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NORTH Dakota | Transportation
Be Legendary.

October 7, 2026

ADDENDUM 2 – JOB 24237

TO: All prospective bidders on Project TMA-SU-CRP-8-984(181), Job No. 24237 scheduled for the October 9, 2026 bid opening.

This addendum has been issued for the above referenced job. Please see the attached summary from Derek Pfeifer, P.E. dated October 7, 2026 for an explanation of changes.

This addendum is to be incorporated into the bidder's proposal for this project.

PHILLIP MURDOFF, P.E. – CONSTRUCTION SERVICES ENGINEER
80: jwj
Enclosure

PLAN ADDENDUM SUMMARY AND APPROVAL

PROJECT INFORMATION		
Date: 10/6/2026	**Project:** TMA-SU-CRP-8-984(181)	**PCN:** 24237
Lead Designer: Dylan Dunn	**Technical Support:** Seng Marohl	
Bid Opening Date: 10/9/26		**Addendum Number:** 2

PLAN SHEET CHANGES		
Section	**Sheet(s)**	**Description**
6	2	Delete Note 203-P01.
8	2-3	Update quantities.
10	1	Updated existing and proposed ring heights on ST-5 and eliminated Adjust Manhole Special quantity.
40	1-5	Revise to 60 scale and delete “Concrete w/ Asphalt Overlay” call outs from Sta 3+44 to 28+44.
55	11	Add call out for Adjust Gate Valve.
110	1-3, 22-25	Revised Sign Sheeting and Sign Support quantities and revised size and punching dimensions of Special Assemblies.
140	2	Revise Lighting System quantities for No 12 AWG Copper Clad HDPE and PVC Pull Box.
150	5-6	Updated to remove APS style push button for Bulldog style push button.

SPECIAL PROVISION CHANGES		
SP Number	**Page(s)**	**Description**
92(25)	6-24	Added appendices – Table and Exhibits
239(25)	1-37	Addition of Type V Traffic Signal Standard materials section.

BID ITEMS CHANGES					
Spec	**Code**	**Description**	**Unit**	**Previous Quantity**	**Revised Quantity**
722	6201	Adjust Manhole Special	EA	4	3
754	0110	Flat Sheet for Signs-Type XI Refl Sheeting	SF	373	351
754	0206	Steel Glv Posts-Telescoping Perforated Tube	LF	1024	826

APPROVAL

Derek D. Pfeifer, P.E. – Local Government Engineer

10/7/2026
Date

Project: TMA-SU-CRP-8-984(181) (PCN-24237)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
001	103	0100	CONTRACT BOND	L SUM	1.				
002	201	0352	REMOVAL OF TREES & BRUSH	L SUM	1.				
003	201	0370	REMOVAL OF TREES 10IN	EA	9.				
004	201	0380	REMOVAL OF TREES 18IN	EA	7.				
005	201	0390	REMOVAL OF TREES 30IN	EA	1.				
006	202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	6,621.				
007	202	0136	REMOVAL OF PAVEMENT	TON	18,880.				
008	202	0173	REMOVAL OF SEWER PIPE	LF	4,167.				
009	202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	1,287.				
010	202	0210	REMOVAL OF MANHOLES	EA	16.				
011	202	0235	REMOVAL OF CATCH BASIN	EA	28.				
012	202	0500	ACP WATERMAIN REMOVAL	LF	558.				
013	203	0109	TOPSOIL	CY	1,500.				
014	216	0100	WATER	M GAL	75.				
015	230	0165	SUBGRADE PREPARATION-TYPE A-12IN	STA	51.500				
016	251	0300	SEEDING CLASS III	ACRE	3.500				

Project: TMA-SU-CRP-8-984(181) (PCN-24237)

