12.0' 3.25" HSA	**11/2/23**	**0820**	**14.0**	**12.0**	**13.3**	**None**	**None**
BORING COMPLETED: **11/2/23**							
DR: **GM** LG: **LD** Rig: **101**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP P-0027466 - GREEN STREET PAVEMENT RECONSTRUCTION.GPJ AET+CPT+WELL.GDT 11/16/23

SUBSURFACE BORING LOG

AET No: **P-0027466** Log of Boring No. **B-1 (p. 2 of 2)**

Project: **Proposed Pavement Reconstruction; Green Street (11th Street to cul-de-sac); Hudson, Wisconsin**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	qp	LL	PL	%-#200
	SAND, fine to coarse grained, a little gravel, brown, moist, loose (SP) *(continued)*	COARSE ALLUVIUM *(continued)*									
7	Gravelly SAND, fine to coarse grained, brown, moist, loose (SP)										
8			8	M	SS	10					
9											
	SAND, fine to medium grained, brown, moist, loose to medium dense, with laminations of silt from 12 to 14 feet (SP)										
10											
			9	M	SS	16					
11											
12											
13			24	M	SS	16					
14	*End of boring at 14.0 feet*										

AET_CORP P-0027466 - GREEN STREET PAVEMENT RECONSTRUCTION.GPJ AET+CPT+WELL.GDT 11/16/23

SUBSURFACE BORING LOG

AET No: **P-0027466** Log of Boring No. **B-2 (p. 1 of 2)**

Project: **Proposed Pavement Reconstruction; Green Street (11th Street to cul-de-sac); Hudson, Wisconsin**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	qp	LL	PL	%-#200
	1.25 inches of bituminous pavement	PAVEMENT									
	FILL (about 3 inches of apparent recycled bituminous base course), gravelly silty sand, fine to medium grained, very dark brown, moist (SM)	FILL									
	FILL (about 2 inches of apparent gravel base course), gravelly sand with silt, fine to medium grained, brown, moist (SP-SM)	BURIED TOPSOIL									
1	SILT with organics, very dark brown, moist (OL)		4	M	SS	14	26				
2	SILT with sand, a little gravel, brown, moist, very loose (ML)	FINE ALLUVIUM									
3			4	M	SS	12	23				70
4											
5	SAND with gravel, fine to medium grained, brown, moist, loose (SP)	COARSE ALLUVIUM									
			9	M	SS	16					
6											

DEPTH:	DRILLING METHOD
0-12.0'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
11/2/23	**0900**	**14.0**	**12.0**	**13.1**	**None**	**None**

BORING COMPLETED: **11/2/23**

DR: **GM** LG: **LD** Rig: **101**

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP P-0027466 - GREEN STREET PAVEMENT RECONSTRUCTION.GPJ AET+CPT+WELL.GDT 11/16/23

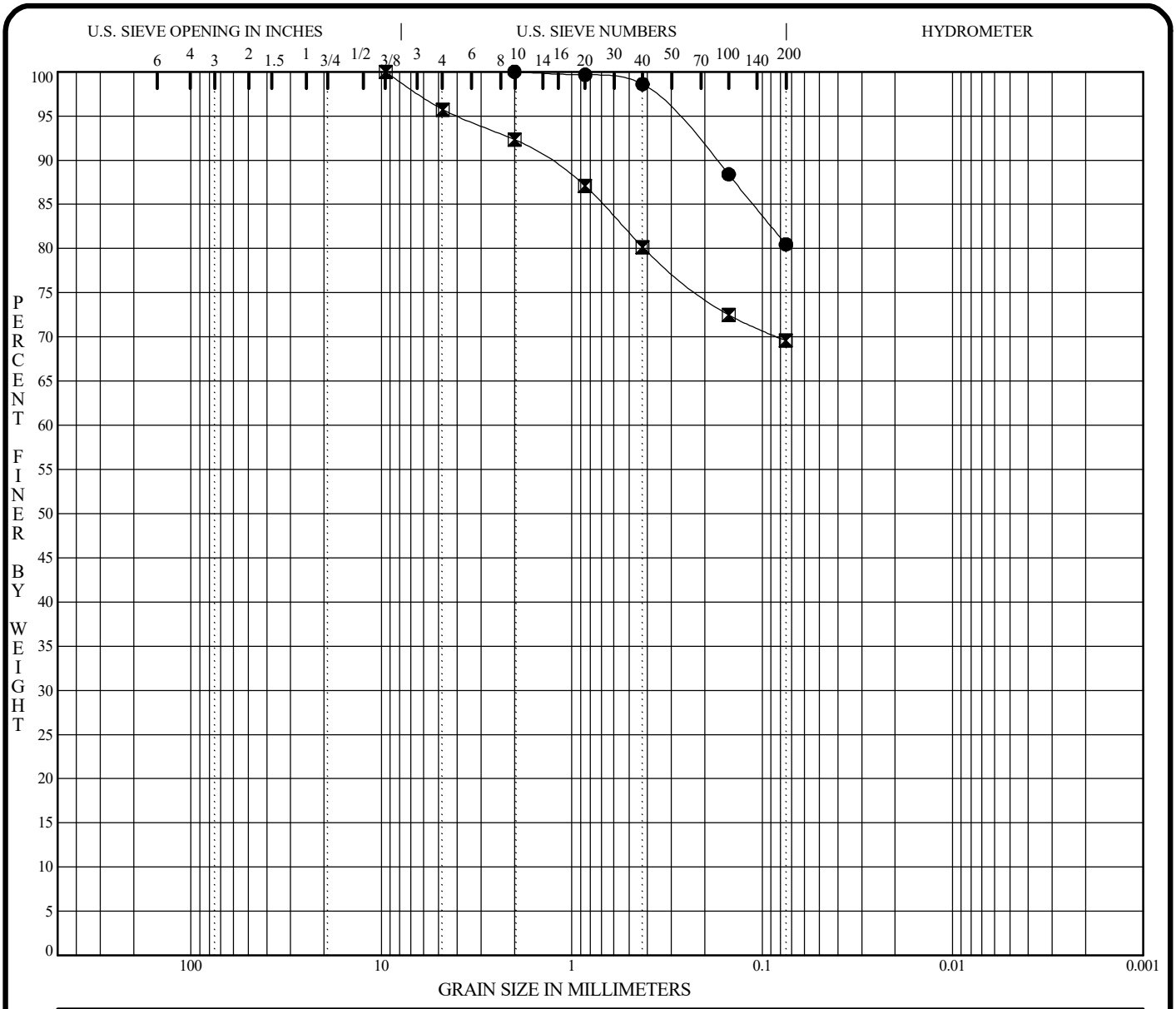
SUBSURFACE BORING LOG

AET No: **P-0027466** Log of Boring No. **B-2 (p. 2 of 2)**

Project: **Proposed Pavement Reconstruction; Green Street (11th Street to cul-de-sac); Hudson, Wisconsin**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	qp	LL	PL	%-#200
	SAND with gravel, fine to medium grained, brown, moist, loose (SP) *(continued)*	COARSE ALLUVIUM *(continued)*									
7	SAND with gravel, fine to coarse grained, brown, moist, dense (SP)										
8			31	M	SS	14					
9											
	SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SP)										
10											
			20	M	SS	16					
11											
12	SILTY CLAY, reddish brown (CL-ML)	FINE ALLUVIUM					28	1.25			
	SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SP)	COARSE ALLUVIUM									
13			23	M	SS	20					
14	*End of boring at 14.0 feet*										

AET_CORP P-0027466 - GREEN STREET PAVEMENT RECONSTRUCTION.GPJ AET+CPT+WELL.GDT 11/16/23



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**B-1**	**1.2'**	**Silt with sand (ML)**	**17**					
⧓	**B-2**	**3.0'**	**Silt with sand, a little gravel (ML)**	**23**					

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-1**	**1.2'**	**2.00**				**0.0**	**19.5**	**80.5**	
⧓	**B-2**	**3.0'**	**9.50**				**4.3**	**26.2**	**69.6**	

PROJECT **Proposed Pavement Reconstruction; Green Street (11th Street to cul-de-sac); Hudson, Wisconsin**

AET JOB NO. **P-0027466**

DATE **11/2/23**

AMERICAN ENGINEERING TESTING

GRADATION CURVES

Appendix B

Geotechnical Report Limitations and Guidelines for Use

Appendix B
Geotechnical Report Limitations and Guidelines for Use
Project No. P-0027466

B.1 REFERENCE

This appendix provides information to help you manage your risks relating to subsurface problems which are caused by construction delays, cost overruns, claims, and disputes. This information was developed and provided by GBA[1], of which we are a member firm.

B.2 RISK MANAGEMENT INFORMATION

B.2.1 Understand the Geotechnical Engineering Services Provided for this Report

Geotechnical engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical engineering services is typically a geotechnical engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

B.2.2 Geotechnical Services are Performed for Specific Purposes, Persons, & Projects, & at Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared solely for the client.

Likewise, geotechnical engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do <u>not</u> rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

1 Geoprofessional Business Association, 15800 Crabbs Branch Way, Suite 300, Rockville, MD 20855 Telephone: 301/565-2733: www.geoprofessional.org

B.2.3 Read the Full Report

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. Read and refer to the report in full.

B.2.4 You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, always inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

B.2.5 Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

B.2.6 This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations only after observing actual subsurface conditions exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.

B.2.7 This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

B.2.8 Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical engineering report, along with any attachments or appendices, with your contract documents, but be certain to note conspicuously that you've included the material for information purposes only. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, only from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and be sure to allow enough time to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

B.2.9 Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions. Your geotechnical engineer should respond fully and frankly.

B.2.10 Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical engineering study. For that reason, a geotechnical engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated subsurface environmental problems have led to project failures. If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

B.2.11 Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. Geotechnical engineers are not building-envelope or mold specialists.

EXISTING

- RIGHT OF WAY
- PERMANENT EASEMENT
- PROPERTY LINE
- HORIZONTAL CONTROL POINT
- BENCHMARK
- SURVEY MARKER
- SOIL BORING
- SANITARY SEWER AND MANHOLE
- FORCE MAIN AND LIFT STATION
- SANITARY SEWER SERVICE & CLEANOUT
- WATER MAIN, HYDRANT, VALVE AND MANHOLE
- WATER SERVICE AND CURB STOP BOX
- STORM SEWER, MANHOLE AND CATCH BASIN
- CULVERT AND APRON ENDWALL
- GAS MAIN, VALVE, VENT AND METER
- HANDHOLE
- BURIED FIBER OPTIC CABLE AND MANHOLE
- BURIED PHONE CABLE, PEDESTAL AND MANHOLE
- BURIED TV CABLE, PEDESTAL AND MANHOLE
- BURIED ELECTRIC CABLE, PEDESTAL, MANHOLE, TRANSFORMER AND METER
- OVERHEAD WIRE, POLE AND GUY WIRE
- LIGHT POLE
- TRAFFIC SIGNAL
- STREET NAME SIGN
- SIGN (NON STREET NAME)
- RAILROAD TRACKS
- DECIDUOUS AND CONIFEROUS TREE
- BUSH / SHRUB AND STUMP
- EDGE OF WOODED AREA
- WETLAND
- BUILDING
- FENCE (UNIDENTIFIED)
- BARBED WIRE FENCE
- CHAIN LINK FENCE
- ELECTRIC WIRE FENCE
- WOOD FENCE
- WOVEN WIRE FENCE
- PLATE BEAM GUARDRAIL
- CABLE GUARDRAIL
- POST / BOLLARD
- RETAINING WALL

PROPOSED

- STREET CENTERLINE
- RIGHT-OF-WAY
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- CONSTRUCTION LIMITS
- SANITARY SEWER, BULKHEAD AND MANHOLE
- FORCE MAIN
- SANITARY SERVICE AND CLEANOUT
- WATER MAIN, TEE, HYDRANT, BULKHEAD AND VALVE
- WATER VALVE MANHOLE, REDUCER, BEND AND CROSS
- WATER SERVICE AND CURB STOP BOX
- STORM SEWER, MANHOLE AND CATCH BASIN
- CULVERT AND APRON ENDWALL
- DRAIN TILE
- DITCH / SWALE
- RIPRAP
- STREET NAME SIGN
- SIGN (NON STREET NAME)
- RETAINING WALL

CITY OF
HUDSON, WISCONSIN

CONSTRUCTION PLANS FOR

VINE STREET & GREEN STREET
(WISCONSIN ST - 625' EAST OF DIAMOND DR | 11TH ST - TERMINI)

2024 STREET IMPROVEMENTS

CITY PROJECT NO. 24-01



N

PROJECT LOCATION



CITY OF HUDSON,
ST. CROIX COUNTY

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	CONSTRUCTION NOTES
3-4	QUANTITIES (GREEN & VINE ST.)
5	UTILITY TABULATIONS (GREEN & VINE ST.)
6	TYPICAL SECTIONS (VINE ST.)
7	TYPICAL SECTIONS (GREEN ST.)
8-14	DETAILS
15-18	REMOVALS (VINE ST.)
19-22	EROSION CONTROL (VINE ST.)
23	DETOUR PLAN (VINE ST.)
24-30	PLAN & PROFILE (VINE ST.)
31-34	PAVEMENT MARKINGS (VINE ST.)
35	INTERSECTION DETAIL (VINE ST.)
36	POND GRADING PLAN (VINE ST.)
37-51	CROSS SECTIONS (VINE ST.)
52-53	REMOVALS (GREEN ST.)
54-55	EROS. CTL. & TRAFFIC CONTROL (GREEN ST.)
56-58	PLAN & PROFILE (GREEN ST.)
59-64	CROSS SECTIONS (GREEN ST.)

THIS PLAN CONTAINS 64 SHEETS.

NOTE:
THE SUBSURFACE UTILITY QUALITY INFORMATION IN THIS PLAN IS LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

THE CONTRACTOR SHALL CALL THE WISCONSIN ONE CALL SYSTEM AT 811 BEFORE COMMENCING EXCAVATION.

811 Know what's below. Call before you dig.

VINE ST. SHEET NO. 1-2, 6, 8-51

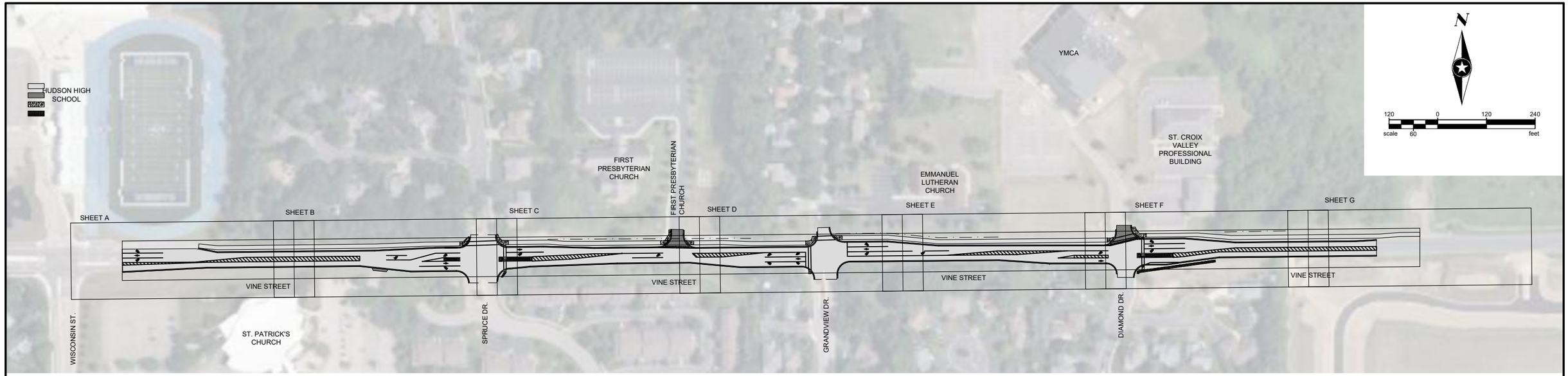
GREEN ST. SHEET NO. 3-5, 7, 52-64

HUDSON, WISCONSIN

SEH
PHONE: 715.246.9906
156 HIGH STREET,
SUITE 300
NEW RICHMOND, WI 54017
www.sehinc.com

PROJECT NO. 175833

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EROSION CONTROL NOTES:

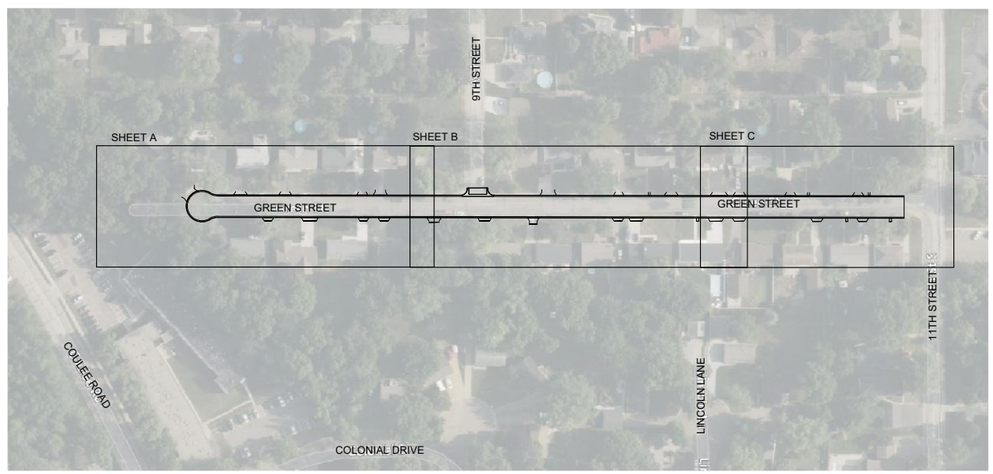
1. POST WDNR CERTIFICATE OF PERMIT COVERAGE ON SITE AND MAINTAIN UNTIL CONSTRUCTION ACTIVITIES HAVE CEASED, THE SITE IS STABILIZED, AND A NOTICE OF TERMINATION IS FILED WITH WDNR.
2. KEEP A COPY OF THE CURRENT EROSION CONTROL PLAN ON SITE THROUGHOUT THE DURATION OF THE PROJECT.
3. SUBMIT PLAN REVISIONS OR AMENDMENTS TO THE WDNR AT LEAST 5 DAYS PRIOR TO FIELD IMPLEMENTATION.
4. CONTRACTOR IS RESPONSIBLE FOR ROUTINE SITE INSPECTIONS AT LEAST ONCE EVERY 7 DAYS AND WITHIN 24 HOURS AFTER A RAINFALL EVENT OF 0.5 INCHES OR GREATER. KEEP INSPECTION REPORTS ON-SITE AND MAKE THEM AVAILABLE UPON REQUEST.
5. INSPECT AND MAINTAIN ALL INSTALLED EROSION CONTROL PRACTICES UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.
6. INSTALL PERIMETER EROSION CONTROLS AND ROCK TRACKING PAD CONSTRUCTION ENTRANCE(S) PRIOR TO ANY LAND-DISTURBING ACTIVITIES, INCLUDING CLEARING AND GRUBBING. USE CITY STANDARD DETAIL ERO-1 FOR ROCK CONSTRUCTION ENTRANCE(S).
7. INSTALL INLET PROTECTION PRIOR TO LAND-DISTURBING ACTIVITIES IN THE CONTRIBUTING DRAINAGE AREA AND/OR IMMEDIATELY UPON INLET INSTALLATION. COMPLY WITH CITY STANDARD DETAIL ERO-8 FOR INLET PROTECTION CATCH BASIN INSERT.
8. INSTALL AND MAINTAIN SILT FENCING PER CITY STANDARD DETAIL ERO-2 FOR SILT FENCE. REMOVE SEDIMENT FROM BEHIND SILT FENCES AND SEDIMENT BARRIERS BEFORE SEDIMENT REACHES A DEPTH THAT IS EQUAL TO ONE-HALF OF THE FENCE AND/OR BARRIER HEIGHT.
9. REPAIR BREAKS AND GAPS IN SILT FENCES AND BARRIERS IMMEDIATELY.
10. IMMEDIATELY STABILIZE ALL DISTURBED AREAS THAT WILL REMAIN INACTIVE FOR 14 DAYS OR LONGER.
11. STABILIZE AREAS OF FINAL GRADING WITHIN 7 DAYS OF REACHING FINAL GRADE.
12. SWEEP/CLEAN UP ALL SEDIMENT/TRASH THAT MOVES OFF-SITE DUE TO CONSTRUCTION ACTIVITY OR STORM EVENTS BEFORE THE END OF THE SAME WORKDAY OR AS DIRECTED BY THE ENGINEER. SEPARATE SWEPT MATERIALS (SOILS AND TRASH) AND DISPOSE OF APPROPRIATELY.
13. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST PER WDNR TECHNICAL STANDARD DUST CONTROL ON CONSTRUCTION SITES # 1068.
14. PROPERLY DISPOSE OF ALL WASTE AND UNUSED BUILDING MATERIALS (INCLUDING GARBAGE, DEBRIS, CLEANING WASTES, OR OTHER CONSTRUCTION MATERIALS) AND DO NOT ALLOW THESE MATERIALS TO BE CARRIED BY RUNOFF INTO THE RECEIVING CHANNEL.
15. COORDINATE WITH THE ENGINEER TO UPDATE THE LAND DISTURBANCE PERMIT TO INDICATE THE ANTICIPATED OR LIKELY DISPOSAL LOCATIONS FOR ANY EXCAVATED SOILS OR CONSTRUCTION DEBRIS THAT WILL BE HAULED OFF-SITE FOR DISPOSAL. THE DEPOSITED OR STOCKPILED MATERIAL NEEDS TO INCLUDE PERIMETER SEDIMENT CONTROL MEASURES (SUCH AS SILT FENCE, HAY BALES, FILTER SOCKS, OR COMPACTED EARTHEN BERMS).
16. MAKE PROVISIONS FOR WATERING DURING THE FIRST 8 WEEKS FOLLOWING SEEDING OR PLANTING OF DISTURBED AREAS WHENEVER MORE THAN 7 CONSECUTIVE DAYS OF DRY WEATHER OCCUR. SEE WATER FOR SEEDING SPEC.
17. INSTALL AND MAINTAIN A CONCRETE WASHOUT BASIN PER EPA 833-F-11-006: https://www3.epa.gov/npdes/pubs/concrete washout.pdf. REQUIRE USE OF ALL CONCRETE CONTRACTORS. LIQUID MAY BE REUSED IN CONCRETE MIXING, EVAPORATED OR DISPOSED OF AS WASTEWATER.

GENERAL NOTES:

1. UNDERGROUND UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION ONLY AND MAY NOT BE SHOWN IN THEIR ENTIRETY. CONTRACTOR SHALL NOTIFY UTILITIES AND HAVE ALL UTILITIES LOCATED PRIOR TO EXCAVATION. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO COORDINATE WITH ALL UTILITIES.
2. SUPPORTING UTILITY POLES, UNDERGROUND WIRES AND UNDERGROUND PIPES DURING CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL.
3. CONTRACTOR SHALL MECHANICALLY COMPACT ALL TRENCHES
4. MANHOLE AND CATCH BASIN STATION AND OFFSET ARE TO CENTER OF STRUCTURE.
5. MANHOLE RIM ELEVATIONS ARE TO TOP OF CASTING.
6. CURB INLET RIM ELEVATIONS ARE TO FLOWLINE (FACE OF CURB).
7. ALL SALVAGED SIGNS SHALL BE DELIVERED TO THE CITY AT 1520 2ND STREET, HUDSON WI UNLESS NOTED TO BE REINSTALLED IN THE PLANS.
8. ALL SALVAGED CASTING ASSEMBLIES SHALL BE NEATLY STACKED ON SITE AT A LOCATION DIRECTED BY FOR CITY STAFF TO PICK UP.

VINE STREET SHEET LOCATION				
DESIGNATOR	REMOVALS	EROSION CONTROL	PLAN & PROFILE	PAVEMENT MARKINGS
SHEET A	SHEET 15	SHEET 19	SHEET 24	SHEET 31
SHEET B	SHEET 15	SHEET 19	SHEET 25	SHEET 31
SHEET C	SHEET 16	SHEET 20	SHEET 26	SHEET 32
SHEET D	SHEET 16	SHEET 20	SHEET 27	SHEET 32
SHEET E	SHEET 17	SHEET 21	SHEET 28	SHEET 33
SHEET F	SHEET 17	SHEET 21	SHEET 29	SHEET 33
SHEET G	SHEET 18	SHEET 22	SHEET 30	SHEET 34

GREEN STREET SHEET LOCATION			
DESIGNATOR	REMOVALS	EROSION / TRAFFIC CONTROL	PLAN & PROFILE
SHEET A	SHEET 52	SHEET 54	SHEET 56
SHEET B	SHEET 52	SHEET 54	SHEET 57
SHEET C	SHEET 53	SHEET 55	SHEET 58



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SEH Project	HUDSO 175833	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date	2024 STREET IMPROVEMENTS HUDSON, WI	CONSTRUCTION NOTES GENERAL LAYOUT
Drawn By	WJW								
Designed By	CP								
Checked By	EH								

				VINE STREET			GREEN STREET		
				STREET	STORM	UTILITIES	STREET	STORM	UTILITIES
				PARTICIPATING		NON-PARTICIPATING	PARTICIPATING		NON-PARTICIPATING
NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	QUANTITY			QUANTITY		
1	MOBILZATION	LUMP SUM	2	1			1		
2	TRAFFIC CONTROL	LUMP SUM	2	1			1		
3	TRAFFIC CONTROL PLAN	LUMP SUM	1	1					
4	REMOVE FENCE	LF	40				40		
5	REMOVE ASPHALT PAVEMENT	SQ YD	7815	3575			4240		
6	REMOVE CONCRETE CURB AND GUTTER	LF	8249	5959			2290		
7	REMOVE CONCRETE SURFACE	SQ YD	390	210			180		
8	REMOVE AT&T STRUCTURE	LUMP SUM	1				1		
9	SALVAGE SIGN AND POST	EACH	28	26			2		
10	REINSTALL SIGN PANEL	EACH	28	26			2		
11	SALVAGE AND REINSTALL SIGN SPECIAL	EACH	5	5					
12	SALVAGE AND REINSTALL MAILBOX	EACH	21				21		
13	CLEARING	EACH	24	20			4		
14	GRUBBING	EACH	24	20			4		
15	COMMON EXCAVATION (P)	CU YD	3225	725			2500		
16	SOIL CORRECTION (CUT AND FILL)	CU YD	700				700		
17	BORROW (P)	CU YD	590	590					
18	GRANULAR BACKFILL GRADE 1 (P)	CU YD	1715				1715		
19	SUBGRADE PREPARATION	SQ YD	5140				5140		
20	FULL DEPTH RECLAMATION (10")	SQ YD	15792	15792					
21	STABILIZED FULL DEPTH RECLAMATION RECLAMATION (6")	SQ YD	15792	15792					
22	ASPHALT STABLIZING AGENT (FOAMED ASPHALT)	TON	152	152					
23	HAUL EXCESS RECLAIMED MATERIAL OFF SITE (EV)	CU YD	1755	1755					
24	BASE AGGREGATE DENSE 1 1/4-INCH - STREET (P)	CU YD	1851	806			1045		
25	BASE AGGREGATE DENSE 1 1/4-INCH -TRAIL (P)	CU YD	483	483					
26	HMA PAVEMENT 5 LT 58-34 S	TON	560	560					
27	HMA PAVEMENT 4 MT 58-34 H	TON	1780	1780					
28	HMA PAVEMENT 3 MT 58-28 S	TON	2290	2290					
29	HMA PAVEMENT 5 LT 58-34 H	TON	390				390		
30	HMA PAVEMENT 3 LT 58-28 S	TON	650				650		
31	TACK COAT	GAL	2815	2500			315		
32	PATCH ASPHALT DRIVEWAY	SQ YD	150	25			125		
33	PATCH ASPHALT STREET	SQ YD	683	683					
34	CONCRETE CURB AND GUTTER (D30)	LIN FT	6379	6379					
35	CONCRETE CURB AND GUTTER (D24)	LIN FT	2291				2291		
36	CONCRETE SIDEWALK - 4 INCH	SQ FT	1111	1041			70		
37	CONCRETE SIDEWALK - 6 INCH	SQ FT	2327	2327					
38	CONCRETE DRIVEWAY APRON - 6 INCH	SQ FT	1775				1775		
39	CONCRETE MEDIAN - 4 INCH	SQ FT	864	864					
40	CONCRETE MEDIAN APPROACH NOSE	SQ FT	190	190					
41	CURB RAMP DETECTABLE WARNING FIELD - NATURAL PATINA	SQ FT	276	276					
42	CONCRETE VALLEY GUTTER	SQ YD	774	750			24		
43	PAVEMENT MARKING EPOXY 4-INCH (WHITE)	LF	1865	1865					
44	PAVEMENT MARKING EPOXY 4-INCH DOTTED (WHITE)	LF	150	150					
45	PAVEMENT MARKING EPOXY 4-INCH (YELLOW)	LF	7356	7356					
46	PAVEMENT MARKING DIAGONAL EPOXY 8-INCH (YELLOW)	LF	1715	1715					
47	PAVEMENT MARKING CHEVRON EPOXY 8-INCH (WHITE)	LF	50	50					
48	PAVEMENT MARKING EPOXY 8-INCH (WHITE)	LF	0						
49	PAVEMENT MARKING EPOXY 12-INCH (WHITE)	LF	421	421					
50	PAVEMENT MARKING EPOXY 18-INCH (WHITE)	LF	66	66					
51	PAVEMENT MARKING ARROWS EPOXY (WHITE)	EACH	38	38					
52	PAVEMENT MARKING TEXT EPOXY (WHITE)	EACH	1	1					
53	MARKING ISLAND NOSE PAINT EPOXY (YELLOW)	EACH	6	6					
54	SIGNS TYPE II REFLECTIVE H	SQ FT	158.5	150			8.5		
55	SIGNS TYPE II REFLECTIVE F	SQ FT	73	73					

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				VINE STREET			GREEN STREET		
				STREET	STORM	UTILITIES	STREET	STORM	UTILITIES
				PARTICIPATING		NON-PARTICIPATING	PARTICIPATING		NON-PARTICIPATING
NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	QUANTITY			QUANTITY		
56	STREET NAME SIGN	EACH	1				1		
57	RECTANGULAR RAPID FLASHING BEACON (RRFB)	EACH	1	1					
58	SILT FENCE	LF	3888	3808			80		
59	STORM DRAIN INLET PROTECTION	EACH	21	15			6		
60	TEMPORARY CONSTRUCTION ENTRANCE	EACH	1				1		
61	EROSION MAT, CLASS 1, URBAN, TYPE B	SQ YD	830	800			30		
62	TOPSOIL BORROW - 6-INCH	CU YD	1170	870			300		
63	MNDOT SEED MIX NO. 33-261	LB	10	10					
64	WISDOT SEED MIX NO. 40	LB	160	115			45		
65	SOIL STABILIZER, TYPE A (HYDROMULCH)	SQ YD	6379	4769			1610		
66	WATER FOR SEED	MGAL	535	400			135		
67	ALLOWANCE	LUMP SUM	1	0.67			0.33		
68	REMOVE STORM SEWER PIPE	LIN FT	131		81			50	
69	REMOVE STORM STRUCTURE	EACH	7		5			2	
70	REMOVE CONCRETE TOP SLAB	EACH	4		3			1	
71	SALVAGE CASTING ASSEMBLY	EACH	10		7			3	
72	ADJUST CATCH BASIN CASTING	EACH	8		8				
73	ADJUST MANHOLE CASTING	EACH	9			5			4
74	48" MANHOLE TOP SLAB (2X3 OPENING)	EACH	2		2				
75	48" MANHOLE TOP SLAB (27-INCH DIA. OPENING)	EACH	2		1			1	
76	CASTING ASSEMBLY	EACH	8		7			1	
77	CATCH BASIN 2X3-FT	EACH	5		1			4	
78	CATCH BASIN MANHOLE 4-FT DIA.	EACH	4		2			2	
79	CONNECT TO EXISTING PIPE - STORM SEWER	EACH	7		6			1	
80	CONNECT TO EXISTING STRUCTURE - STORM SEWER	EACH	1					1	
81	STORM SEWER PIPE RCP CLASS III 12 INCH	LIN FT	66		28			38	
82	STORM SEWER PIPE RCP CLASS III 15 INCH	LIN FT	64		28			36	
83	STORM SEWER PIPE RCP CLASS III 18 INCH	LIN FT	10		10				
84	STORM SEWER PIPE RCP CLASS III 21 INCH	LIN FT	18		18				
85	STORM SEWER PIPE PVC (SDR 35) 12 INCH	LIN FT	6					6	
86	IMPROVED PIPE FOUNDATION	LIN FT	56					56	
87	TELEVISE STORM SEWER	LIN FT	74					74	
88	REMOVE HYDRANT	EACH	2						2
89	SALVAGE AND REINSTALL HYDRANT	EACH	5			5			
90	REMOVE WATERMAIN PIPE	LIN FT	30			30			
91	ADJUST VALVE BOX	EACH	22			18			4
92	WATERMAIN 6" DIP CLASS 52	LIN FT	40			40			
93	HYDRANT	EACH	2						2

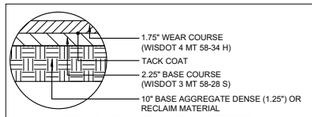
				Bid Alternate No. 1: Vine Hills Pond		
				STREET	STORM	UTILITIES
				PARTICIPATING		NON-PARTICIPATING
NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	QUANTITY		
1	POND EXCAVATION	CU YD	921		921	
2	EROSION MAT, CLASS 1, URBAN, TYPE B	SQ YD	79		79	
3	TOPSOIL BORROW SPECIAL	CU YD	19		19	
4	MNDOT SEED MIX NO. 33-261	LB	19		19	
5	SOIL STABILIZER, TYPE A (HYDROMULCH)	SQ YD	1464		1464	
6	WATER FOR SEED	MGAL	145		145	
7	RIPRAP	CU YD	30		30	

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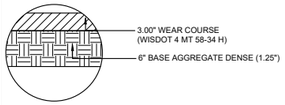
STORM SEWER STRUCTURE TABULATION

	STRUCTURE #	STA (OFFSET)	RIM ELEV.	INVERT ELEV.	DEPTH	REMOVE STORM STRUCTURE (EACH)	ADJUST CATCH BASIN CASTING (EACH)	ADJUST MANHOLE CASTING (EACH)	REMOVE CONCRETE TOP SLAB (EACH)	SALVAGE CASTING ASSEMBLY (EACH)	CASTING ASSEMBLY (EACH)	CATCH BASIN 2X3-FT (EACH)	CATCH BASIN MANHOLE 4-FT DIA. (EACH)	4-FOOT PRECAST MANHOLE (EACH)	5-FOOT PRECAST MANHOLE (EACH)	CONCRETE TOP SLAB (EACH)	CONNECT TO EXISTING PIPE (EACH)	CONNECT TO EXISTING STRUCTURE (EACH)	NOTES
GREEN STREET	CB-2944	1+37.45 (6.33' RT)	836.16'	829.19' (12" RCP)(SW) 832.09' (12" RCP)(SW)	6.97				1	1	1					1		1	
	CB-947	10+53.25 (17.80' LT)				1				1									
	CB-948	10+54.48 (17.94' RT)				1				1									
	CB-001	1+29.36 (4.61' RT)	836.01'	832.24' (12" RCP)(S)	3.77							1							
	CB-002	1+31.91 (11.62' RT)	835.96'	832.17' (12" RCP)(NE) 832.17' (12" RCP)(N)	3.79							1							
	CB-003	10+44.58 (17.00' LT)	836.56'	832.55'(12" RCP)(E)	4.01							1							
	CB-004	10+54.58 (17.25' LT)	835.55'	832.50' (15" RCP)(S) 832.50' (12" RCP)(W)	4.05								1						
	CB-005	10+44.58 (17.00' RT)	836.56'	832.34' (12" RCP)(E)	4.22							1							
	CB-006	10+54.58 (17.25' RT)	836.55'	832.29'(15"RCP)(N) 832.29' (12" RCP)(W) 832.29' (12" PVC)(SE)	4.26								1				1		
	TOTAL					2	0	0	1	3	1	4	2	0	0	1	1	1	

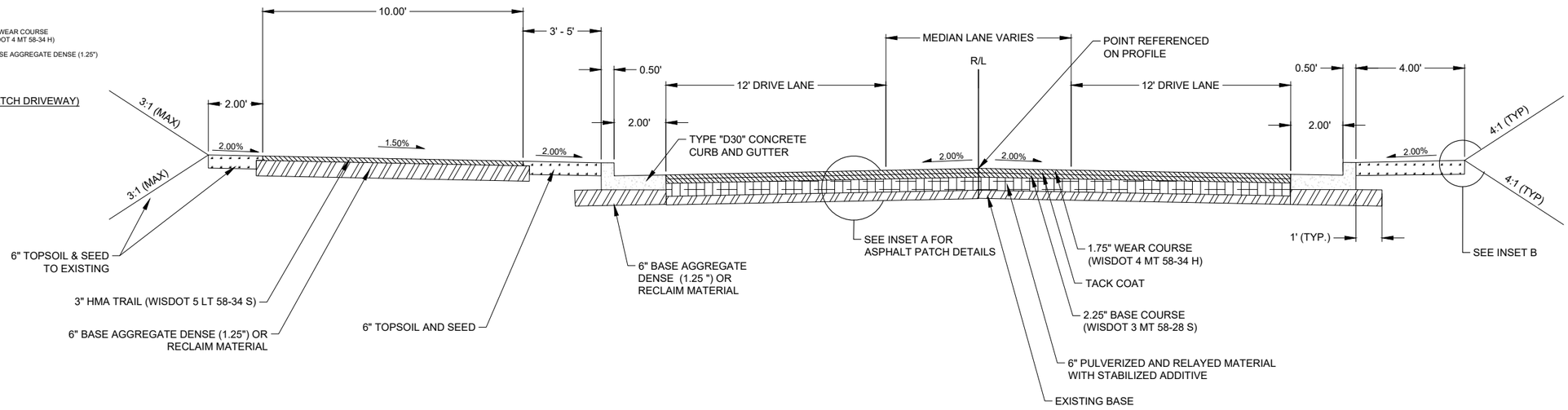
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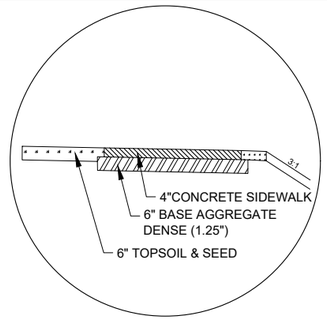


INSET A (ASPHALT PATCH STREET)



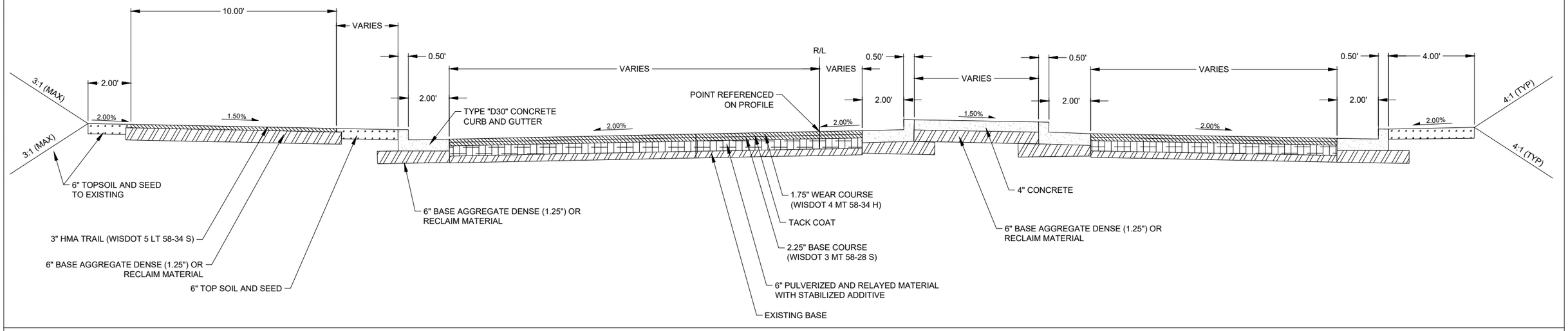
INSET A (ASPHALT PATCH DRIVEWAY)





INSET B (STA 35+75 - 37+85)

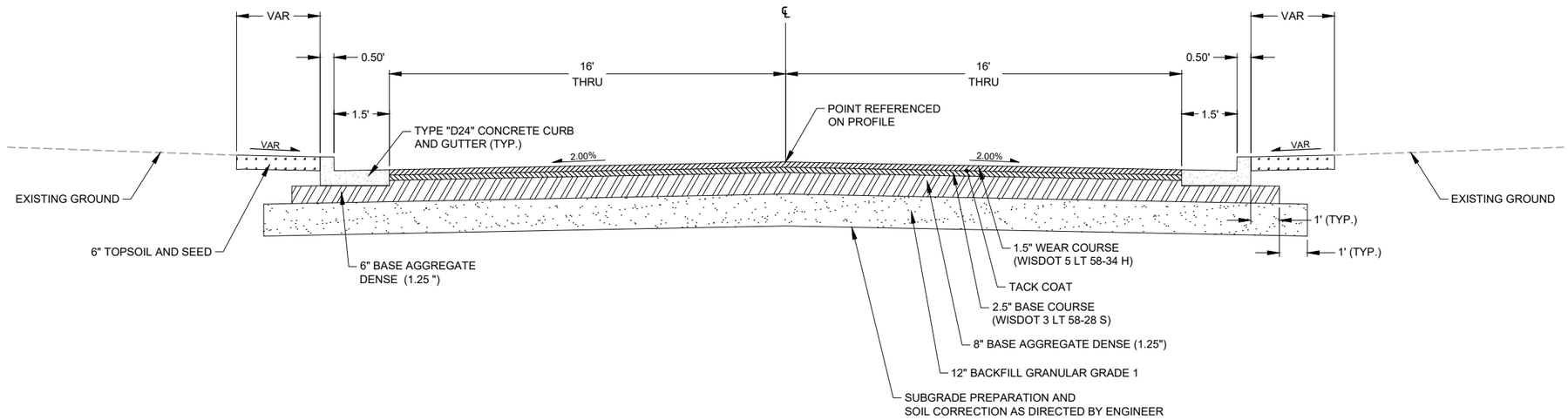
VINE STREET



VINE STREET WITH MEDIAN

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SEH Project	HUDSO175833	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date	SEH	2024 STREET IMPROVEMENTS HUDSON, WI	**VINE STREET TYPICAL SECTIONS**	6 of 64
Drawn By	CP	.			.						
Designed By	CP	.			.						
Checked By	EH	.			.						



GREEN STREET

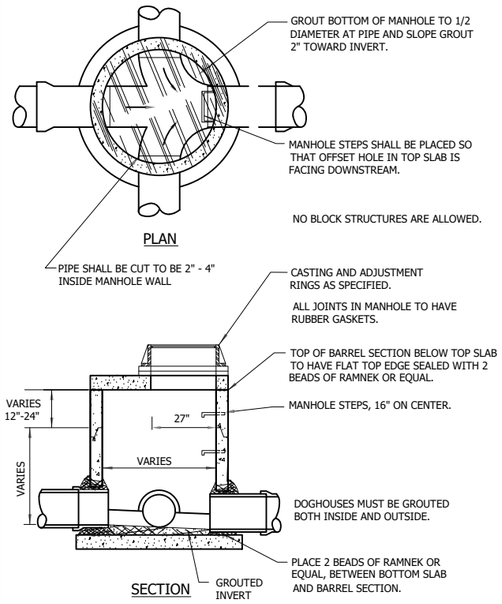
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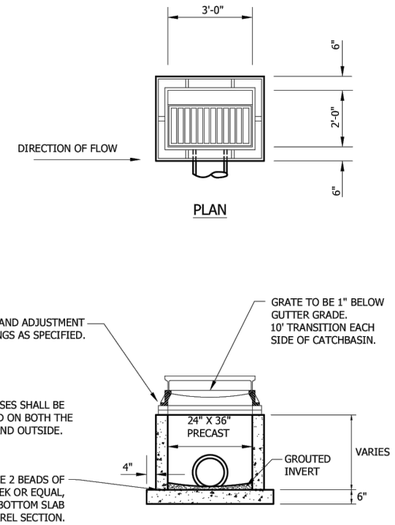
		Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date
City Project	24-01	.	.				
Drawn By	MP	.	.				
Designed By	MP	.	.				
Checked By	EMA	.	.				

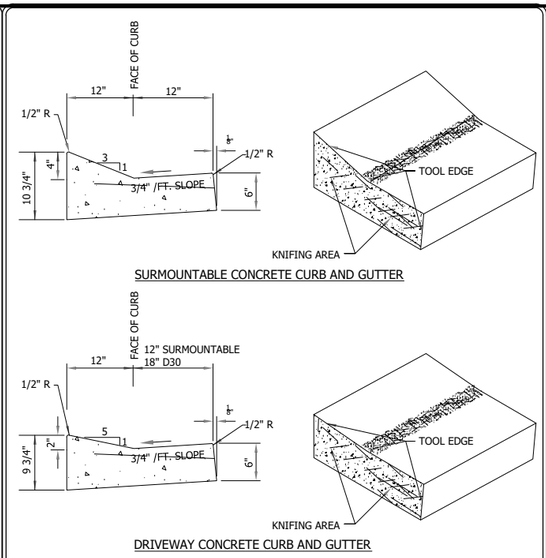
CITY OF HUDSON

2024 STREET IMPROVEMENTS
HUDSON, WI

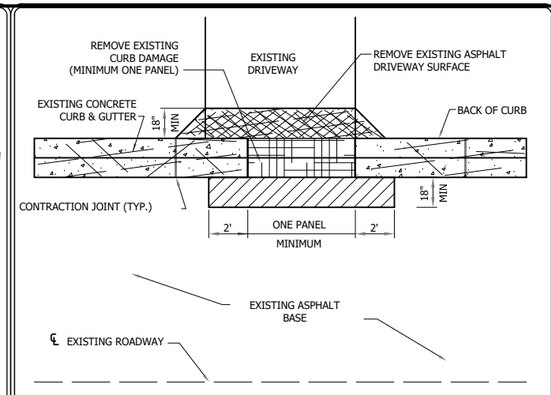
GREEN STREET
TYPICAL SECTIONS

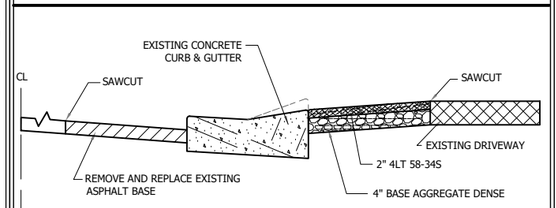


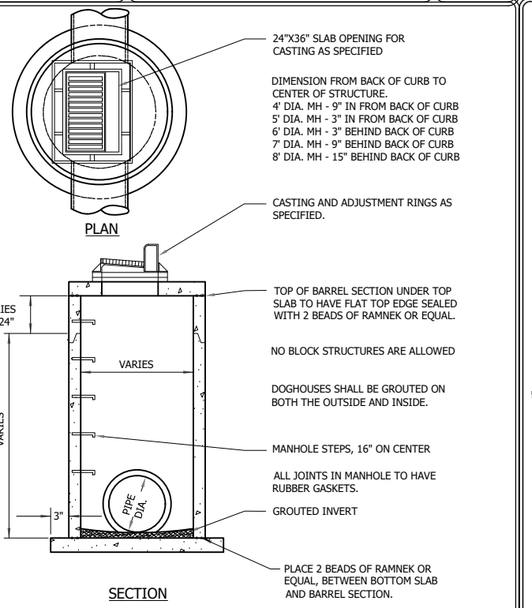


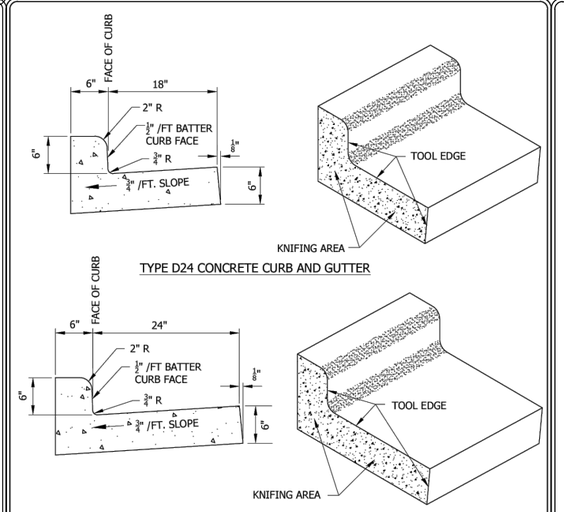


NOTES:
1. ALL EXPANSION AND CONSTRUCTION JOINTS SHALL BE TOOLED ALONG ENTIRE TOP AND FACE OF CURB AND GUTTER AND KNIFED THROUGH THE ENTIRE DEPTH.

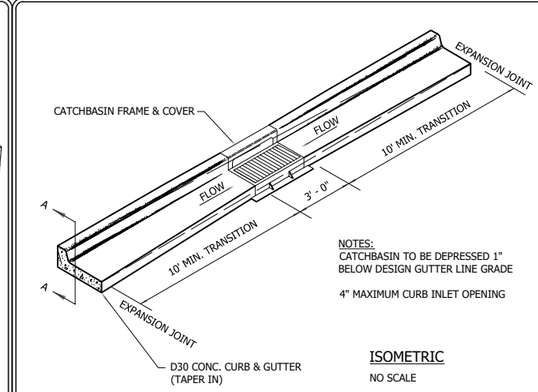






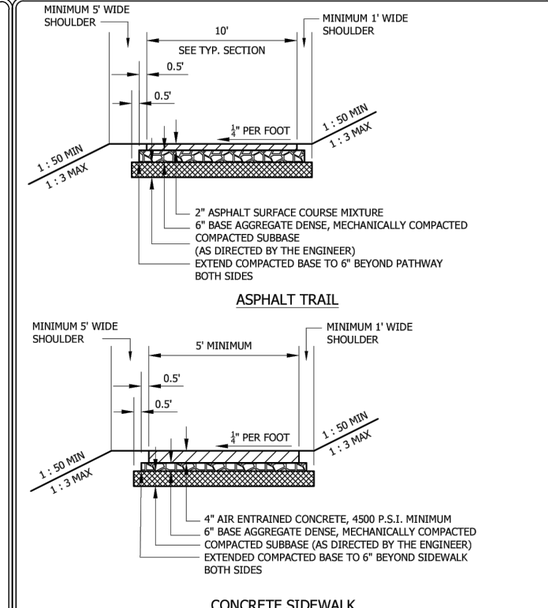


NOTES:
1. ALL EXPANSION AND CONSTRUCTION JOINTS SHALL BE TOOLED ALONG ENTIRE TOP AND FACE OF CURB AND GUTTER AND KNIFED THROUGH THE ENTIRE DEPTH.



NOTES:
CATCHBASIN TO BE DEPRESSED 1" BELOW DESIGN GUTTER LINE GRADE

4" MAXIMUM CURB INLET OPENING



CITY OF HUDSON	STORM SEWER JUNCTION MANHOLE WITH REINFORCED TOP SLAB	LAST REVISION: March 2019	PLATE NO. STO-3
CITY OF HUDSON	CATCH BASIN	LAST REVISION: March 2019	PLATE NO. STO-7
CITY OF HUDSON	SURMOUNTABLE AND DRIVEWAY CURB AND GUTTER	LAST REVISION: March 2019	PLATE NO. STR-2
CITY OF HUDSON	CONCRETE CURB REPLACEMENT DRIVE LOCATION (ASPHALT D/W APRON)	LAST REVISION: March 2019	PLATE NO. STR-12
CITY OF HUDSON	CATCH BASIN MANHOLE	LAST REVISION: March 2019	PLATE NO. STO-5
CITY OF HUDSON	CURB AND GUTTER	LAST REVISION: March 2019	PLATE NO. STR-1
CITY OF HUDSON	D30 CURB & GUTTER CONSTRUCTION AT CATCH BASIN	LAST REVISION: March 2019	PLATE NO. STR-9
CITY OF HUDSON	TYPICAL SECTION FOR ASPHALT TRAIL AND CONCRETE SIDEWALK	LAST REVISION: March 2019	PLATE NO. STR-15

		Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date
SEH Project	HUDSO 175833						
Drawn By	CP						
Designed By	CP						
Checked By	--						

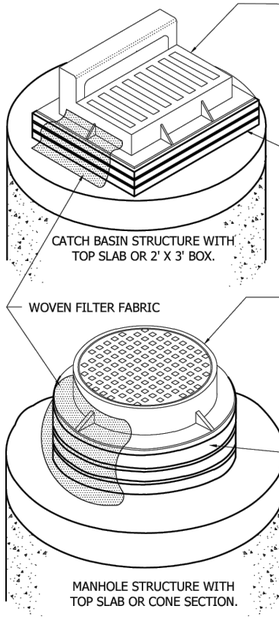
SEH

2024 STREET IMPROVEMENTS
HUDSON, WI

CONSTRUCTION DETAILS

8 of 64

Save: 3/28/2024 6:01 PM cpearman Plot: 3/29/2024 10:08 AM X:\FJH\HUDSO\175833\5-final-dsgn\51-drawings\10-Civil\cad\dwg\sheet\HUDSO 175833_DT.dwg

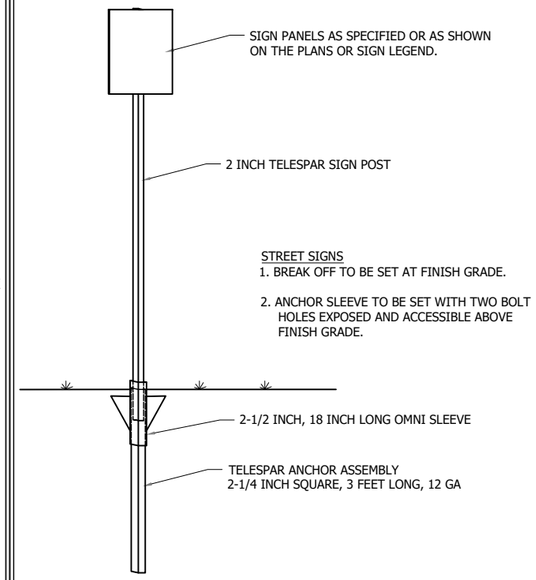


CITY OF HUDSON

CATCH BASIN & MANHOLE ADJUSTMENT (HIGH DENSITY POLYETHYLENE RINGS)

LAST REVISION: March 2019

PLATE NO. STR-16

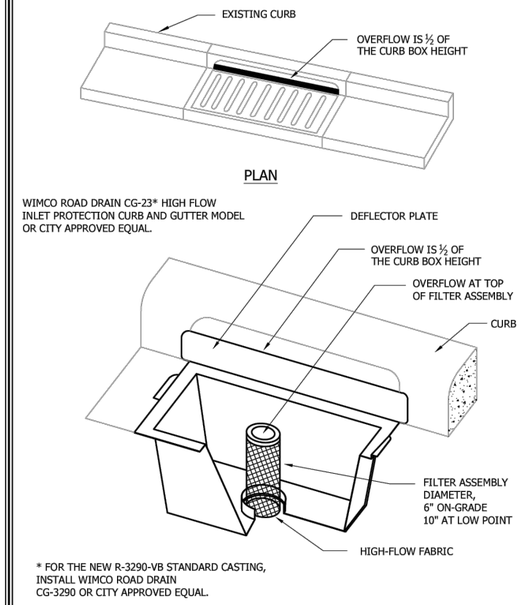


CITY OF HUDSON

TYPICAL TRAFFIC SIGN INSTALLATION BOULEVARD

LAST REVISION: March 2019

PLATE NO. STR-30

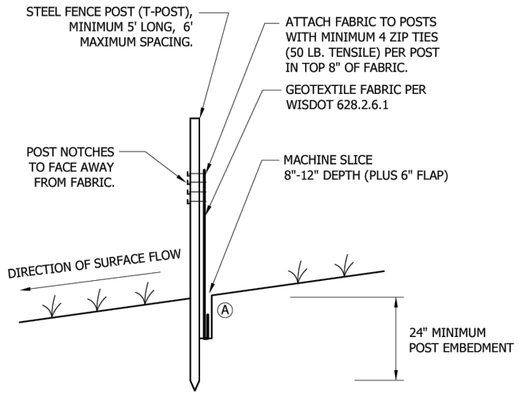


CITY OF HUDSON

INLET PROTECTION CATCH BASIN INSERT AFTER PAVING

LAST REVISION: March 2019

PLATE NO. ERO-8



NOTE:
THE MACHINE SLICED METHOD (THIS DETAIL) IS THE STANDARD SILT FENCE INSTALLATION METHOD. ALTERNATIVE SILT FENCE INSTALLATION METHODS SHOULD ONLY BE USED WHEN APPROVED OR DIRECTED BY THE CITY.

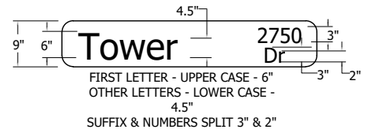
Ⓐ COMPACTION:
AFTER "SLICING" IN THE FABRIC AND *BEFORE* INSTALLATION OF STEEL POSTS, DRIVE INSTALLATION EQUIPMENT OVER THE "SLICE" WHILE FABRIC IS LAYING ON THE GROUND. *THEN* INSTALL STEEL POSTS AND PULL UP FABRIC TO ATTACH AT A UNIFORM HEIGHT.

CITY OF HUDSON

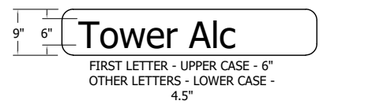
SILT FENCE

LAST REVISION: March 2019

PLATE NO. ERO-2



PUBLIC - THROUGH STREET



PUBLIC - CUL-DE-SAC

STANDARD CONSTRUCTION NOTES FOR STREET NAME SIGNS

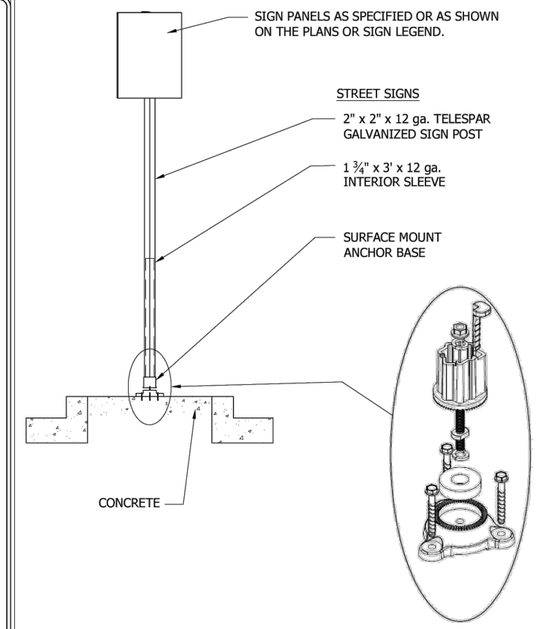
1. ALL STREET SIGNS SHALL BE DOUBLE-FACED FLAT BLADES.
2. ADDRESS NUMBERS FOR STREET NAME BLADES WILL BE PROVIDED AT A LATER DATE.
3. ALL PUBLIC STREET NAME BLADES SHALL BE "GREEN" IN COLOR. LETTERING ON ALL STREET NAME BLADES SHALL BE "WHITE" IN COLOR.
4. ALL STREET NAME BLADE SIGNS NEED TO BE MOUNTED ON TOP OF THE POST.

CITY OF HUDSON

STREET NAME BLADE SIGNS PUBLIC STREETS

LAST REVISION: March 2019

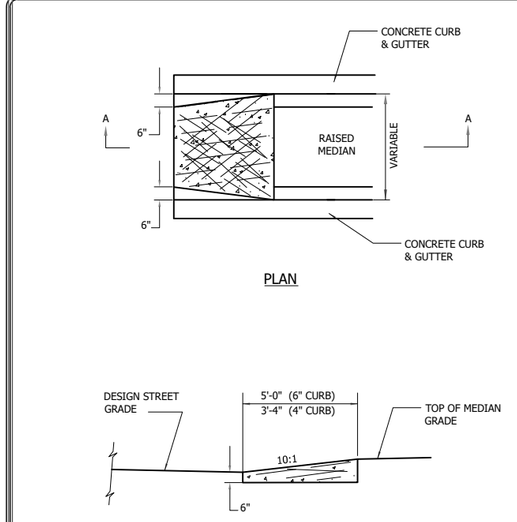
PLATE NO. STR-28



CITY OF HUDSON

TRAFFIC SIGN INSTALLATION MEDIAN

PLATE NO.

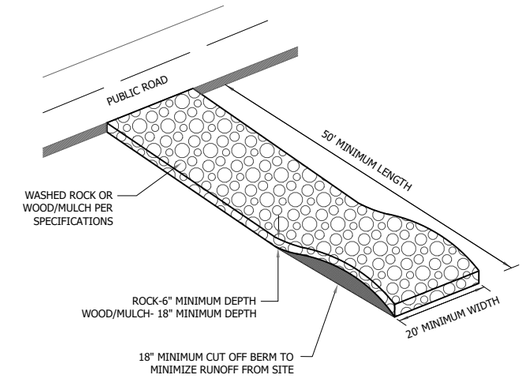


CITY OF HUDSON

CONCRETE APPROACH NOSE DETAIL

LAST REVISION: March 2019

PLATE NO. STR-33



NOTES:
1. PLACE FILTER FABRIC UNDER ROCK OR MULCH TO STOP MUD MIGRATION THROUGH MATERIAL.
2. MAINTAIN ENTRANCE REGULARLY TO PREVENT SEDIMENTATION ON PUBLIC ROADWAYS. REMOVE FUGITIVE ROCK OR MULCH FROM ADJACENT ROADWAYS DAILY OR MORE FREQUENTLY AS NECESSARY.

CITY OF HUDSON

CONSTRUCTION ENTRANCE - ROCK OR WOOD / MULCH

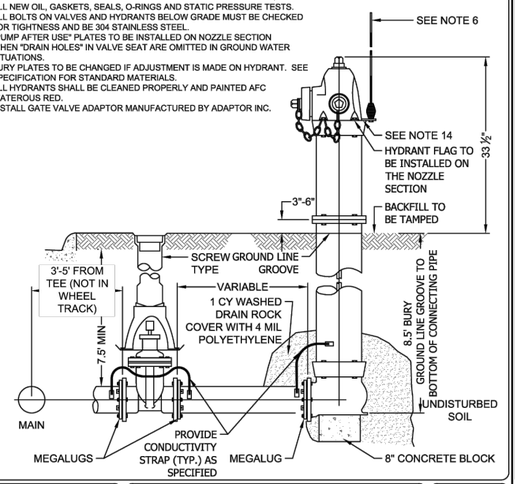
LAST REVISION: March 2019

PLATE NO. ERO-1

SEH Project	HUDSO 175833	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date	SEH
Drawn By	CP							2024 UTILITY IMPROVEMETNS HUDSON, WI
Designed By	CP							**CONSTRUCTION DETAILS**
Checked By	--							9 of 64

Save: 3/28/2024 6:01 PM cpearman Plot: 3/29/2024 10:08 AM X:\F-J\H\HUDSO\175833\5-final-dsgn\51-drawings\10-Civil\cad\dwg\sheet\HUDSO 175833_DT.dwg

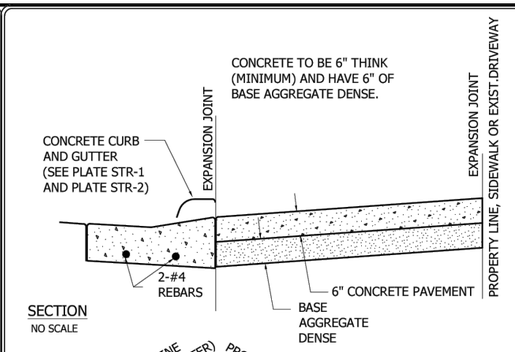
NOTES:
1. ALL HYDRANT LEADS SHALL BE VALVED.
2. HYDRANTS TO BE 7' BEHIND BACK OF CURB.
3. HYDRANTS AT INTERSECTIONS TO BE 10' FROM PROPERTY CORNER OR IN ACCORDANCE WITH NO. 4 BELOW
4. NO HYDRANTS SHALL BE LOCATED BETWEEN OR WITHIN 5' OF P.C. OR P.T. OF INTERSECTION RADII.
5. HYDRANT TO BE WATEROUS AFCWB-67-250 PACER (8.5' BURY WITH 16" BREAKOFF, 8" MECHANICAL JOINT INLET, AND 1-1/2" (FTP) PENTAGON 2-PIECE OPERATING NUT WITH WEATHER SHIELD - OPEN LEFT). EXTENSION KITS TO BE AFC WATEROUS.
6. ONE (1) 5' E-Z GUIDE SAFETY MARKER WITH SPRING BASE HYDRANT FLAG PER FIRE HYDRANT IS REQUIRED.
7. "MEGALUG" THRUST RESTRAINT GLANDS ARE REQUIRED ON ALL HYDRANT LEAD JOINTS BACK TO THE WATER MAIN.
8. HYDRANTS SHALL BE MARKED WITH APPROVED "OUT OF SERVICE" TAGS WHEN INSTALLED.
9. EXTENSIONS MAY BE USED UP TO 42". GRADE-LOK FITTINGS ARE APPROVED AND PREFERRED.
10. WHEN INSTALLING A VALVE ROD EXTENSION, THE NONBREAKABLE COUPLING SLEEVES GO ON THE BOTTOM AND THE BREAKABLE SLEEVES GO ON THE TOP OF THE EXTENSION ROD. VERIFY "TOP AND BOTTOM" OF BREAKOFF SECTION.
11. THE AFCWB-67-250 PACER REQUIRES THE OIL RESERVOIR BE FILLED WITH A FOOD GRADE AFC WATEROUS OIL. ANY REASSEMBLY SHALL REQUIRE ALL NEW OIL, GASKETS, SEALS, O-RINGS AND STATIC PRESSURE TESTS.
12. ALL BOLTS ON VALVES AND HYDRANTS BELOW GRADE MUST BE CHECKED FOR TIGHTNESS AND BE 304 STAINLESS STEEL.
13. "PUMP AFTER USE" PLATES TO BE INSTALLED ON NOZZLE SECTION WHEN "DRAIN HOLES" IN VALVE SEAT ARE OMITTED IN GROUND WATER SITUATIONS.
14. BURY PLATES TO BE CHANGED IF ADJUSTMENT IS MADE ON HYDRANT. SEE SPECIFICATION FOR STANDARD MATERIALS.
15. ALL HYDRANTS SHALL BE CLEANED PROPERLY AND PAINTED AFC WATEROUS RED.
16. INSTALL GATE VALVE ADAPTOR MANUFACTURED BY ADAPTOR INC.



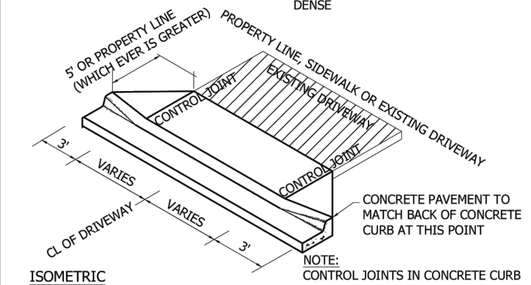
HYDRANT W/ GATE VALVE & BOX INSTALLATION

LAST REVISION: March 2019

PLATE NO. WAT-2



SECTION
NO SCALE



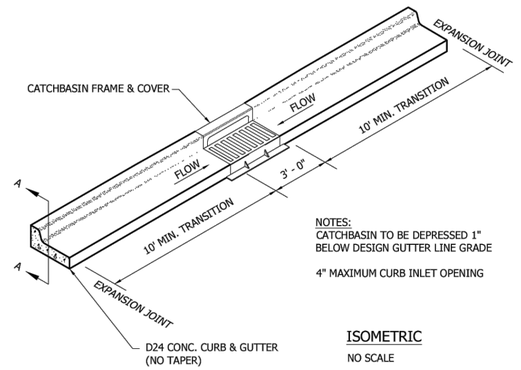
ISOMETRIC
NO SCALE

NOTE:
CONTROL JOINTS IN CONCRETE CURB NOT TO EXCEED 10' SPACING THROUGH DRIVEWAY SECTION.

CONCRETE DRIVEWAY APRON - RESIDENTIAL

LAST REVISION: March 2019

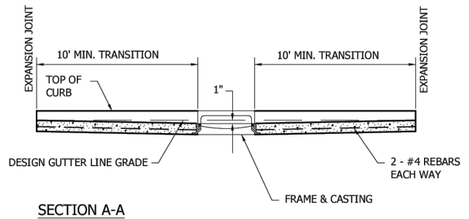
PLATE NO. STR-3



NOTES:
CATCHBASIN TO BE DEPRESSED 1" BELOW DESIGN GUTTER LINE GRADE

4" MAXIMUM CURB INLET OPENING

ISOMETRIC
NO SCALE

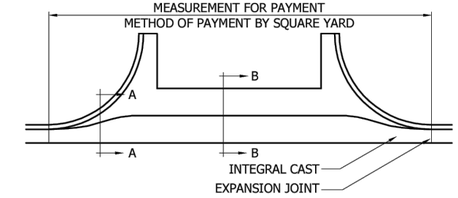


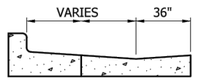
SECTION A-A
NO SCALE

D24 CURB & GUTTER CONSTRUCTION AT CATCH BASIN

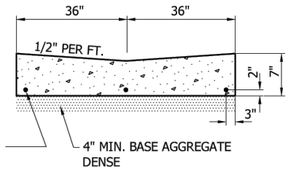
LAST REVISION: March 2019

PLATE NO. STR-8





SECTION A-A THRU D24 C & G

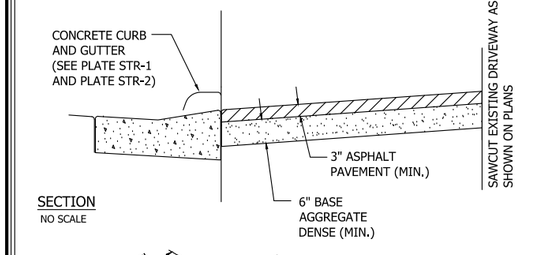


SECTION B-B THRU CONCRETE GUTTER

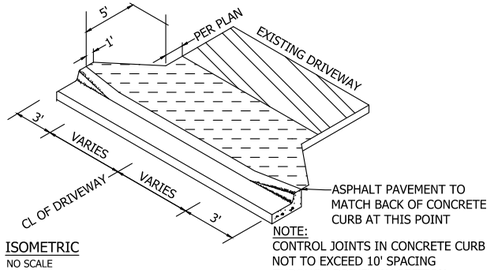
CONCRETE VALLEY GUTTER

LAST REVISION: March 2019

PLATE NO. STR-11



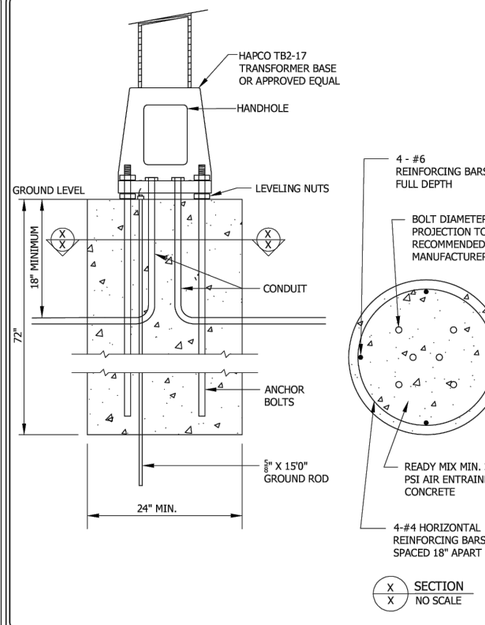
SECTION
NO SCALE



ISOMETRIC
NO SCALE

NOTE:
CONTROL JOINTS IN CONCRETE CURB NOT TO EXCEED 10' SPACING THROUGH DRIVEWAY SECTION.

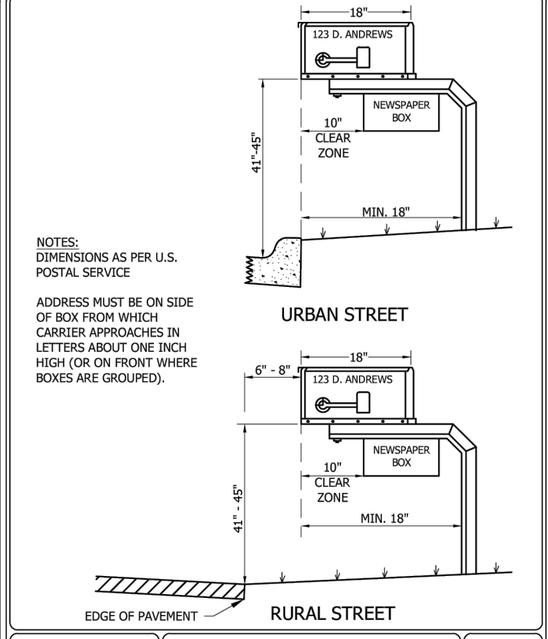
PATCH ASPHALT DRIVEWAY



BASE FOR UP TO 40' LIGHTING STANDARDS

LAST REVISION: March 2019

PLATE NO. STR-21



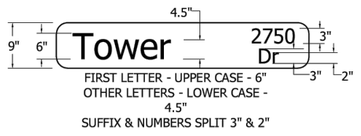
NOTES:
DIMENSIONS AS PER U.S. POSTAL SERVICE

ADDRESS MUST BE ON SIDE OF BOX FROM WHICH CARRIER APPROACHES IN LETTERS ABOUT ONE INCH HIGH (OR ON FRONT WHERE BOXES ARE GROUPED).

MAILBOX INSTALLATION

LAST REVISION: March 2019

PLATE NO. STR-27



FIRST LETTER - UPPER CASE - 6"
OTHER LETTERS - LOWER CASE - 4.5"
SUFFIX & NUMBERS SPLIT 3" & 2"

PUBLIC - THROUGH STREET



FIRST LETTER - UPPER CASE - 6"
OTHER LETTERS - LOWER CASE - 4.5"

PUBLIC - CUL-DE-SAC

STANDARD CONSTRUCTION NOTES FOR STREET NAME SIGNS

1. ALL STREET SIGNS SHALL BE DOUBLE-FACED FLAT BLADES.
2. ADDRESS NUMBERS FOR STREET NAME BLADES WILL BE PROVIDED AT A LATER DATE.
3. ALL PUBLIC STREET NAME BLADES SHALL BE "GREEN" IN COLOR. LETTERING ON ALL STREET NAME BLADES SHALL BE "WHITE" IN COLOR.
4. ALL STREET NAME BLADE SIGNS NEED TO BE MOUNTED ON TOP OF THE POST.

STREET NAME BLADE SIGNS PUBLIC STREETS

LAST REVISION: March 2019

PLATE NO. STR-28



FIRST LETTER- UPPER CASE - 6"
OTHER LETTERS - LOWER CASE - 4.5"
SUFFIX & NUMBERS SPLIT 3" & 2"

PRIVATE - THROUGH STREET



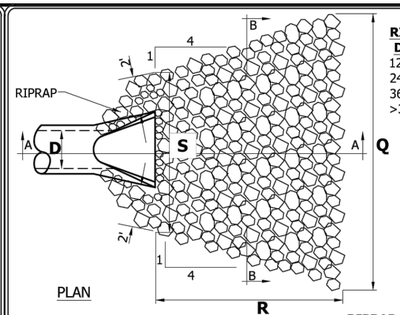
FIRST LETTER - UPPER CASE - 6"
OTHER LETTERS - LOWER CASE - 4.5"
SUFFIX & NUMBERS SPLIT 3" & 2"

PRIVATE - CUL-DE-SAC

STANDARD CONSTRUCTION NOTES FOR STREET NAME SIGNS

1. ALL STREET SIGNS SHALL BE SINGLE-FACED FLAT BLADES
2. ADDRESS NUMBERS FOR STREET NAME BLADES WILL BE PROVIDED AT A LATER DATE.
3. ALL PRIVATE STREET NAME BLADES SHALL BE "BLUE" IN COLOR. LETTERING ON ALL STREET NAME BLADES SHALL BE "WHITE" IN COLOR.
4. ALL STREET NAME BLADE SIGNS NEED TO BE SECURED USING 3/8" DRIVE RIVETS WITH NYLON WASHER TO POST, AND #34 CHERRYMATE RIVETS WITH 1-3/4" PVC SPACER ON ENDS.

CITY OF HUDSON | STREET NAME BLADE SIGNS PRIVATE STREETS | LAST REVISION: March 2019 | PLATE NO. STR-31



RIPRAP AREA SIZES

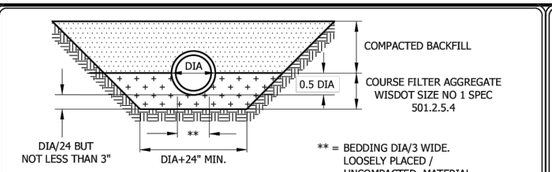
D	Q	R	S
12"	11'	15'	7'
24"	15'	15'	9'
36"	19'	15'	11'
>36"	TO BE DESIGNED BY ENGINEER		

RIPRAP REQUIREMENTS

D	CY	CLASS	DEPTH
12" TO 24"	15 TO 20	MED	3'
27" TO 33"	20 TO 25	MED	3'
36"	25	MED	3'
>36"	TO BE DESIGNED BY ENGINEER		

(ONE CUBIC YARD IS APPROX. 2,800 LBS.)

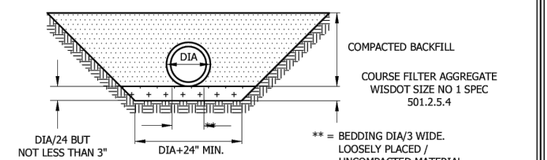
CITY OF HUDSON | RIPRAP AT ENDWALL | LAST REVISION: March 2019 | PLATE NO. STO-12



** = BEDDING DIA/3 WIDE. LOOSELY PLACED / UNCOMPACTED MATERIAL.

INSTALLATION TYPE 1

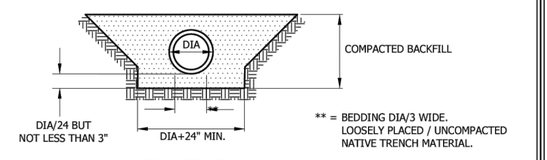
DIA = OUTSIDE DIAMETER OF PIPE



** = BEDDING DIA/3 WIDE. LOOSELY PLACED / UNCOMPACTED MATERIAL.

INSTALLATION TYPE 2

DIA = OUTSIDE DIAMETER OF PIPE

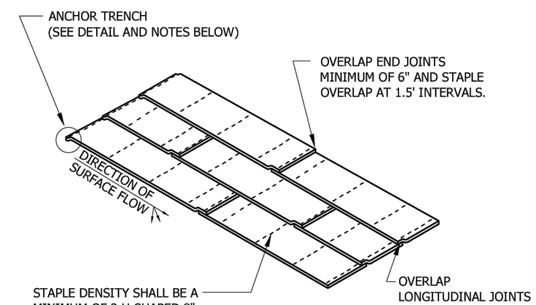


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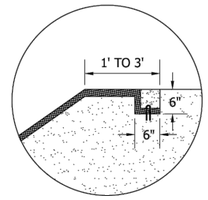
INSTALLATION TYPE 3

DIA = OUTSIDE DIAMETER OF PIPE

CITY OF HUDSON | PIPE FOUNDATION & BEDDING METHODS FOR RCP & DIP | LAST REVISION: March 2019 | PLATE NO. BED-1

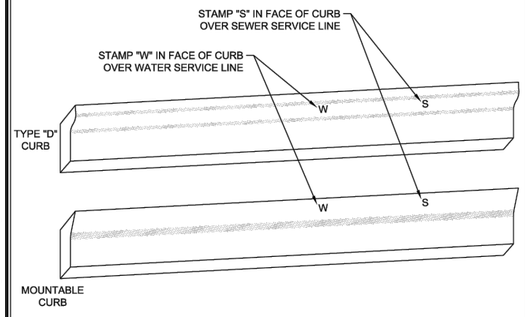


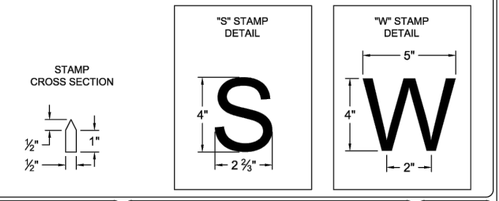
ANCHOR TRENCH
1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT
5. BLANKET LENGTH SHALL NOT EXCEED 100' WITHOUT AN ANCHOR TRENCH



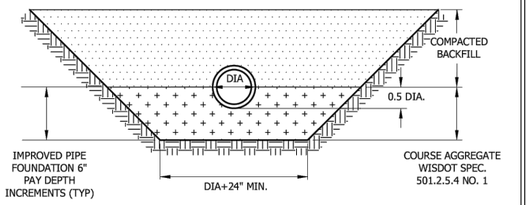
CITY OF HUDSON | EROSION MAT INSTALLATION | LAST REVISION: March 2019 | PLATE NO. ERO-4

NOTES:
1. ALL NEW AND EXISTING WATER AND SEWER SERVICE LOCATIONS SHALL BE MARKED IN CURB AS SHOWN. STAMPING OF SERVICE LOCATIONS SHALL BE CONSIDERED INCIDENTAL TO THE PRICE OF THE CURB.
2. W'S AND S'S NOT PLACED BY SPECIFIED STAMP WILL NOT BE ACCEPTED AND THAT SECTION OF CURB MUST BE REMOVED AND REPLACED.



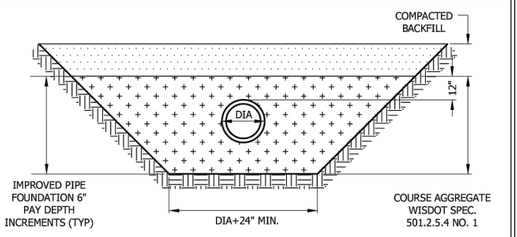


CITY OF HUDSON | SANITARY SEWER & WATER SERVICE LOCATION STAMP IN CURB | LAST REVISION: March 2019 | PLATE NO. SER-10



DIA = OUTSIDE DIAMETER OF PIPE

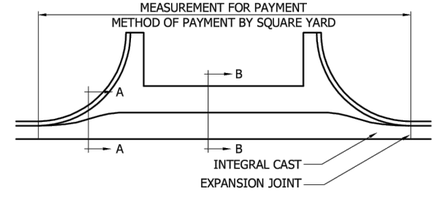
RCP & DIP PIPE

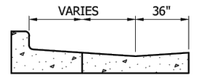


DIA = OUTSIDE DIAMETER OF PIPE

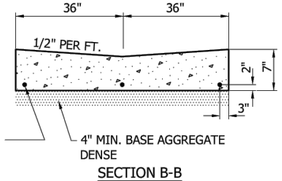
PVC PIPE

CITY OF HUDSON | IMPROVED PIPE FOUNDATION FOR RCP, DIP & PVC PIPE TRENCH | LAST REVISION: March 2019 | PLATE NO. BED-3



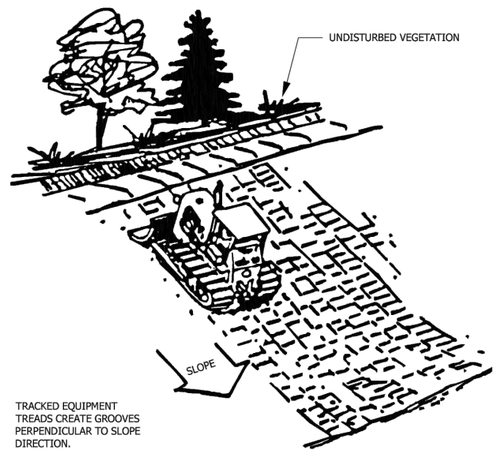


SECTION A-A THRU
D24 C & G



SECTION B-B
THRU CONCRETE GUTTER

CITY OF HUDSON | CONCRETE VALLEY GUTTER | LAST REVISION: March 2019 | PLATE NO. STR-11



TRACKED EQUIPMENT TREADS CREATE GROOVES PERPENDICULAR TO SLOPE DIRECTION.

NOTE:
ALL SLOPES WITH A GRADE EQUAL TO OR STEEPER THAN 3:1 REQUIRE SLOPE TRACKING. SLOPES WITH A GRADE MORE GRADUAL THAN 3:1 REQUIRE SLOPE TRACKING IF THE STABILIZATION METHOD IS EROSION CONTROL BLANKET OR HYDROMULCH.

CITY OF HUDSON | SLOPE TRACKING | LAST REVISION: March 2019 | PLATE NO. ERO-11

Save: 3/28/2024 6:01 PM cpearman Plot: 3/29/2024 10:08 AM X:\F-J\HHUDSO\175833\5-final-dsgn\51-drawings\10-Civil\cad\dwg\sheet\HUDSO 175833_DT.dwg

SEH Project	HUDSO 173753
Drawn By	CP
Designed By	CP
Checked By	JP

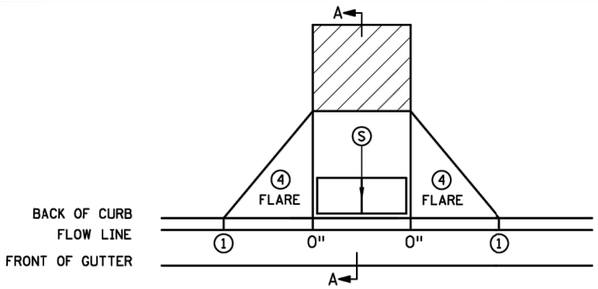
Rev.# | Revision Issue Description | Date

Rev.# | Revision Issue Description | Date

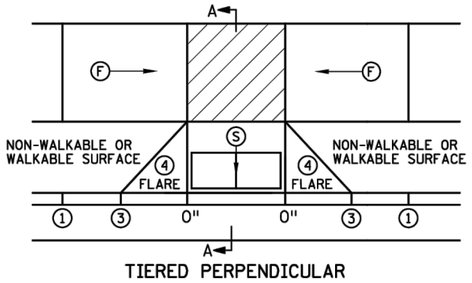
SEH

2024 UTILITY IMPROVEMETNS
HUDSON, WI

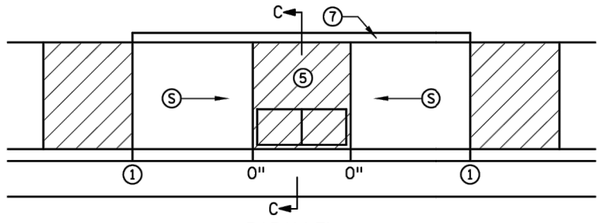
CONSTRUCTION DETAILS



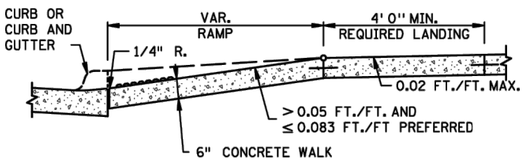
PERPENDICULAR



TIERED PERPENDICULAR

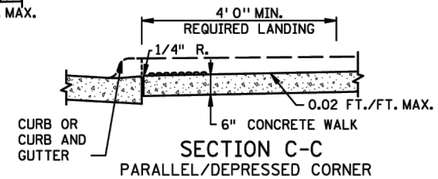


PARALLEL



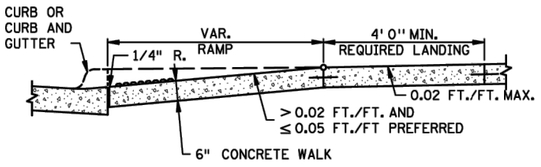
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



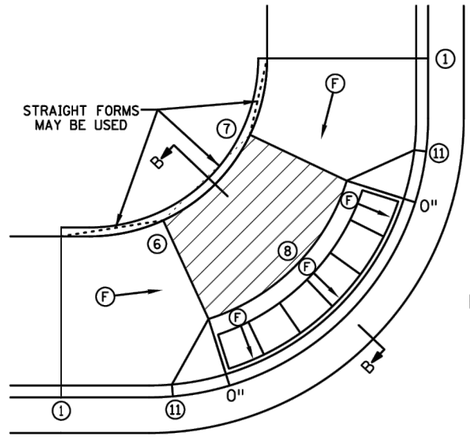
SECTION C-C

PARALLEL/DEPRESSED CORNER

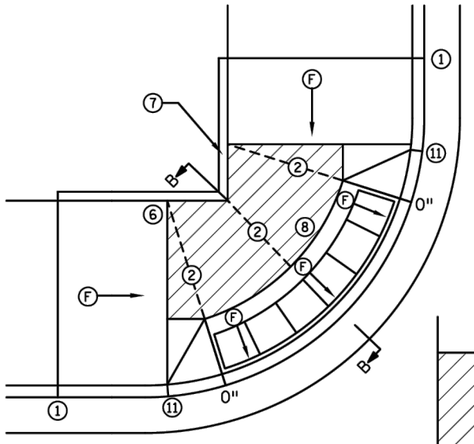


SECTION B-B

FAN

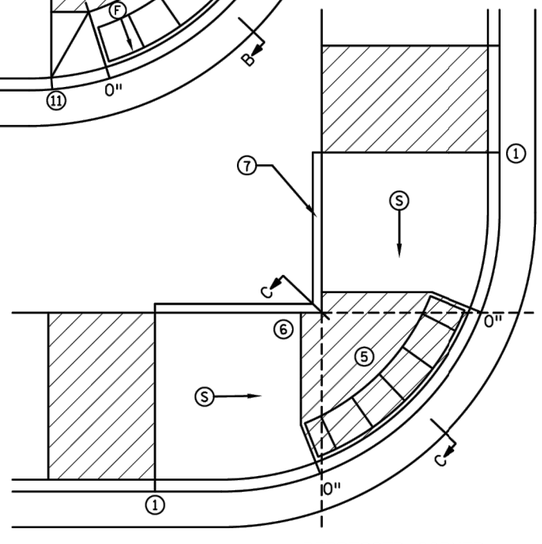


FAN ⑩

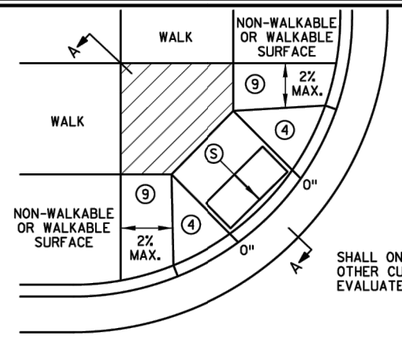


MODIFIED FAN ⑩

USED WHEN RIGHT-OF-WAY
IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN ⑥ BELOW.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.

WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

① MATCH FULL HEIGHT CURB.
② 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
③ 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
④ SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
⑤ DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
⑥ THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
⑦ WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
⑧ A 7' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.
⑨ PAVE FULL WALK WIDTH.
⑩ "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.
⑪ INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

Ⓕ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

REVISION:
APPROVED: 11-04-2021
JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 1 OF 6

APPROVED: 11-04-2021
REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

SEH Project	HUDSO 173753
Drawn By	CP
Designed By	CP
Checked By	JP

Rev.#	Revision Issue Description	Date

Rev.#	Revision Issue Description	Date

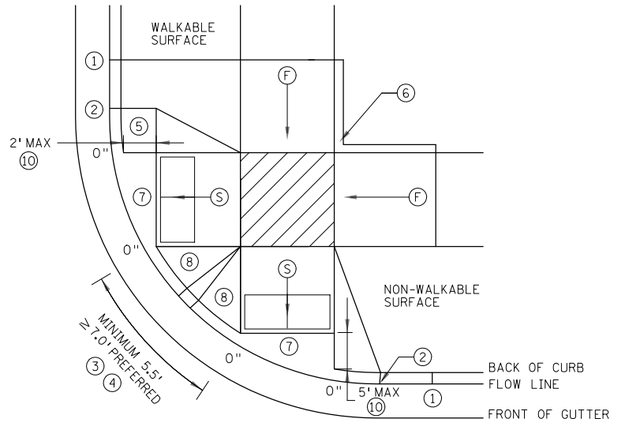
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2024 UTILITY IMPROVEMETNS
HUDSON, WI

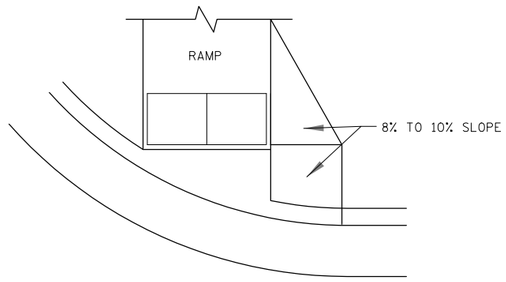
CONSTRUCTION DETAILS

12 of 64

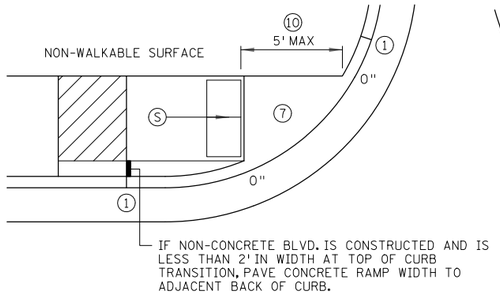
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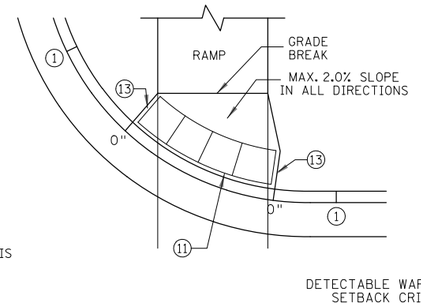
COMBINED DIRECTIONAL ⑨



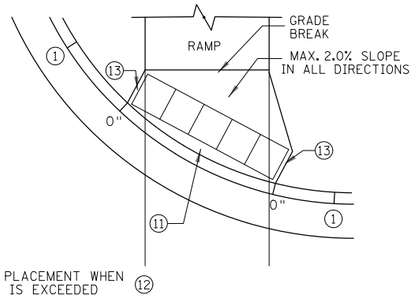
DIRECTIONAL RAMP WALKABLE FLARE

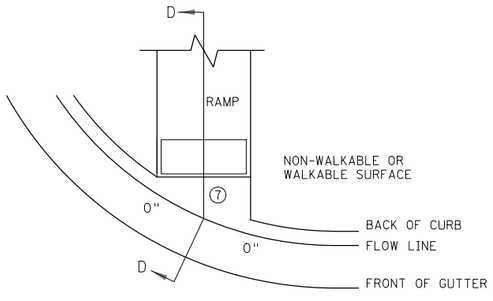


STANDARD ONE-WAY DIRECTIONAL ⑨

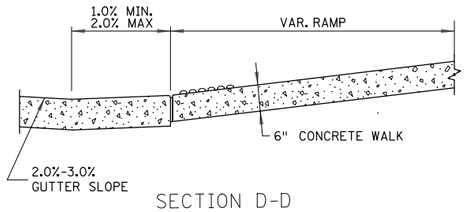


ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB

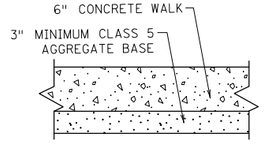




CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

① MATCH FULL CURB HEIGHT.

② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.

③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).

④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.

⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.

⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑧ 8% TO 10% WALKABLE FLARE.

⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

LEGEND
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.
(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
X" CURB HEIGHT

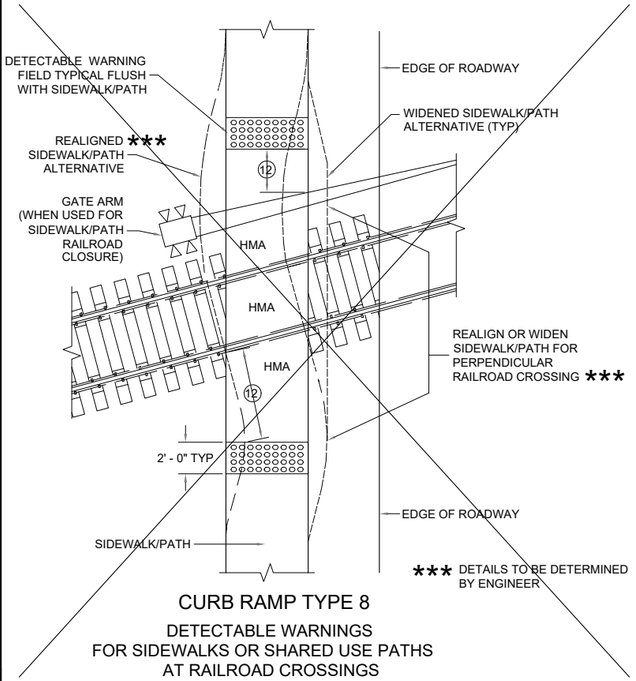
REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER
REVISED:
APPROVED: 1-23-2017

PEDESTRIAN CURB RAMP DETAILS

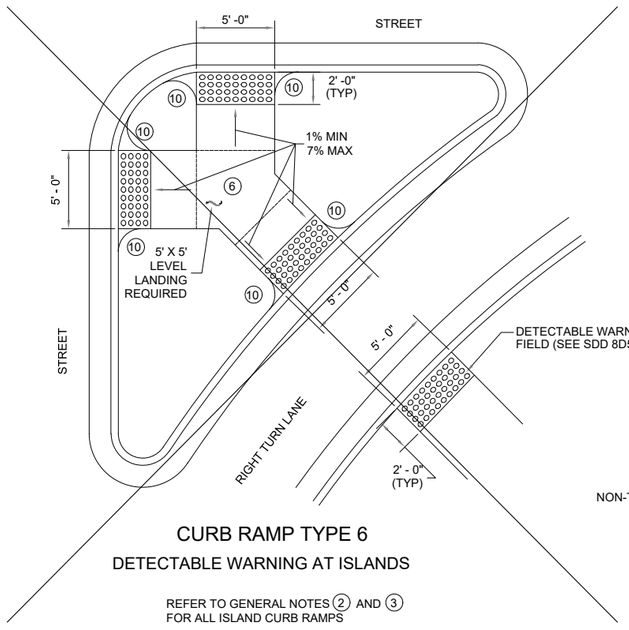
STANDARD PLAN 5-297.250 | 2 OF 6

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CURB RAMP TYPE 8

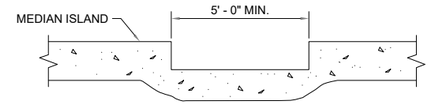
DETECTABLE WARNINGS
FOR SIDEWALKS OR SHARED USE PATHS
AT RAILROAD CROSSINGS



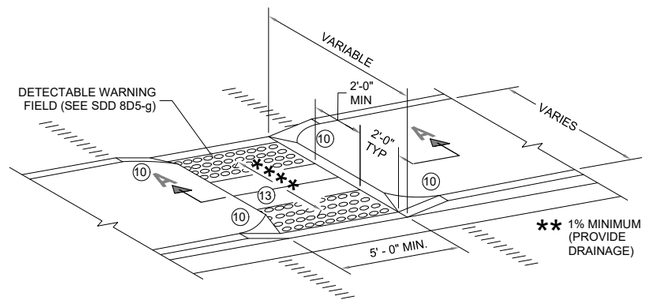
CURB RAMP TYPE 6

DETECTABLE WARNING AT ISLANDS

REFER TO GENERAL NOTES (2) AND (3)
FOR ALL ISLAND CURB RAMPS

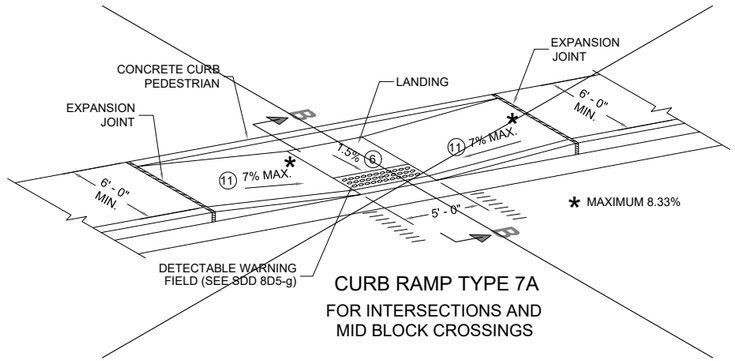


SECTION A - A FOR TYPE 5



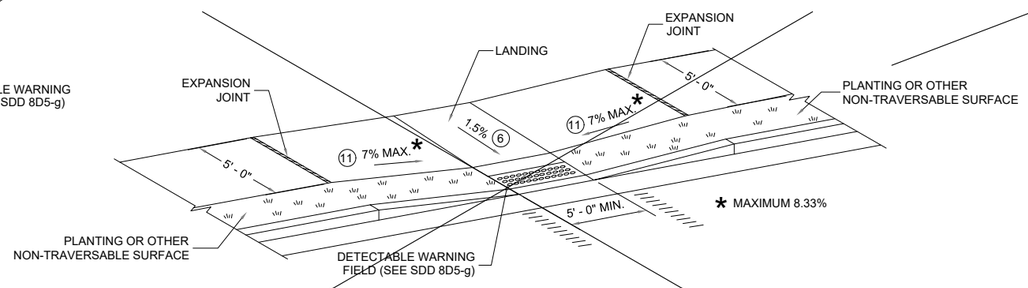
CURB RAMP TYPE 5

MEDIAN ISLAND
NON-ELEVATED PEDESTRIAN CROSSING



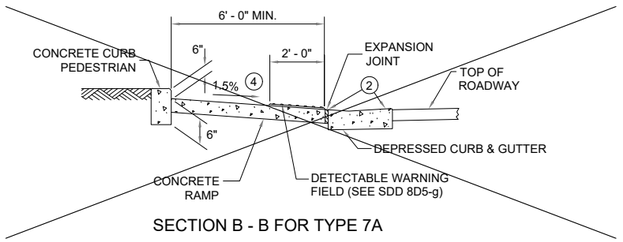
CURB RAMP TYPE 7A

FOR INTERSECTIONS AND
MID BLOCK CROSSINGS



CURB RAMP TYPE 7B

FOR INTERSECTIONS AND
MID BLOCK CROSSINGS



SECTION B - B FOR TYPE 7A

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN ¼ - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.

(3) AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.

(10) INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.

(11) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.

(12) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ±0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK/PATH. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD TRACK IS 15 FEET MAXIMUM AND 12 FEET MINIMUM, 15 FEET TYPICAL FROM THE NEAREST RAIL.

(13) DO NOT INSTALL DETECTABLE WARNING FIELDS AT THE EDGES OF STEET-LEVEL PEDESTRIAN REFUGE ISLANDS IF A MINIMUM 2 FOOT CONCRETE SURFACE WITHOUT DETECTABLE WARNINGS (MEASURED IN THE DIRECTION OF PEDESTRIAN TRAVEL) CANNOT BE ACHIEVED.

LEGEND

½" EXPANSION JOINT SIDEWALK

CONTRACTION JOINT FIELD LOCATED

PAVEMENT MARKING CROSSWALK (WHITE)

6

SDD 08D05-21e

CURB RAMPS
TYPE 5, 6, 7A, 7B & 8

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 08D05-21e

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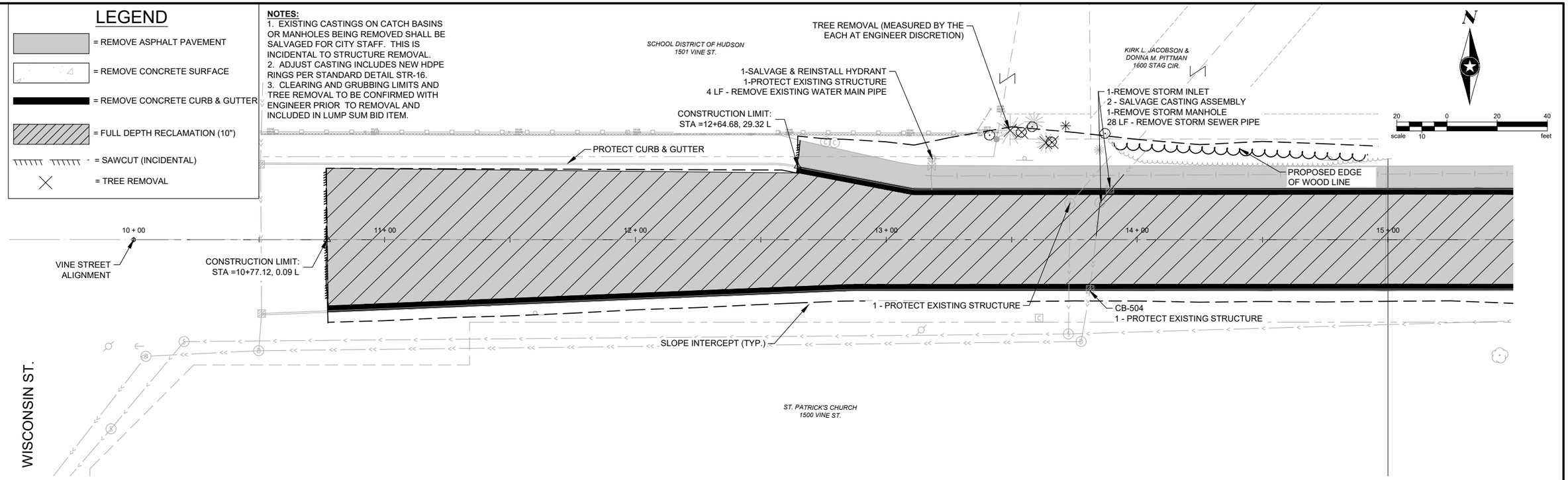
SEH Project	HUDSO 173753	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date	2024 UTILITY IMPROVEMETNS	CONSTRUCTION DETAILS
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Designed By	CP								
Checked By	JP								

LEGEND

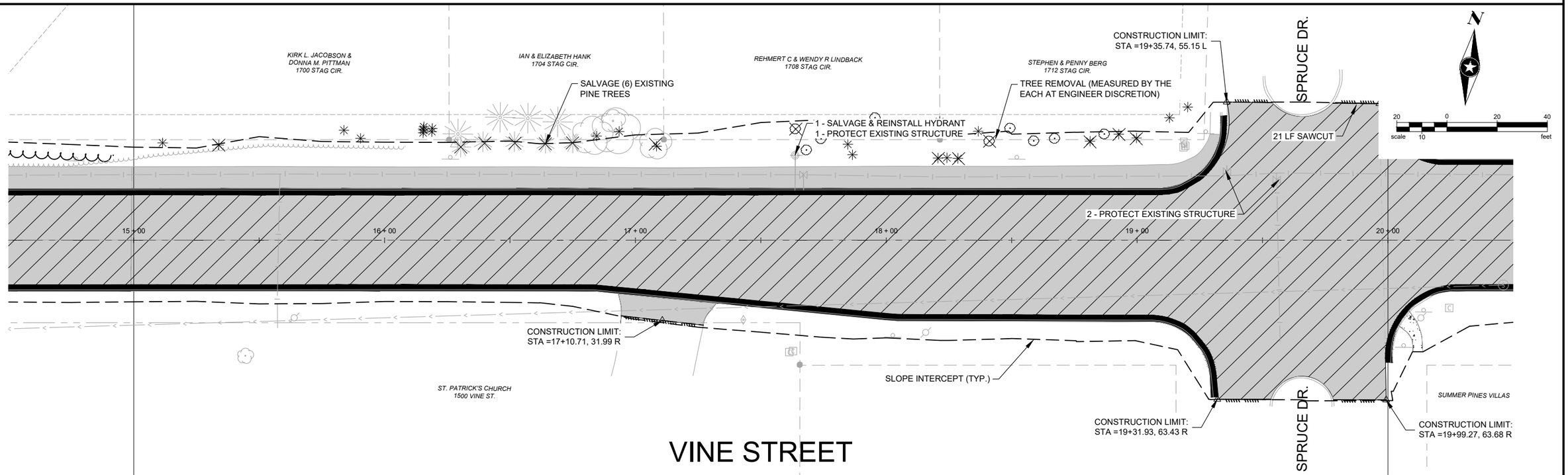
- = REMOVE ASPHALT PAVEMENT
- = REMOVE CONCRETE SURFACE
- = REMOVE CONCRETE CURB & GUTTER
- = FULL DEPTH RECLAMATION (10")
- = SAWCUT (INCIDENTAL)
- = TREE REMOVAL

NOTES:

1. EXISTING CASTINGS ON CATCH BASINS OR MANHOLES BEING REMOVED SHALL BE SALVAGED FOR CITY STAFF. THIS IS INCIDENTAL TO STRUCTURE REMOVAL.
2. ADJUST CASTING INCLUDES NEW HDPE RINGS PER STANDARD DETAIL STR-16.
3. CLEARING AND GRUBBING LIMITS AND TREE REMOVAL TO BE CONFIRMED WITH ENGINEER PRIOR TO REMOVAL AND INCLUDED IN LUMP SUM BID ITEM.



VINE STREET



VINE STREET

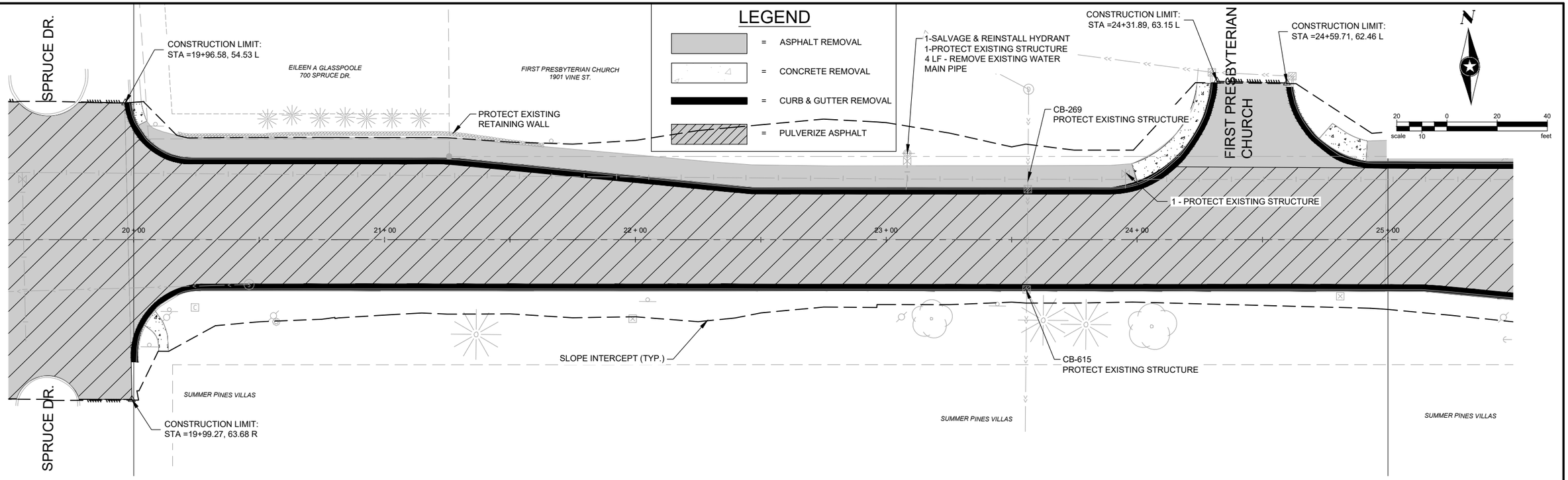
SEH Project	HUDSO175833	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date
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2024 STREET IMPROVEMENTS
HUDSON, WI

VINE STREET REMOVALS

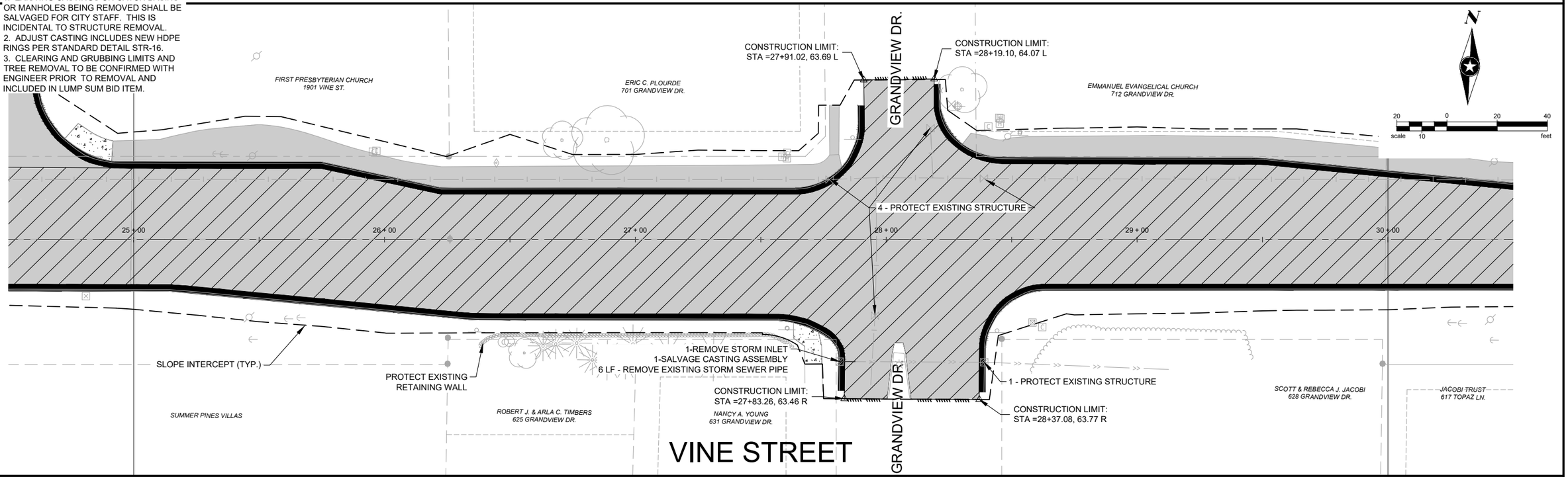
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VINE STREET

NOTES:

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2. ADJUST CASTING INCLUDES NEW HDPE RINGS PER STANDARD DETAIL STR-16.
3. CLEARING AND GRUBBING LIMITS AND TREE REMOVAL TO BE CONFIRMED WITH ENGINEER PRIOR TO REMOVAL AND INCLUDED IN LUMP SUM BID ITEM.



VINE STREET

		Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date
SEH Project	HUDSO175833	.			.		
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2024 STREET IMPROVEMENTS
HUDSON, WI

VINE STREET REMOVALS

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NOTES:
1. EXISTING CASTINGS ON CATCH BASINS OR MANHOLES BEING REMOVED SHALL BE SALVAGED FOR CITY STAFF. THIS IS INCIDENTAL TO STRUCTURE REMOVAL.
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3. CLEARING AND GRUBBING LIMITS AND TREE REMOVAL TO BE CONFIRMED WITH ENGINEER PRIOR TO REMOVAL AND INCLUDED IN LUMP SUM BID ITEM.

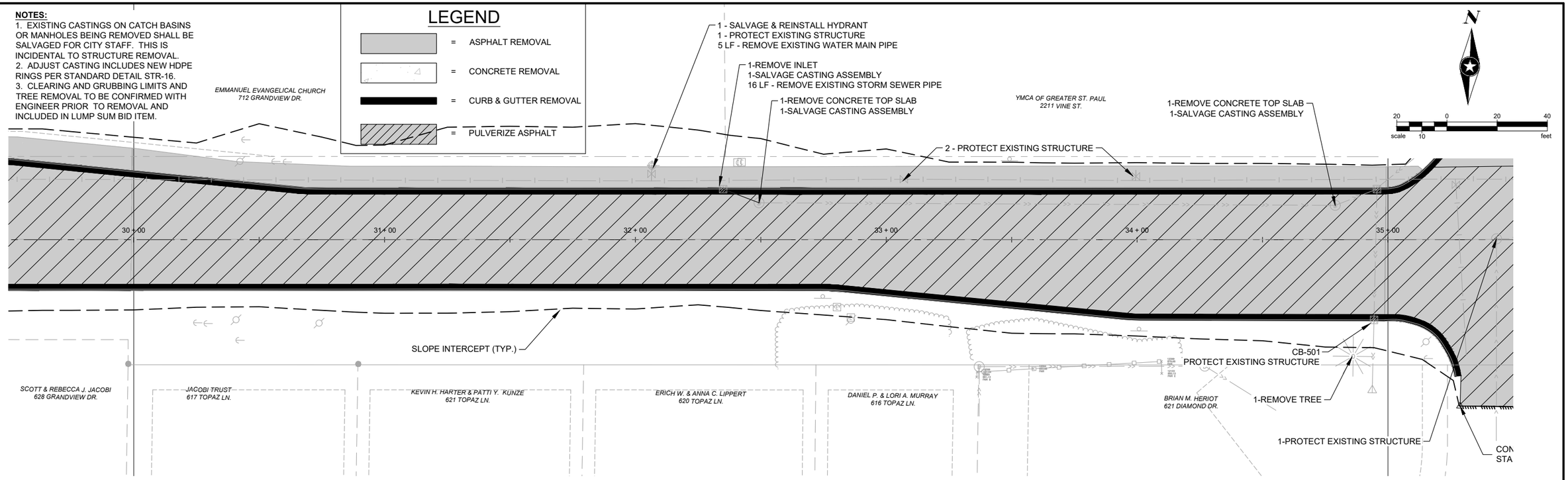
LEGEND

= ASPHALT REMOVAL

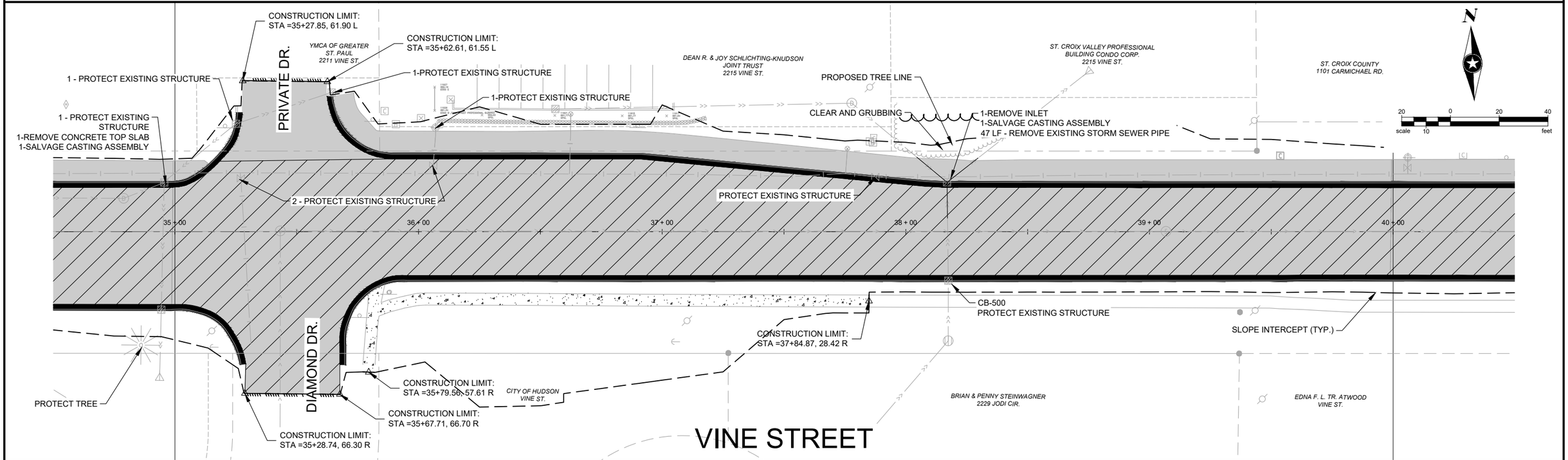
= CONCRETE REMOVAL

= CURB & GUTTER REMOVAL

= PULVERIZE ASPHALT



VINE STREET



VINE STREET

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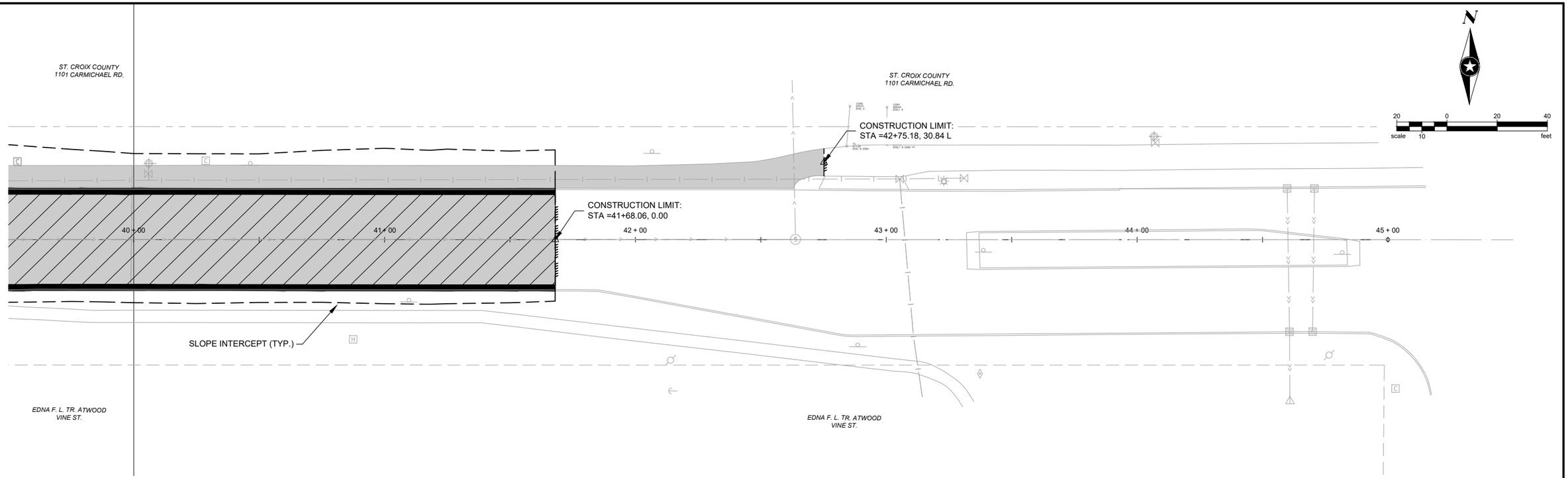
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2024 STREET IMPROVEMENTS
HUDSON, WI

VINE STREET REMOVALS

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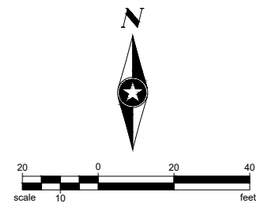
VINE STREET

NOTES:

1. EXISTING CASTINGS ON CATCH BASINS OR MANHOLES BEING REMOVED SHALL BE SALVAGED FOR CITY STAFF. THIS IS INCIDENTAL TO STRUCTURE REMOVAL.
2. ADJUST CASTING INCLUDES NEW HDPE RINGS PER STANDARD DETAIL STR-16.

LEGEND

- = ASPHALT REMOVAL
- = CONCRETE REMOVAL
- = CURB & GUTTER REMOVAL
- = PULVERIZE ASPHALT



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2024 STREET IMPROVEMENTS
HUDSON, WI

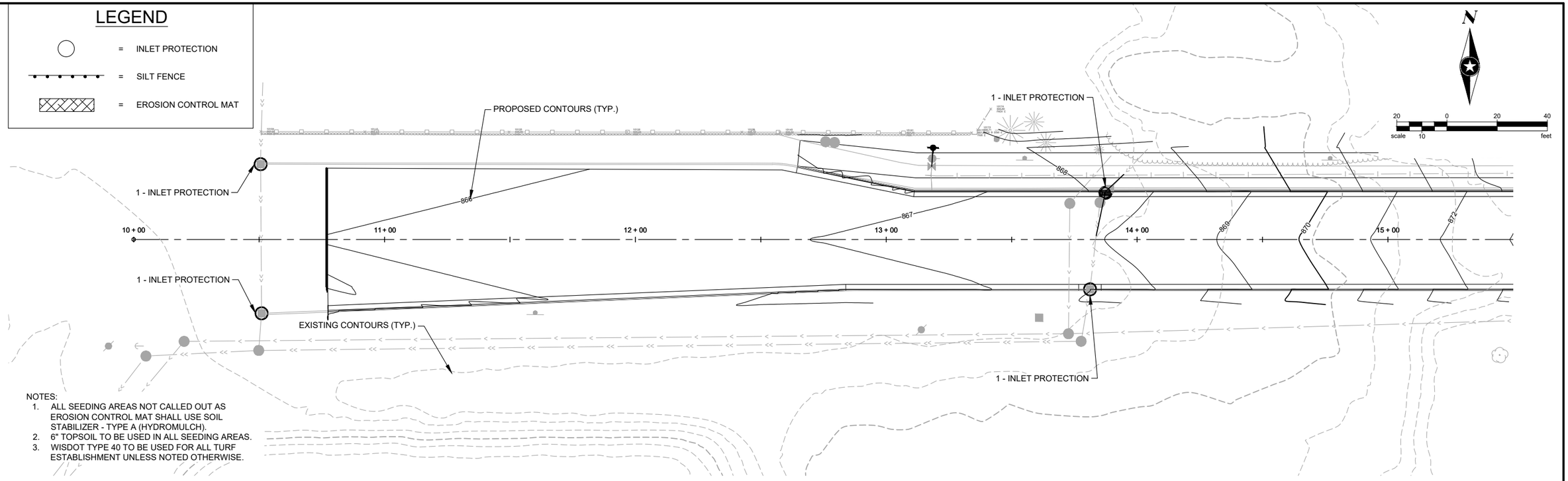
VINE STREET REMOVALS

LEGEND

= INLET PROTECTION

= SILT FENCE

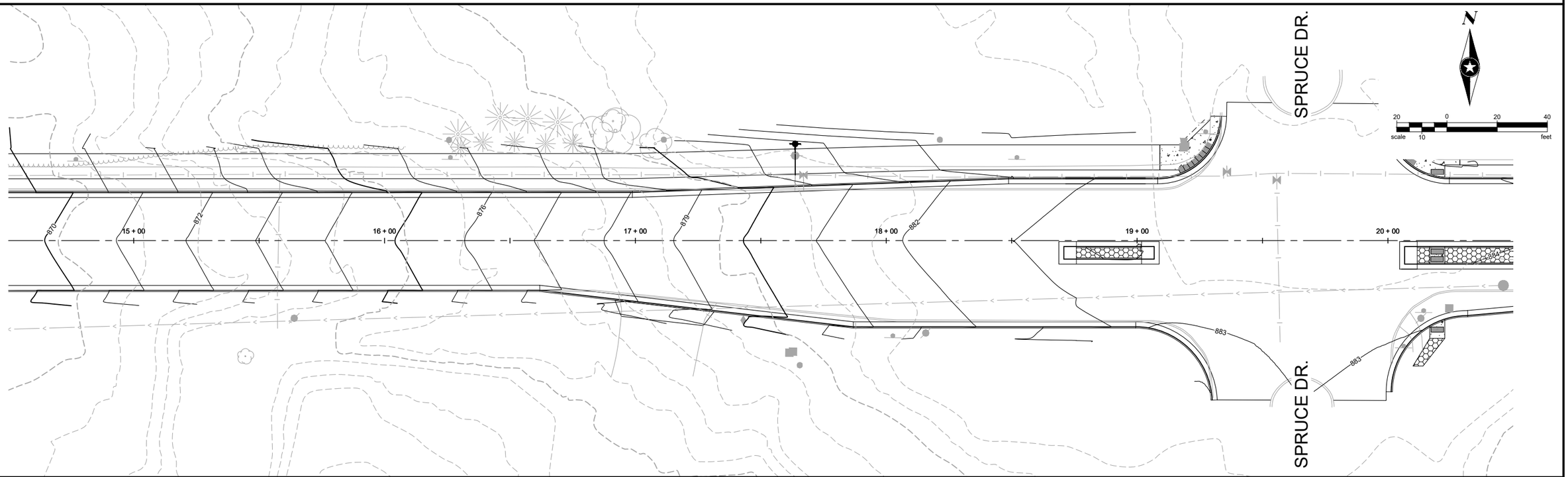
= EROSION CONTROL MAT



NOTES:

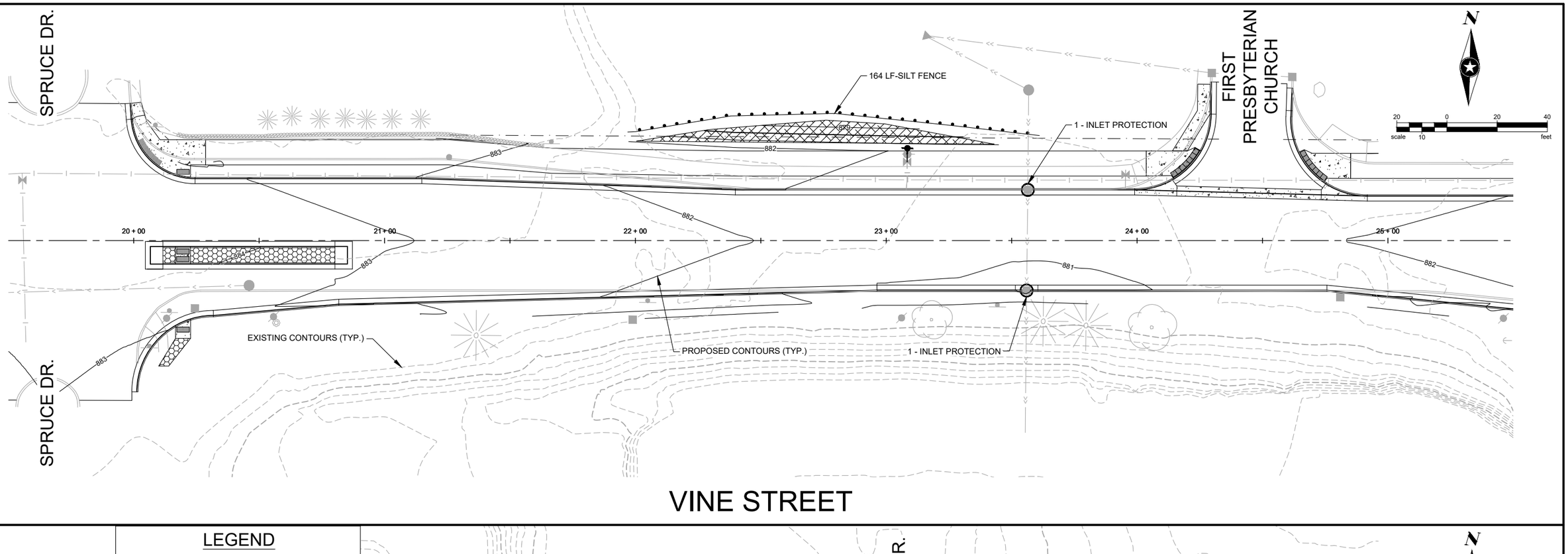
1. ALL SEEDING AREAS NOT CALLED OUT AS EROSION CONTROL MAT SHALL USE SOIL STABILIZER - TYPE A (HYDROMULCH).
2. 6" TOPSOIL TO BE USED IN ALL SEEDING AREAS.
3. WISDOT TYPE 40 TO BE USED FOR ALL TURF ESTABLISHMENT UNLESS NOTED OTHERWISE.

VINE STREET

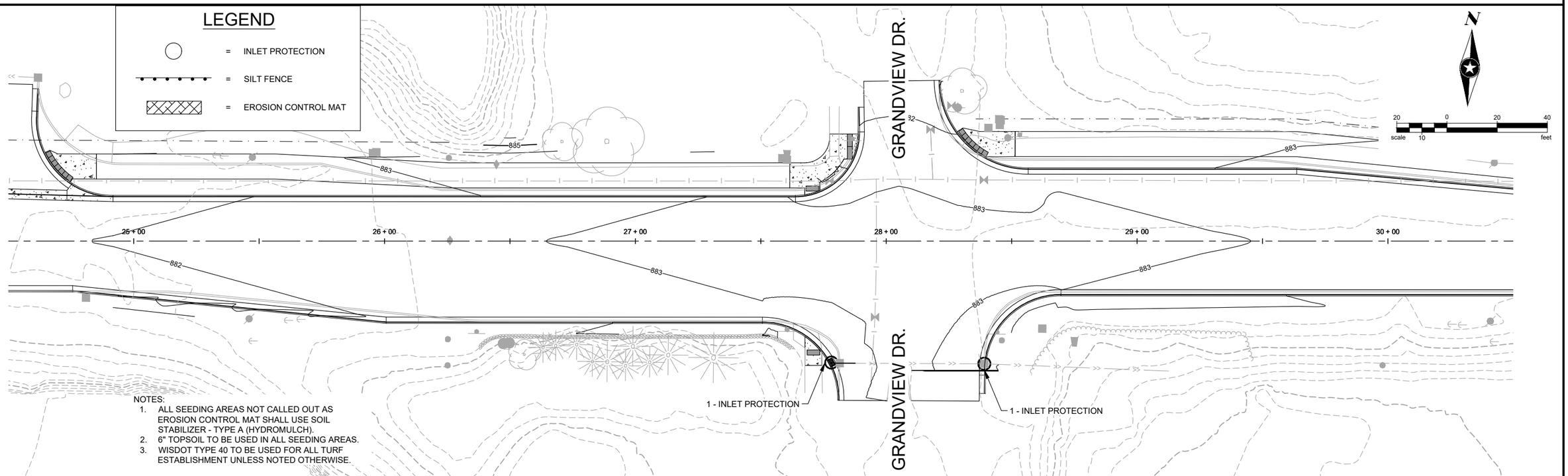


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VINE STREET



NOTES:
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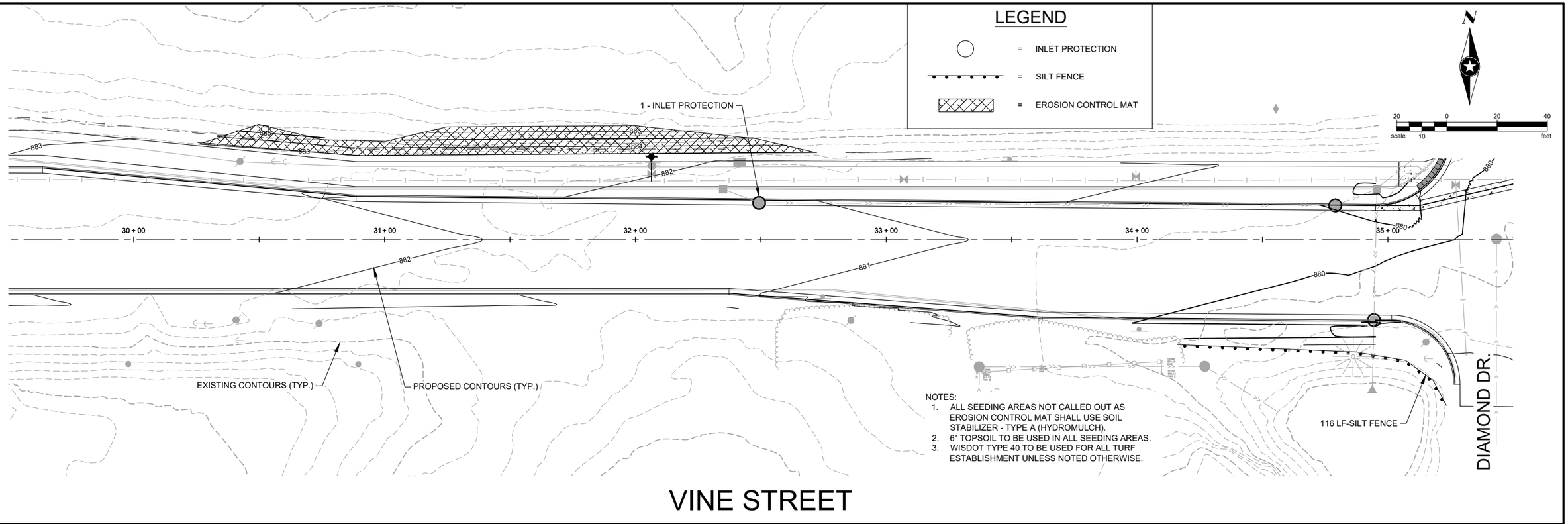
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2024 STREET IMPROVEMENTS
HUDSON, WI

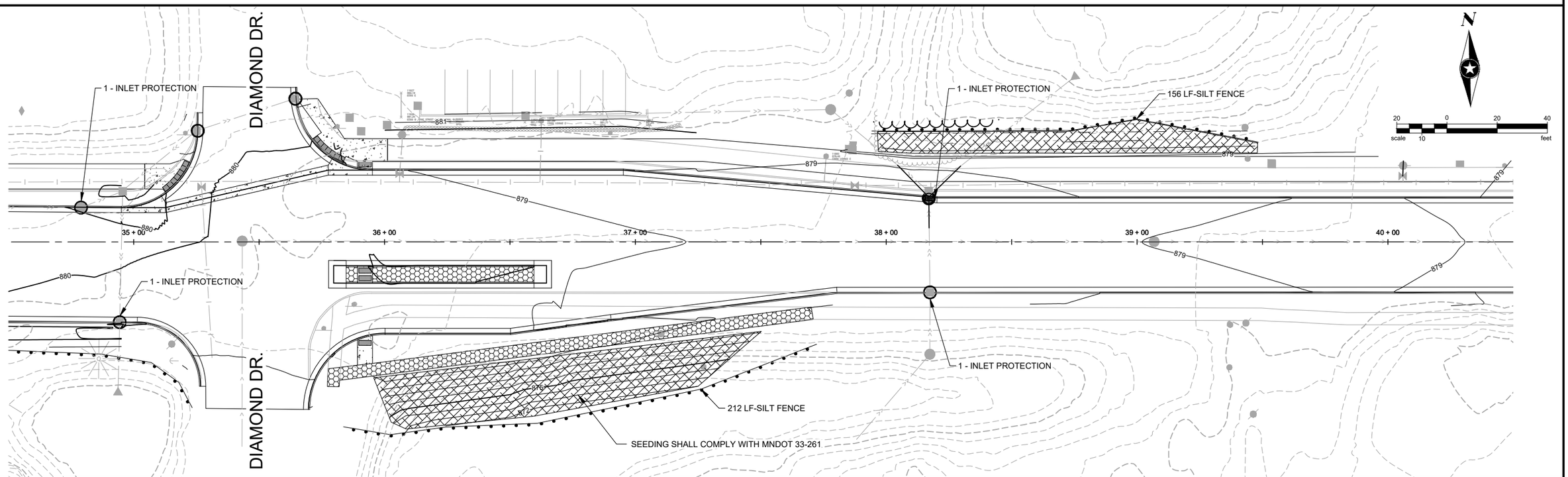
VINE STREET
EROSION CONTROL

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VINE STREET



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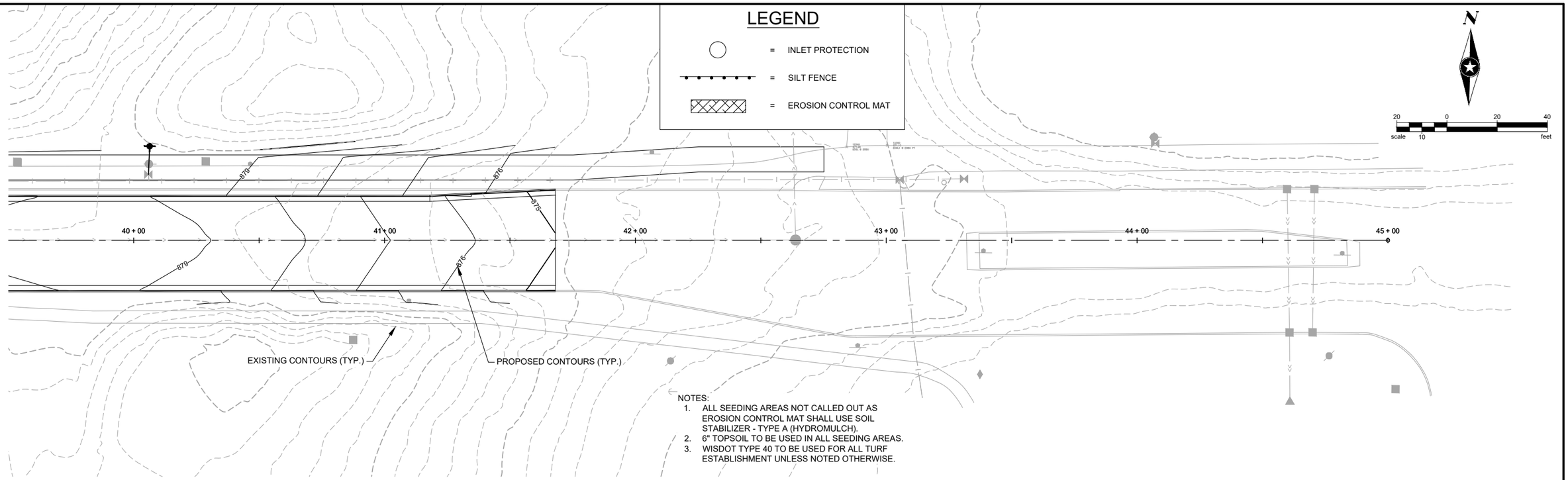
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2024 STREET IMPROVEMENTS
HUDSON, WI

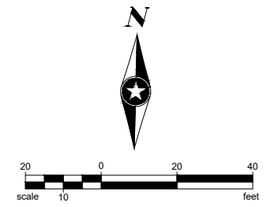
VINE STREET
EROSION CONTROL

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NOTES:
1. ALL SEEDING AREAS NOT CALLED OUT AS EROSION CONTROL MAT SHALL USE SOIL STABILIZER - TYPE A (HYDROMULCH).
2. 6" TOPSOIL TO BE USED IN ALL SEEDING AREAS.
3. WISDOT TYPE 40 TO BE USED FOR ALL TURF ESTABLISHMENT UNLESS NOTED OTHERWISE.

VINE STREET



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2024 STREET IMPROVEMENTS
HUDSON, WI

VINE STREET
EROSION CONTROL

LEGEND:

= CONSTRUCTION ZONE

= PROPOSED DETOUR ROUTE

= LOCAL BUSINESS ACCESS

N

400 0 400 800

scale 200 feet

HUDSON HIGH SCHOOL

FIRST PRESBYTERIAN CHURCH

YMCA

ST. CROIX PROFESSIONAL BUILDING

VINE STREET

VINE STREET

STH 35/2ND STREET

WISCONSIN STREET

GRANDVIEW DRIVE

CARMICHAEL ROAD

11TH STREET

COULEE ROAD

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GENERAL NOTES:

1. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL BY THE ENGINEER AT LEAST (14) DAYS IN ADVANCE OF THE CONSTRUCTION START DATE. SEE "TRAFFIC CONTROL PLAN" SPECIFICATIONS FOR DETAILS.
2. THE CONTRACTOR SHALL PROVIDE ADVANCE NOTICE OF ROAD CLOSURE SIGNAGE AT EACH END OF THE PROJECT AREA (7) DAYS PRIOR TO THE ROAD CLOSURE. THE CONTRACTOR SHALL SUBMIT THE ADVANCE NOTICE SIGNAGE DETAILS WITH THE TRAFFIC CONTROL PLAN.
3. THE DETOUR SHALL BE IN PLACE BEFORE ANY WORK BEGINS.
4. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO "THE WISCONSIN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" INCLUDING THE WORK ZONE FIELD MANUAL.
5. ALL TRAFFIC CONTROL AND SIGNING, INCLUDING DETOUR SIGNING, SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE CONSIDERED UNDER THE TRAFFIC CONTROL PAY ITEM BY THE LUMP SUM.
6. FIELD MODIFICATIONS MAY REQUIRE MODIFICATIONS OF LAYOUTS AS DEEMED NECESSARY BY THE ENGINEER.
7. THE CONTRACTOR IS RESPONSIBLE FOR EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER. MODIFICATIONS BASED ON CONSTRUCTION STAGING SHALL BE CONSIDERED INCIDENTAL.
8. ALL SIGN POSTS USED TO POST DETOUR ROUTES SHALL BE REMOVED AND THE SURROUNDING GROUND RETURNED TO ITS ORIGINAL CONDITION.
9. SIGN PANELS ARE IN ENGLISH UNITS.
10. COORDINATE ALL DETOUR SIGNING WITH OTHER DETOUR SIGNS FOR OTHER PROJECTS IN THE AREA. CONTACT CITY AND COUNTY STAFF TO VERIFY LOCATIONS.
11. BARRICADES ARE 8FT TYPE III AND SHALL BE REFLECTORIZED ON BOTH SIDES.
12. ALL DRUMS, BARRIERS, AND SIGNS SHALL BE RETRO-REFLECTIVE.
13. STAND MOUNTED SIGNS SHALL BE MOUNTED AT A HEIGHT OF 6 FT FROM THE BOTTOM OF THE SIGN TO THE EDGE OF THE ROADWAY AND SANDBAGS SHALL BE MAINTAINED ON ALL LEGS AT ALL TIMES.