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
017	253	0201	HYDRAULIC MULCH	ACRE	7.100				
018	302	0101	SALVAGED BASE COURSE	CY	6,776.				
019	302	9970	TYPE II PIPE BEDDING	CY	400.				
020	430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	143.				
021	550	0310	10IN NON REINF CONCRETE PVMT CL AE-DOWELED	SY	18,119.				
022	702	0100	MOBILIZATION	L SUM	1.				
023	704	0100	FLAGGING	MHR	450.				
024	704	1000	TRAFFIC CONTROL SIGNS	UNIT	1,382.				
025	704	1052	TYPE III BARRICADE	EA	108.				
026	704	1054	SIDEWALK BARRICADE	EA	10.				
027	704	1058	PEDESTRIAN WALKWAY	LF	400.				
028	704	1060	DELINEATOR DRUMS	EA	63.				
029	704	1500	OBLITERATION OF PAVEMENT MARKING	SF	45.				
030	704	2108	TEMPORARY CURB RAMP	EA	20.				
031	704	4011	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.				
032	708	1540	INLET PROTECTION-SPECIAL	EA	52.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
033	709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	22,499.				
034	714	0137	PIPE CONC REINF 12IN CL V-STORM DRAIN	LF	32.				
035	714	0215	PIPE CONC REINF 15IN CL V-STORM DRAIN	LF	1,110.				
036	714	0337	PIPE CONC REINF 18IN CL V-STORM DRAIN	LF	26.				
037	714	0405	PIPE CONC REINF 21IN CL III-STORM DRAIN	LF	43.				
038	714	0620	PIPE CONC REINF 24IN CL III-STORM DRAIN	LF	128.				
039	714	0710	PIPE CONC REINF 27IN CL III-STORM DRAIN	LF	16.				
040	714	0825	PIPE CONC REINF 30IN CL III-STORM DRAIN	LF	463.				
041	714	0910	PIPE CONC REINF 36IN CL III-STORM DRAIN	LF	458.				
042	714	1010	PIPE CONC REINF 42IN CL III-STORM DRAIN	LF	1,496.				
043	714	1110	PIPE CONC REINF 48IN CL III-STORM DRAIN	LF	8.				
044	714	1212	PIPE CONC REINF 54IN CL III-STORM DRAIN	LF	703.				
045	714	7028	PIPE PVC 10IN	LF	8.				
046	714	9696	EDGEDRAIN NON PERMEABLE BASE	LF	10,758.				
047	722	0100	MANHOLE 48IN	EA	1.				
048	722	0110	MANHOLE 60IN	EA	2.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
049	722	0120	MANHOLE 72IN	EA	7.				
050	722	0130	MANHOLE 84IN	EA	1.				
051	722	0140	MANHOLE 96IN	EA	4.				
052	722	0315	MANHOLE CASTING	EA	13.				
053	722	2500	MANHOLE SPECIAL	EA	4.				
054	722	3297	ABANDON STORM SEWER	LF	434.				
055	722	3300	SANITARY MANHOLE REPAIR	EA	7.				
056	722	3460	CASTING INLET-TYPE 2	EA	3.				
057	722	3510	INLET-TYPE 2	EA	36.				
058	722	3701	INLET SPECIAL-TYPE 2 48IN	EA	5.				
059	722	3761	INLET SPECIAL-TYPE 2 60IN	EA	3.				
060	722	3766	INLET SPECIAL-TYPE 2 72IN	EA	1.				
061	722	3769	INLET SPECIAL-TYPE 2 96IN	EA	1.				
062	722	6140	ADJUST GATE VALVE BOX	EA	1.				
063	722	6201	ADJUST MANHOLE SPECIAL	EA	3.				
064	724	0210	FITTINGS-DUCTILE IRON	LBS	5,146.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
065	724	0270	REMOVE GATE VALVE & BOX	EA	43.				
066	724	0290	GATE VALVE & BOX 4IN	EA	2.				
067	724	0300	GATE VALVE & BOX 6IN	EA	13.				
068	724	0310	GATE VALVE & BOX 8IN	EA	15.				
069	724	0314	GATE VALVE & BOX 12IN	EA	9.				
070	724	0315	GATE VALVE & BOX 10IN	EA	7.				
071	724	0410	HYDRANT-INSTALL 5IN	EA	12.				
072	724	0430	REMOVE HYDRANT	EA	12.				
073	724	0496	SLEEVE 12IN	EA	3.				
074	724	0530	TAPPING SLEEVE & VALVE 12IN X 6IN	EA	4.				
075	724	0541	TAPPING SLEEVE & VALVE 12IN X 10IN	EA	1.				
076	724	0611	WATER SERVICE LINE 1IN	LF	154.				
077	724	0670	TEMPORARY WATER SERVICE	L SUM	1.				
078	724	0790	WATERMAIN 4IN PVC	LF	50.				
079	724	0810	WATERMAIN 6IN PVC	LF	173.				
080	724	0830	WATERMAIN 8IN PVC	LF	356.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
081	724	0840	WATERMAIN 10IN PVC	LF	217.				
082	724	0850	WATERMAIN 12IN PVC	LF	1,111.				
083	724	0851	BORE & PUSH 12IN PVC WATER	LF	1,091.				
084	724	0852	WATERMAIN 16IN PVC	LF	8.				
085	724	0858	WATERMAIN 16IN	LF	8.				
086	724	0905	CURB STOP & BOX 1IN	EA	7.				
087	724	0944	CONNECTION TO EXISTING MAIN	EA	47.				
088	724	0955	WATER SERVICE CONNECTION 1IN	EA	7.				
089	724	1120	6IN SEWER SERVICE PIPE	LF	260.				
090	724	5040	SANITARY SEWER SERVICE CONNECTION	EA	7.				
091	724	5050	PIPE PVC 8IN SEWER	LF	408.				
092	724	5100	PIPE PVC 10IN SEWER	LF	160.				
093	724	6031	ABANDON WATER MAIN/SERVICE LINE	LF	2,509.				
094	744	0050	INSULATION BOARD	CF	200.				
095	748	0190	CURB & GUTTER-TYPE I 30IN	LF	10,758.				
096	750	0030	PIGMENTED IMPRINTED CONCRETE	SY	48.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
097	750	0115	SIDEWALK CONCRETE 4IN	SY	1,525.				
098	750	0120	SIDEWALK CONCRETE 5IN REINF	SY	4,887.				
099	750	0140	SIDEWALK CONCRETE 6IN	SY	386.				
100	750	1000	DRIVEWAY CONCRETE	SY	1,942.				
101	750	2115	DETECTABLE WARNING PANELS	SF	1,170.				
102	752	0911	TEMPORARY SAFETY FENCE	LF	2,000.				
103	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	351.				
104	754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	95.				
105	754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	826.				
106	754	0592	RESET SIGN PANEL	EA	1.				
107	762	0116	EPOXY PVMT MK 16IN LINE	LF	12.				
108	762	0117	EPOXY PVMT MK 24IN LINE	LF	156.				
109	762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	144.				
110	762	0806	METHYL METHACRYLATE PVMT MK 6IN LINE	LF	90.				
111	762	0816	METHYL METHACRYLATE PVMT MK 16IN LINE	LF	164.				
112	762	0824	METHYL METHACRYLATE PVMT MK 24IN LINE	LF	476.				