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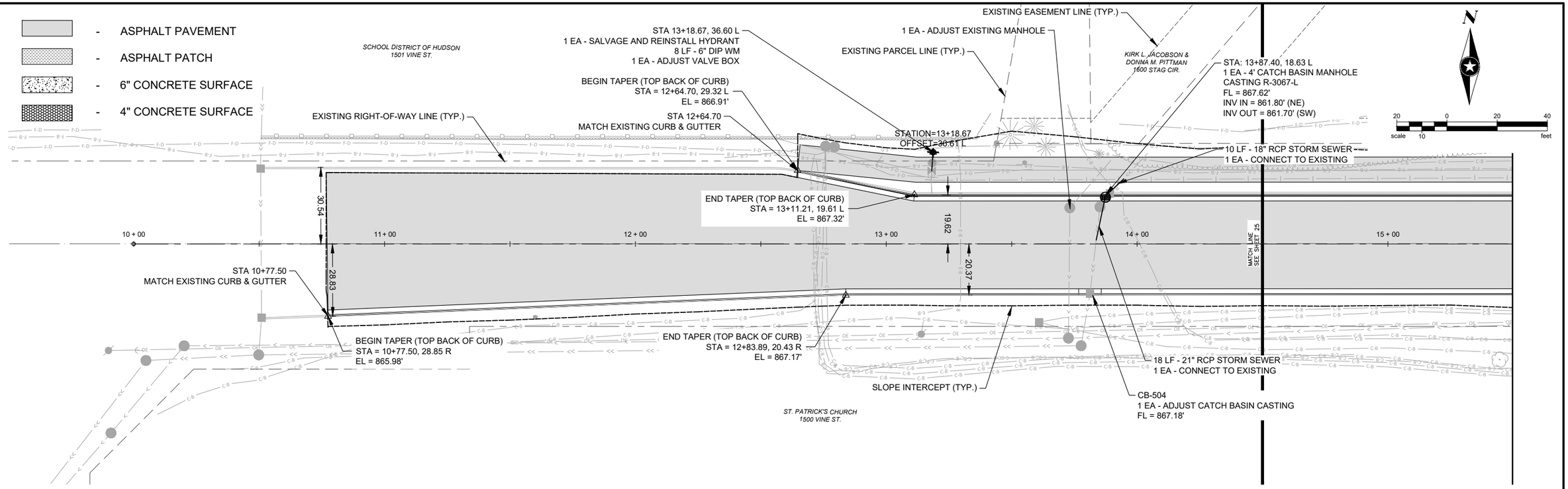
2024 STREET IMPROVEMENTS

HUDSON, WI

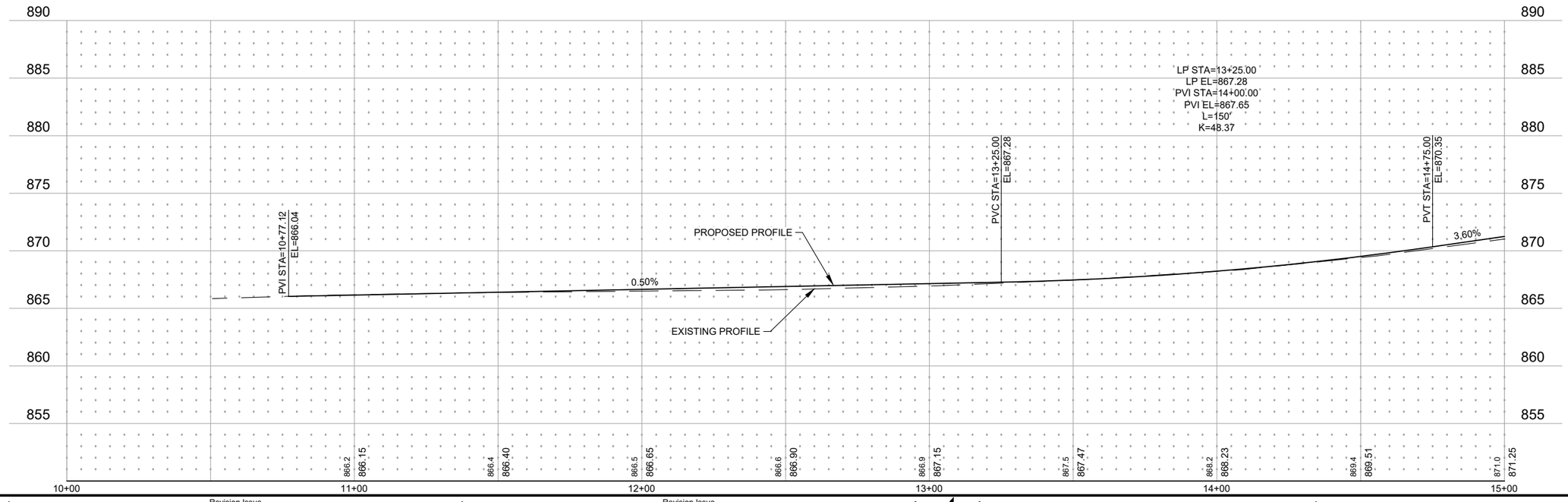
VINE STREET DETOUR PLAN

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VINE STREET



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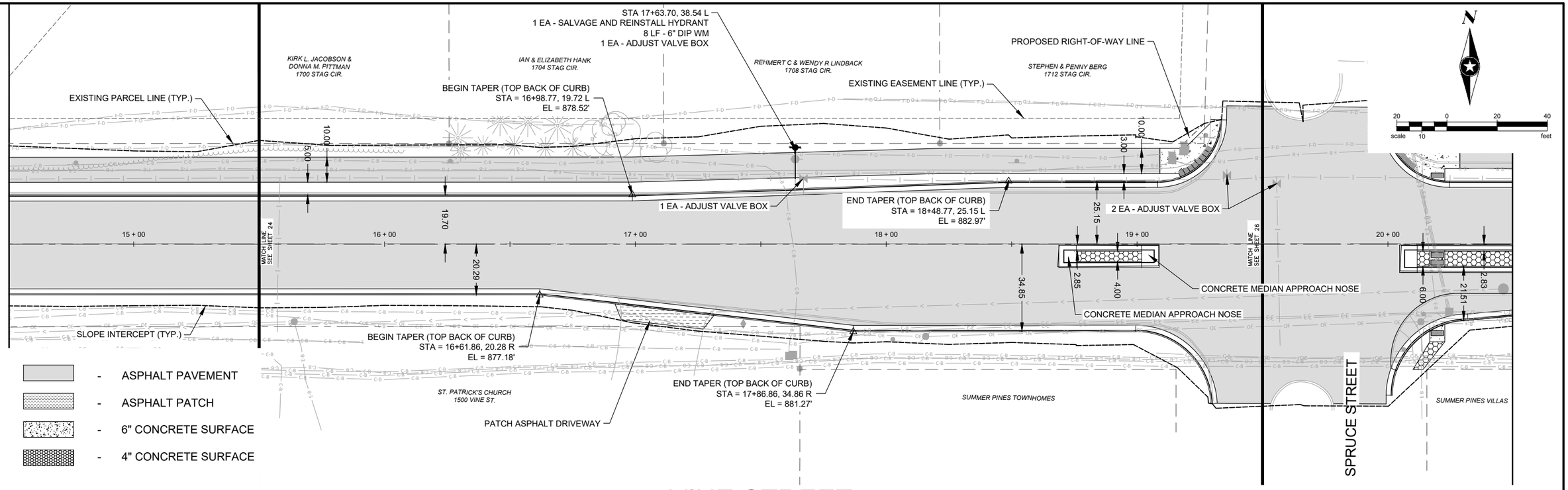
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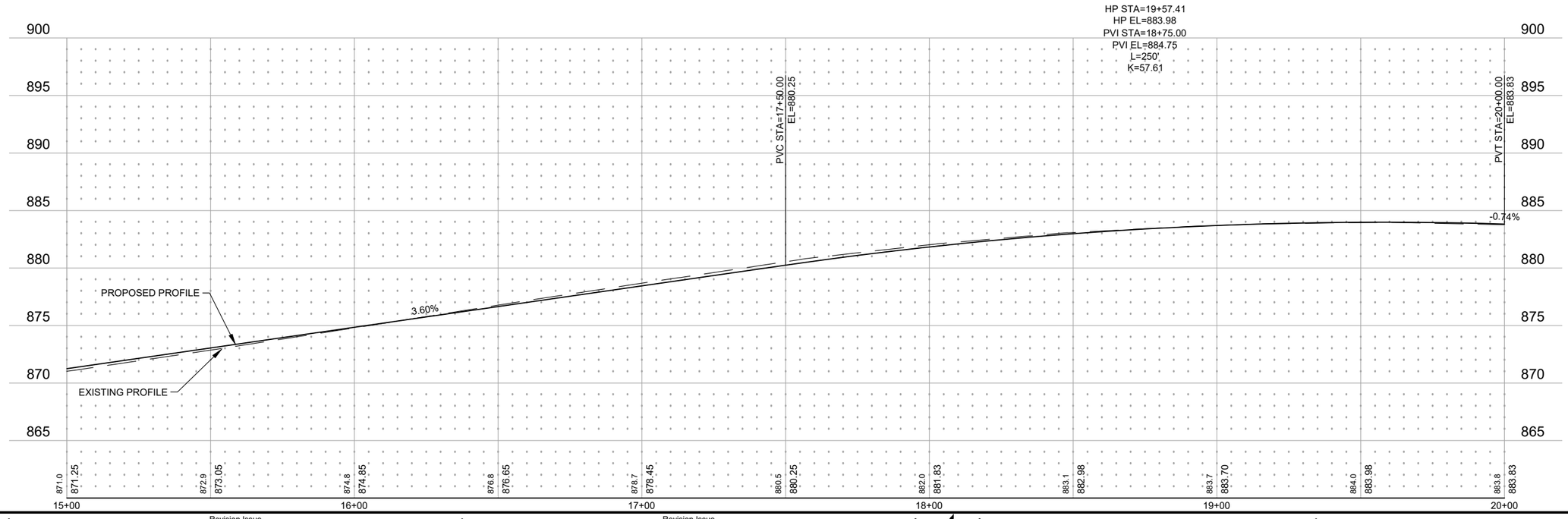
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2024 STREET IMPROVEMENTS
HUDSON, WI

VINE STREET
CONSTRUCTION PLAN & PROFILE



VINE STREET



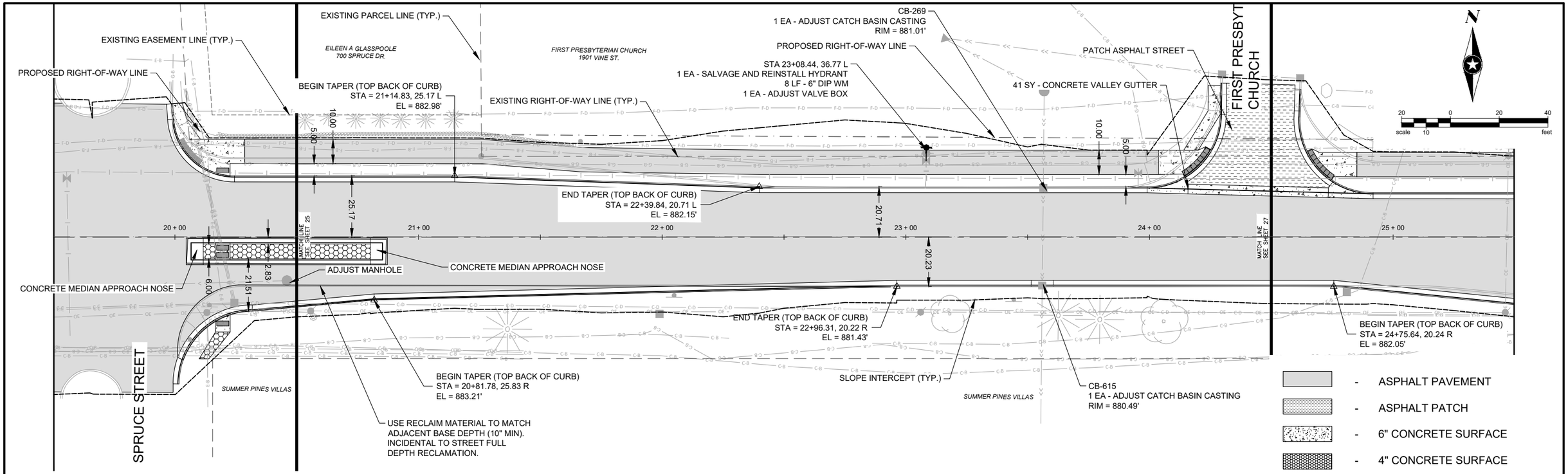
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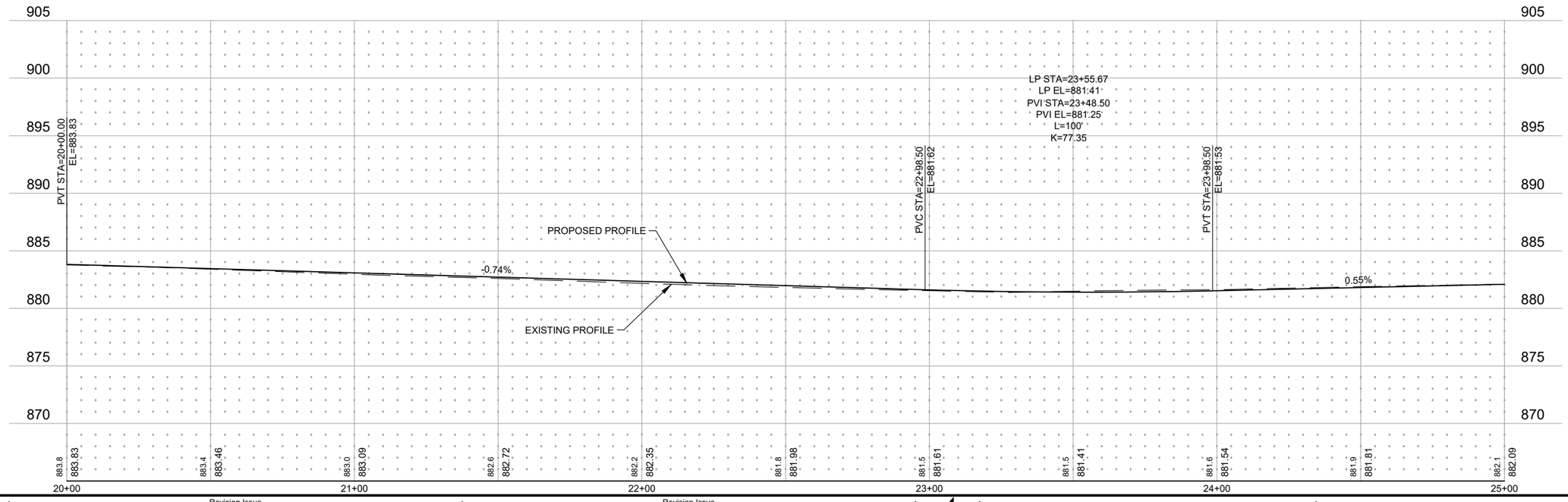
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2024 STREET IMPROVEMENTS
HUDSON, WI

VINE STREET
CONSTRUCTION PLAN & PROFILE

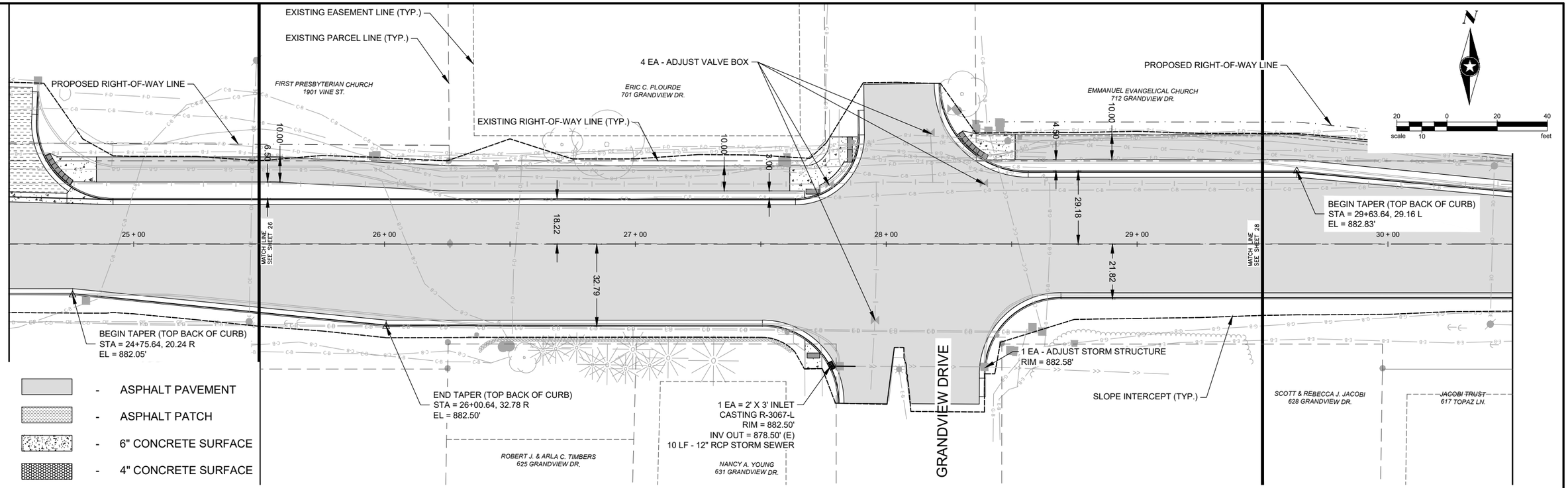


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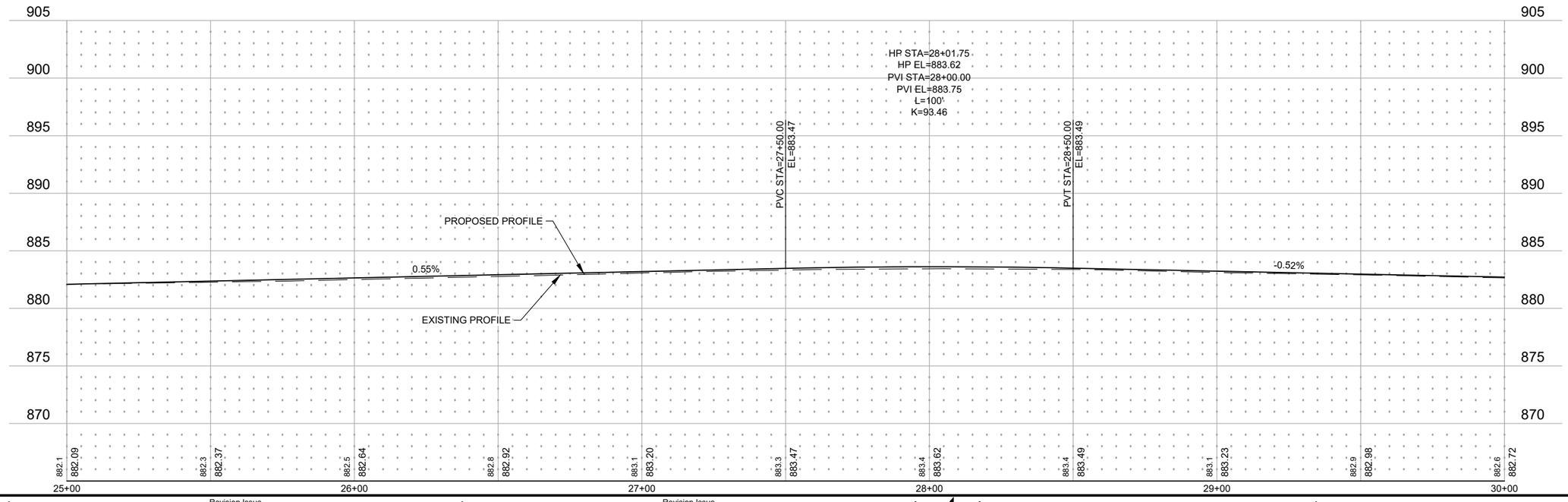


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VINE STREET



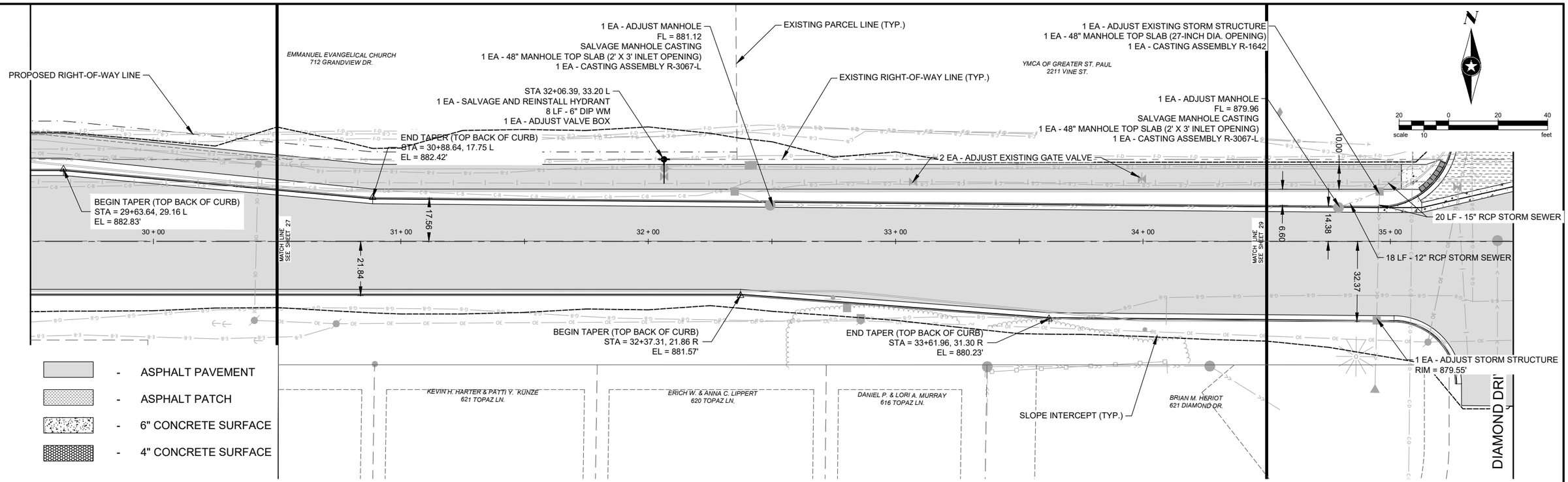
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2024 STREET IMPROVEMENTS
HUDSON, WI

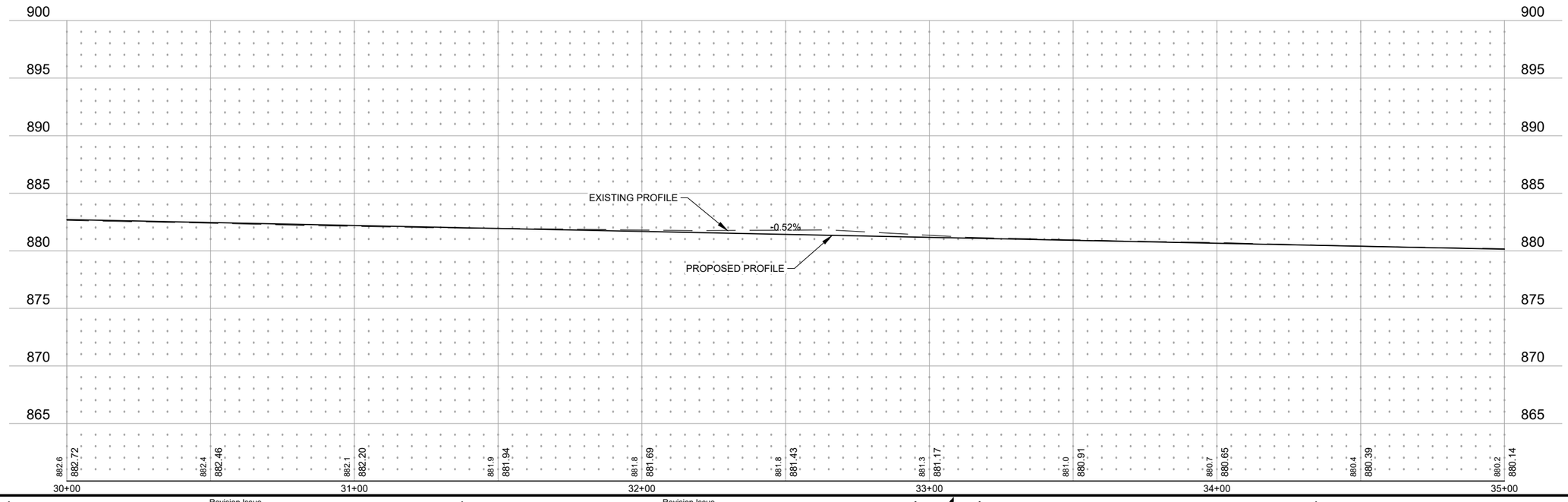
VINE STREET
CONSTRUCTION PLAN & PROFILE

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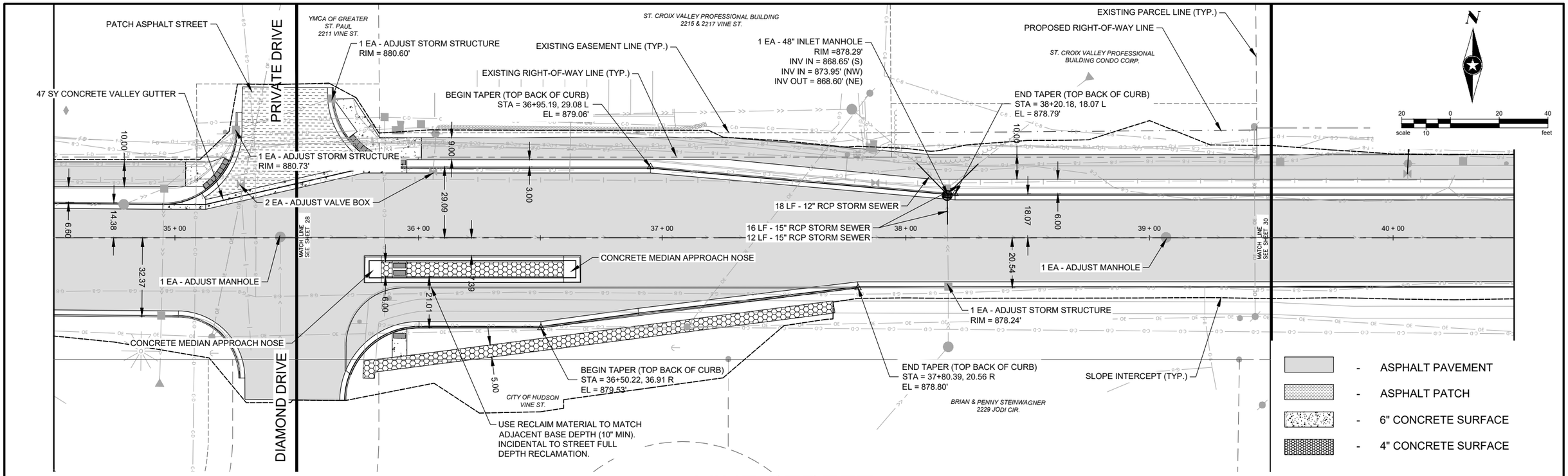
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2024 STREET IMPROVEMENTS
HUDSON, WI

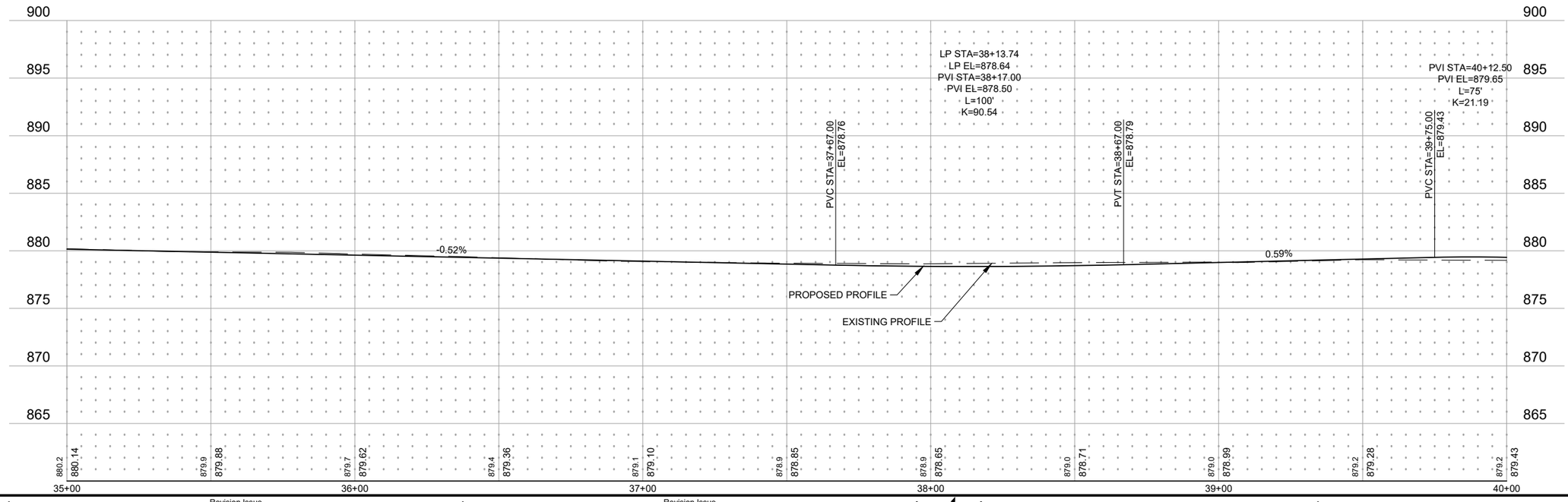
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CONSTRUCTION PLAN & PROFILE

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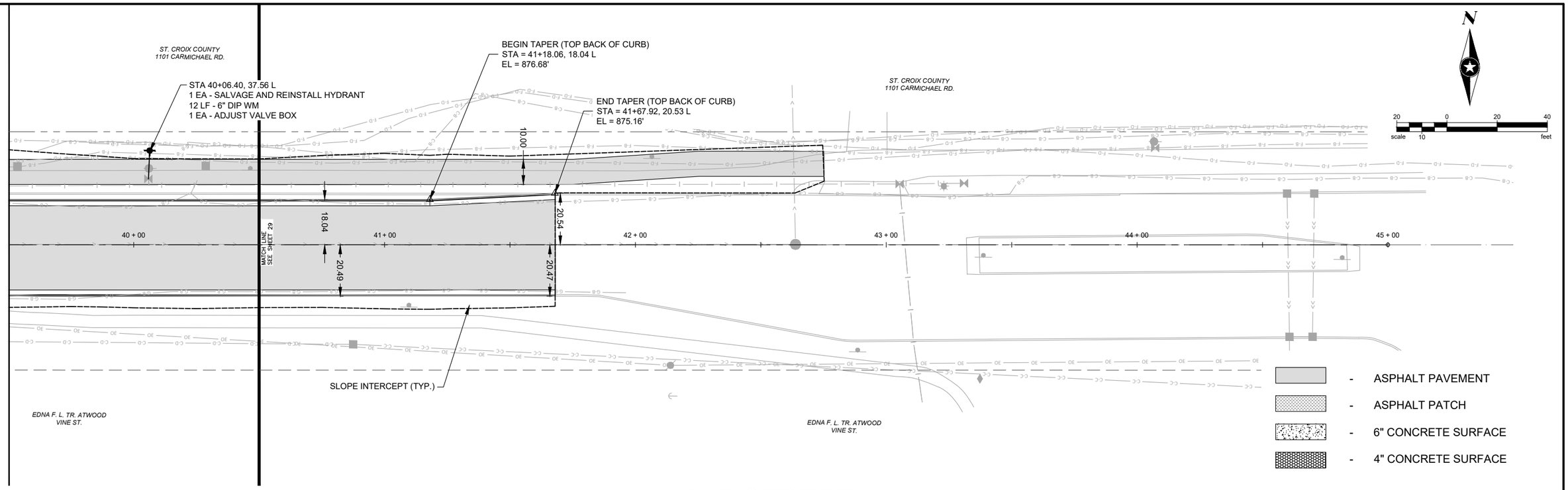
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2024 STREET IMPROVEMENTS
HUDSON,WI

VINE STREET
CONSTRUCTION PLAN & PROFILE

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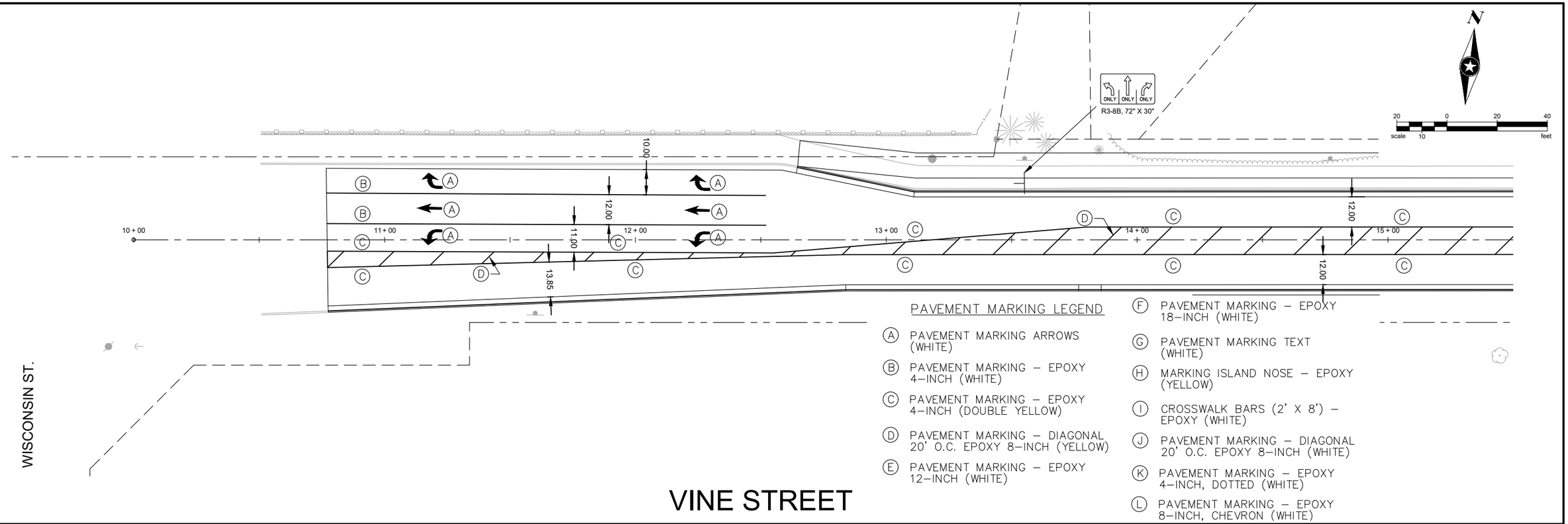


VINE STREET



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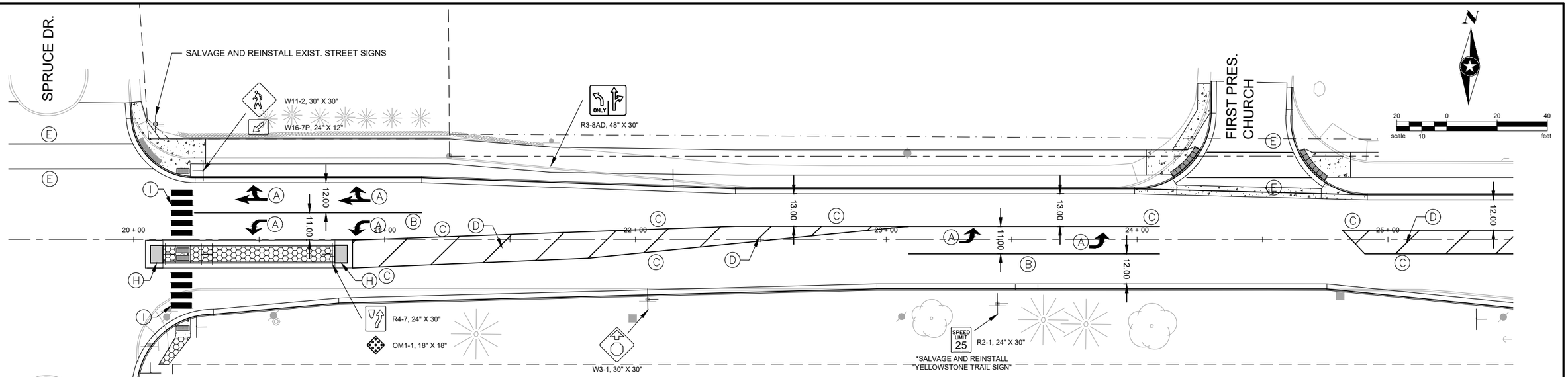
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2024 STREET IMPROVEMENTS
HUDSON, WI

PAVEMENT MARKINGS PLAN SHEET

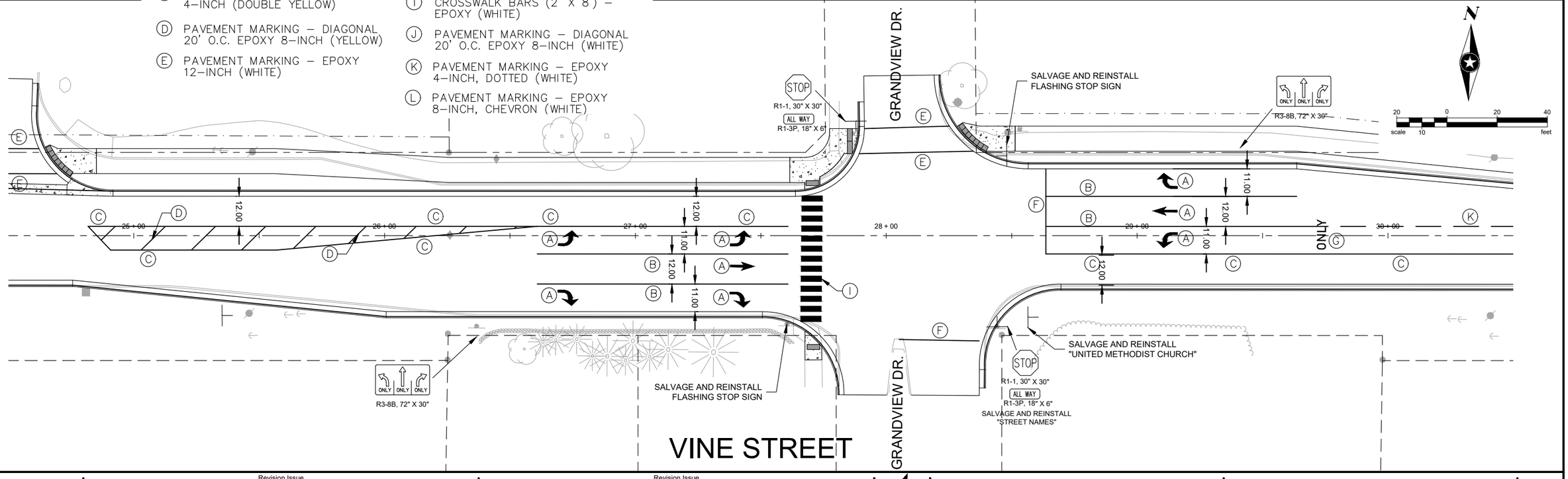
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PAVEMENT MARKING LEGEND

- (A) PAVEMENT MARKING ARROWS (WHITE)
- (B) PAVEMENT MARKING – EPOXY 4–INCH (WHITE)
- (C) PAVEMENT MARKING – EPOXY 4–INCH (DOUBLE YELLOW)
- (D) PAVEMENT MARKING – DIAGONAL 20' O.C. EPOXY 8–INCH (YELLOW)
- (E) PAVEMENT MARKING – EPOXY 12–INCH (WHITE)
- (F) PAVEMENT MARKING – EPOXY 18–INCH (WHITE)
- (G) PAVEMENT MARKING TEXT (WHITE)
- (H) MARKING ISLAND NOSE – EPOXY (YELLOW)
- (I) CROSSWALK BARS (2' X 8') – EPOXY (WHITE)
- (J) PAVEMENT MARKING – DIAGONAL 20' O.C. EPOXY 8–INCH (WHITE)
- (K) PAVEMENT MARKING – EPOXY 4–INCH, DOTTED (WHITE)
- (L) PAVEMENT MARKING – EPOXY 8–INCH, CHEVRON (WHITE)

VINE STREET



VINE STREET

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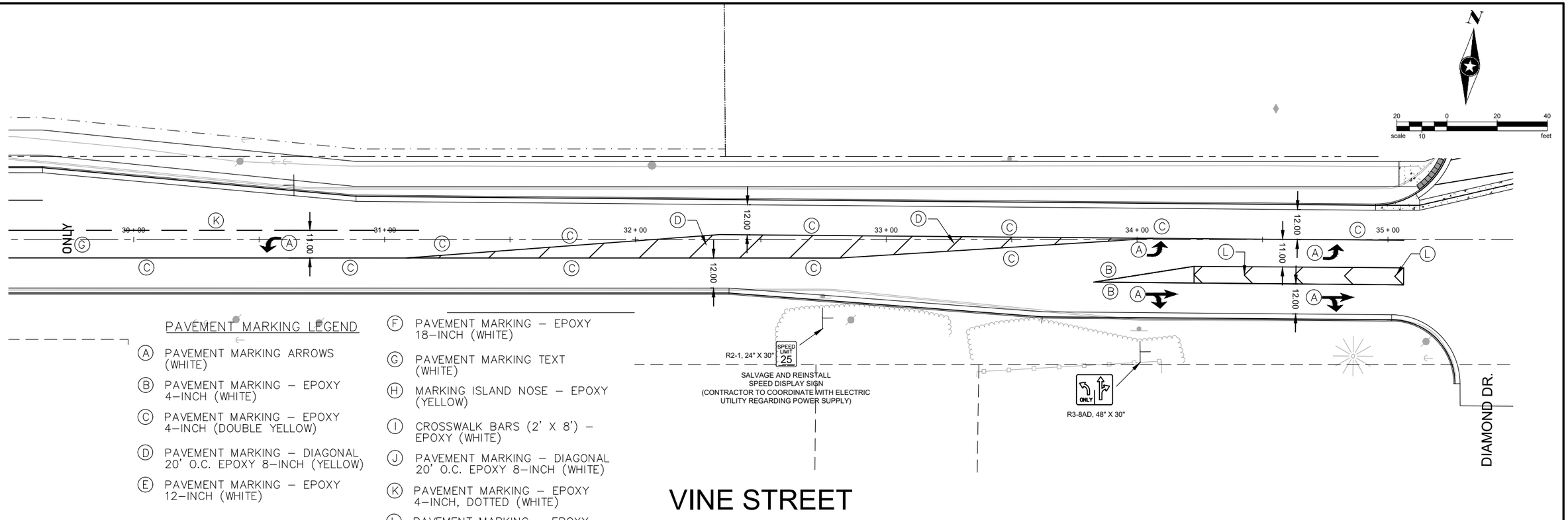
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2024 STREET IMPROVEMENTS
HUDSON, WI

PAVEMENT MARKINGS PLAN SHEET

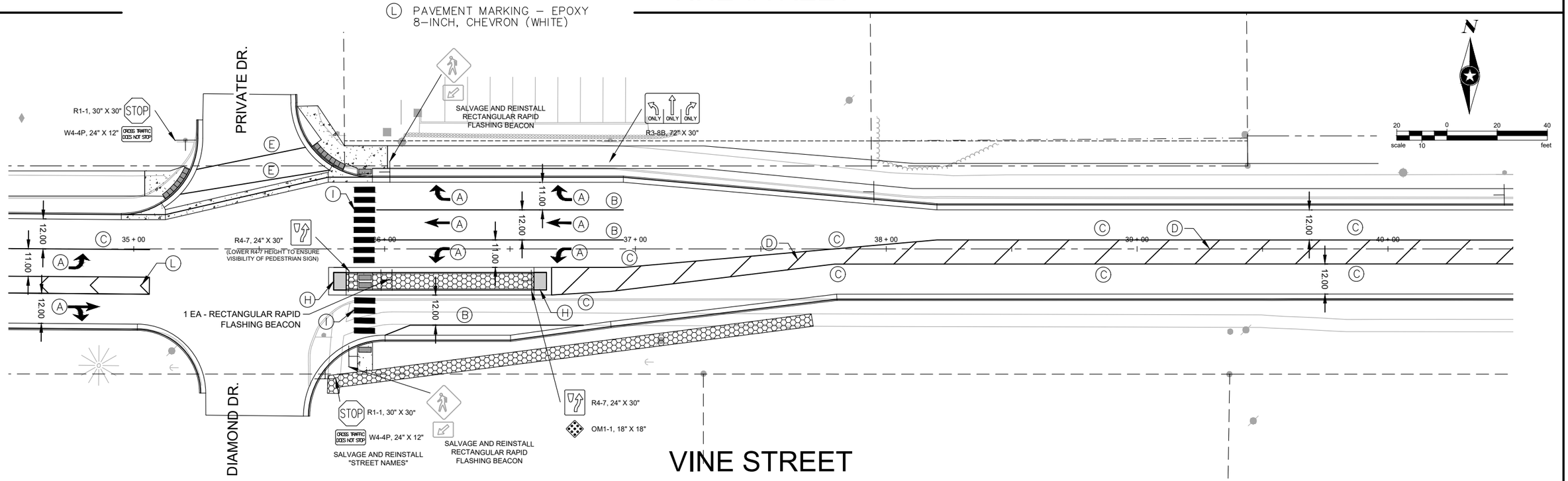
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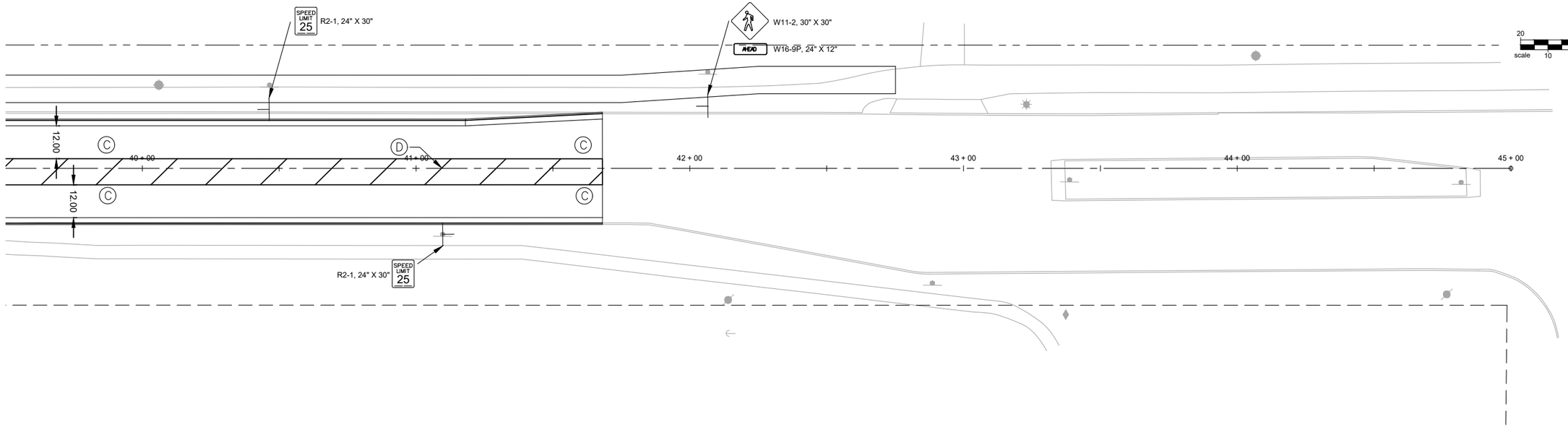
PAVEMENT MARKING LEGEND