BID ITEMS

Project: TMA-SU-CRP-8-984(181) (PCN-24237)

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
113	762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	3,055.				
114	762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	522.				
115	766	0120	RESET MAILBOX	EA	7.				
116	770	0001	LIGHTING SYSTEM	EA	1.				
117	770	4567	REMOVE LIGHTING SYSTEM	EA	1.				
118	772	2110	FLASHING BEACON-POST MOUNTED	EA	2.				
119	772	2906	REVISE TRAFFIC SIGNAL SYSTEM-SITE 1	EA	1.				
120	772	2907	REVISE TRAFFIC SIGNAL SYSTEM-SITE 2	EA	1.				
121	910	0570	MODIFY MANHOLE	EA	1.				
122	970	2017	HOT WING MAPLE	EA	7.				
123	970	2045	AMUR CHOKECHERRY	EA	7.				
124	970	2050	COMMON HACKBERRY	EA	4.				
125	970	2202	SPRING SNOW CRABAPPLE	EA	6.				
126	970	2300	PRAIRIE GEM PEAR	EA	4.				
127	970	2392	IVORY SILK LILAC	EA	13.				
128	970	2436	HARVEST GOLD LINDEN	EA	3.				

BID ITEMS

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
129	**970**	**2464**	**TRIUMPH ELM**	**EA**	**1.**				
130	**990**	**0220**	**GUARD POST-PERMANENT**	**EA**	**3.**				
			TOTAL SUM BID						

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Revised 10/5/26

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984(181)	6	2

NOTES

108-P01 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required. Determine meeting time and place mutually between the Contractor and the Engineer.

The Contractor will submit a Weekly Look Ahead Schedule at the end of each week, or at such other time of the week as determined by the Engineer. The Weekly Look Ahead Schedule is to include those work activities that are scheduled to begin or are in progress for the next three weeks and is to be submitted on the form provided.

Pay estimates may be withheld if the required schedules are not received. Receipt of a pay estimate does not relieve the Contractor of the requirement to provide the schedules. All costs for Weekly Look Ahead Schedules to be considered incidental to the project.

108-150 PUBLIC RELATIONS COORDINATOR: Provide a public relations and information coordinator. The coordinator cannot be the project superintendent or construction foreman. The coordinator should be knowledgeable in construction operations, be able to develop effective media releases, possess written and verbal communication skills, and be able to organize productive meetings.

Provide the name, work address, and work phone number to the relevant project, community, and media personnel.

The public relations coordinator is responsible for providing the following:

1. Organizing, scheduling, and conducting the meeting specified in Note 108-100, "Weekly Planning/Reporting Meeting".
2. Advise Jeremy Gorden, from the City of Fargo, PH: (701) 241-1545, of upcoming construction activities in regard to street closures and traffic detour routes so that city police, emergency services, schools, and other pertinent city agencies may be notified.
3. Provide news releases and necessary drawings to the media before and during construction. News releases should inform the public on construction activities, schedules, street closures, width or height restrictions to traffic, and traffic detour routes. Update news releases regarding construction activities every other week, at a minimum.
4. Be available for media interviews.
5. Work directly with property owners and businesses affected by construction activities. The coordinator must have sufficient knowledge and authority to resolve property owner and business concerns regarding scheduling, maintaining access, and construction operations.

202-P01 REMOVAL OF CONCRETE PAVEMENT: Include all costs for removal of concrete driveways and sidewalks in the price bid for “Removal of Concrete Pavement”.

202-P02 REMOVAL OF PAVEMENT: Include all costs for removal of mainline HMA pavement, PCC pavement, curb & gutter, aggregate base, and common excavation in the price bid for “Removal of Pavement”.

202-P03 ASBESTOS CEMENT PIPE (ACP) WATERMAIN REMOVAL: The North Dakota Department of Environmental Quality classifies Asbestos Cement Pipe (Transite) waterline as Category II non-friable asbestos-containing material, which is not regulated by the state. AC pipe must be removed, handled and disposed of in a manner that keeps the material in predominantly whole pieces to be considered non-friable. Sanding, sawing, grinding, chipping, or the use of power tools is not allowed. The pipe must be kept wet during removal. Wetting minimizes asbestos fibers from being released. Snap cutters or hand operated carbide-tipped blade cutters are recommended. AC coupling removal may be accomplished by gradually splitting the coupling lengthwise using a chisel and hammer. After the top of the coupling has been split, a crowbar or similar tool can be used as a lever to split the bottom of the coupling.

If AC pipe is crushed, shattered, damaged, or badly weathered, it is considered friable and will likely release asbestos fibers into the air. Activities such as sanding, sawing, grinding, chipping, the use of power tools or crushing render the material friable. Two examples of making the material friable are driving over the pipe and using power tools, such as mechanical saws, to cut the pipe. Friable asbestos is regulated. If the Contractor’s methods cause the pipe to become friable, then it is the Contractor’s responsibility to notify and comply with state and federal regulations for asbestos abatement.

No additional compensation or time extensions will be given for asbestos abatement.

The pipe will need to be disposed of at an approved landfill, such as City of Fargo’s landfill. The Contractor will be responsible for any landfill fees. City of Fargo landfill requires a two (2) business day notification before deliveries will be taken. Deliveries will only be allowed during normal landfill hours.

In a case where the City of Fargo Landfill cannot accept asbestos materials, the Contractor will be required to find an alternate approved landfill site to dispose the materials. Two known landfills that accept asbestos pipe in the region are Big Dipper Enterprise, Inc. in Gwinner, ND and Veit Disposal in Rogers, MN.

All costs associated with removal and disposal of existing asbestos cement pipe in the City of Fargo Landfill to be included in the contract unit price for the bid item “ACP Watermain Removal”.

SEAL
REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Rev 10/5/2026	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-CRP-8-984(181)	8	2

Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	FEDERAL AID	CPR FUNDS	DRAINAGE (77% / 23%)	Co-Funded Sewer/Water			TOTAL
722	0110	MANHOLE 60IN	EA	2						2
722	0120	MANHOLE 72IN	EA	7						7
722	0130	MANHOLE 84IN	EA	1						1
722	0140	MANHOLE 96IN	EA	4						4
722	0315	MANHOLE CASTING	EA	13						13
722	2500	MANHOLE SPECIAL	EA	4						4
722	3297	ABANDON STORM SEWER	LF	434						434
722	3300	SANITARY MANHOLE REPAIR	EA				7			7
722	3460	CASTING INLET-TYPE 2	EA	3						3
722	3510	INLET-TYPE 2	EA	36						36
722	3701	INLET SPECIAL-TYPE 2 48IN	EA	5						5
722	3761	INLET SPECIAL-TYPE 2 60IN	EA	3						3
722	3766	INLET SPECIAL-TYPE 2 72IN	EA	1						1
722	3769	INLET SPECIAL-TYPE 2 96IN	EA	1						1
722	6140	ADJUST GATE VALVE BOX	EA	1						1
722	6201	ADJUST MANHOLE SPECIAL	EA	3						3
724	0210	FITTINGS-DUCTILE IRON	LBS				5146			5146
724	0270	REMOVE GATE VALVE & BOX	EA				43			43
724	0290	GATE VALVE & BOX 4IN	EA				2			2
724	0300	GATE VALVE & BOX 6IN	EA				13			13
724	0310	GATE VALVE & BOX 8IN	EA				15			15
724	0314	GATE VALVE & BOX 12IN	EA				9			9
724	0315	GATE VALVE & BOX 10IN	EA				7			7
724	0410	HYDRANT-INSTALL 5IN	EA				12			12
724	0430	REMOVE HYDRANT	EA				12			12
724	0496	SLEEVE 12IN	EA				3			3
724	0530	TAPPING SLEEVE & VALVE 12IN X 6IN	EA				4			4
724	0541	TAPPING SLEEVE & VALVE 12IN X 10IN	EA				1			1
724	0611	WATER SERVICE LINE 1IN	LF				154			154
724	0670	TEMPORARY WATER SERVICE	L SUM				1			1
724	0790	WATERMAIN 4IN PVC	LF				50			50
724	0810	WATERMAIN 6IN PVC	LF				173			173
724	0830	WATERMAIN 8IN PVC	LF				356			356
724	0840	WATERMAIN 10IN PVC	LF				217			217
724	0850	WATERMAIN 12IN PVC	LF				1111			1111
724	0851	BORE & PUSH 12IN PVC WATER	LF				1091			1091
724	0852	WATERMAIN 16IN PVC	LF				8			8
724	0858	WATERMAIN 16IN	LF				8			8
724	0905	CURB STOP & BOX 1IN	EA				7			7
724	0944	CONNECTION TO EXISTING MAIN	EA				47			47
724	0955	WATER SERVICE CONNECTION 1IN	EA				7			7
724	1120	6IN SEWER SERVICE PIPE	LF				260			260
724	5040	SANITARY SEWER SERVICE CONNECTION	EA				7			7
724	5050	PIPE PVC 8IN SEWER	LF				408			408
724	5100	PIPE PVC 10IN SEWER	LF				160			160
724	6031	ABANDON WATER MAIN/SERVICE LINE	LF				2509			2509
744	0050	INSULATION BOARD	CF				200			200

Rev 10/5/2026	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-CRP-8-984(181)	8	3

Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	FEDERAL AID	CPR FUNDS	DRAINAGE (77% / 23%)	Co-Funded Sewer/Water			TOTAL
748	0190	CURB & GUTTER-TYPE I 30IN	LF	10758						10758
750	0030	PIGMENTED IMPRINTED CONCRETE	SY	48						48
750	0115	SIDEWALK CONCRETE 4IN	SY		1525					1525
750	0120	SIDEWALK CONCRETE 5IN REINF	SY		4887					4887
750	0140	SIDEWALK CONCRETE 6IN	SY		386					386
750	1000	DRIVEWAY CONCRETE	SY	1942						1942
750	2115	DETECTABLE WARNING PANELS	SF		1170					1170
752	0911	TEMPORARY SAFETY FENCE	LF	2000						2000
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	351						351
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	95						95
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	826						826
754	0592	RESET SIGN PANEL	EA	1						1
762	0116	EPOXY PVMT MK 16IN LINE	LF	12						12
762	0117	EPOXY PVMT MK 24IN LINE	LF	156						156
762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	144						144
762	0806	METHYL METHACRYLATE PVMT MK 6IN LINE	LF	90						90
762	0816	METHYL METHACRYLATE PVMT MK 16IN LINE	LF	164						164
762	0824	METHYL METHACRYLATE PVMT MK 24IN LINE	LF		476					476
762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	3055						3055
762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	522						522
766	0120	RESET MAILBOX	EA	7						7
770	0001	LIGHTING SYSTEM	EA		1					1
770	4567	REMOVE LIGHTING SYSTEM	EA	1						1
772	2110	FLASHING BEACON-POST MOUNTED	EA		2					2
772	2906	REVISE TRAFFIC SIGNAL SYSTEM-SITE 1	EA	1						1
772	2907	REVISE TRAFFIC SIGNAL SYSTEM-SITE 2	EA	1						1
910	0570	MODIFY MANHOLE	EA	1						1
970	2017	HOT WING MAPLE	EA	7						7
970	2045	AMUR CHOKECHERRY	EA	7						7
970	2050	COMMON HACKBERRY	EA	4						4
970	2202	SPRING SNOW CRABAPPLE	EA	6						6
970	2300	PRAIRIE GEM PEAR	EA	4						4
970	2392	IVORY SILK LILAC	EA	13						13
970	2436	HARVEST GOLD LINDEN	EA	3						3
970	2464	TRIUMPH ELM	EA	1						1
990	0220	GUARD POST-PERMANENT	EA	3						3

Docusign Envelope ID: 907275EE-EE25-873A-8089-FB18538B6CAE

Revised 10/5/26

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984(181)	10	1

BASIS OF ESTIMATE

Material Unit Weights - Existing
Asphalt or Concrete Pavement: 2.0 TON/CY
Aggregate Base: 1.5 TON/CY