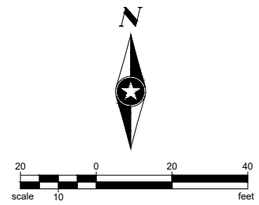
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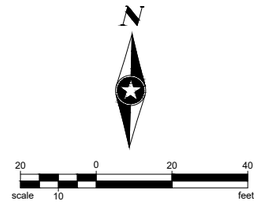




VINE STREET

PAVEMENT MARKING LEGEND

- (A) PAVEMENT MARKING ARROWS (WHITE)
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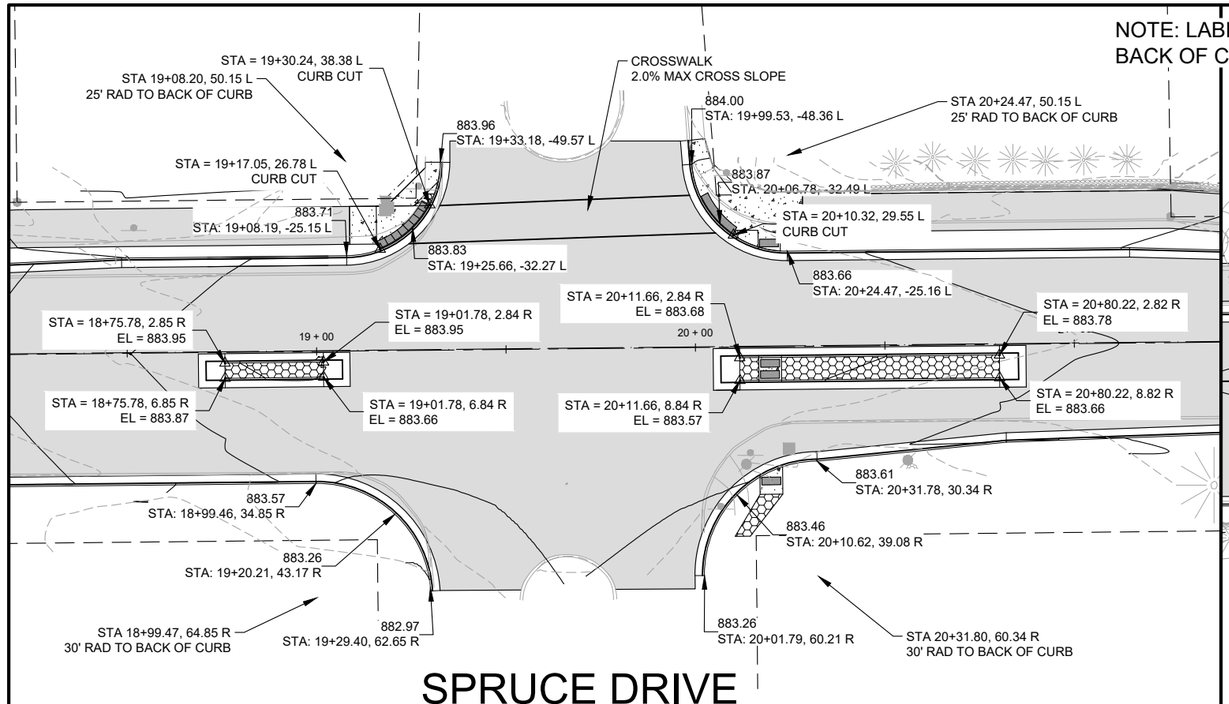
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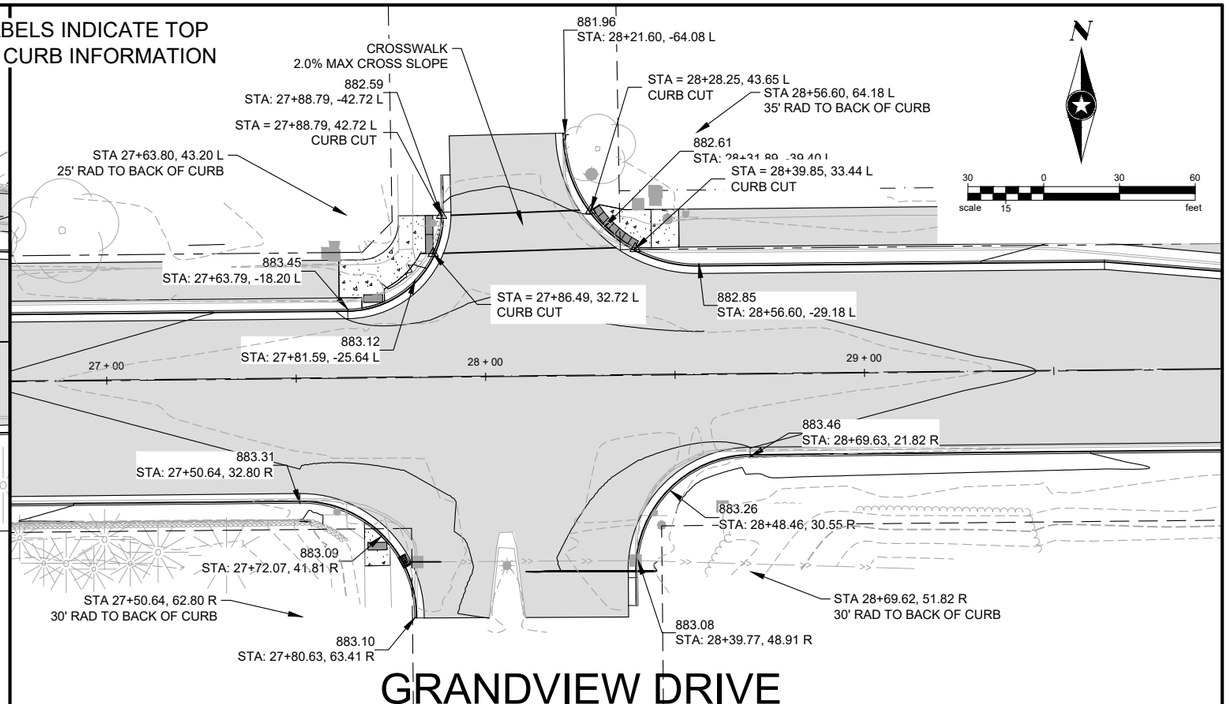
2024 STREET IMPROVEMENTS
HUDSON, WI

PAVEMENT MARKINGS PLAN SHEET

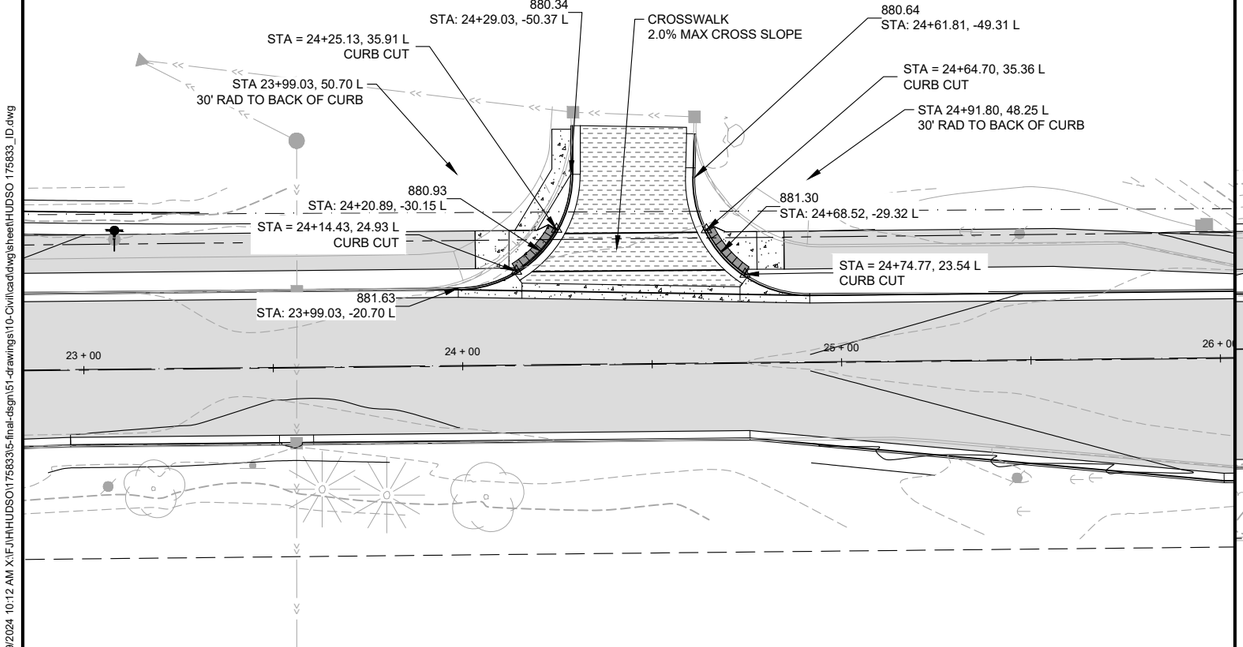
NOTE: LABELS INDICATE TOP BACK OF CURB INFORMATION



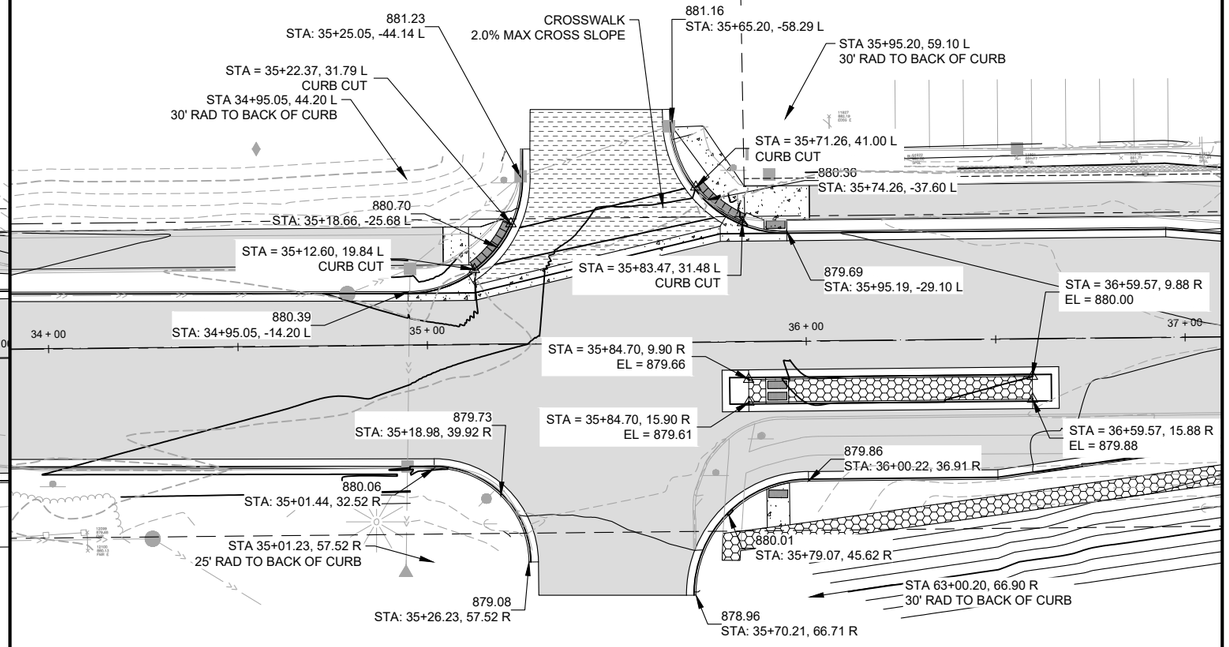
SPRUCE DRIVE



GRANDVIEW DRIVE



FIRST PRESBYTERIAN CHURCH DRIVEWAY



DIAMOND DRIVE

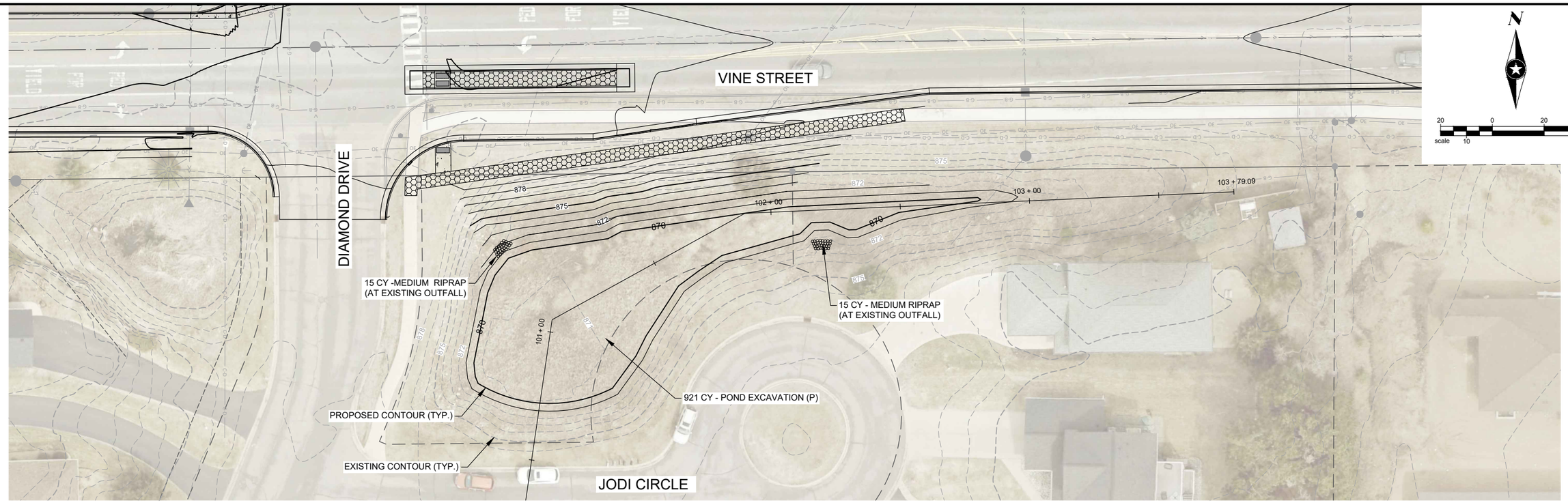
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		Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date
SEH Project	HUDSO175833	.			.		
Drawn By	CP	.			.		
Designed By	CP	.			.		
Checked By	EH	.			.		

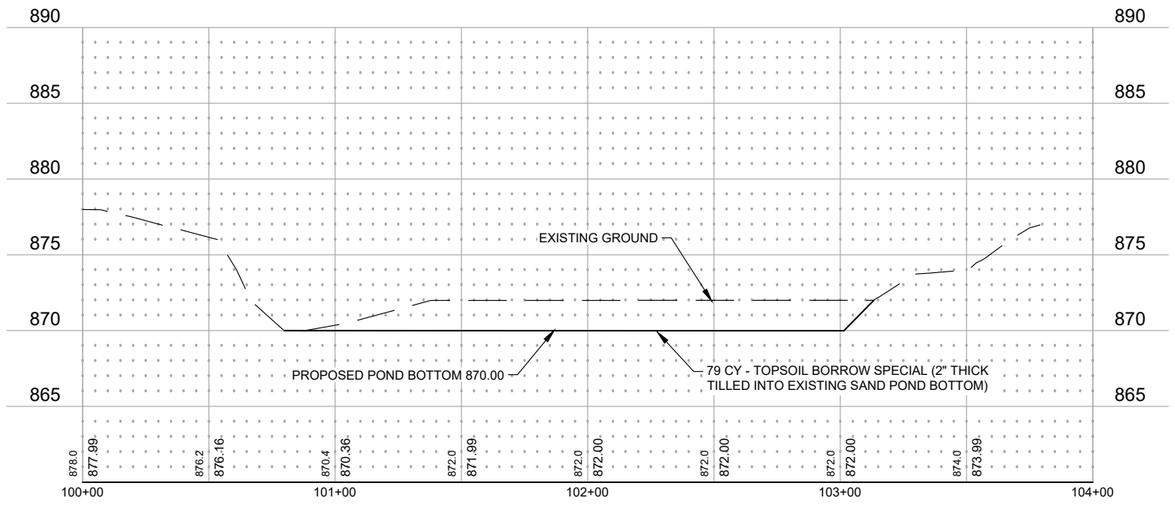
SEH

2024 STREET IMPROVEMENTS
HUDSON, WI

VINE STREET INTERSECTION DETAIL



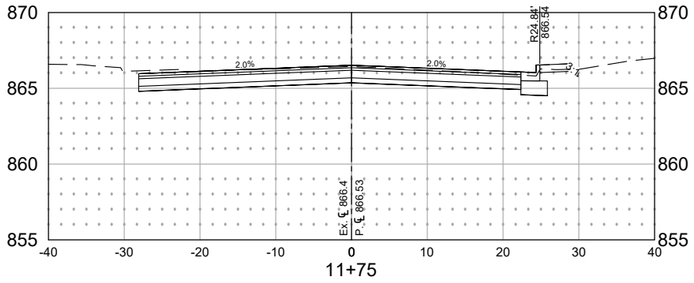
POND GRADING PLAN - BID ALTERNATE 1

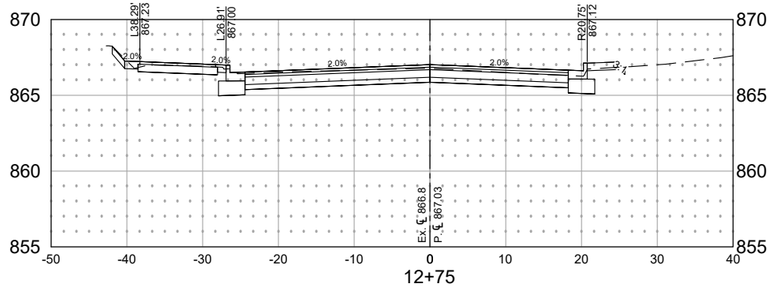


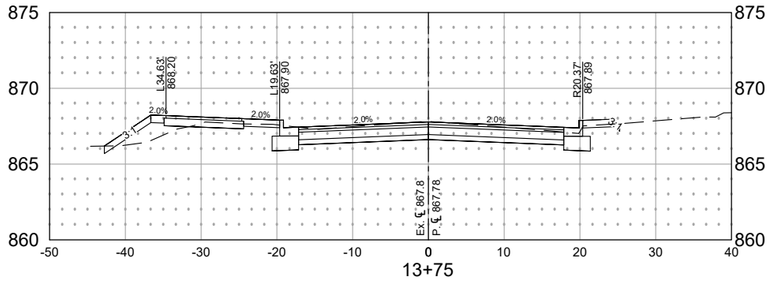
NOTES:
1. CONTRACTOR RESPONSIBLE FOR COMPLYING WITH NR 528.
2. POND BOTTOM AND DISTURBED SIDE SLOPES TO BE SEEDED WITH MNDOT SEED MIX NO. 33-261.
3. EROSION MAT TO BE INSTALLED ON ALL DISTURBED POND SIDE SLOPES.
4. POND EXCAVATION (P) DOES NOT INCLUDE FILL REQUIRED FOR SIDEWALK INSTALLATION.
5. TOPSOIL BORROW SPECIAL TO MEET THE COMPOST SPECIFICATIONS OF WDNR S100.

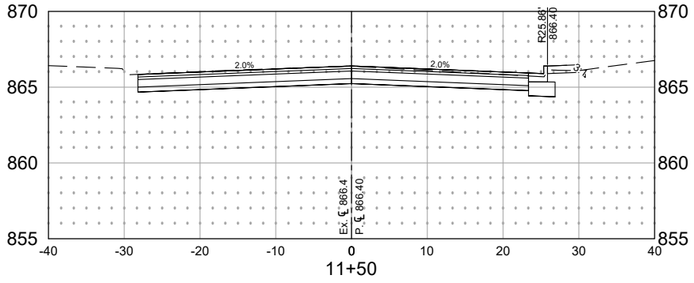
SEH Project	HUDSO175833	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date	2024 STREET IMPROVEMENTS HUDSON, WI	**POND GRADING PLAN** **VINE STREET**	36 of 64
Drawn By	CP	.			.					
Designed By	CP	.			.					
Checked By	EH	.			.					

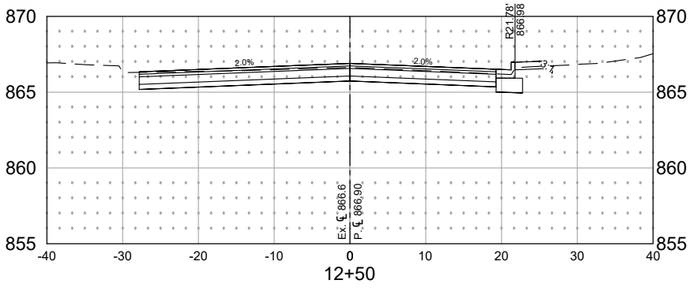
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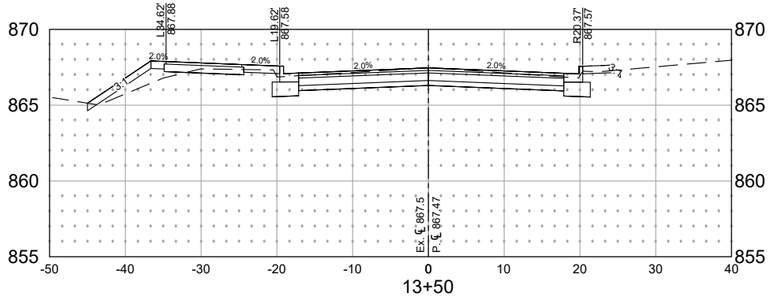


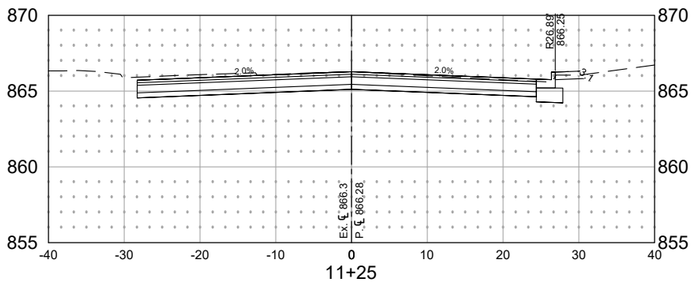


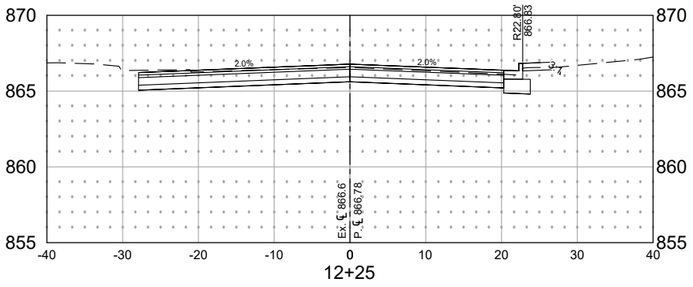


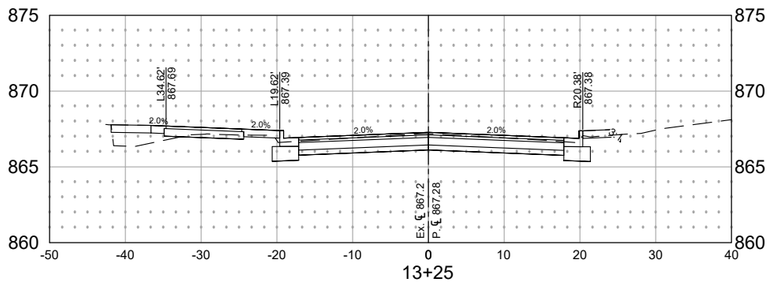


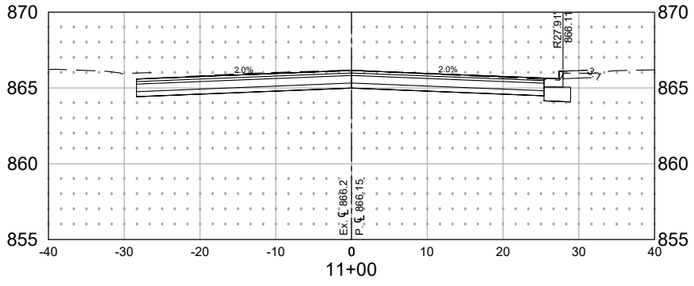


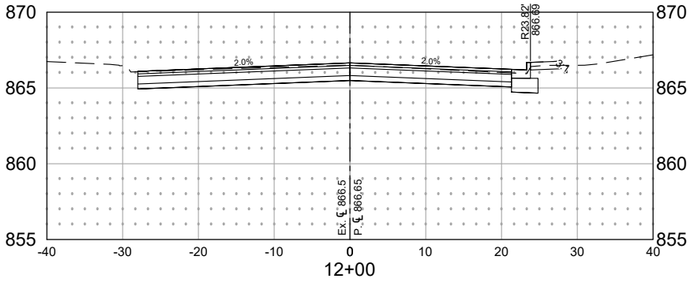


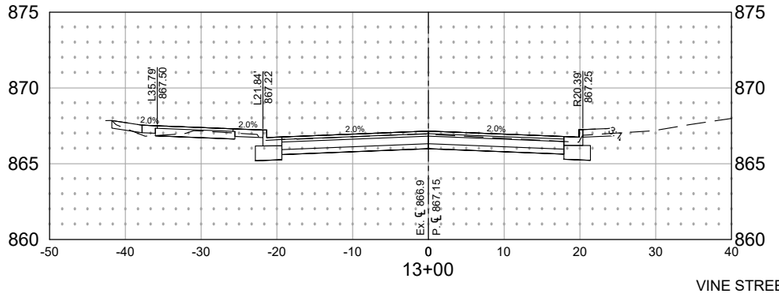








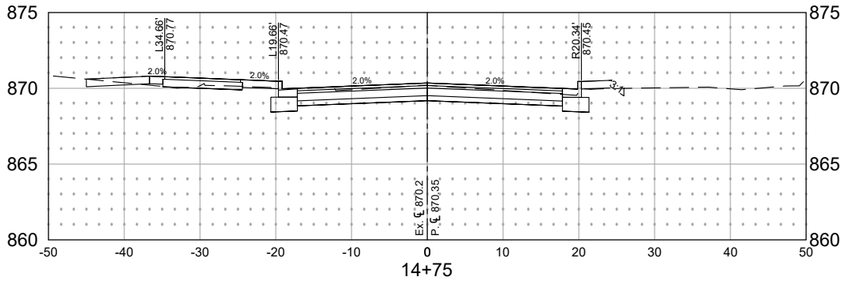




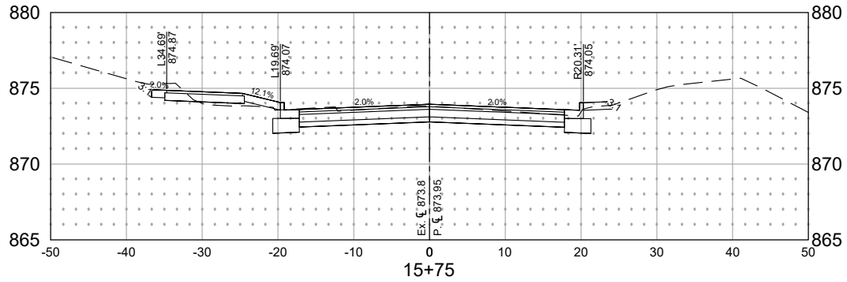
VINE STREET
STA: 11+00.00 - STA: 13+75.00

Sheet No. 37 Of 64 Sheets

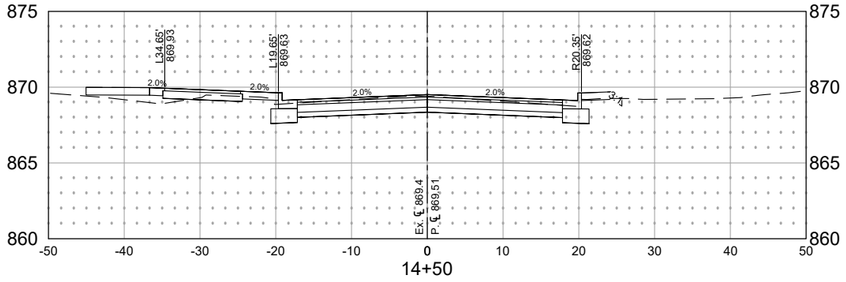
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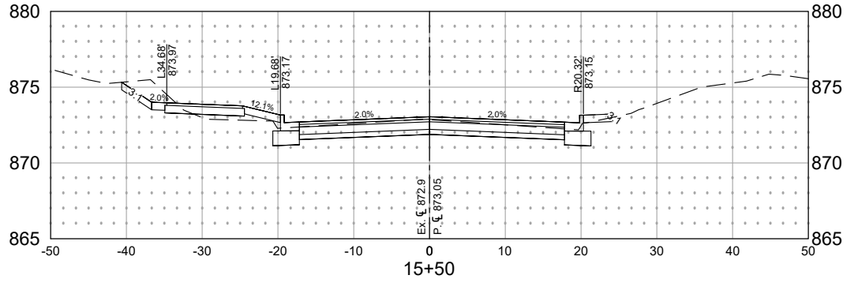
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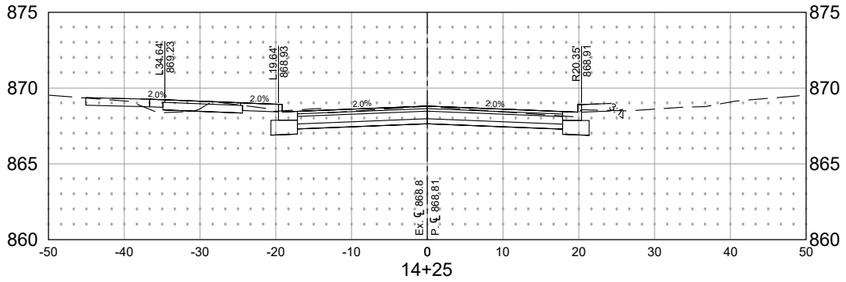
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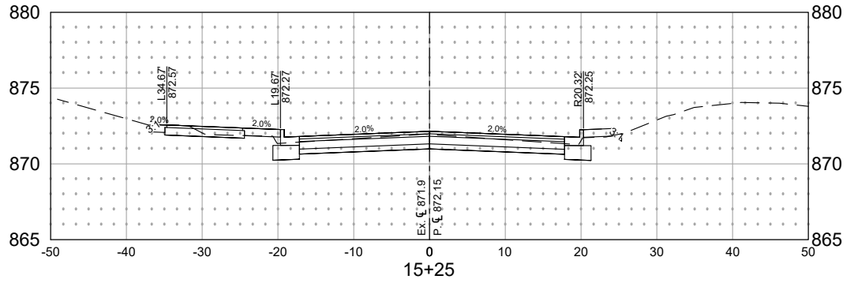
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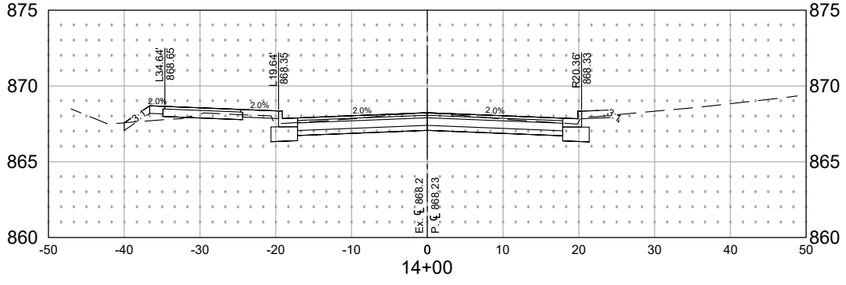
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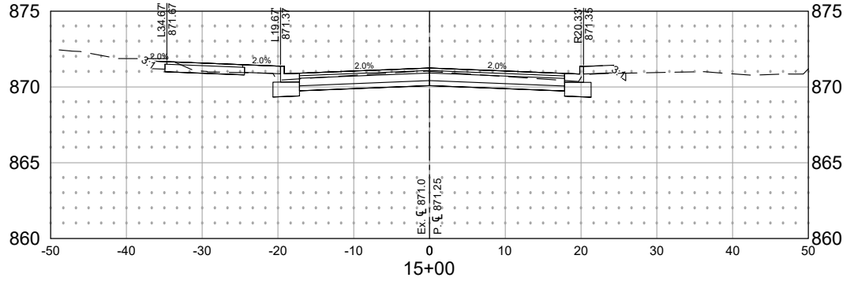
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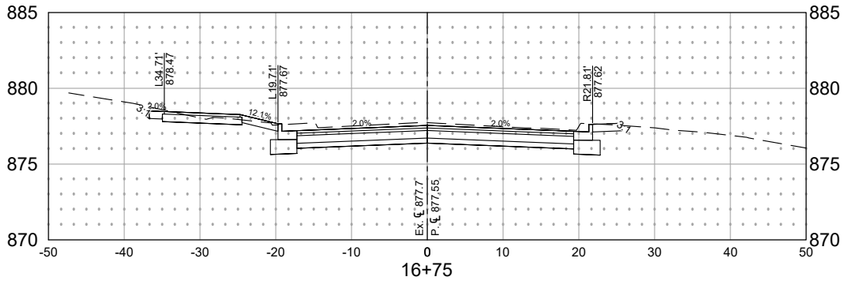


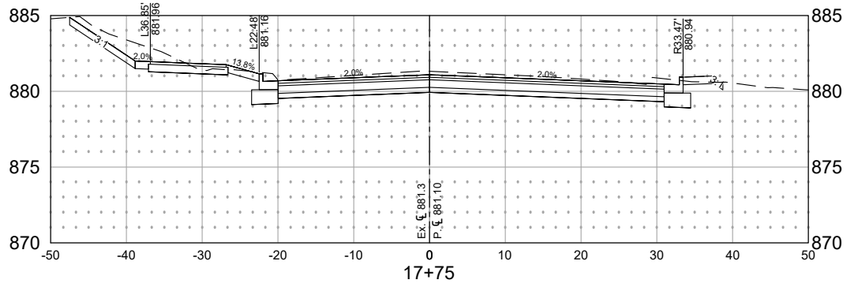
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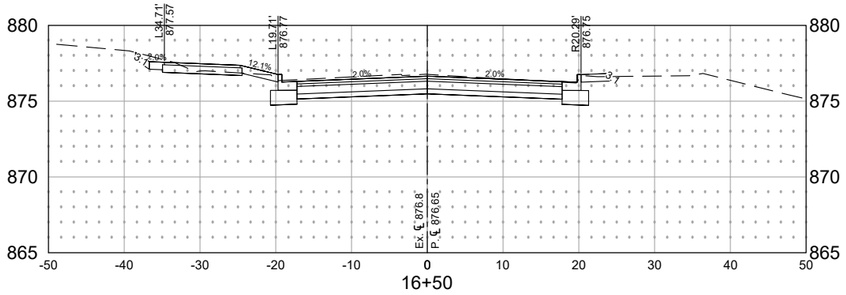
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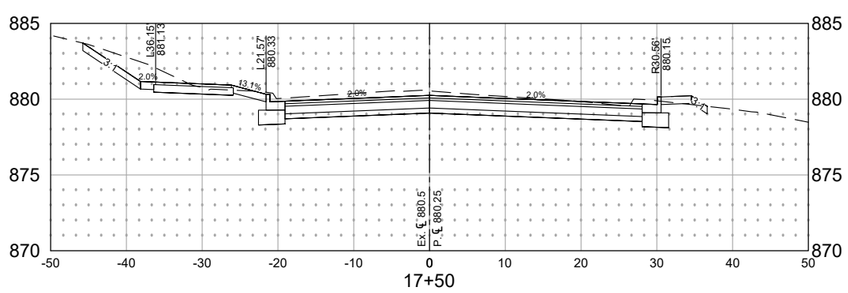
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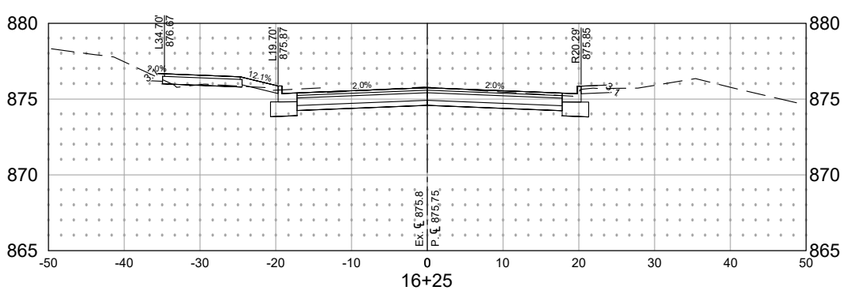
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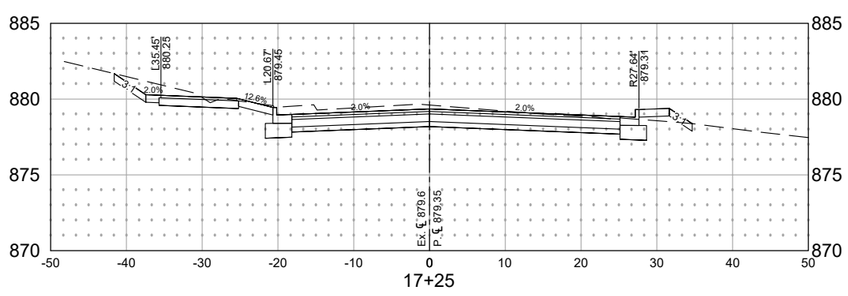


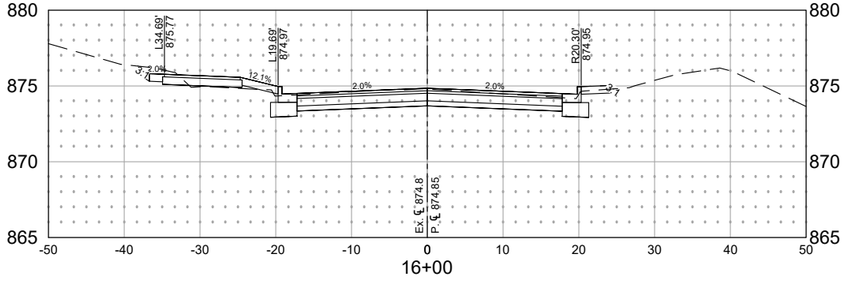


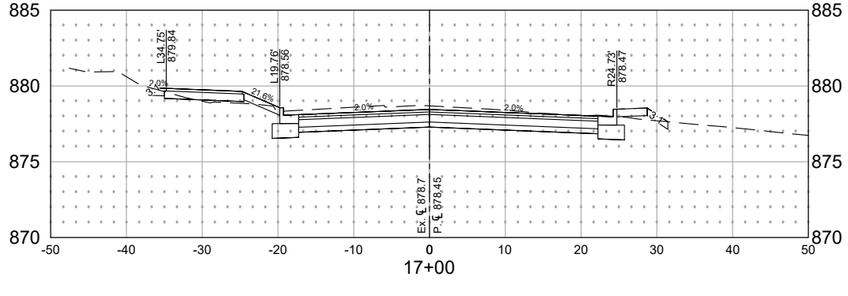








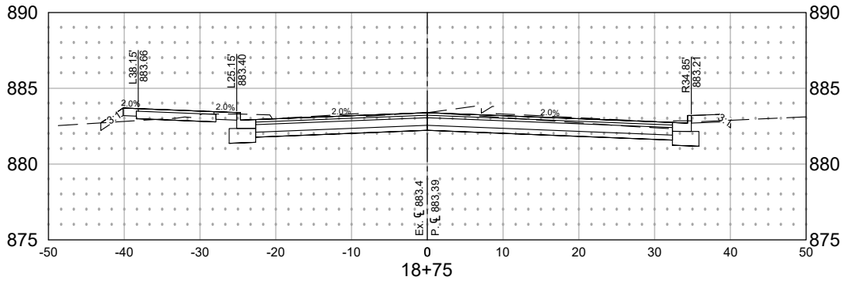




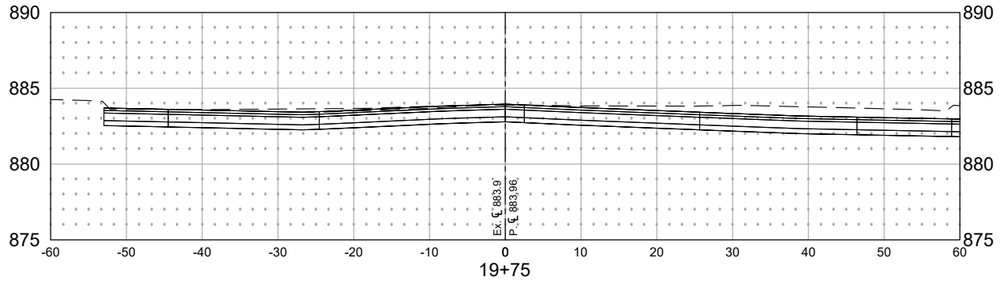
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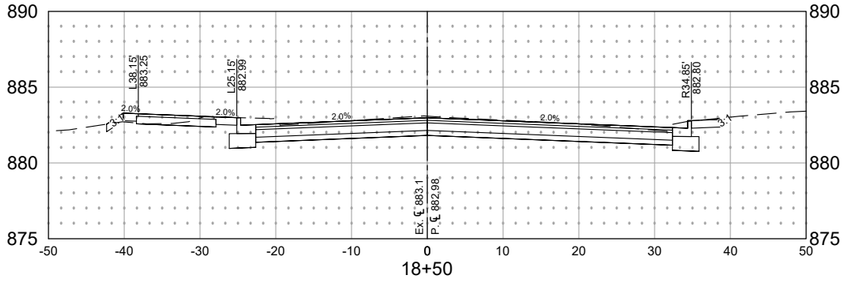
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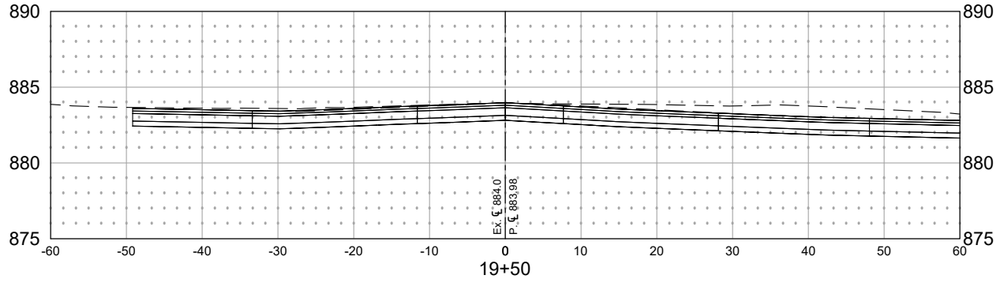
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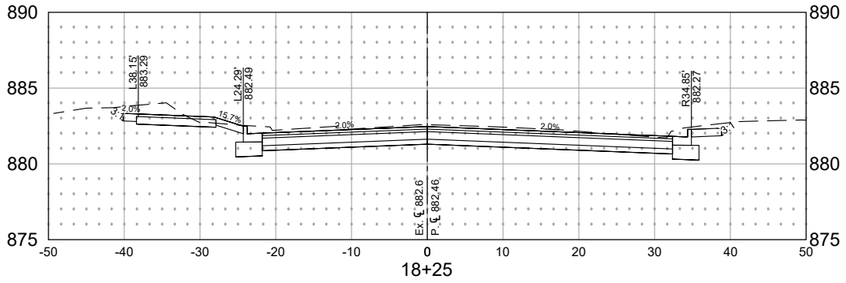
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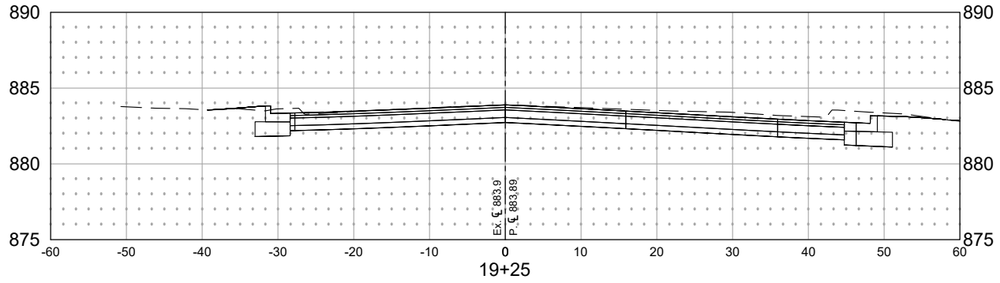
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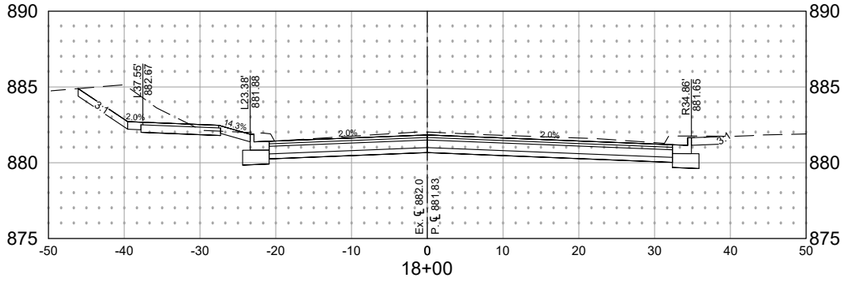
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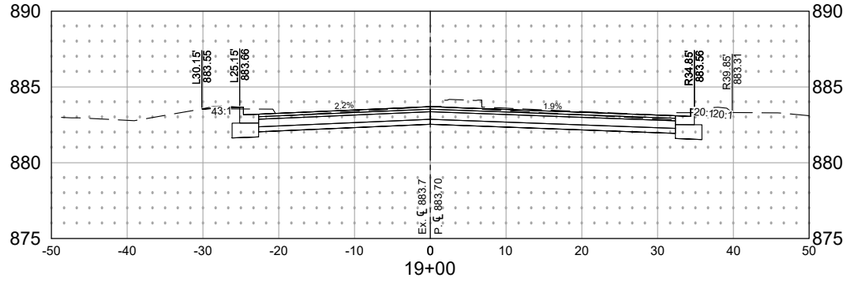
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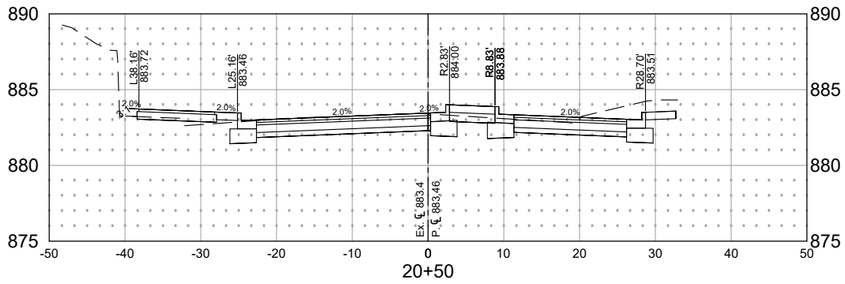