Material Unit Weights - Proposed
Commercial Grade HMA: 2.0 TON/CY
Aggregate Base (Includes 25% Contingency): 1.875 TON/CY

216 0100 Water
25 MGal/Mile for Dust Palliative
20 Gal/Ton for Aggregates
10 Gal/CY for Embankment

766 0120 Reset Mailboxes

Station	Type	Work
3+74 – LT	Single	Reset
4+41 – LT	Single	Reset
5+14 – LT	Single	Reset
6+14 – LT	Single	Reset
6+84 – LT	Single	Reset
7+23 – LT	Single	Reset
11+94 – LT	Single	Reset

201 0352 Removal of Trees & Brush (LSUM)

Station	Diameter	Station	Diameter
3+52	4”	34+66	3”
5+50	5”	34+94	4”
7+62	1”	35+45	5”
7+95	1”	40+74	2”
12+56	3”	41+08	3”
29+42	7”	42+79	6”
29+67	7”	43+08	4”
30+20	5”	46+01	1”
30+56	6”	46+37	3”
30+91	6”	46+78	7”
31+74	5”	50+16	2”
32+04	4”	50+96	3”

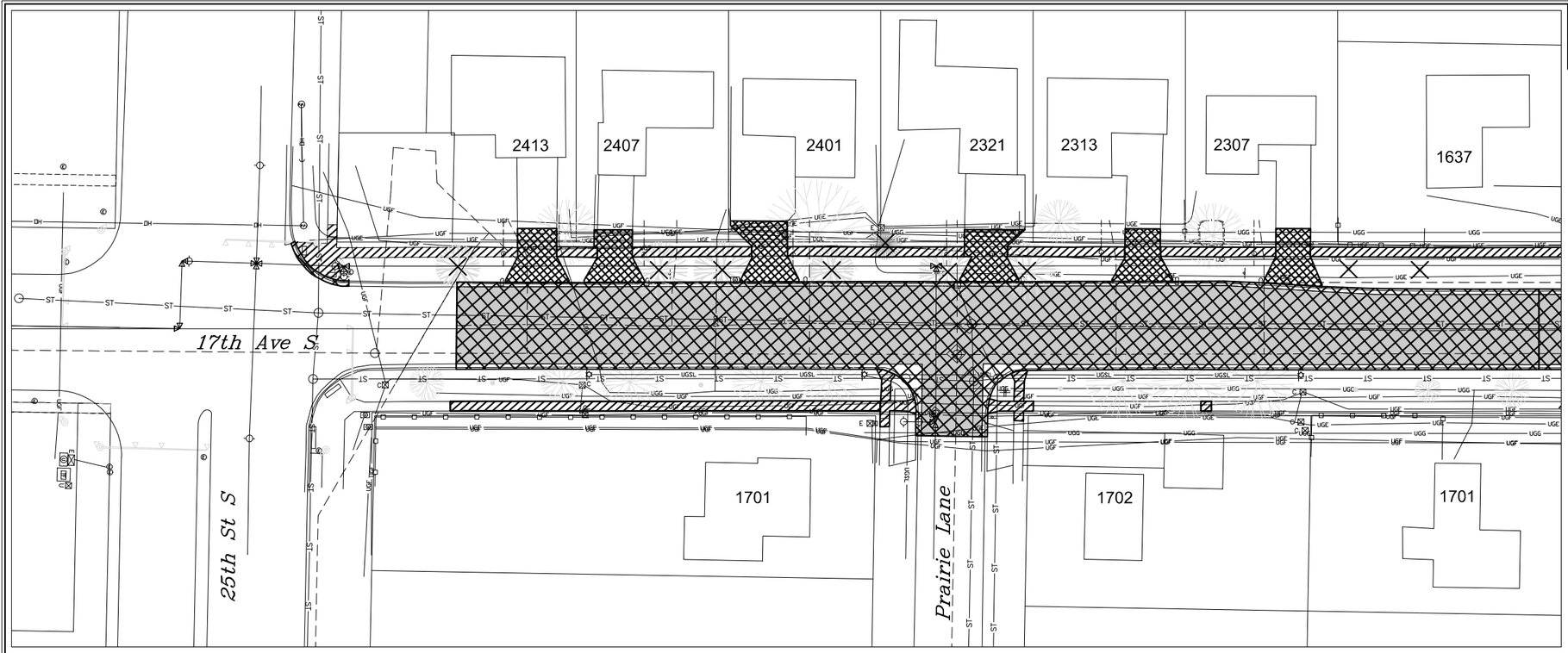
Structure Name	Station	Offset	Ex Rim Elev	Ex Casting Thickness	Ex Ring Thickness	Ppsd Rim Elev	Ppsd Casting Thickness	Ppsd Ring Thickness	Existing Structure Type	**722 0315 Manhole Casting (EA)** (Floating Casting)	**722 3300 Sanitary Manhole Repair (EA)**	**722 3460 Casting Inlet-Type 2 (EA)**	**722 6201 Adjust Manhole Special (EA)**
ST-2	5+89	2.3’ Lt	901.40	7”	8”	901.44	13”	2.5”	10’x5’ box	1			
Ex-S6	5+83	11.8’ Rt	901.48	7”	6”	901.14	13”	4”	48” round		1		
Ex-S5	9+11	11.3’ Rt	901.61	7”	7”	901.35	13”	4”	48” round	1	1		
Ex-M32	9+34	22.7’ Lt	900.92	4”	10”	901.05	4”	11.5”	Tee MH			1	
ST-3	9+38	2.1’ Lt	901.72	7”	10”	901.51	13”	1.5”	10’x5’ box	1			
Ex-S4	12+42	10.9’ Rt	902.29	7”	10”	902.57	13”	7.5”	48” round	1	1		
M-7	15+49	22.7’ Rt	900.57	4”	6”	900.47	4.5”	4”	48” round			1	
ST-5	15+66	3.2’ Lt	901.33	7”	9”	900.90	13”	3”	10’x5’ box	1			
Ex-S3	15+72	10.1’ Rt	901.30	7”	4”	900.73	13”	4”	48” round	1	1		
M-8	15+91	23.3’ Rt	900.68	4”	8”	900.48	5.5”	4“	48” round			1	
ST-6	18+20	5.4’ Lt	902.10	7”	4”	901.92	13”	4”	Tee MH	1			1
Ex-S2	19+79	10.8’ Rt	902.60	7”	6”	902.51	13”	4”	48” round	1	1		
ST-7	19+82	0.5’ Rt	902.75	7”	4”	902.77	13”	4”	3’ 48” cone on 10’x5’ box	1			1
ST-8	24+19	6.4’ Lt	902.59	7”	6”	902.42	13”	4”	2’ 48” cone on 10’x5’ box	1			1
Ex-S18	43+96	40.2’ Lt	903.13	7”	4”	902.79	13”	4”	48” round	1	1		
Ex-S20	47+76	40.2’ Lt	902.01	7”	5”	901.94	13”	4”	48” round	1	1		
ST-24	55+02	21.0’ Rt	903.07	7”	14”	903.04	13”	7.5”	30” brick	1			
									TOTALS	**13**	**7**	**3**	**3**

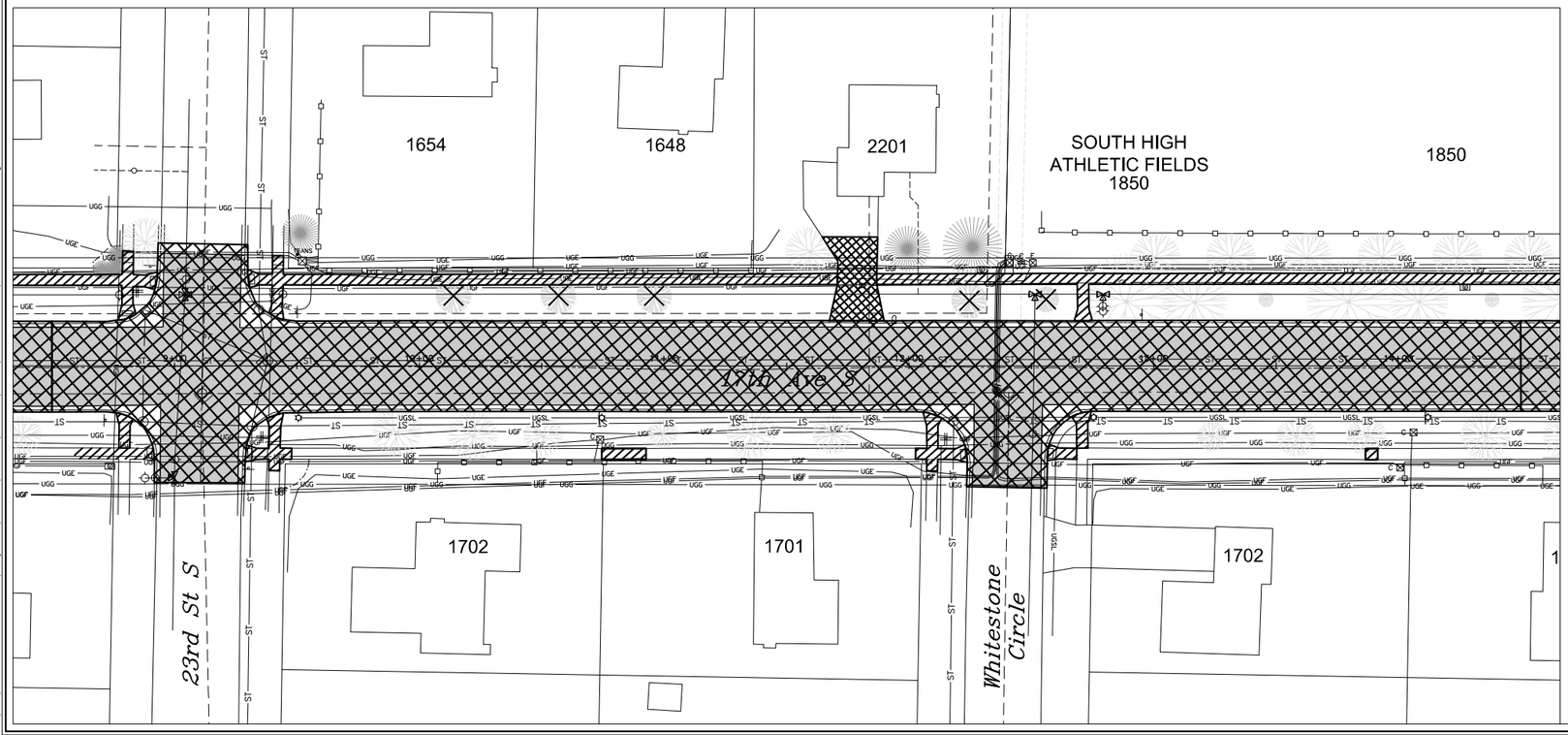
SEAL
REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Docusign Envelope ID: 907275EE-EE25-873A-8089-FB18538B6CAE

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	40	1

SPEC	CODE	PAY ITEM	QTY UNIT
201	0370	Removal of Trees 10IN Sta 3+60 to Sta 12+15	5 EA
201	0380	Removal of Trees 18IN Sta 4+46 to Sta 8+62	5 EA
202	0114	Removal of Concrete Pavement Sta 2+00 to Sta 14+60	1194 SY
202	0138	Removal of Pavement Sta 2+00 to Sta 14+60	4343 TON





0 30' 60'

- REMOVE PAVING ALL THICKNESS, ALL TYPES
- REMOVE CONCRETE DRIVEWAY
- REMOVE CONCRETE SIDEWALK
- REMOVE TREES

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM (PRE-GEOID18). (UNLESS NOTED OTHERWISE)