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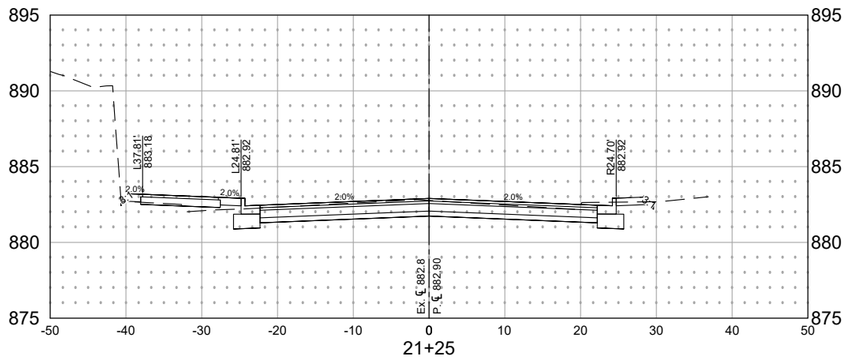
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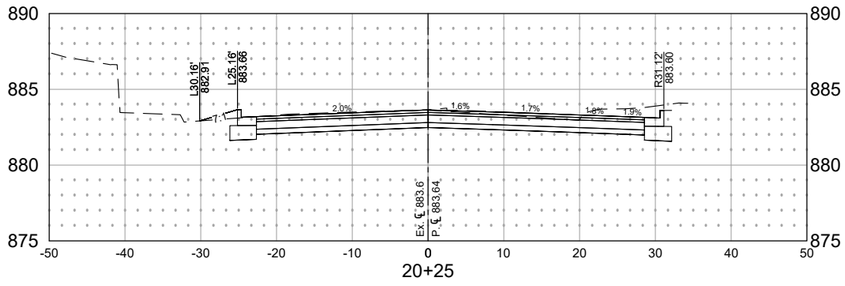
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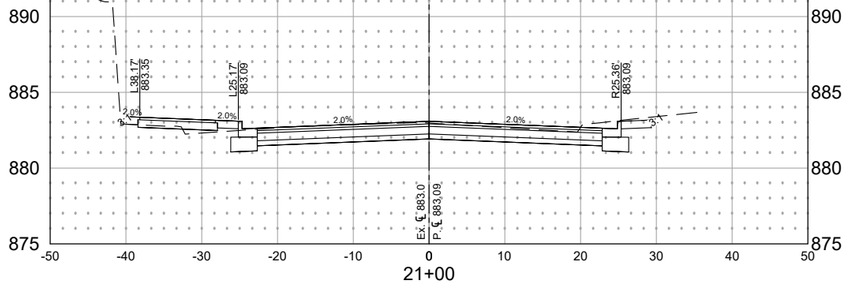
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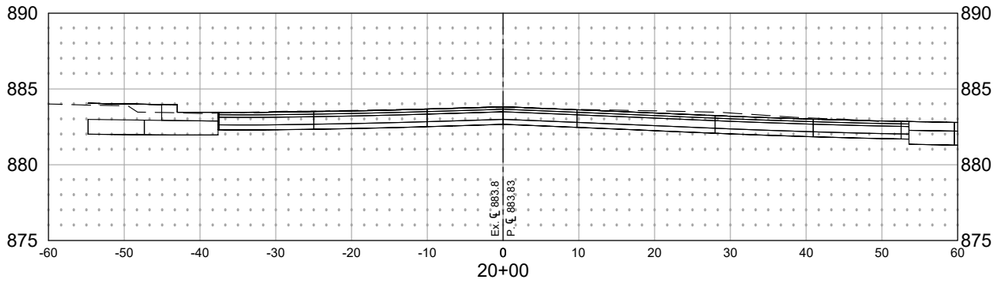
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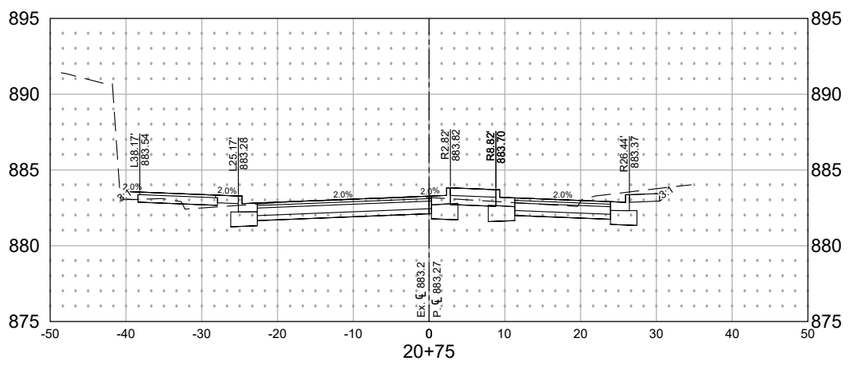
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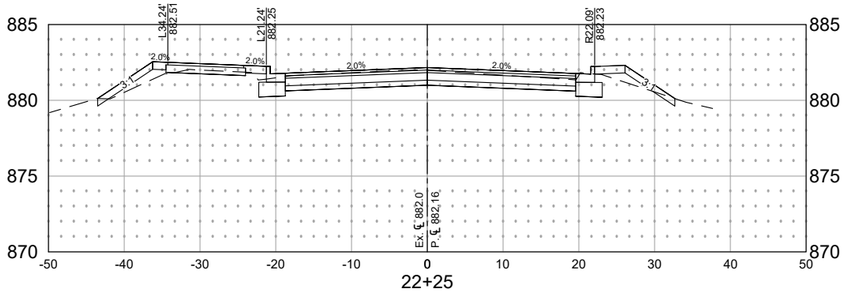


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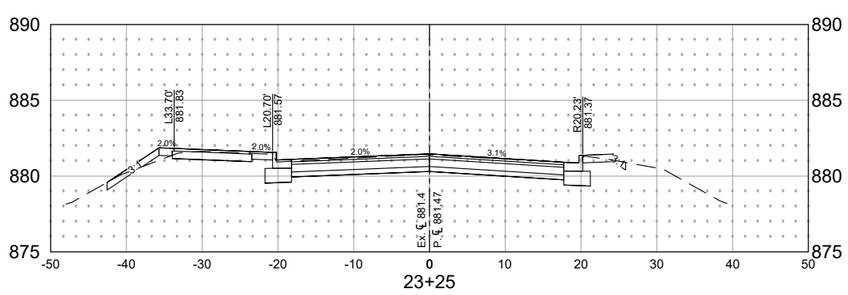
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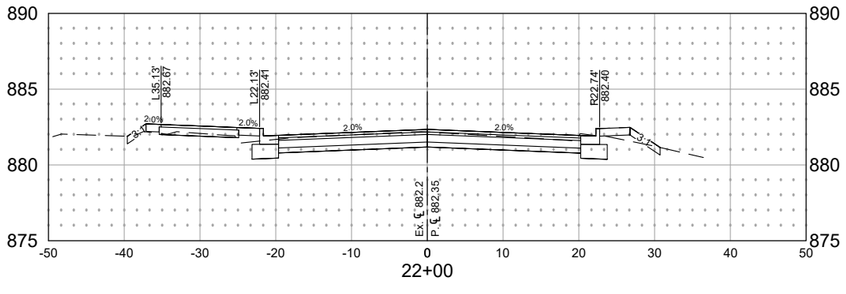
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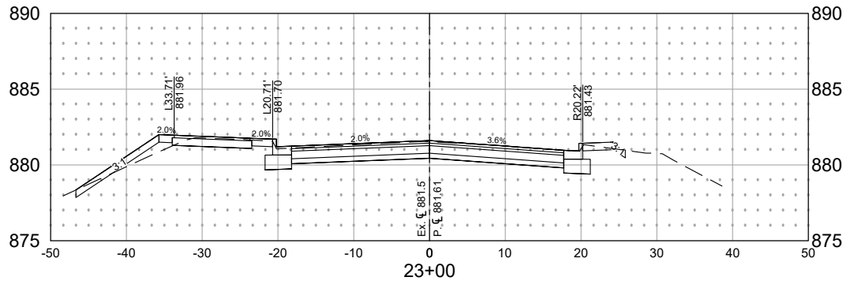
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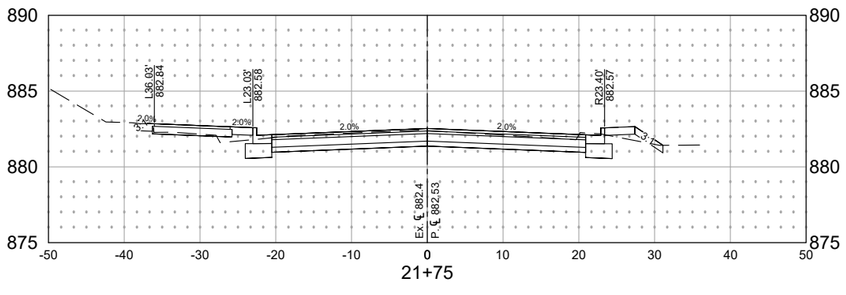
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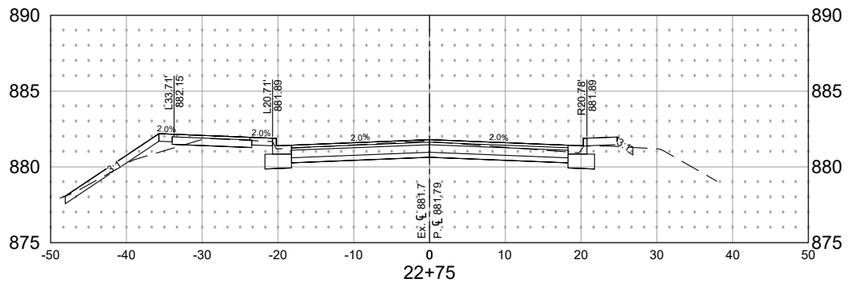
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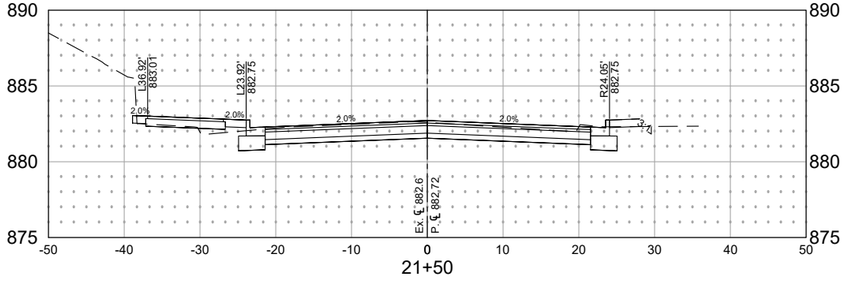
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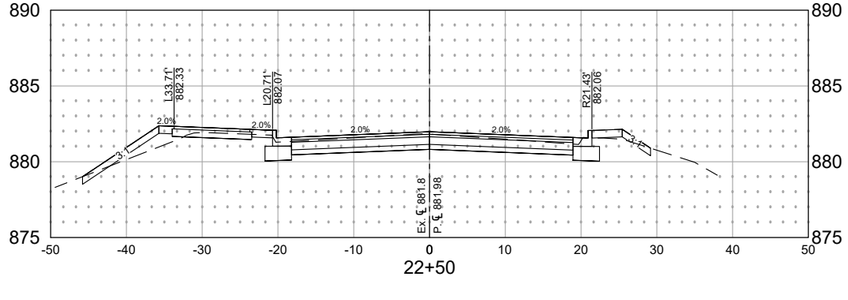
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22+75



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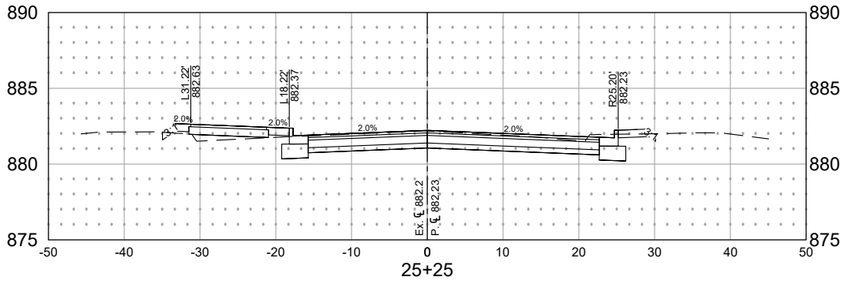


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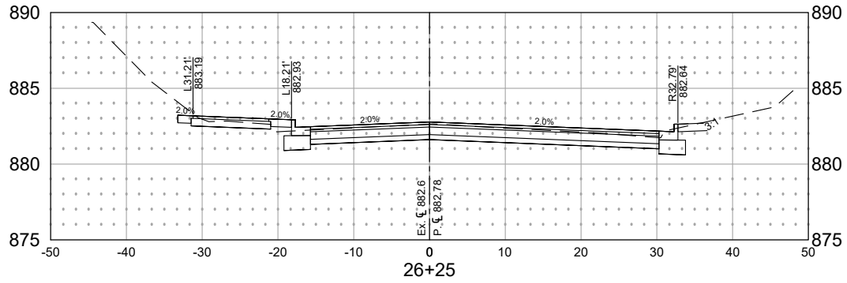
VINE STREET
STA: 23+25.00 - STA: 21+50.00

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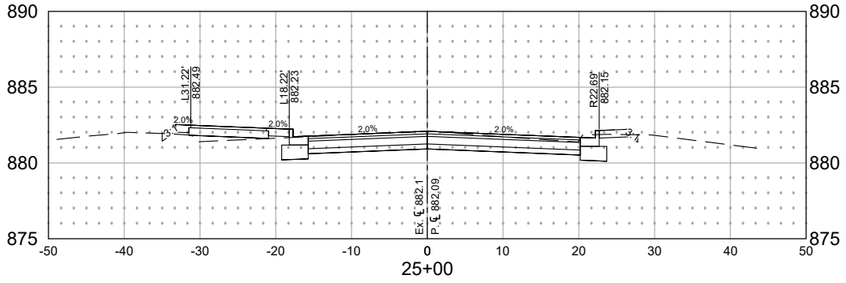
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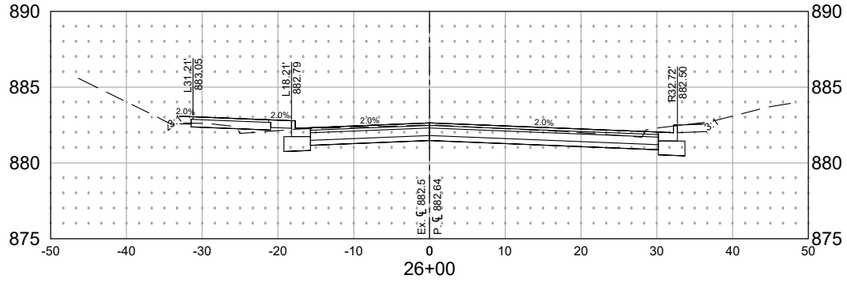
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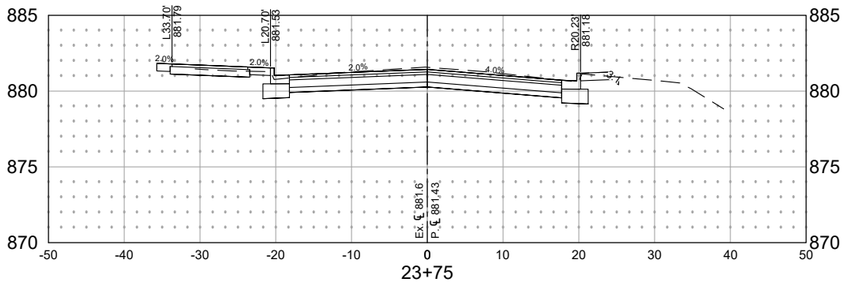
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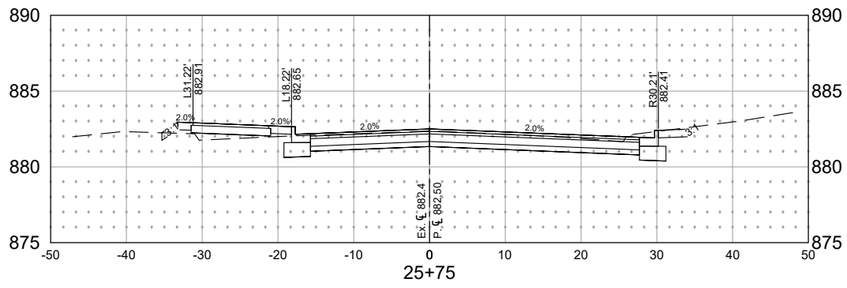
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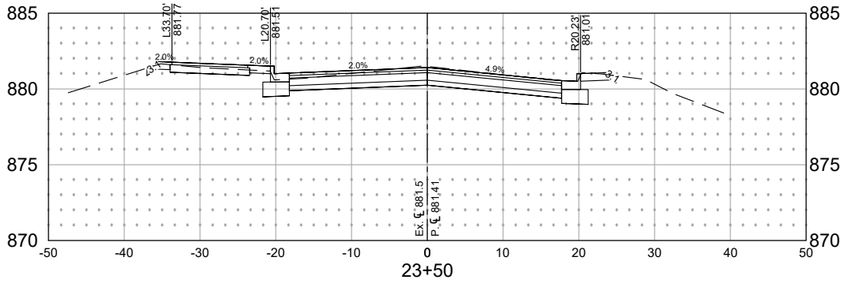
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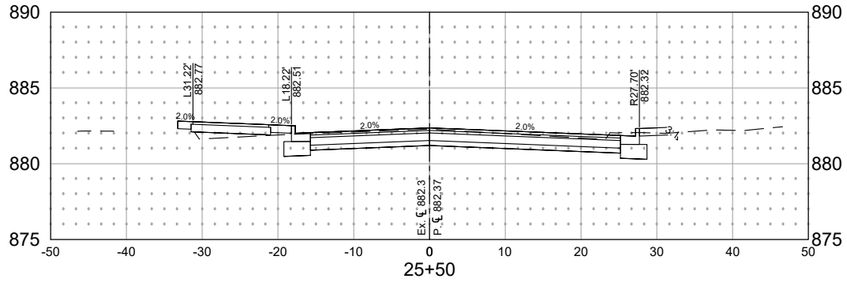
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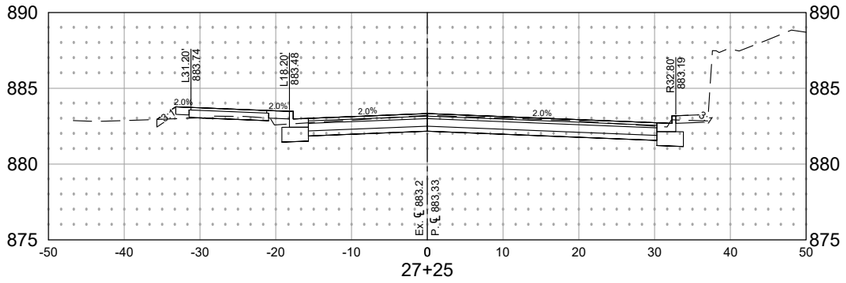
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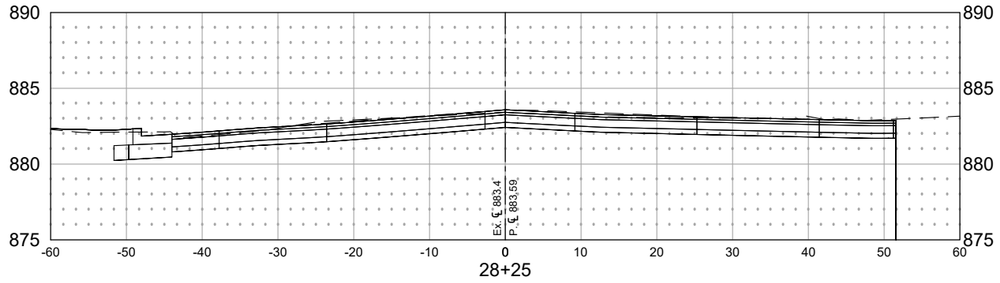
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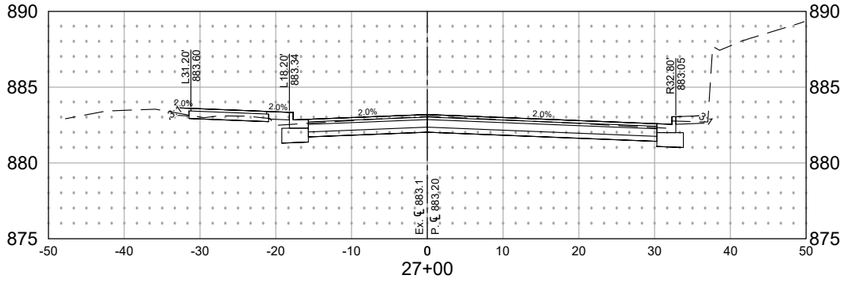
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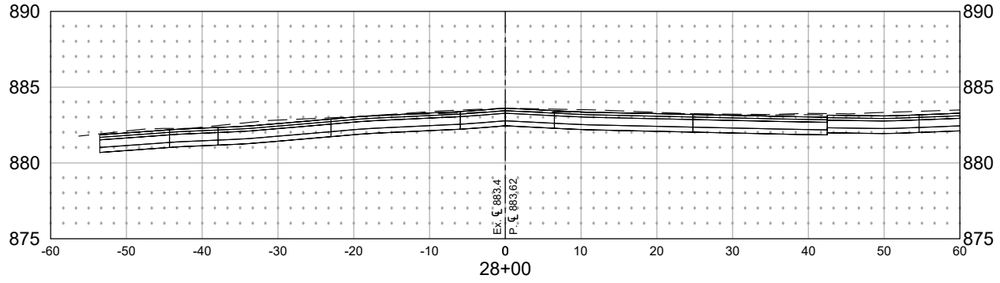
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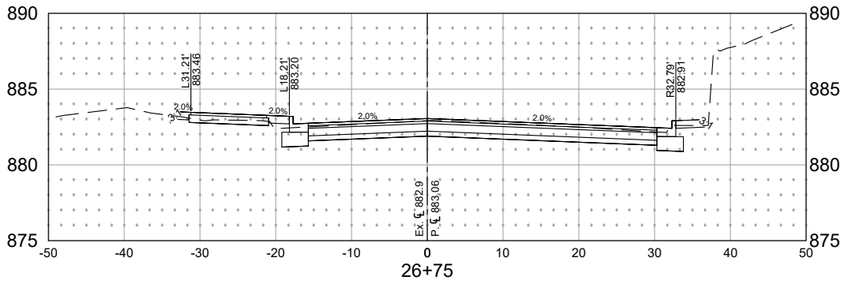
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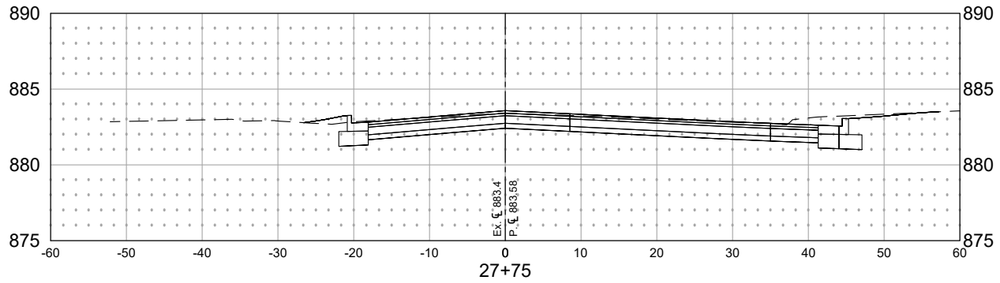
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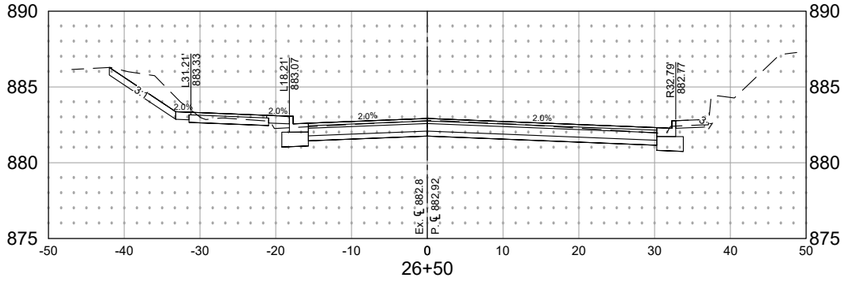
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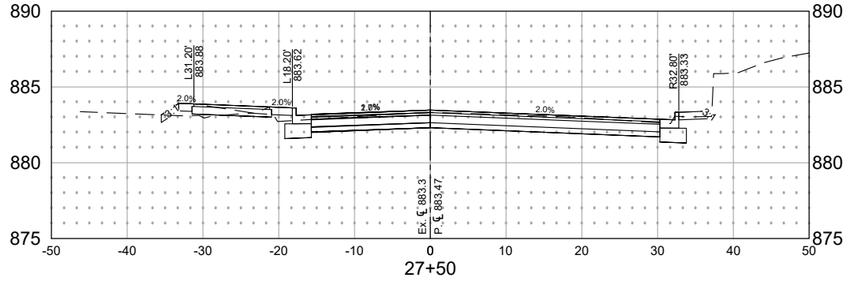
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27+75



26+50

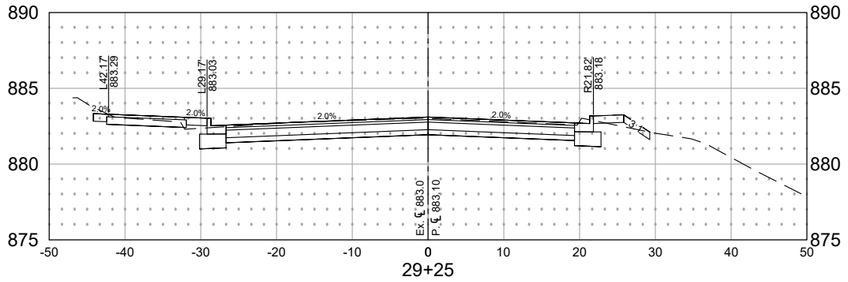


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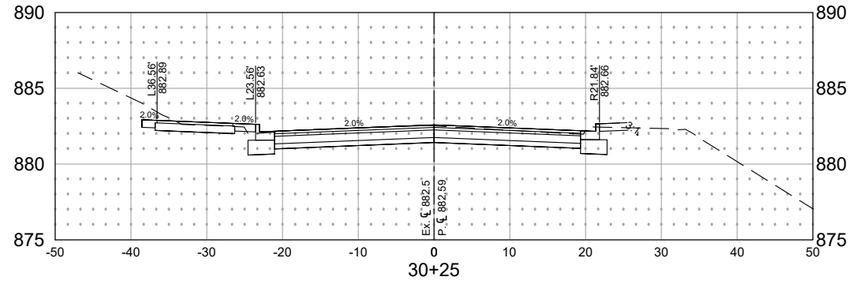
VINE STREET
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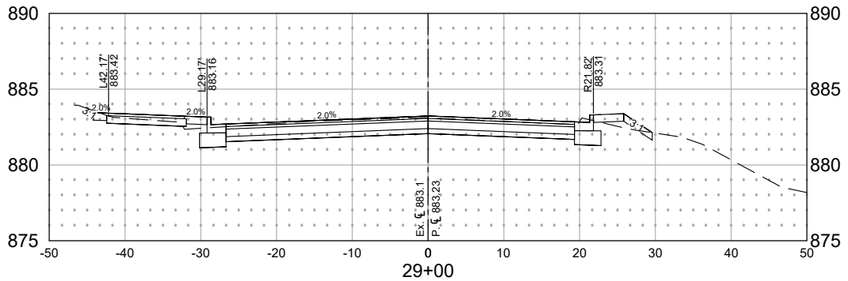
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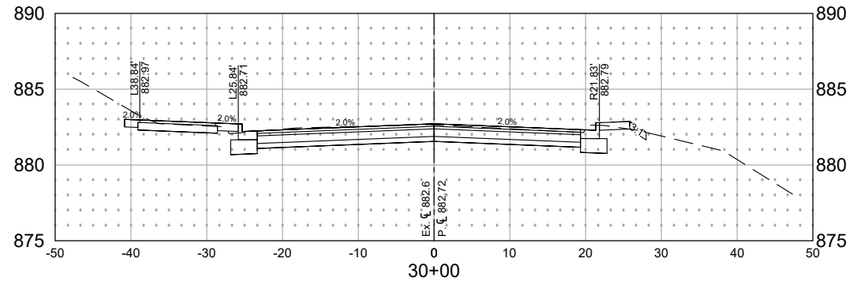
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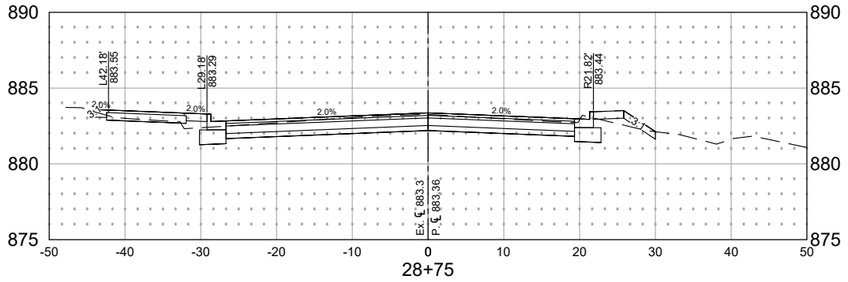
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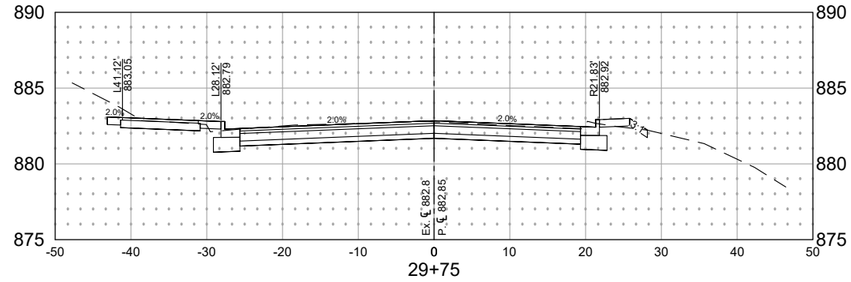
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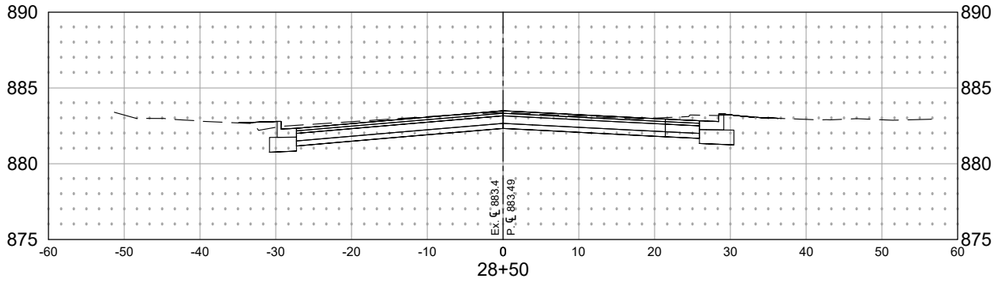
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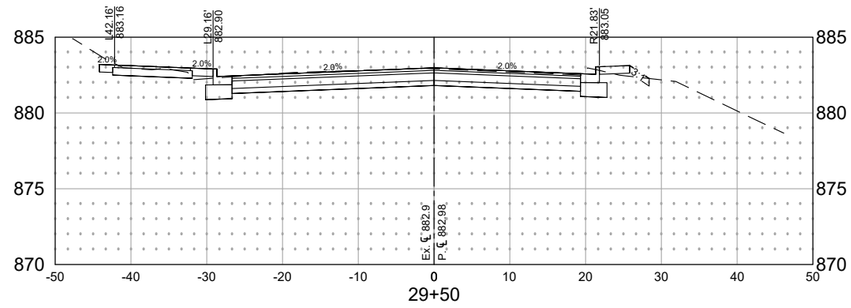
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29+75



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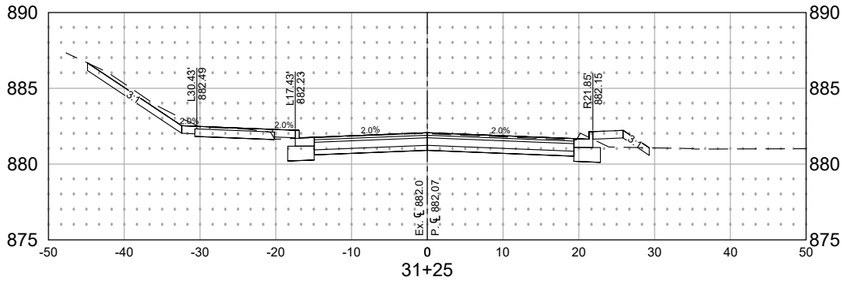


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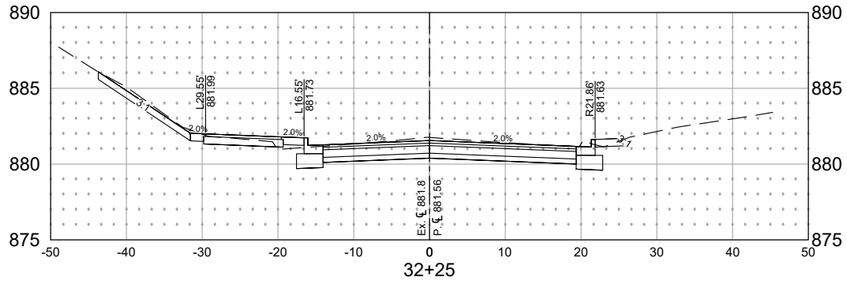
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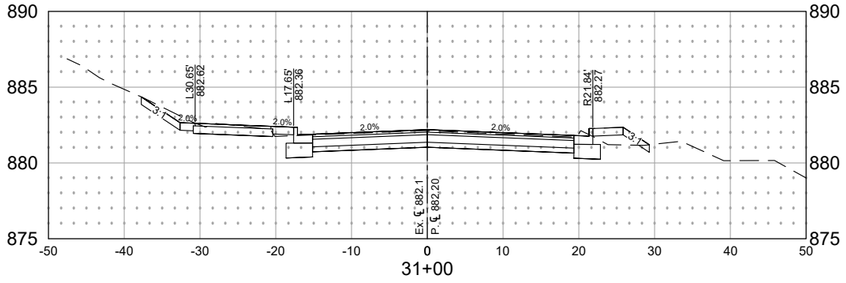
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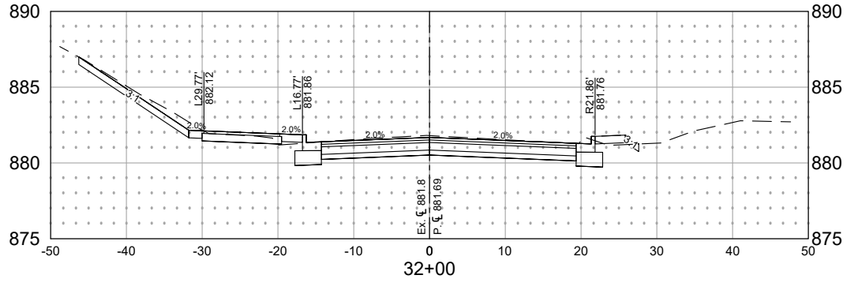
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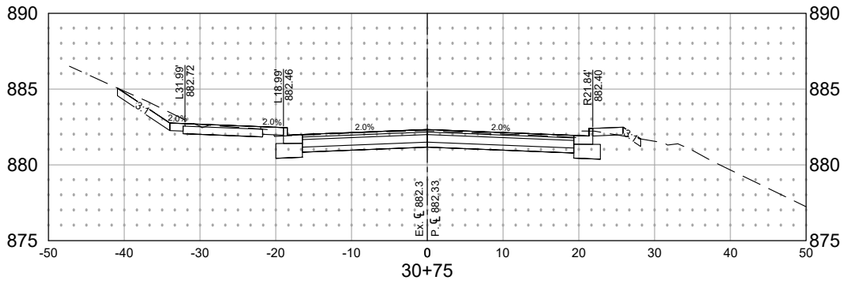
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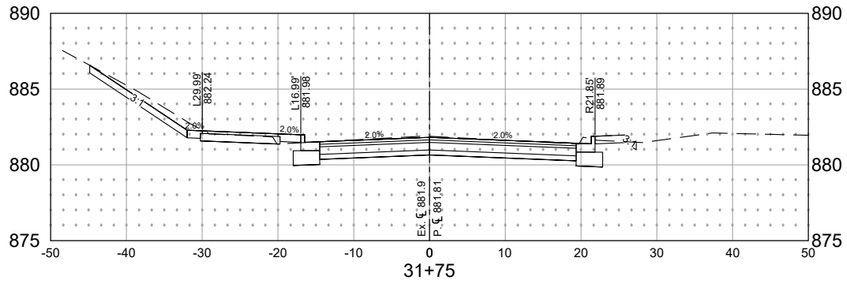
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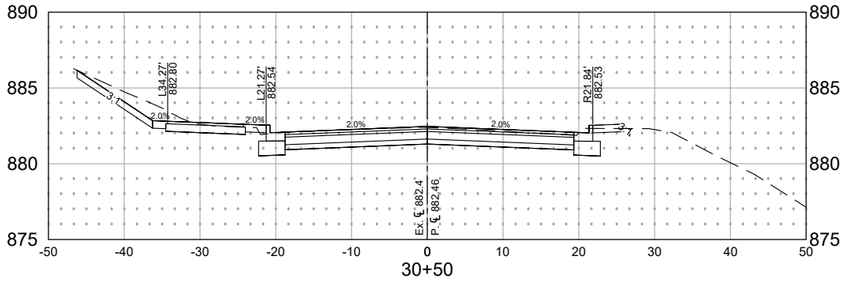
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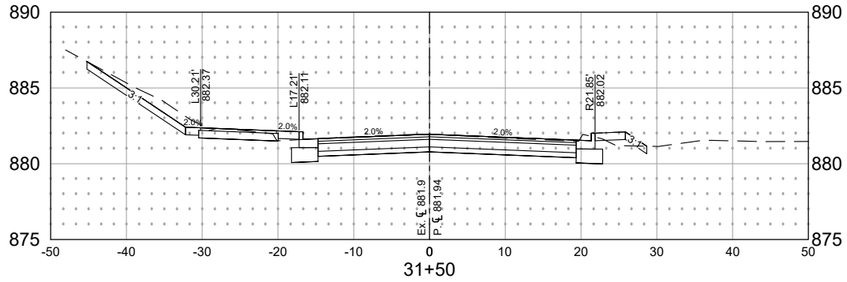
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31+75



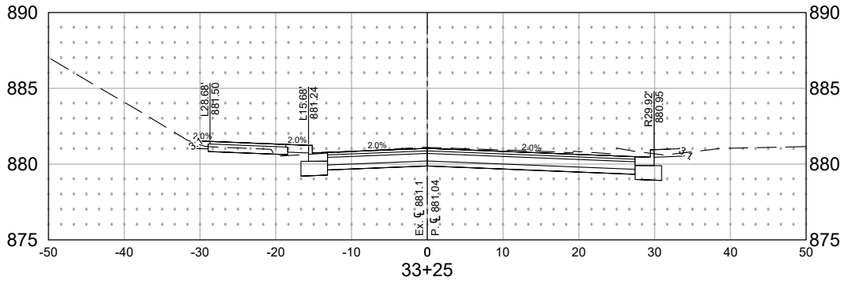
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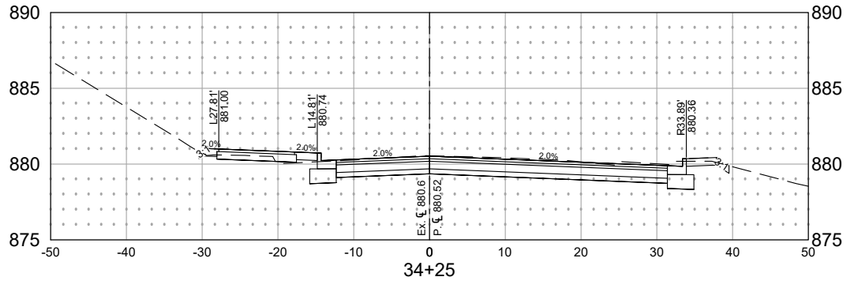
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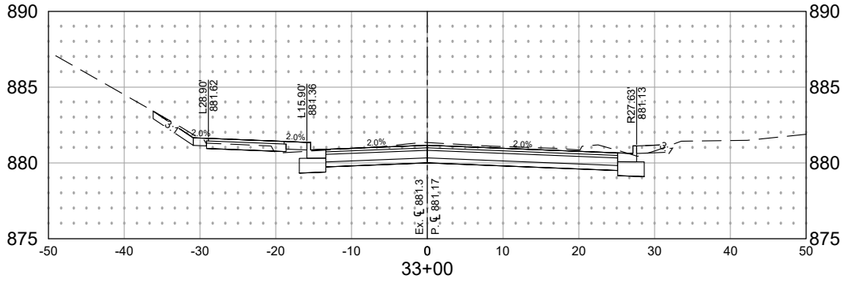
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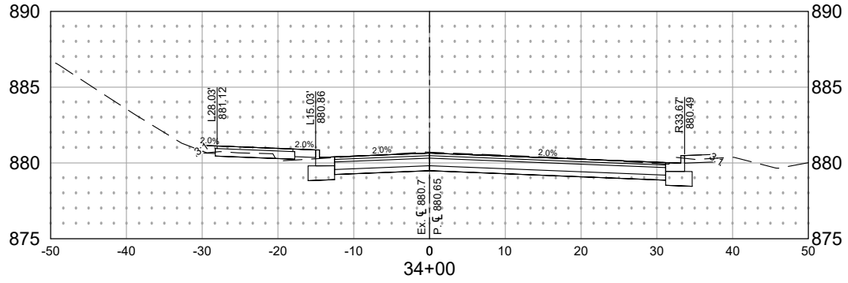
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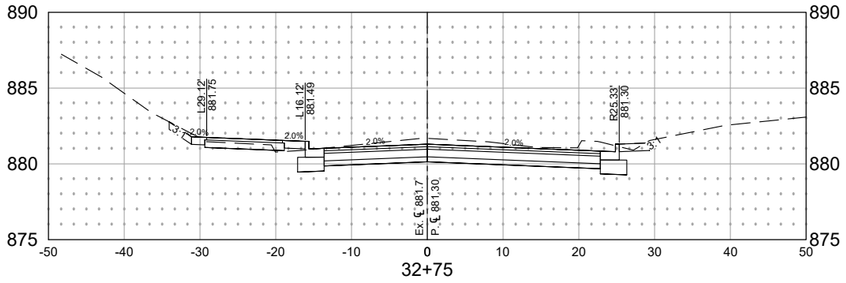
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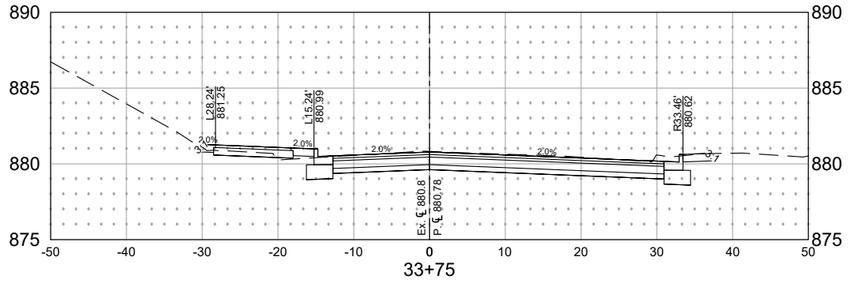
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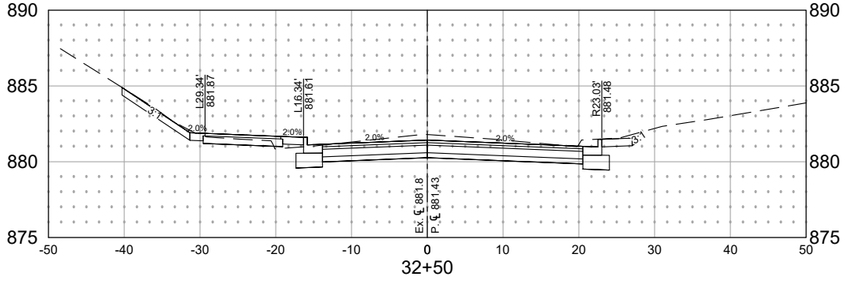
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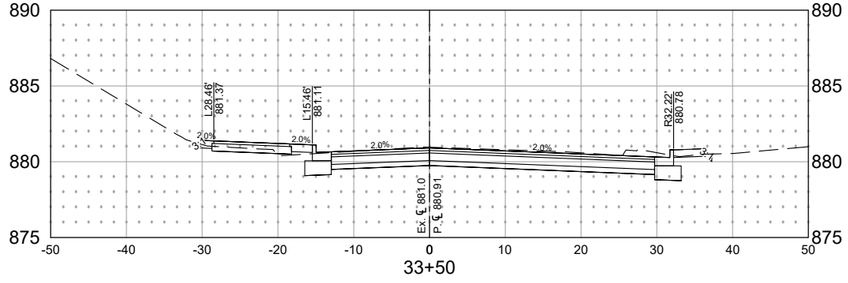
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33+75



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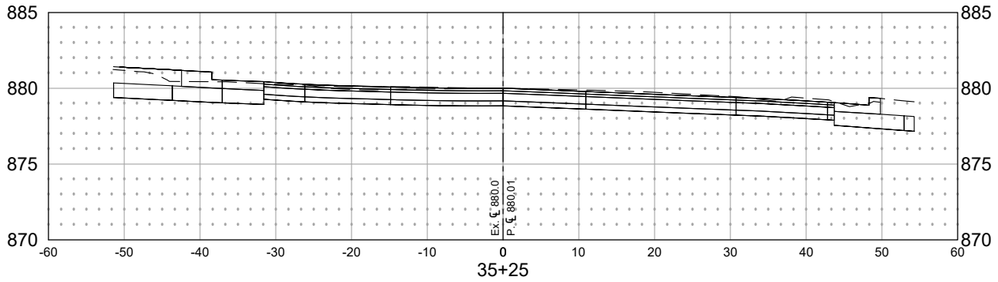


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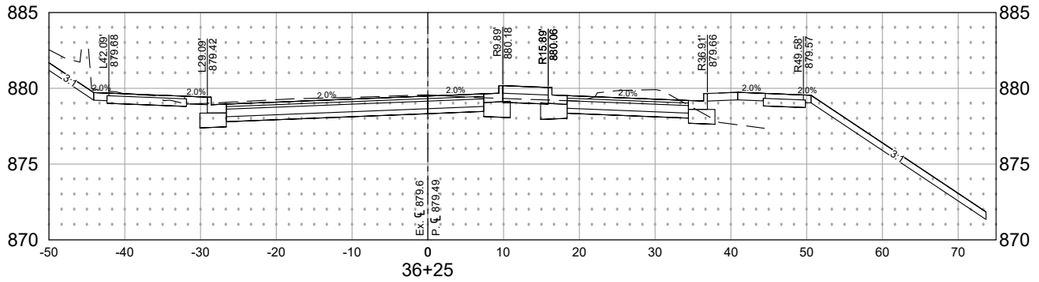
VINE STREET
32+50.00 - STA: 34+25.00