REVISIONS		
③	②	① 10/05/2026

SEAL

REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Removals - Surface

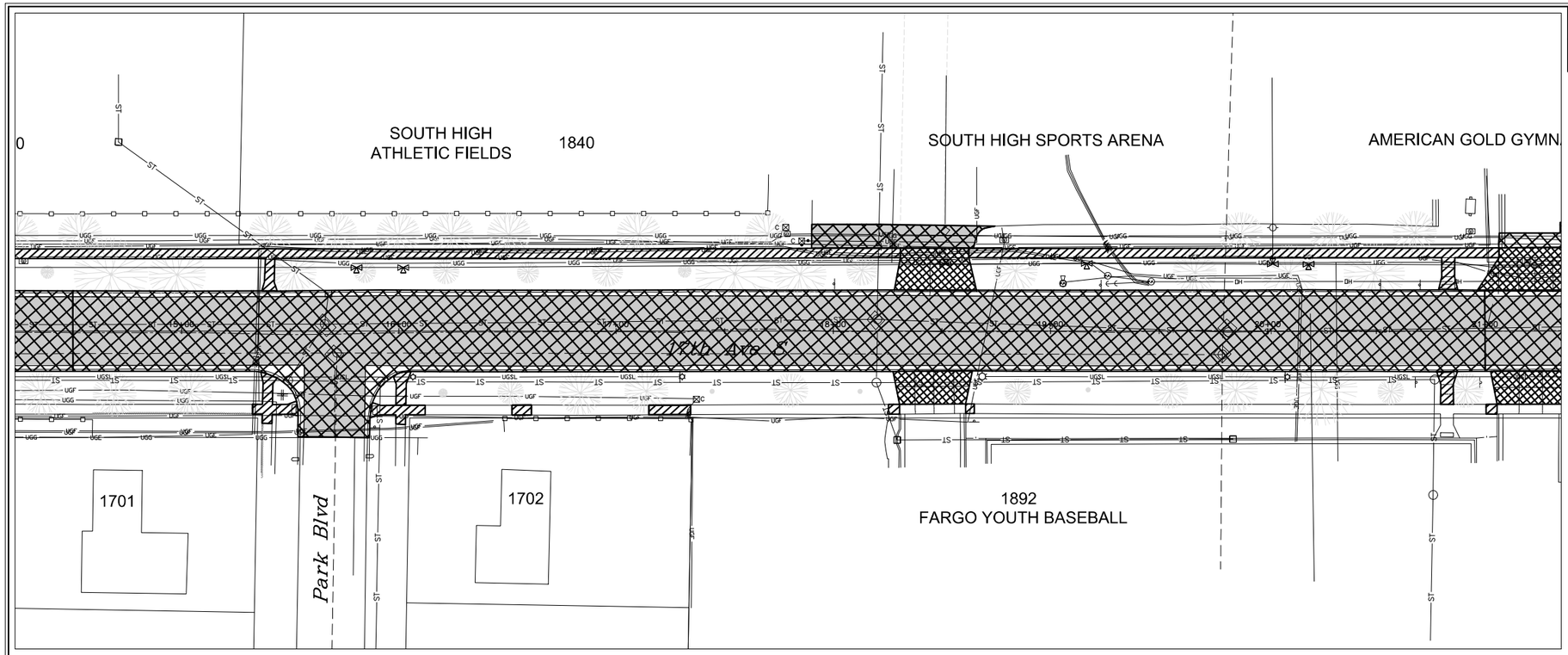
17th Ave S Reconstruction
(University Dr To 25th St)

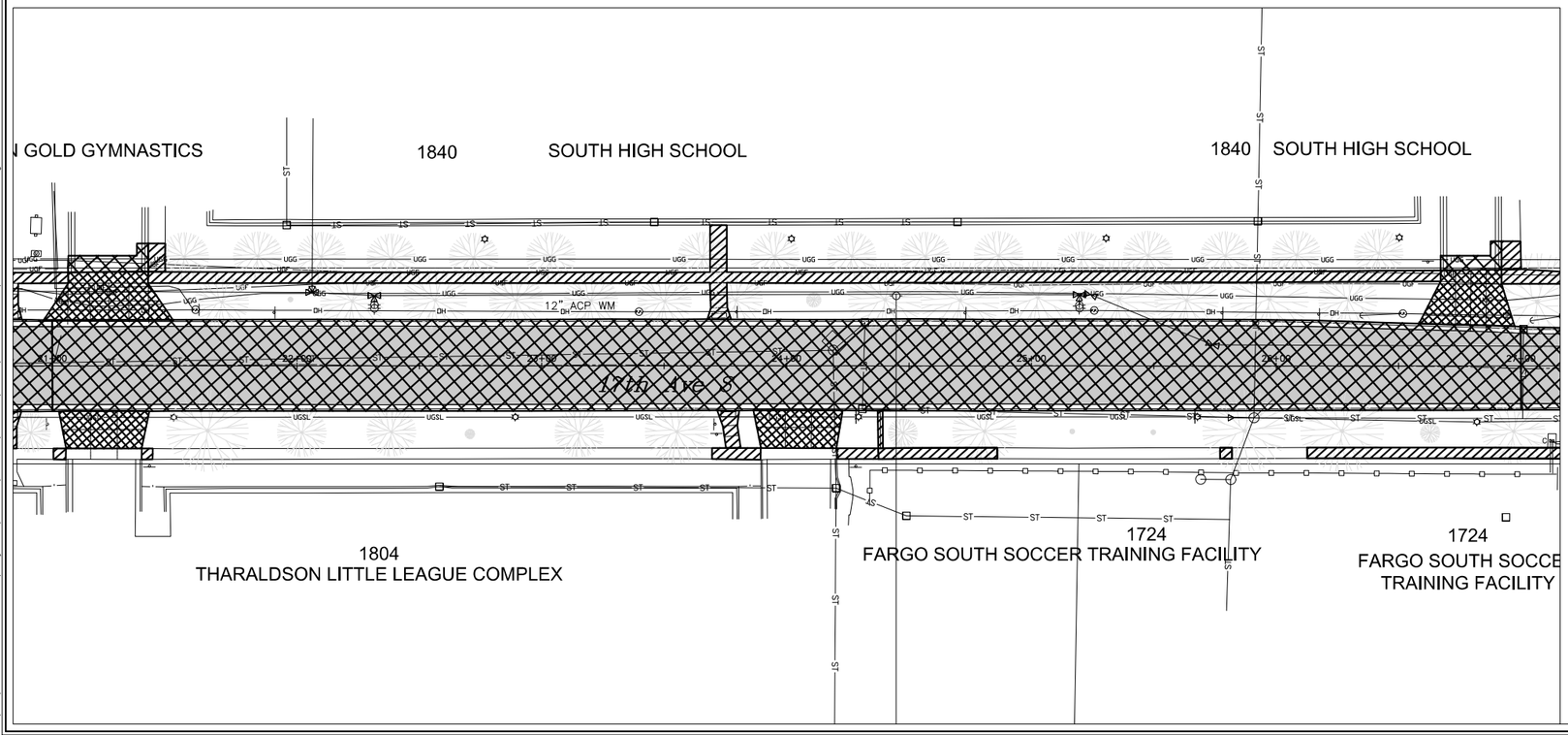
CITY OF FARGO Improvement District *BR-26-G1*