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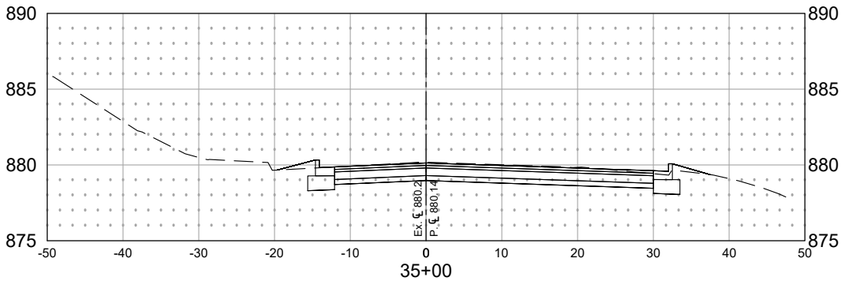
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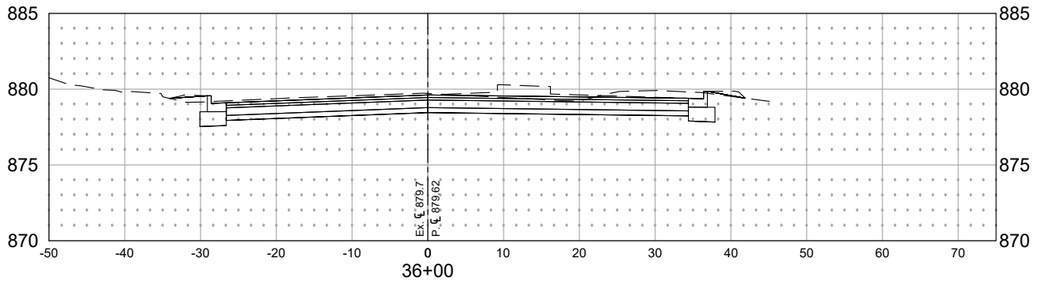
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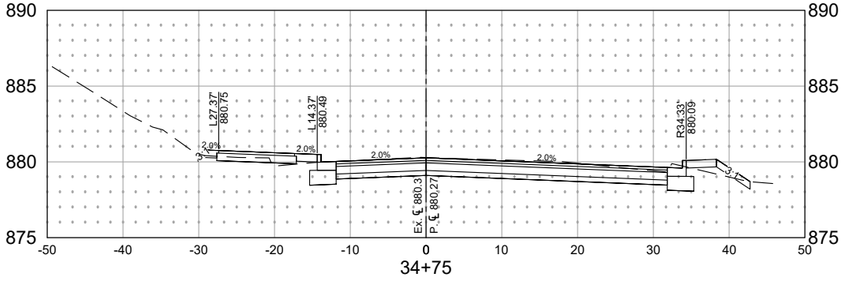
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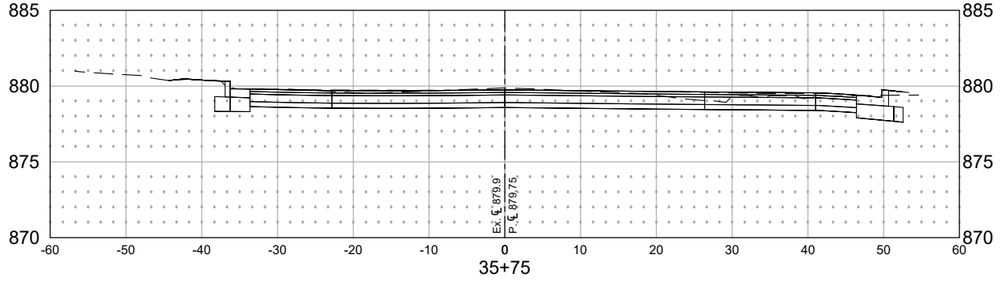
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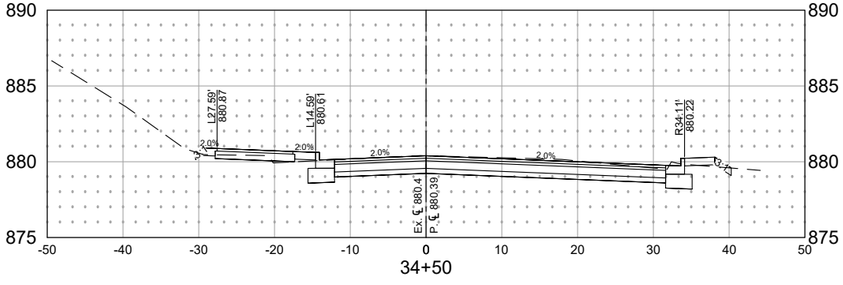
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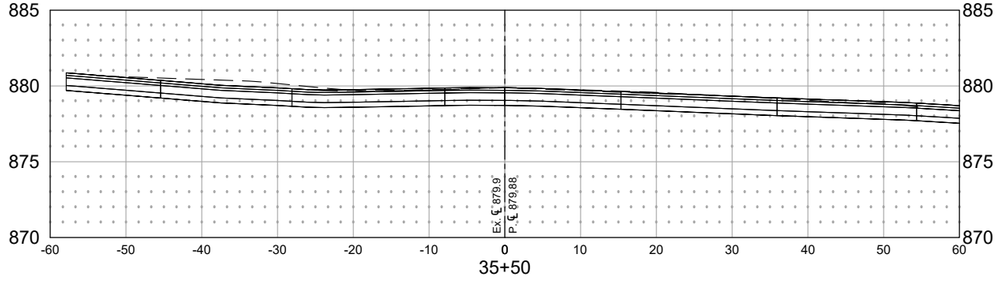
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35+75



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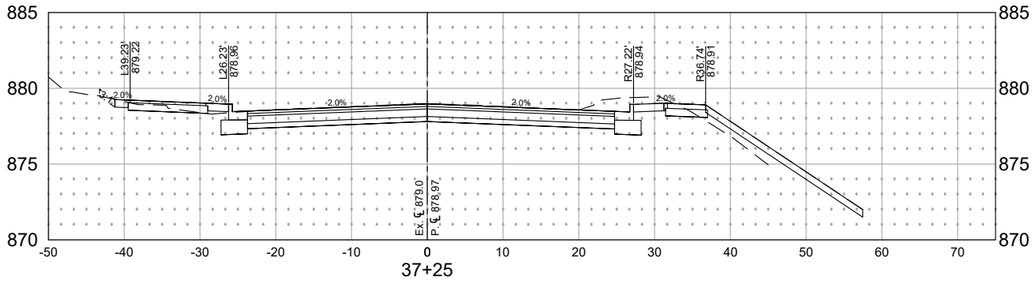


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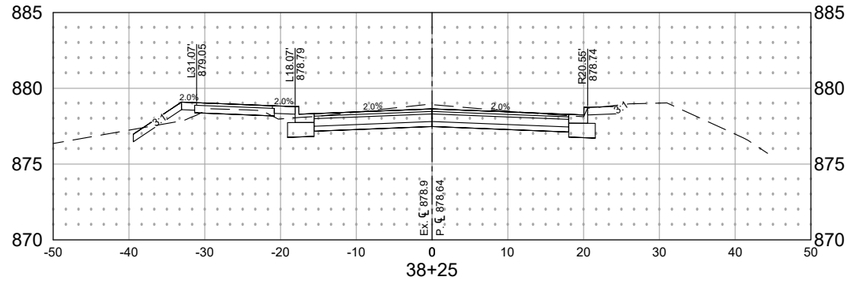
VINE STREET
STA: 34+50.00 - STA: 36+25.00

Sheet No. 48 Of 64 Sheets

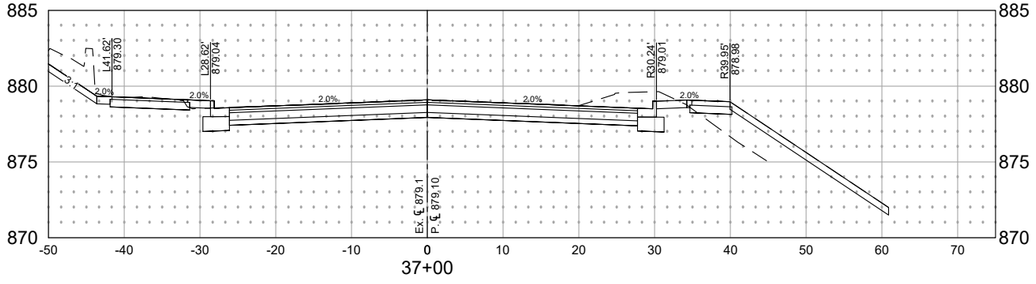
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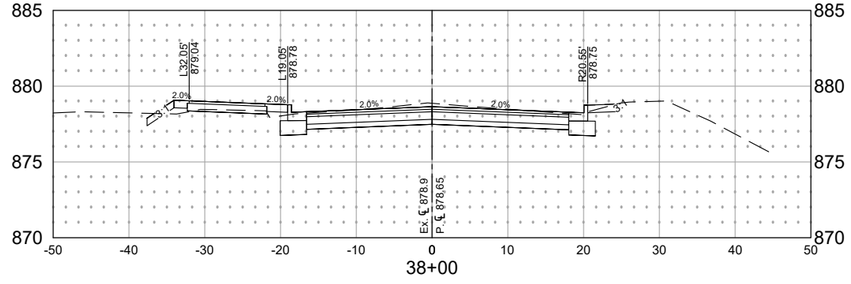
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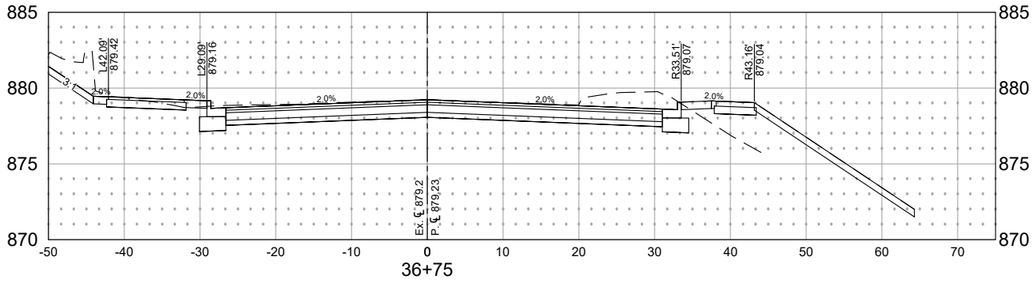
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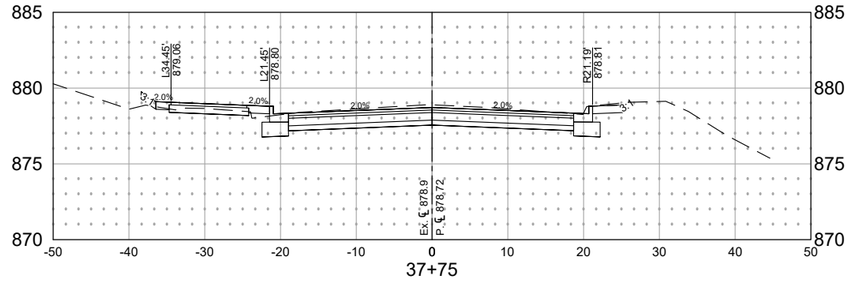
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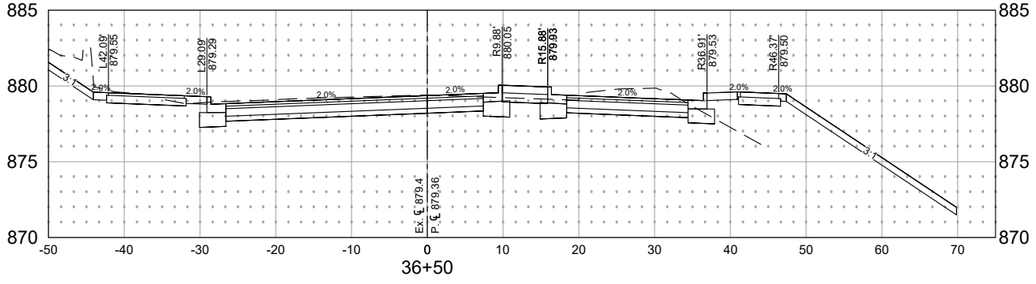
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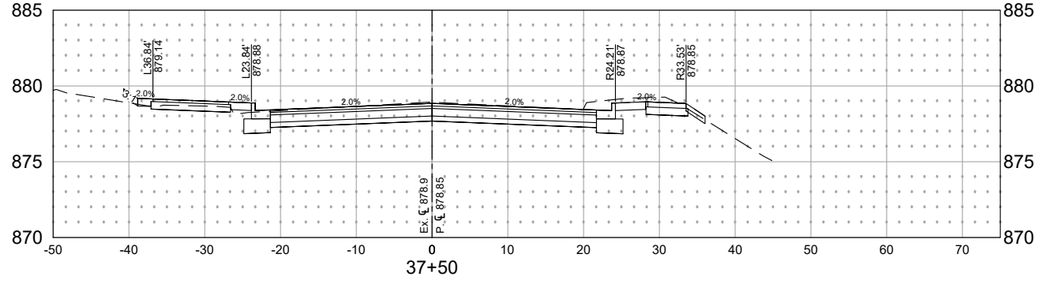
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37+75



36+50

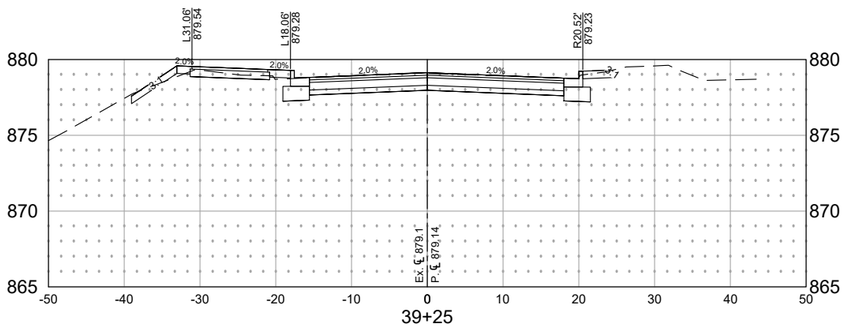


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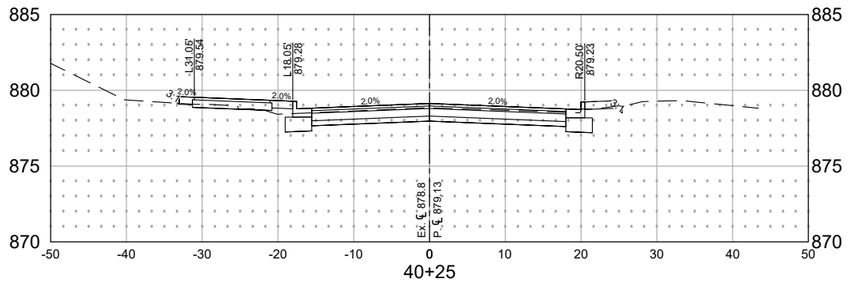
VINE STREET
STA: 36+50.00 - STA: 38+25.00

Sheet No. 49 Of 64 Sheets

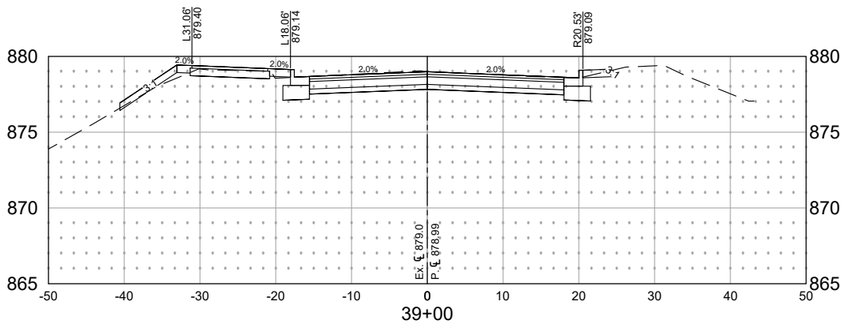
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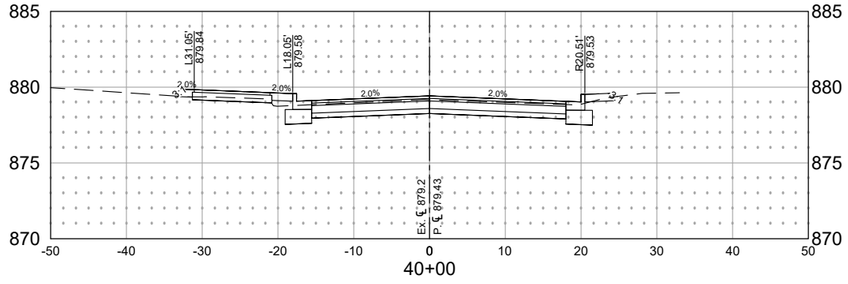
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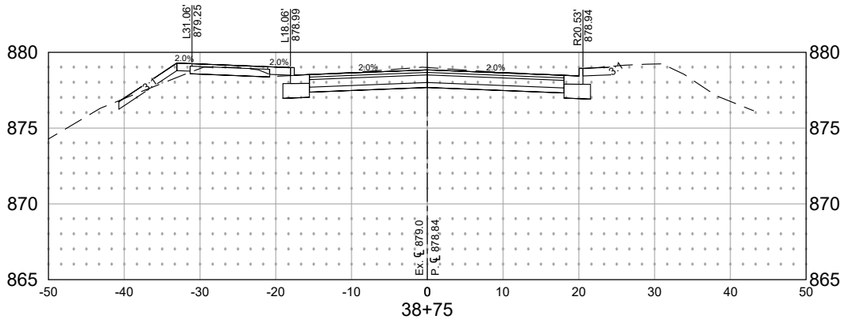
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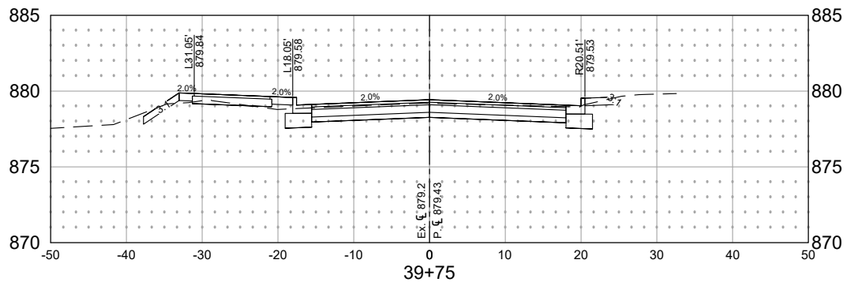
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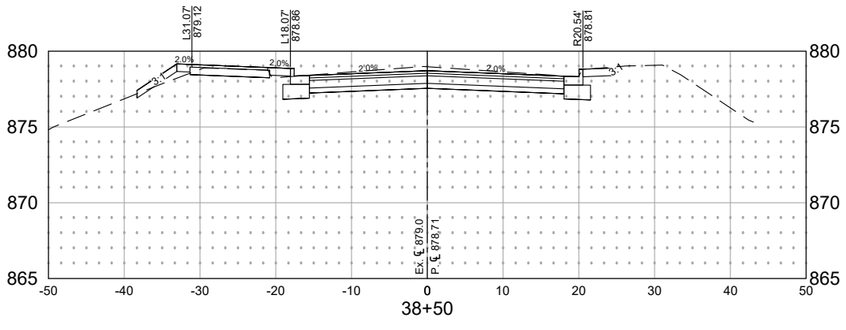
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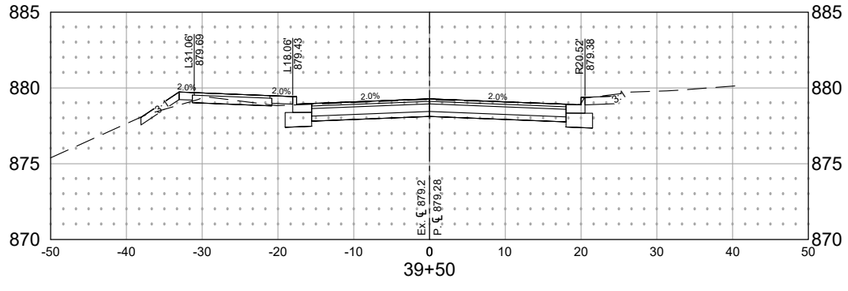
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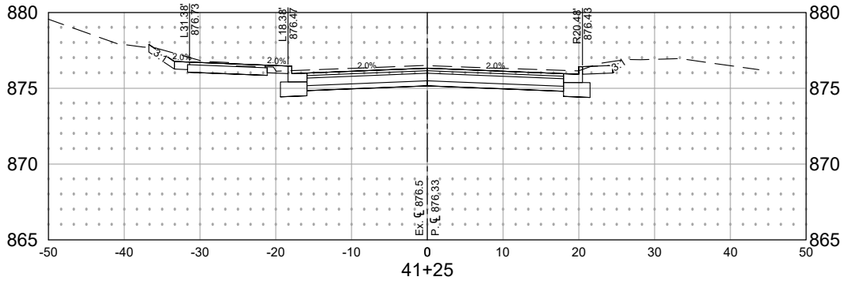
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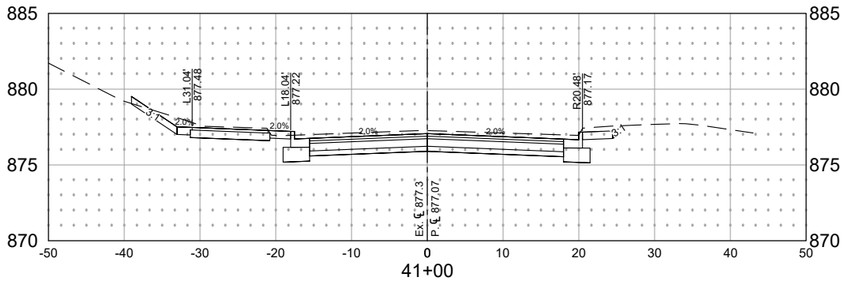
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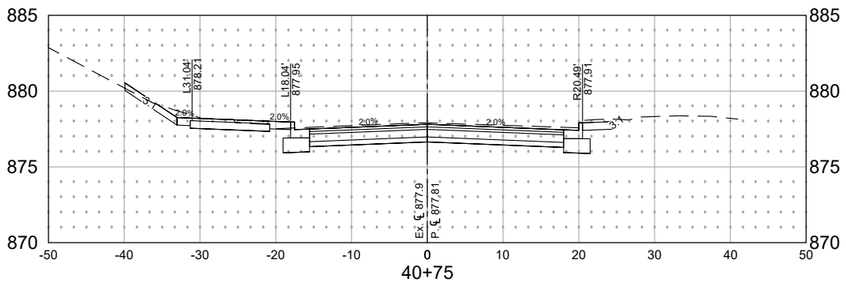
VINE STREET
STA: 38+50.00 - STA: 40+25.00



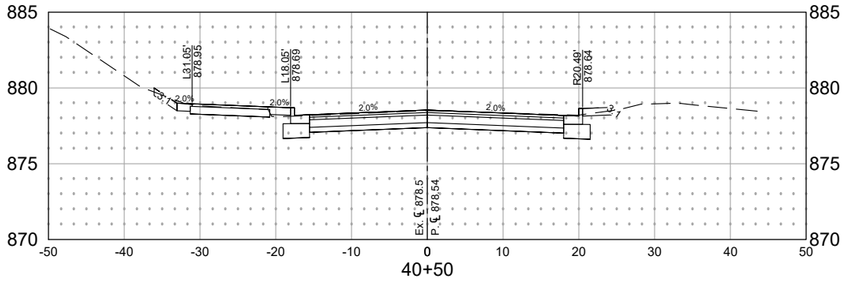
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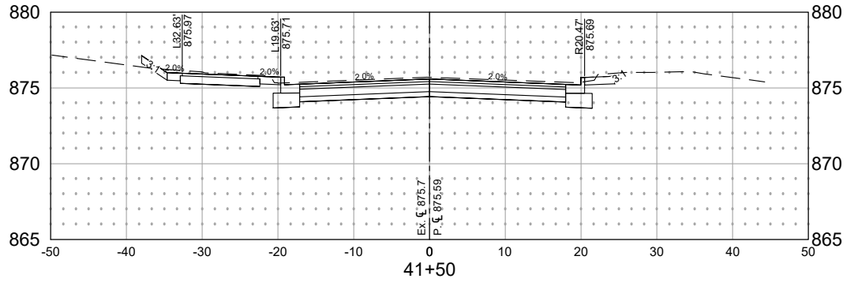
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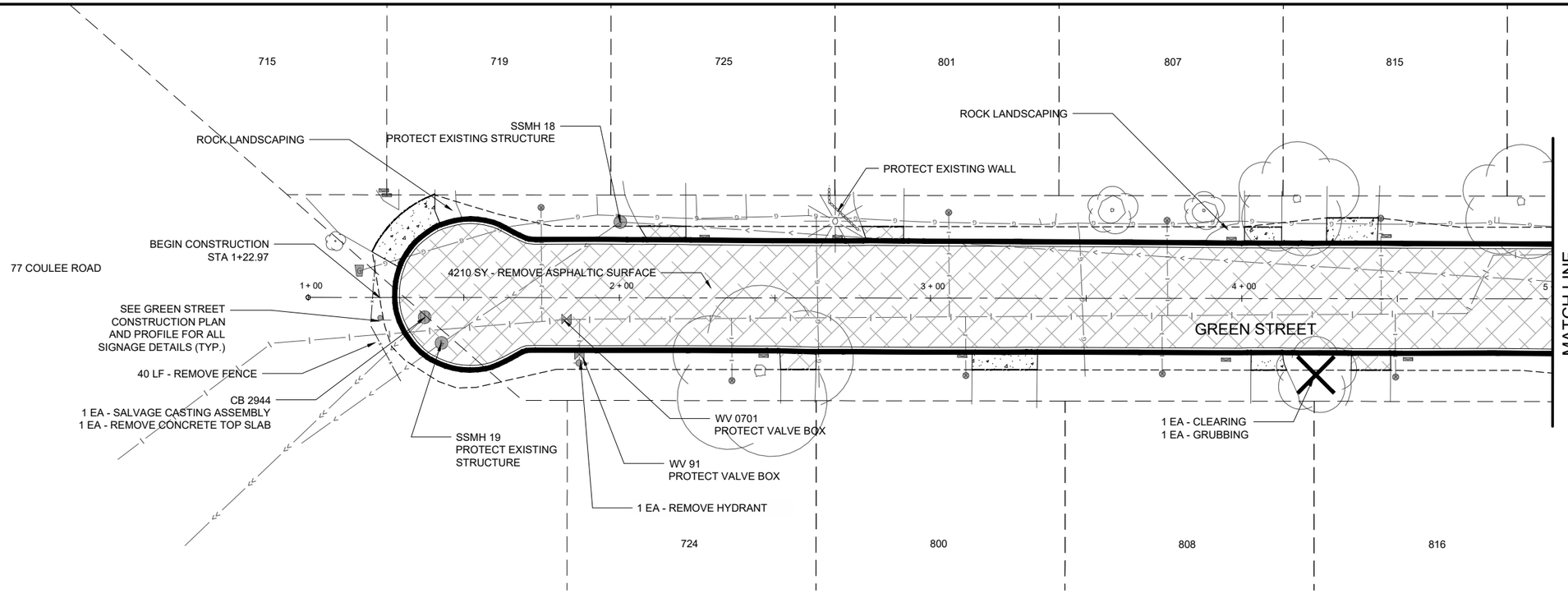


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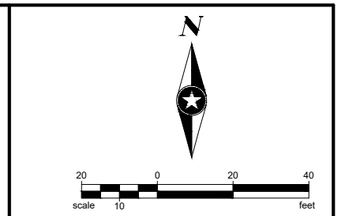
VINE STREET
STA: 40+50.00 - STA: 41+50.00

Sheet No. 51 Of 64 Sheets

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GREEN STREET

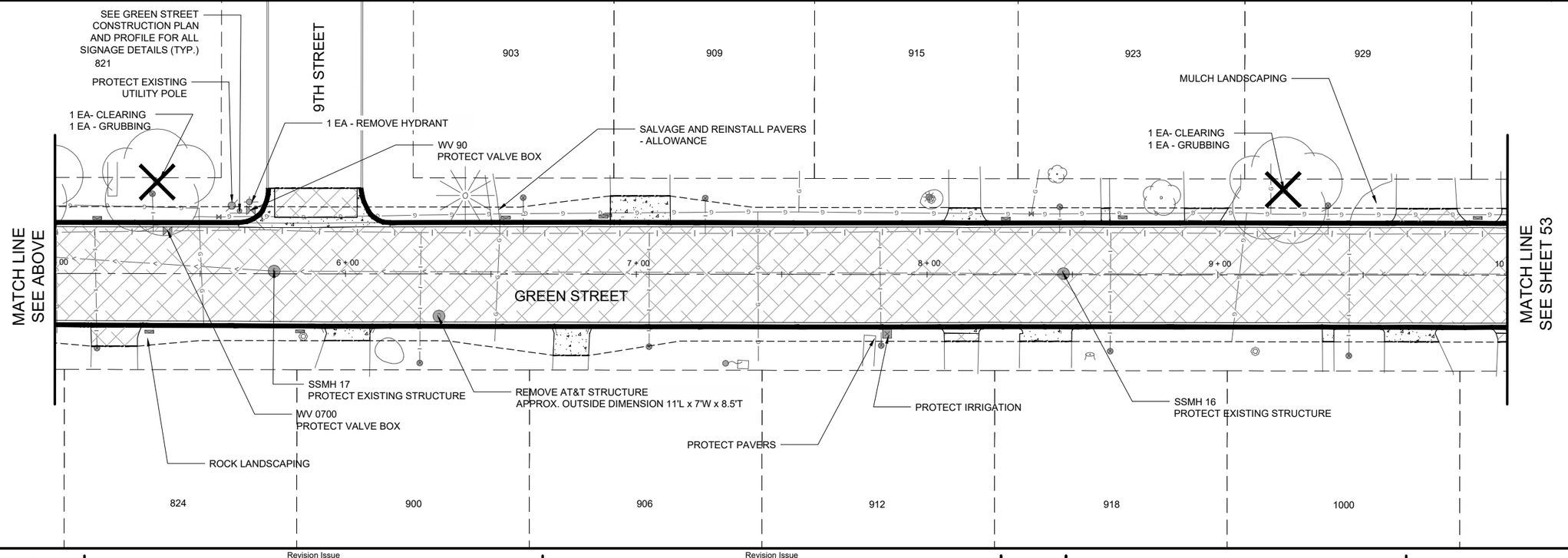


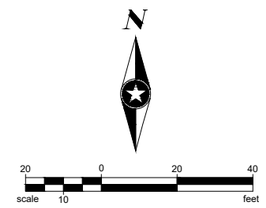
LEGEND

- REMOVE ASPHALT PAVEMENT
- REMOVE CONCRETE SURFACE
- CONSTRUCTION LIMITS
- SAWCUT (INCIDENTAL)
- REMOVE CONCRETE CURB & GUTTER
- SALVAGE AND REINSTALL MAILBOX

NOTES:

1. ACCESS TO DRIVEWAYS TO BE MAINTAINED AT ALL TIMES. RAMP DRIVEWAY AS NEEDED TO MAINTAIN REASONABLE ACCESS (INCIDENTAL).
2. THE CONTRACTOR SHALL COORDINATE LANDSCAPING REMOVALS WITH HOMEOWNER PRIOR TO STARTING REMOVALS.
3. CITY STAFF TO PICK UP SALVAGED CASTINGS.





City Project	24-01
Drawn By	MP
Designed By	MP
Checked By	EMA

Rev.#	Revision Issue Description	Date

Rev.#	Revision Issue Description	Date

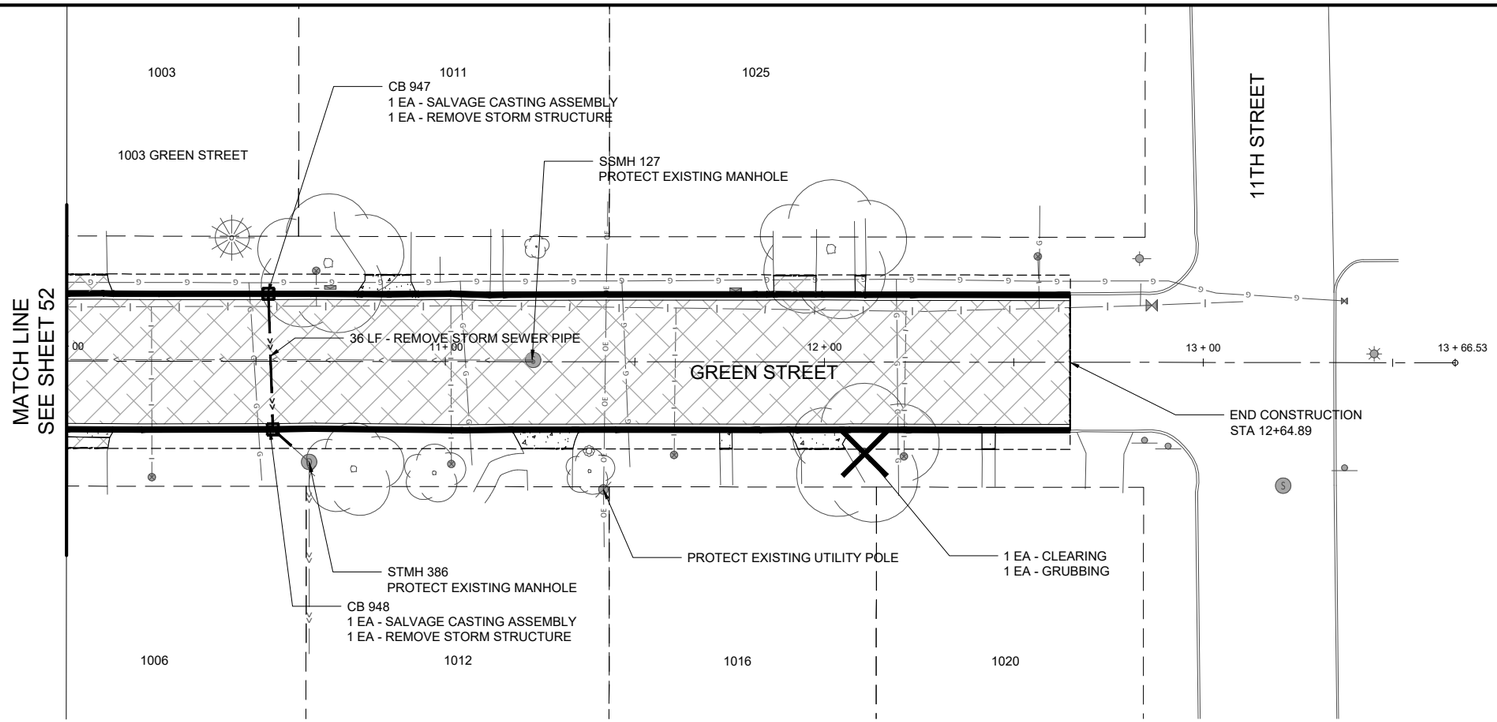
CITY OF HUDSON

2024 STREET IMPROVEMENTS
HUDSON, WI

GREEN STREET REMOVALS

52
of 64

Save: 3/28/2024 4:07 PM eanderson Plot: 3/28/2024 4:14 PM Z:\Engineering\PROJECTS\STREET RECONSTRUCTION\2024 STREET RECON\CAD\PLAN SHEETS\GREEN\24-01-GREEN_REM.dwg



GREEN STREET

N

20 0 20 40
scale 10 feet

LEGEND

- REMOVE ASPHALT PAVEMENT
- REMOVE CONCRETE SURFACE
- CONSTRUCTION LIMITS
- SAWCUT (INCIDENTAL)
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City Project	24-01
Drawn By	MP
Designed By	MP
Checked By	EMA

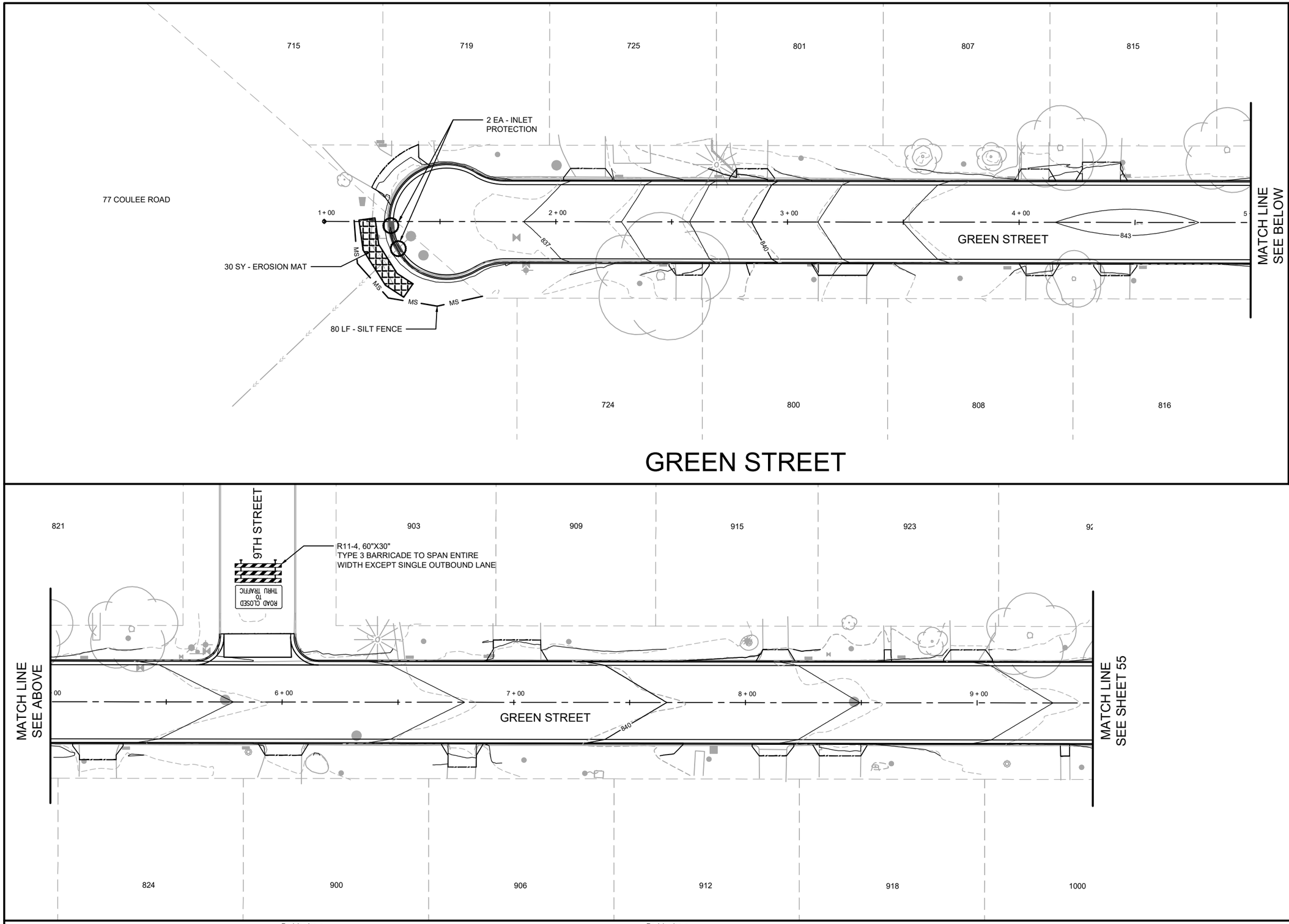
Rev.#	Revision Issue Description	Date
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Rev.#	Revision Issue Description	Date

CITY OF HUDSON

2024 STREET IMPROVEMENTS
HUDSON, WI

GREEN STREET REMOVALS



LEGEND

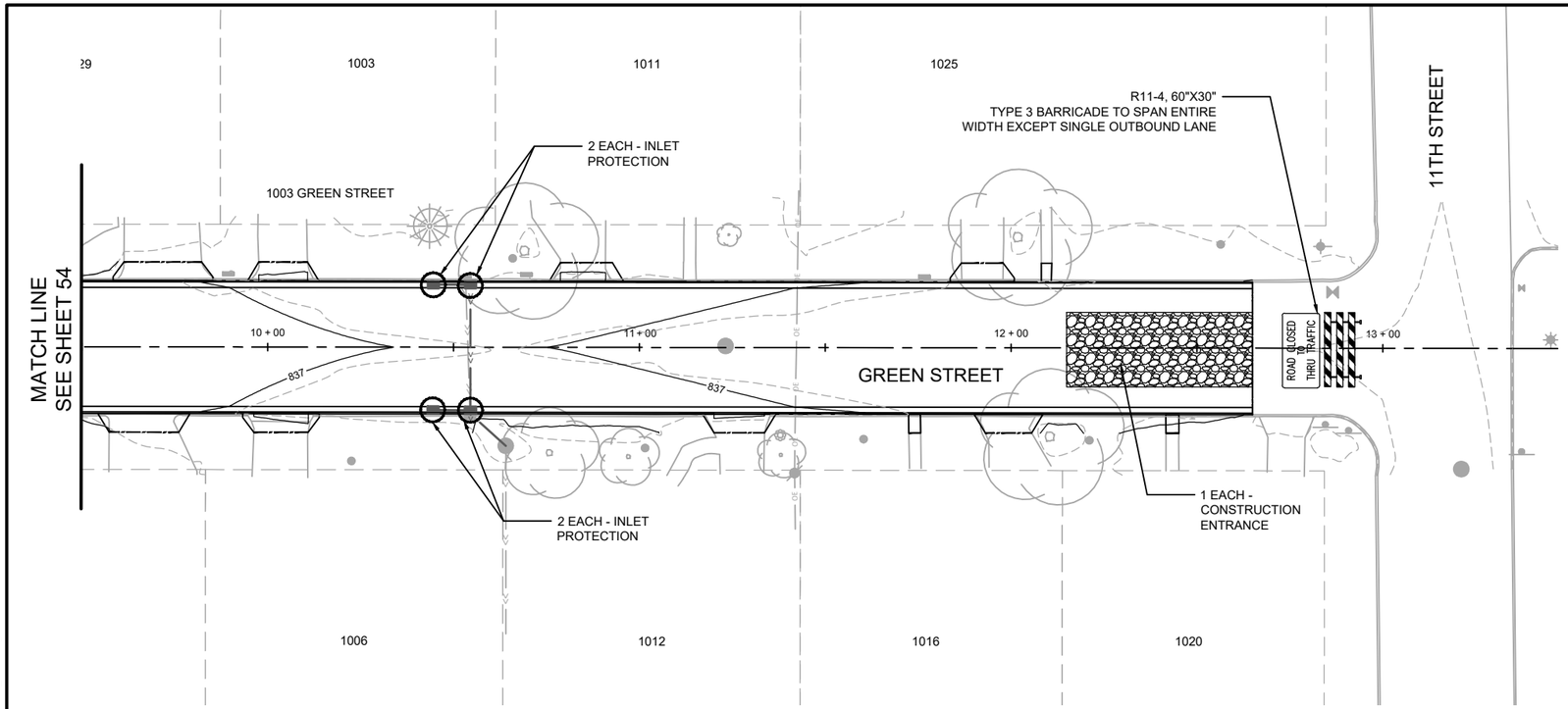
EROSION MAT, CLASS 1, URBAN, TYPE B

NOTES:

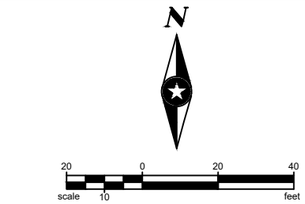
1. ALL SEEDING AREAS NOT CALLED OUT AS EROSION CONTROL MAT SHALL USE SOIL STABILIZER - TYPE A (HYDROMULCH)
2. 6" TOPSOIL TO BE USED IN ALL SEEDING AREAS.
3. WISDOT NO. 40 TO BE USED FOR ALL TURF ESTABLISHMENT UNLESS NOTED OTHERWISE.

City Project	24-01	Rev.#	Revision Issue Description	Date	Rev.#	Revision Issue Description	Date	2024 STREET IMPROVEMENTS HUDSON, WI	GREEN STREET EROSION & TRAFFIC CONTROL PLAN	54 of 64
Drawn By	MP									
Designed By	MP									
Checked By	EMA									

Save: 3/14/2024 1:38 PM eanderson Plot: 3/28/2024 4:14 PM Z:\Engineering\PROJECTS\STREET RECONSTRUCTION\2024 STREET RECON\CAD\PLAN SHEETS\GREEN\24-01-GREEN_ERO.dwg



GREEN STREET



LEGEND

EROSION MAT, CLASS 1, URBAN, TYPE B

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City Project	24-01
Drawn By	MP
Designed By	MP
Checked By	EMA

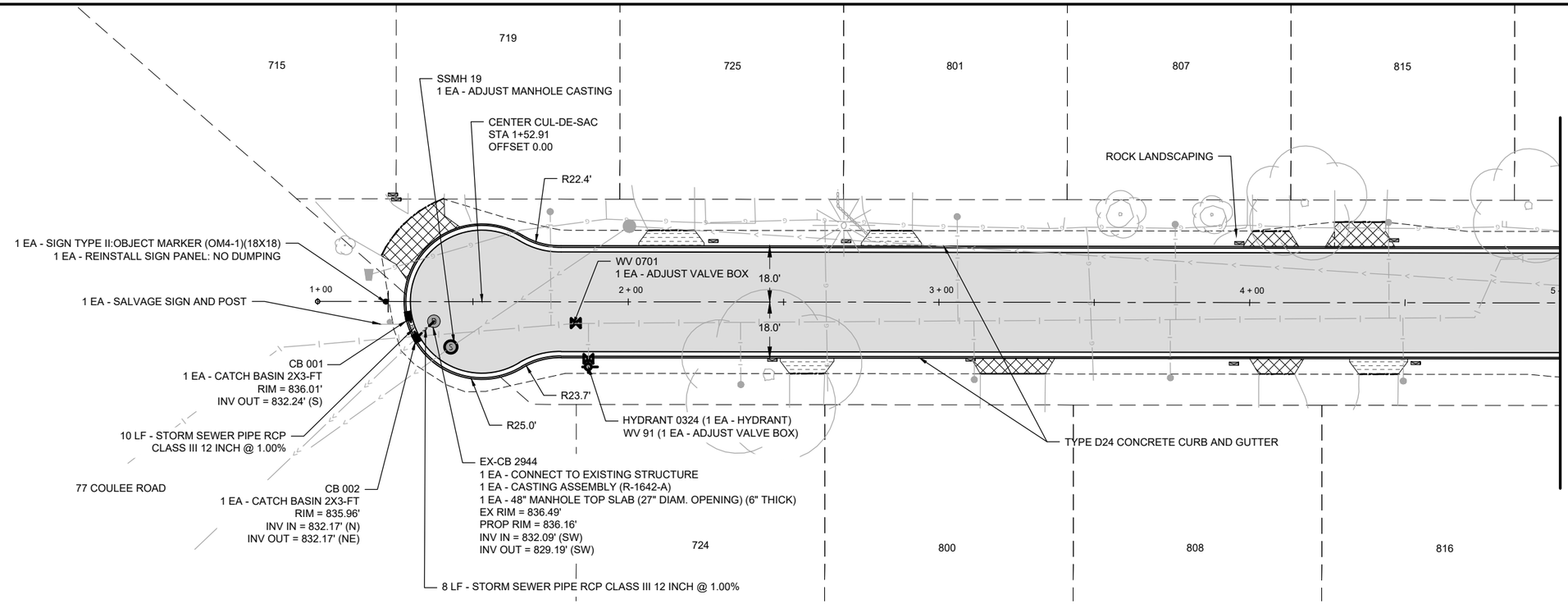
Rev.#	Revision Issue Description	Date
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Rev.#	Revision Issue Description	Date

CITY OF HUDSON

2024 STREET IMPROVEMENTS
HUDSON, WI

GREEN STREET
EROSION & TRAFFIC CONTROL PLAN



GREEN STREET

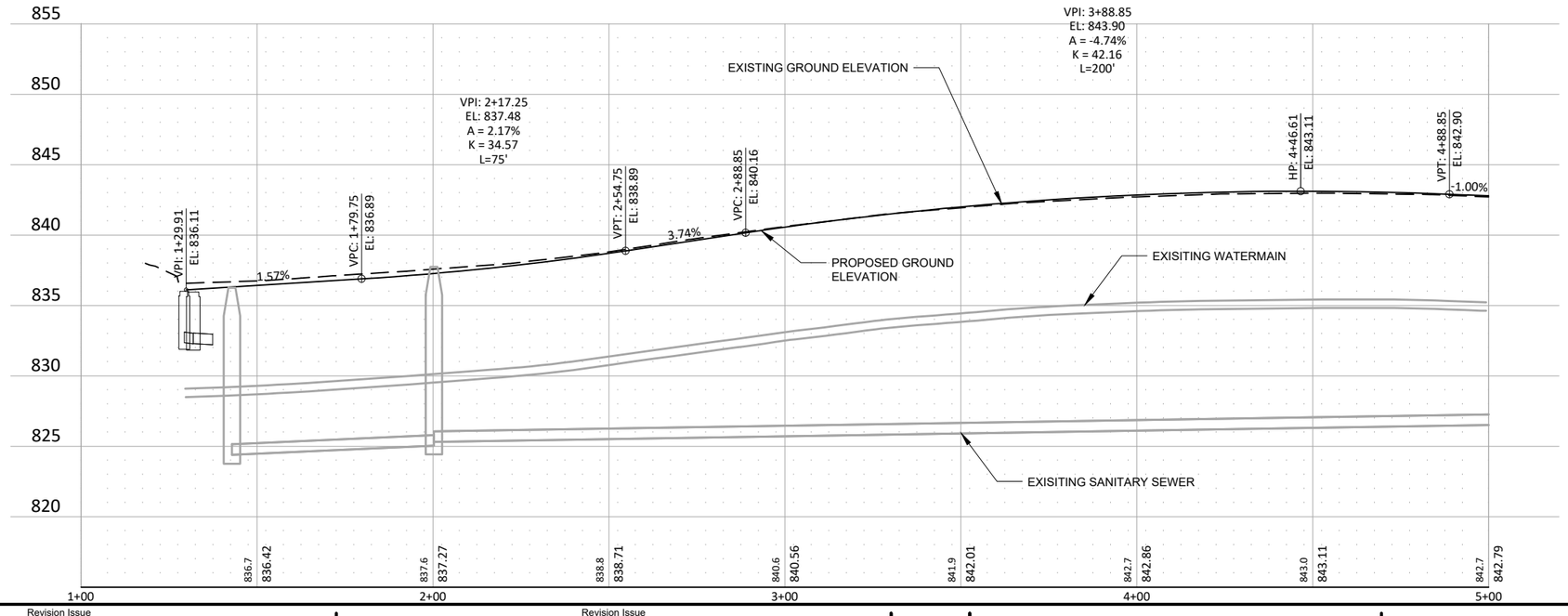
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20 0 20 40
scale 10 feet

LEGEND

- HMA PAVEMENT (SEE TYP. SECTIONS)
- PATCH ASPHALT DRIVEWAY
- CONCRETE DRIVEWAY APRON - 6-INCH
- CONCRETE SIDEWALK - 4-INCH
- CONSTRUCTION LIMITS
- SAWCUT (INCIDENTAL)
- SALVAGE AND REINSTALL MAILBOX

NOTES:
1. PROPERTY OWNERS SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF ANY DRIVEWAY CLOSURES.
2. THE CONTRACTOR SHALL COORDINATE LANDSCAPING RESTORATION WITH ENGINEER AND HOMEOWNER.
3. ALL INLET CASTINGS TO BE R-3067-L.
4. ALL DIMENSIONS ARE TO BACK OF CURB.



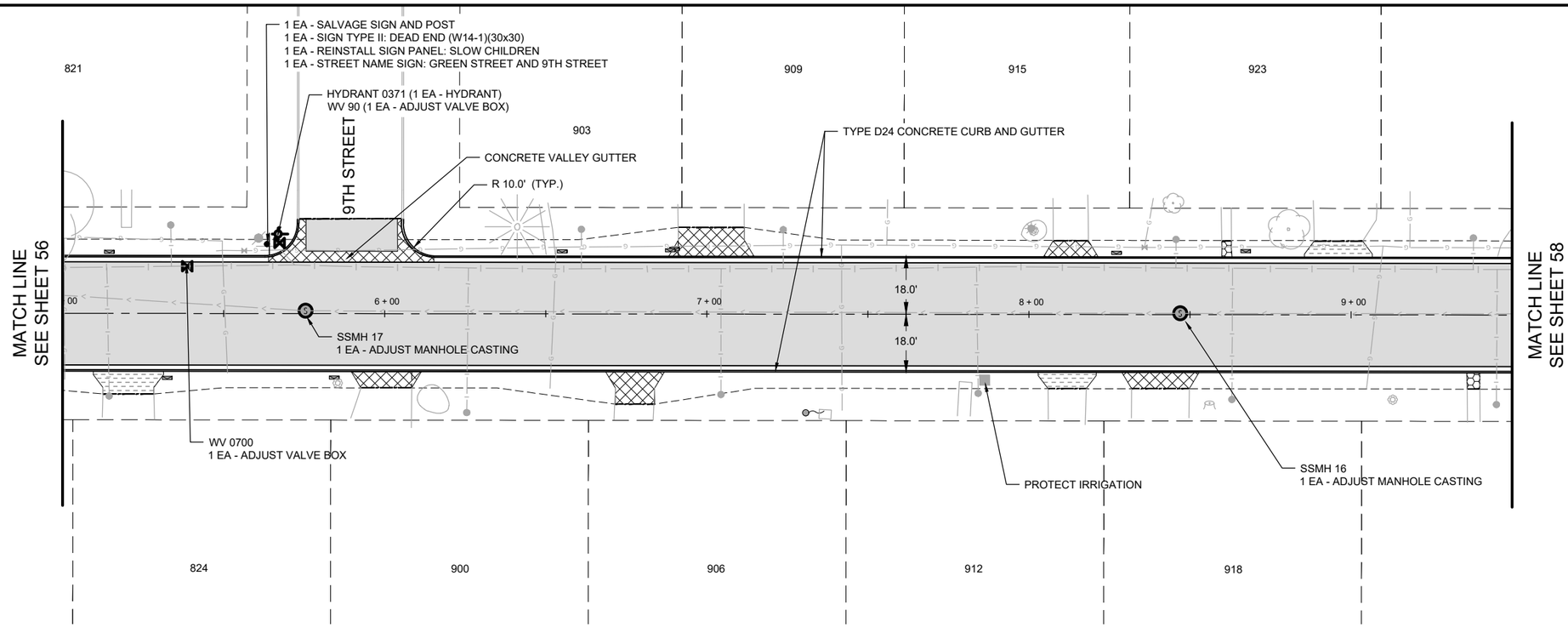
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City Project	24-01	.					
Drawn By	MP	.					
Designed By	MP	.					
Checked By	EMA	.					

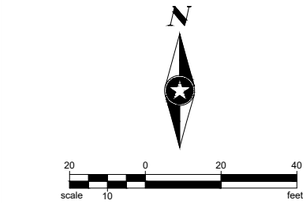
CITY OF HUDSON

2024 STREET IMPROVEMENTS
HUDSON, WI

GREEN STREET CONSTRUCTION PLAN & PROFILE

Save: 3/28/2024 4:13 PM eanderson Plot: 3/28/2024 4:14 PM Z:\Engineering\PROJECTS\STREET RECONSTRUCTION\2024 STREET RECON\CAD\PLAN SHEETS\GREEN\24-01-GREEN_CON.dwg

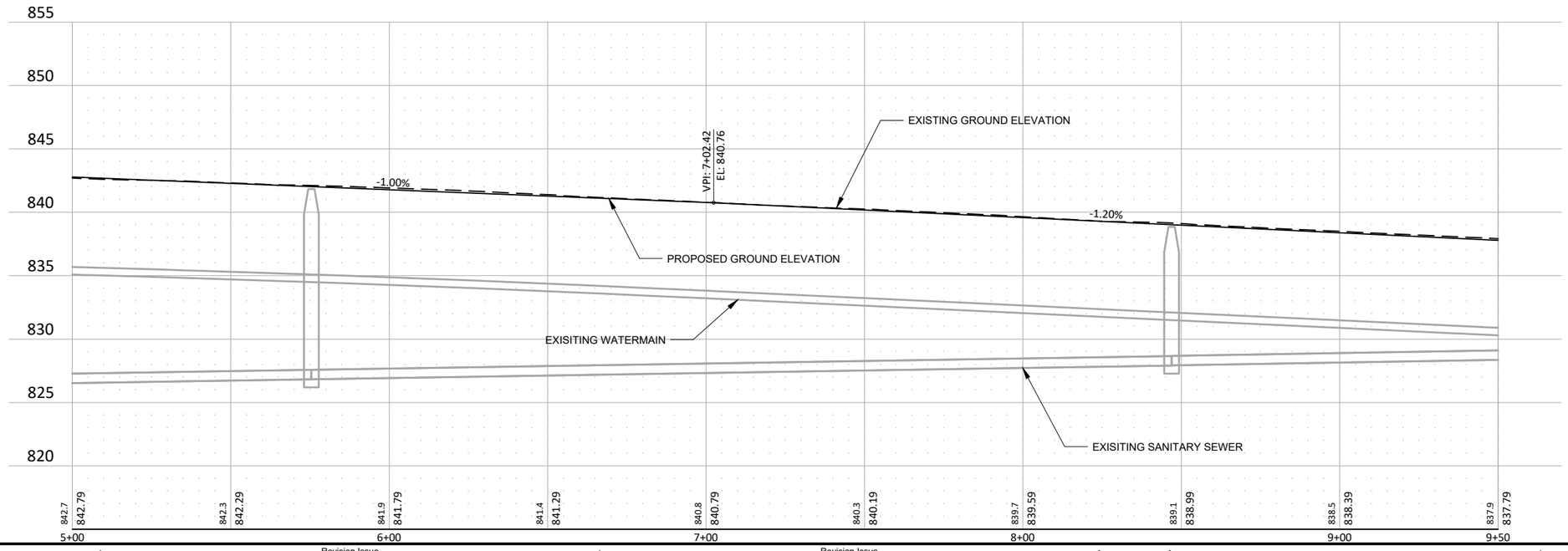




LEGEND

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City Project	24-01
Drawn By	MP
Designed By	MP
Checked By	EMA

Rev.#	Revision Issue Description	Date
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Rev.#	Revision Issue Description	Date

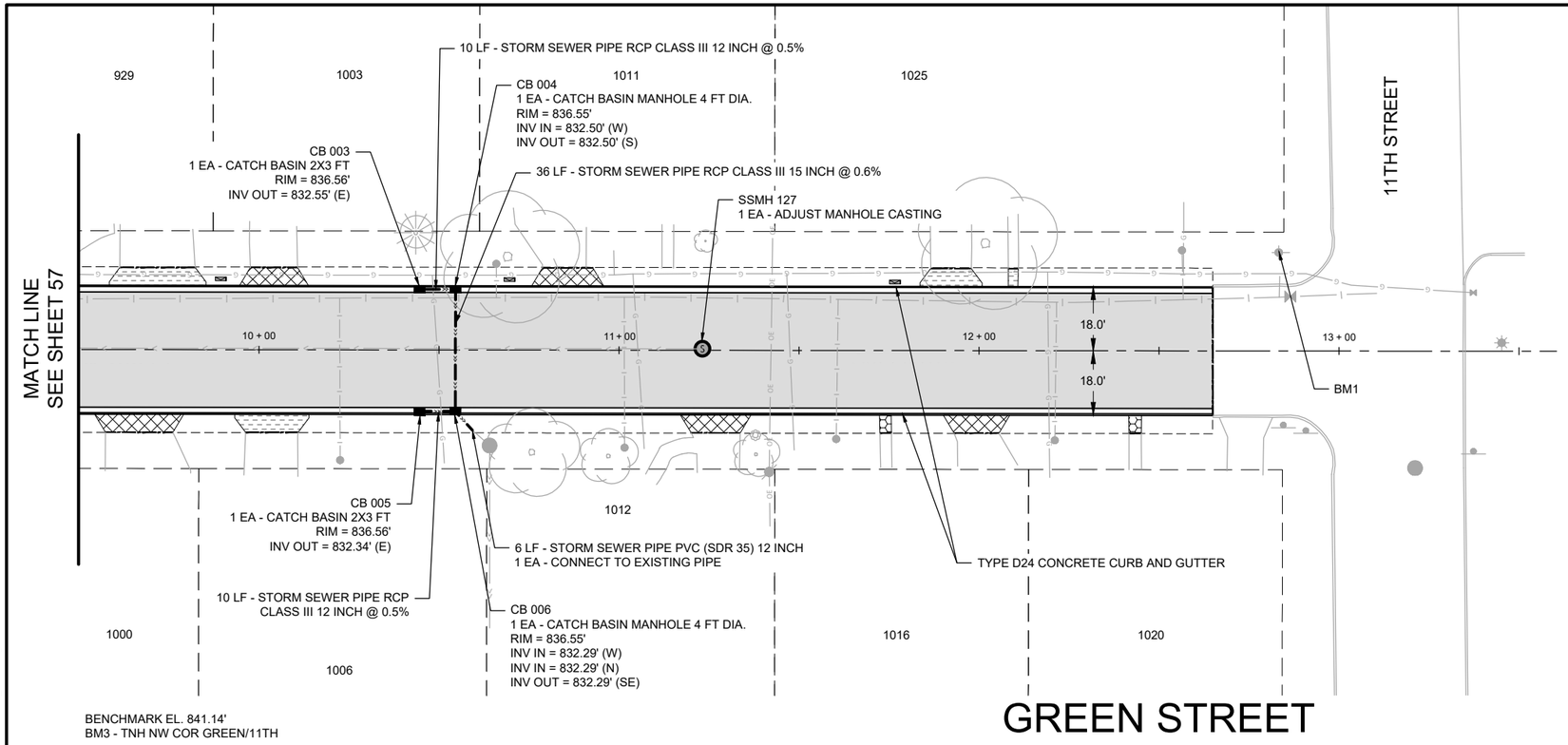
CITY OF HUDSON

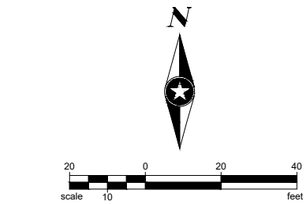
2024 STREET IMPROVEMENTS

HUDSON, WI

GREEN STREET CONSTRUCTION PLAN & PROFILE

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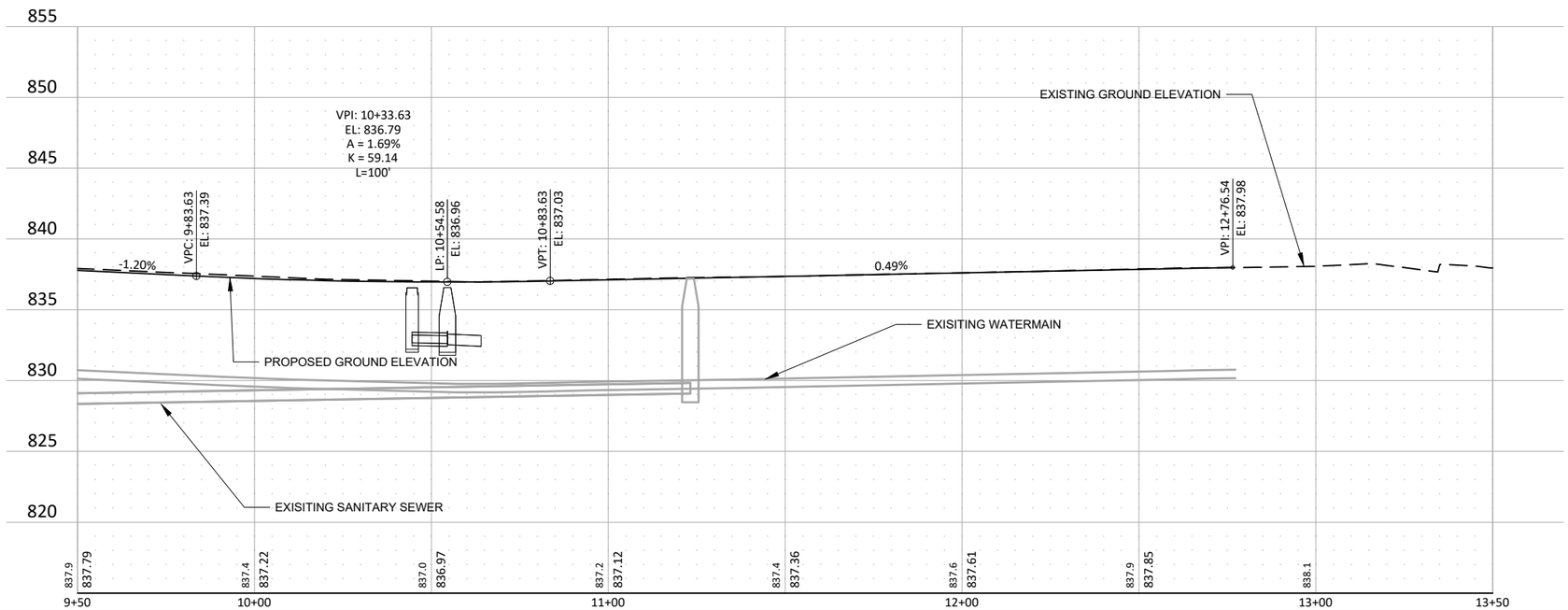


LEGEND

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NOTES:

1. PROPERTY OWNERS SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF ANY DRIVEWAY CLOSURES.
2. THE CONTRACTOR SHALL COORDINATE LANDSCAPING RESTORATION WITH ENGINEER AND HOMEOWNER.
3. ALL INLET CASTINGS TO BE R-3067-L.
4. ALL DIMENSIONS ARE TO BACK OF CURB.



City Project	24-01
Drawn By	MP
Designed By	MP
Checked By	EMA

Rev.#	Revision Issue Description	Date

Rev.#	Revision Issue Description	Date

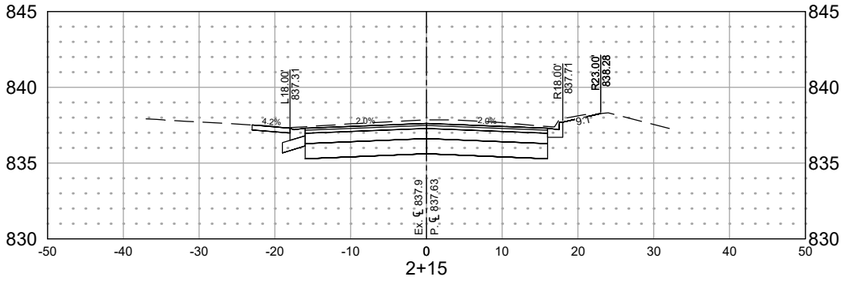
CITY OF HUDSON

2024 STREET IMPROVEMENTS

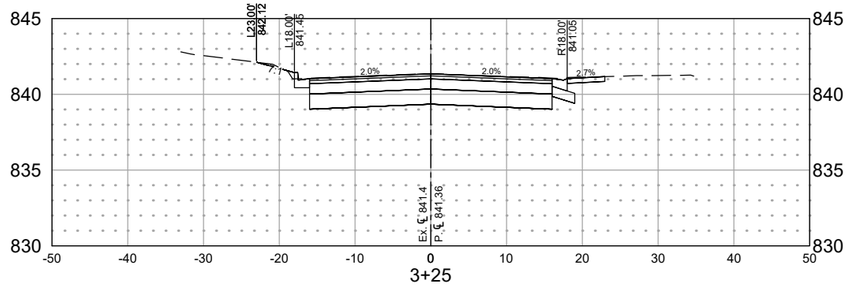
HUDSON, WI

GREEN STREET CONSTRUCTION PLAN & PROFILE

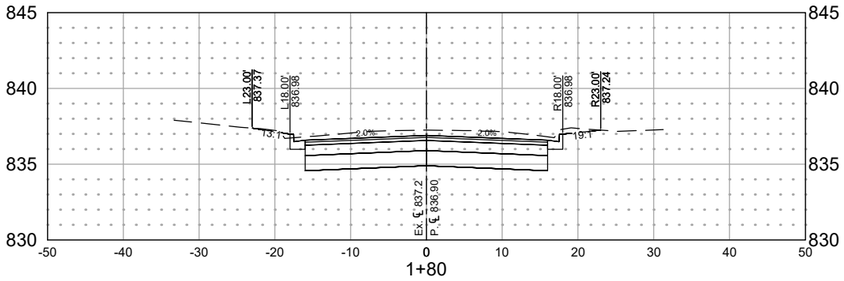
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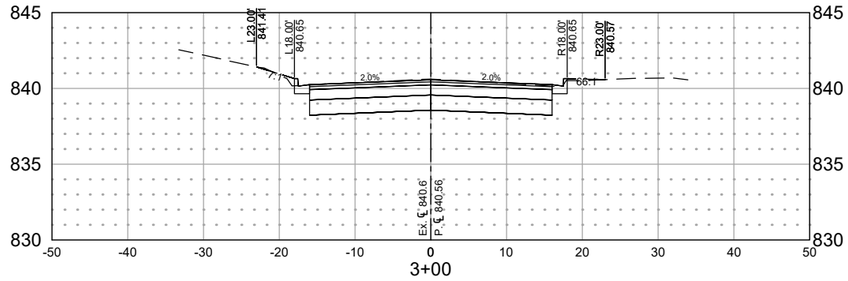
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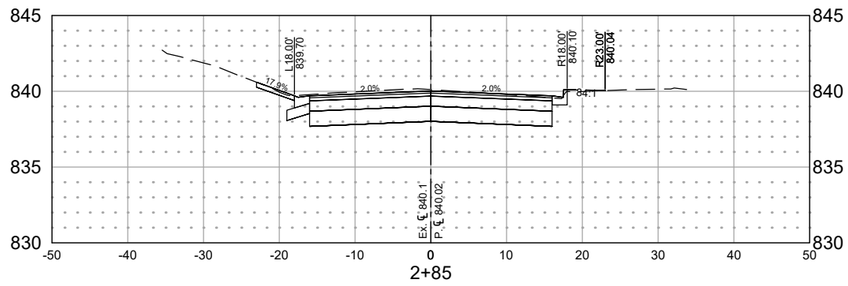
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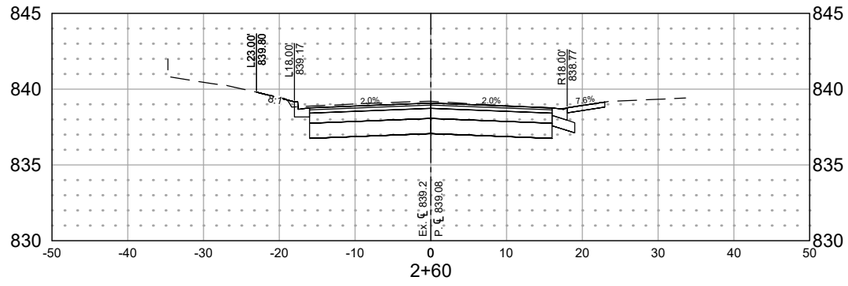
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3+00



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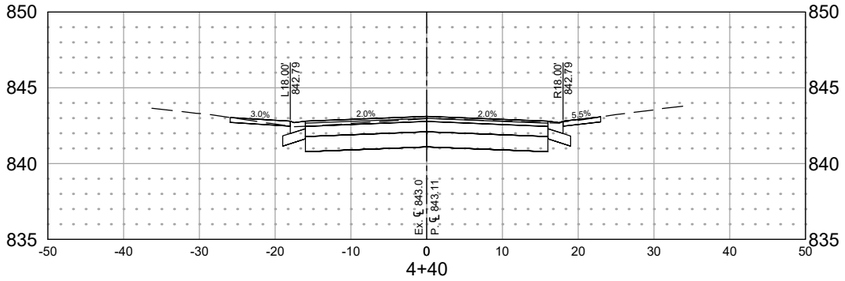


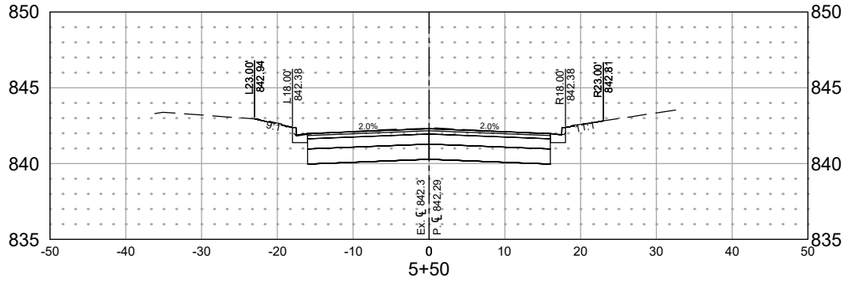
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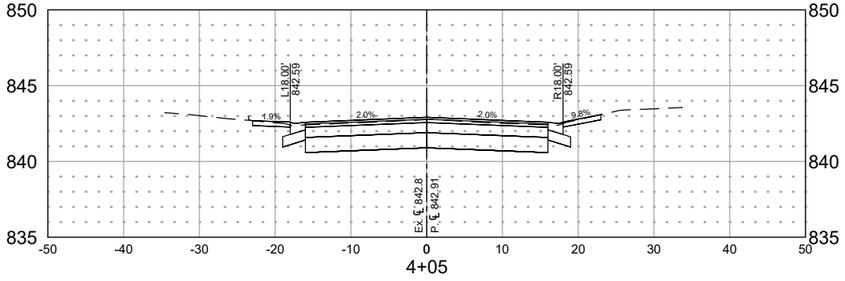
GREEN STREET
STA: 1+80 - STA: 3+25

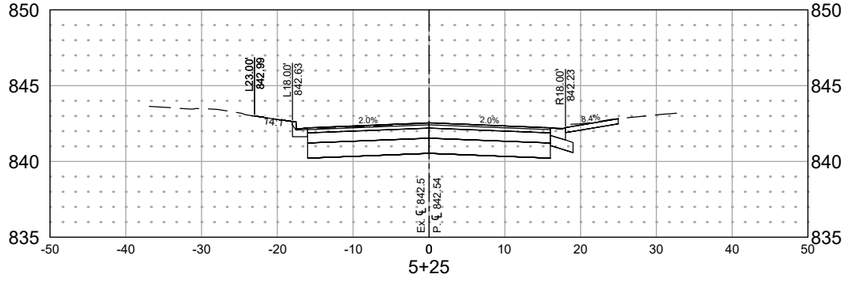
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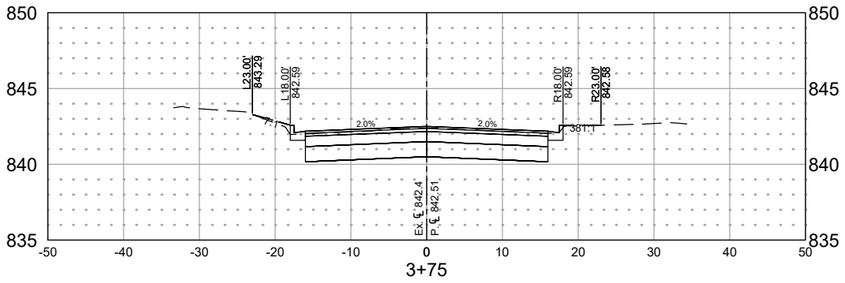
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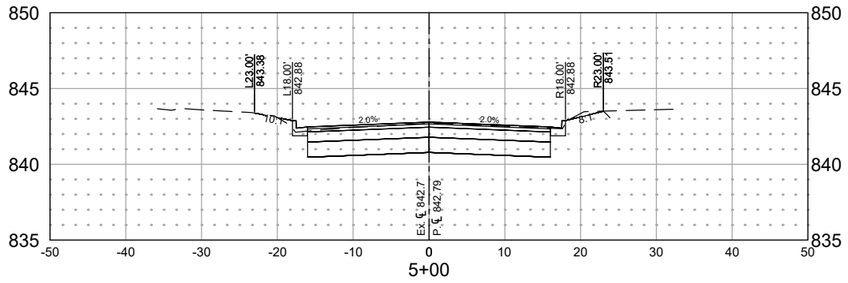


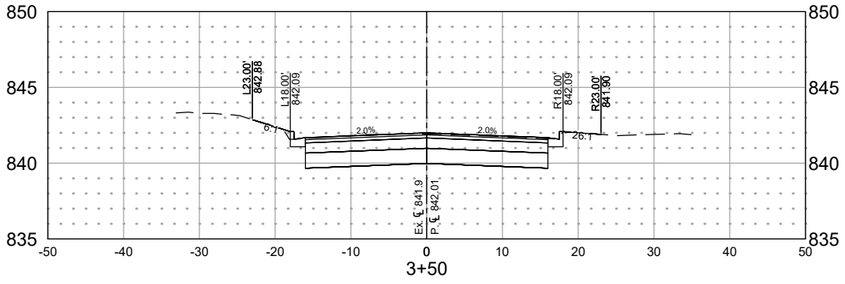


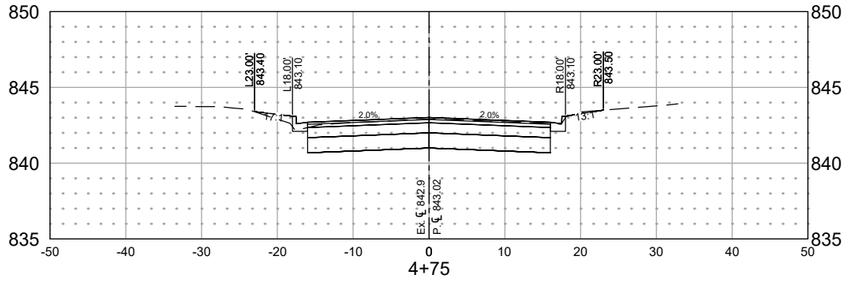








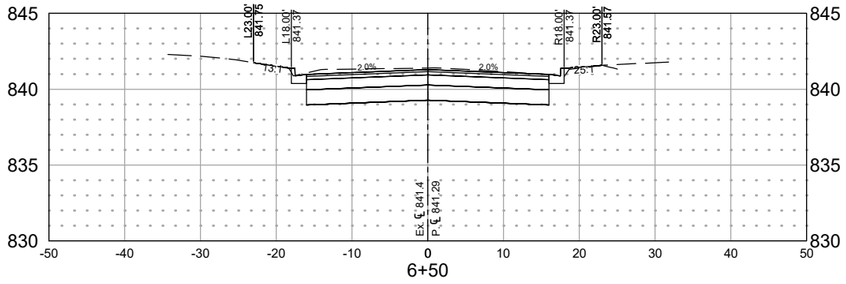




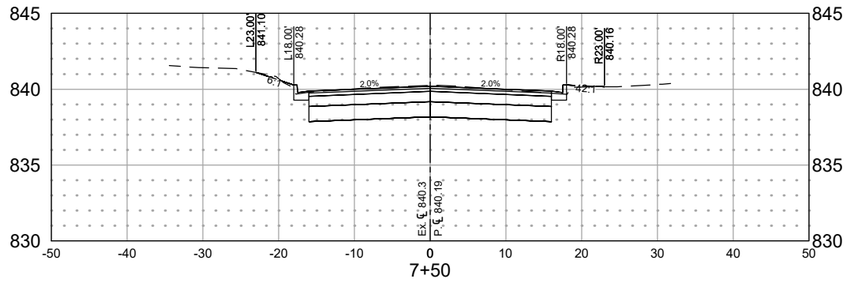
GREEN STREET
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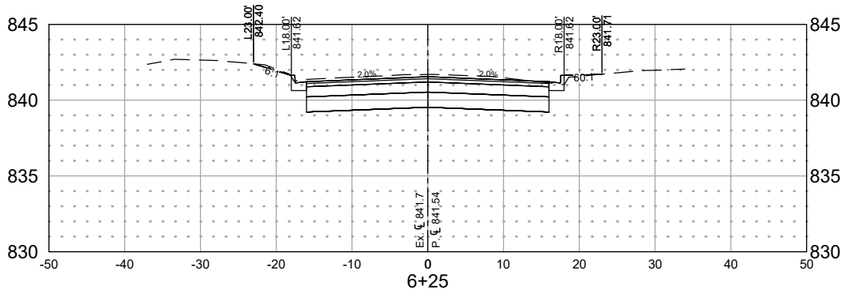
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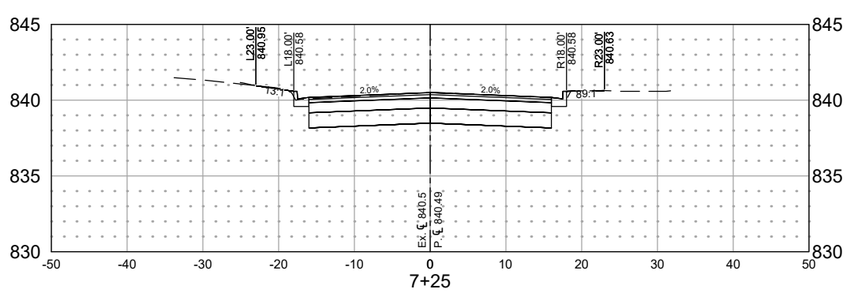
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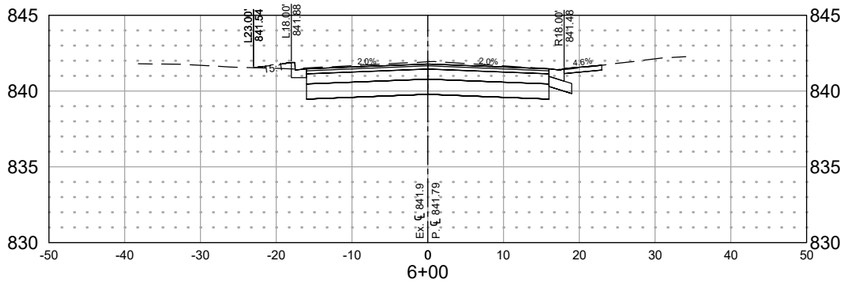
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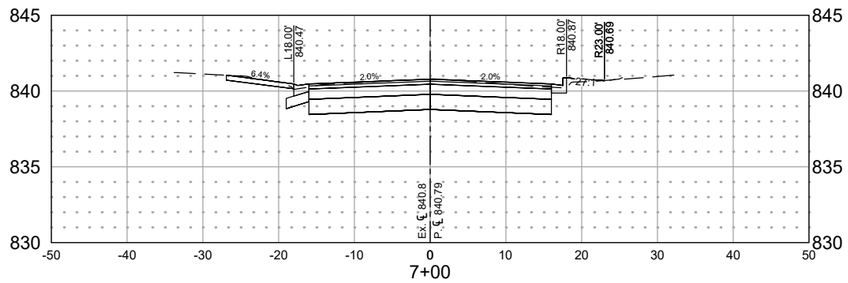
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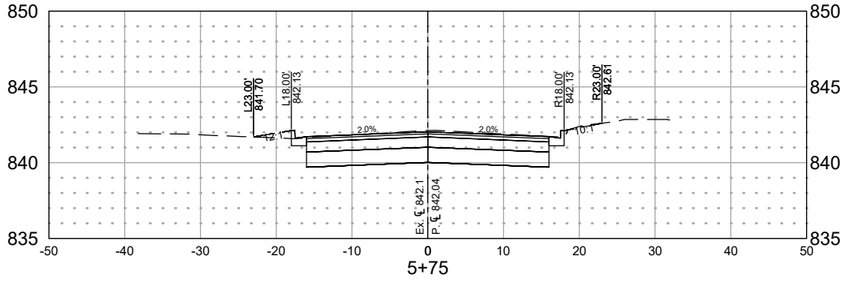
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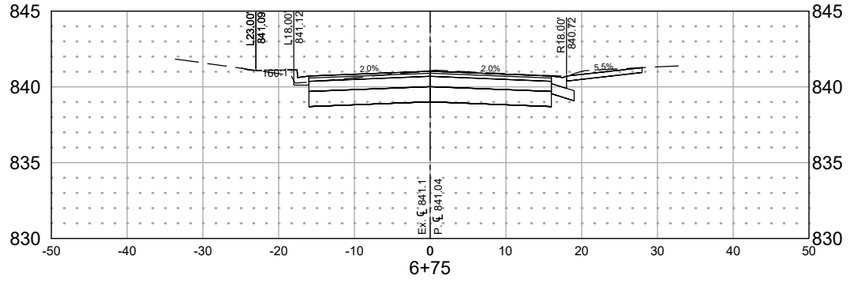
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7+00



5+75

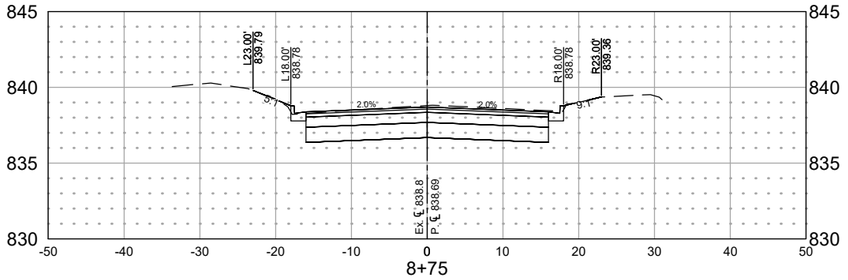


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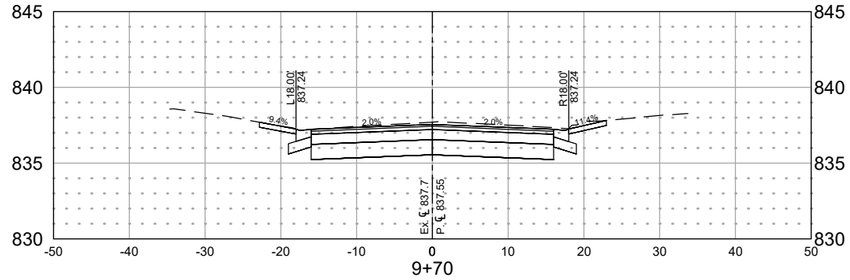
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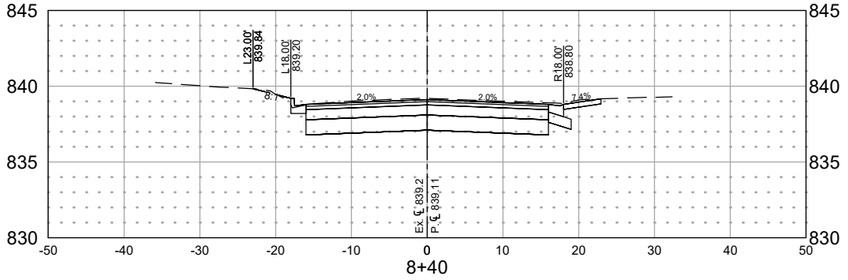
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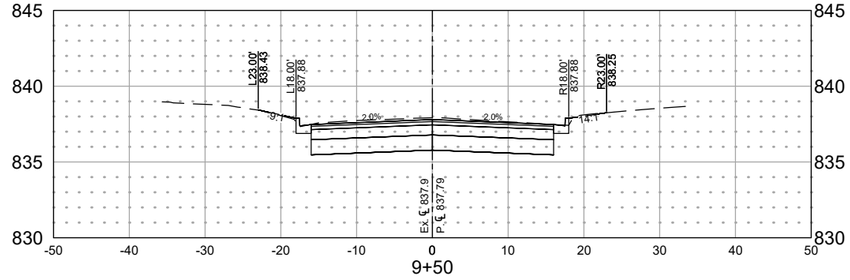
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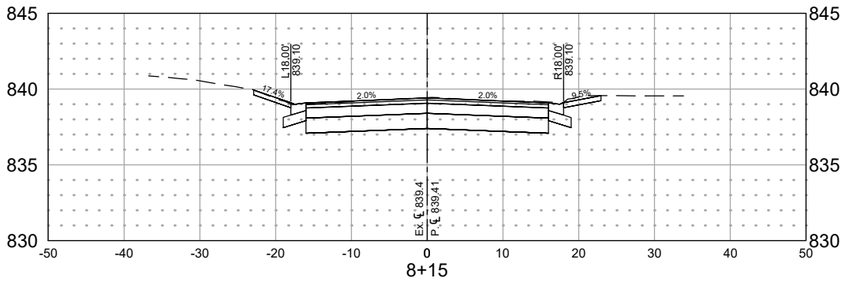
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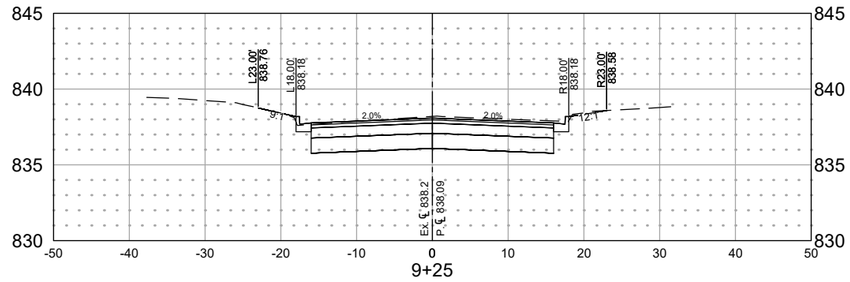
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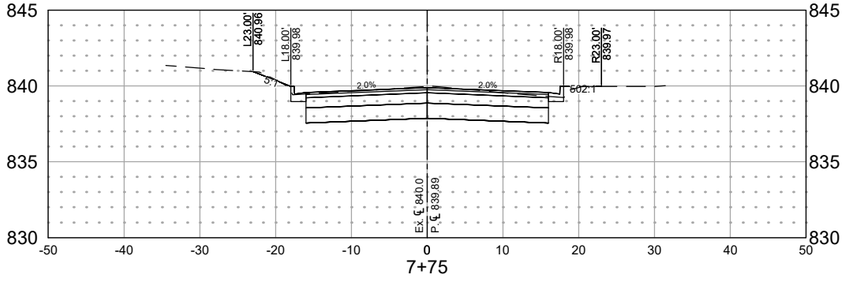
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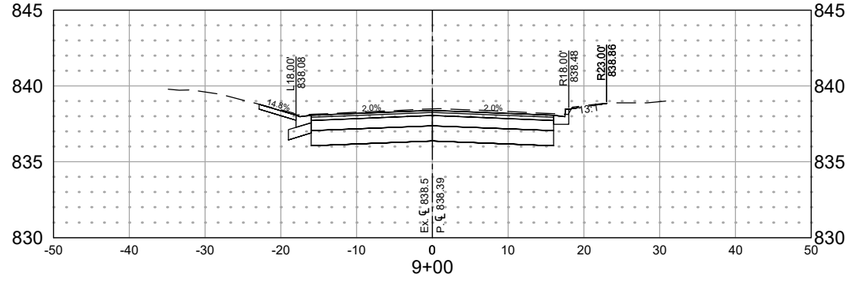
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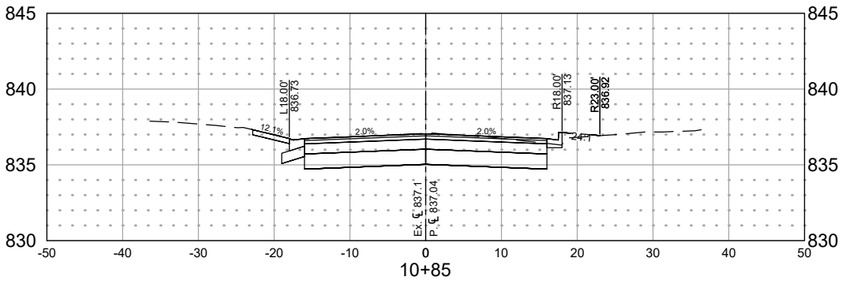


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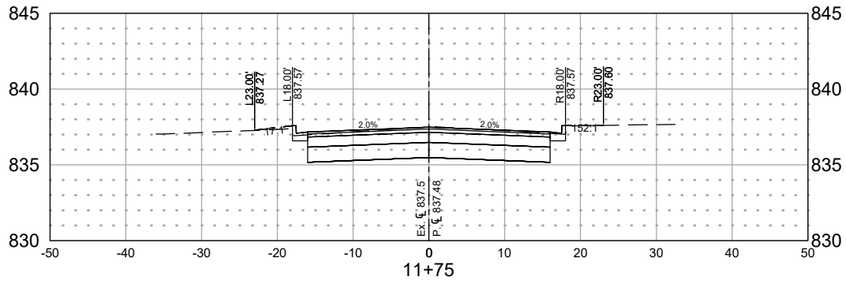
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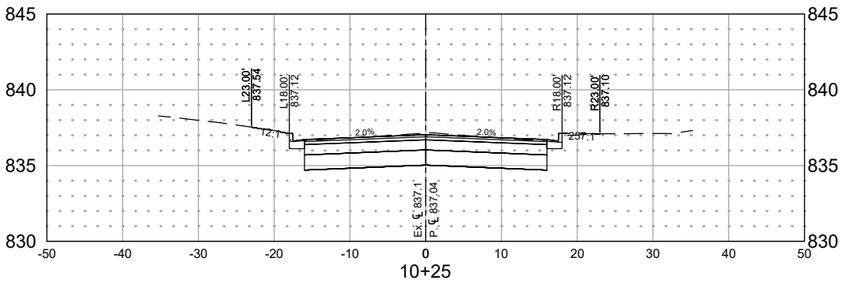
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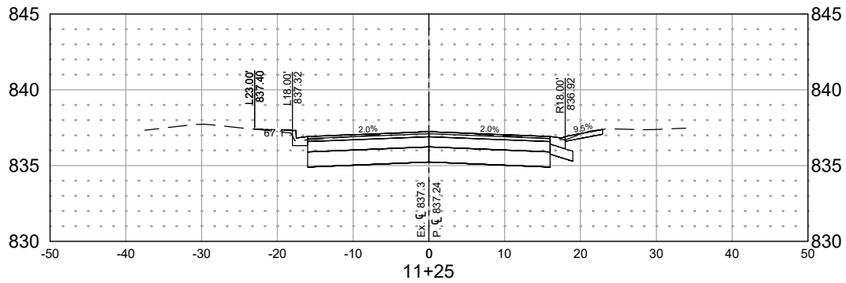
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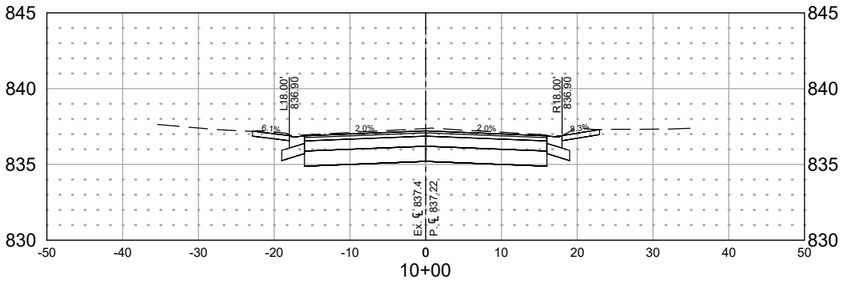
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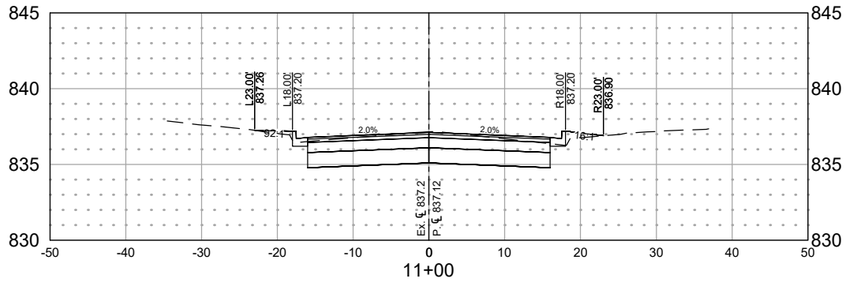
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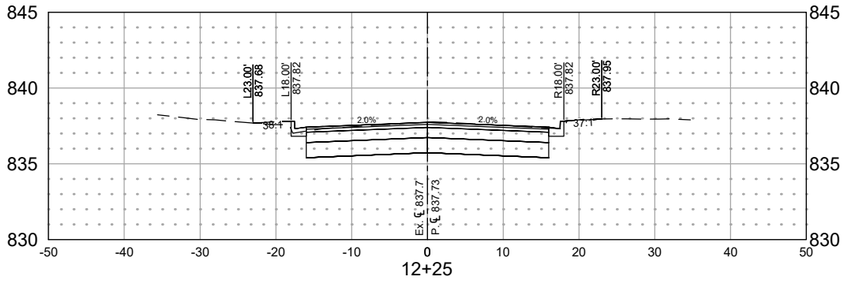


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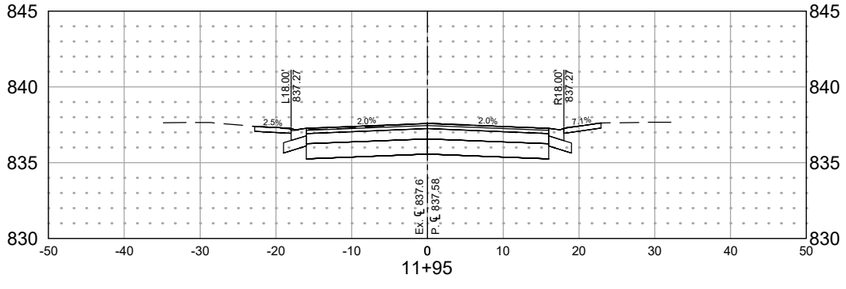
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12+25



11+95

GREEN STREET
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