DESIGN BY: TJB	CHECKED BY: EAG
DRAWN BY: DLM/LRL	ORIG DATE: 07/07/26

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	40	2

SPEC	CODE	PAY ITEM	QTY UNIT
202	0114	Removal of Concrete Pavement Sta 14+60 to Sta 27+00	1223 SY
202	0136	Removal of Pavement Sta 14+60 to Sta 27+00	4021 TON

N

0 30' 60'

REMOVE PAVING ALL THICKNESS, ALL TYPES

REMOVE CONCRETE DRIVEWAY

REMOVE CONCRETE SIDEWALK

REMOVE TREES

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REVISIONS

③	②	① 10/05/2026

SEAL

REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Removals - Surface

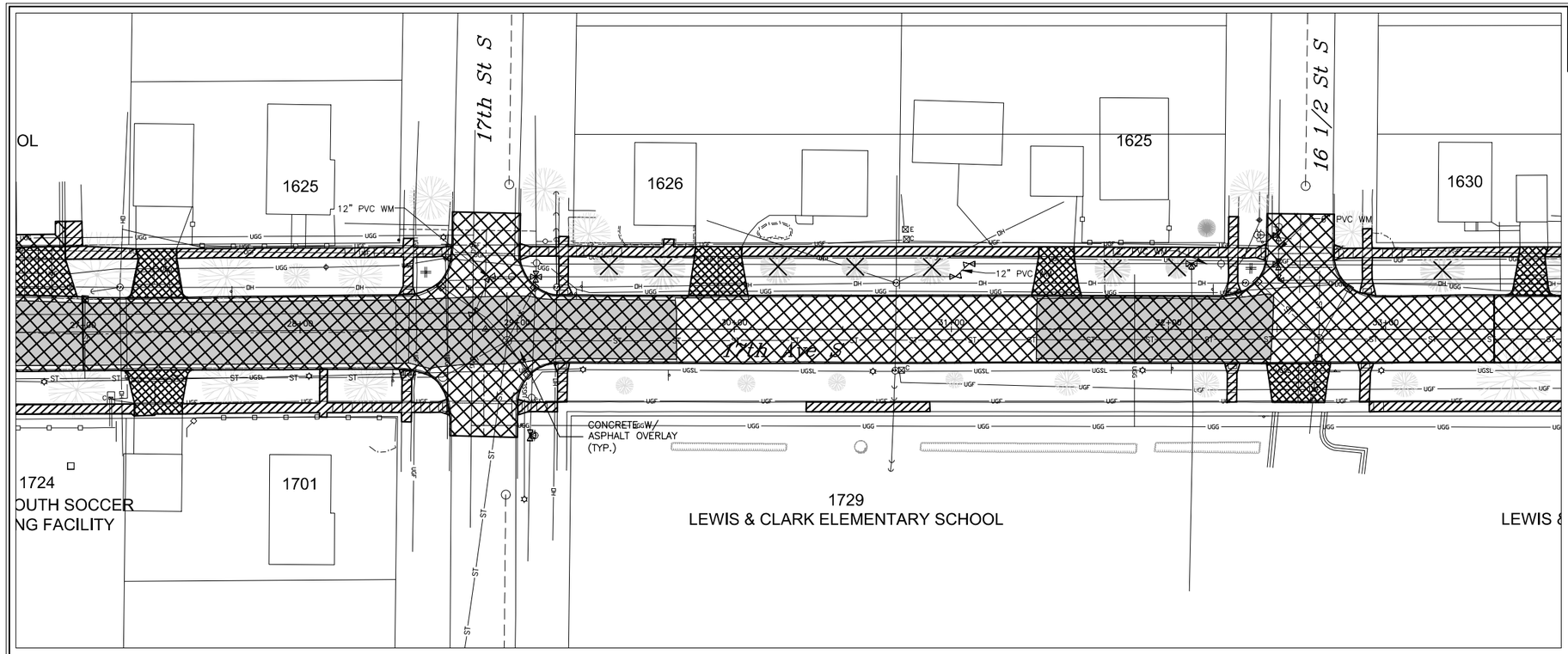
17th Ave S Reconstruction
(University Dr To 25th St)

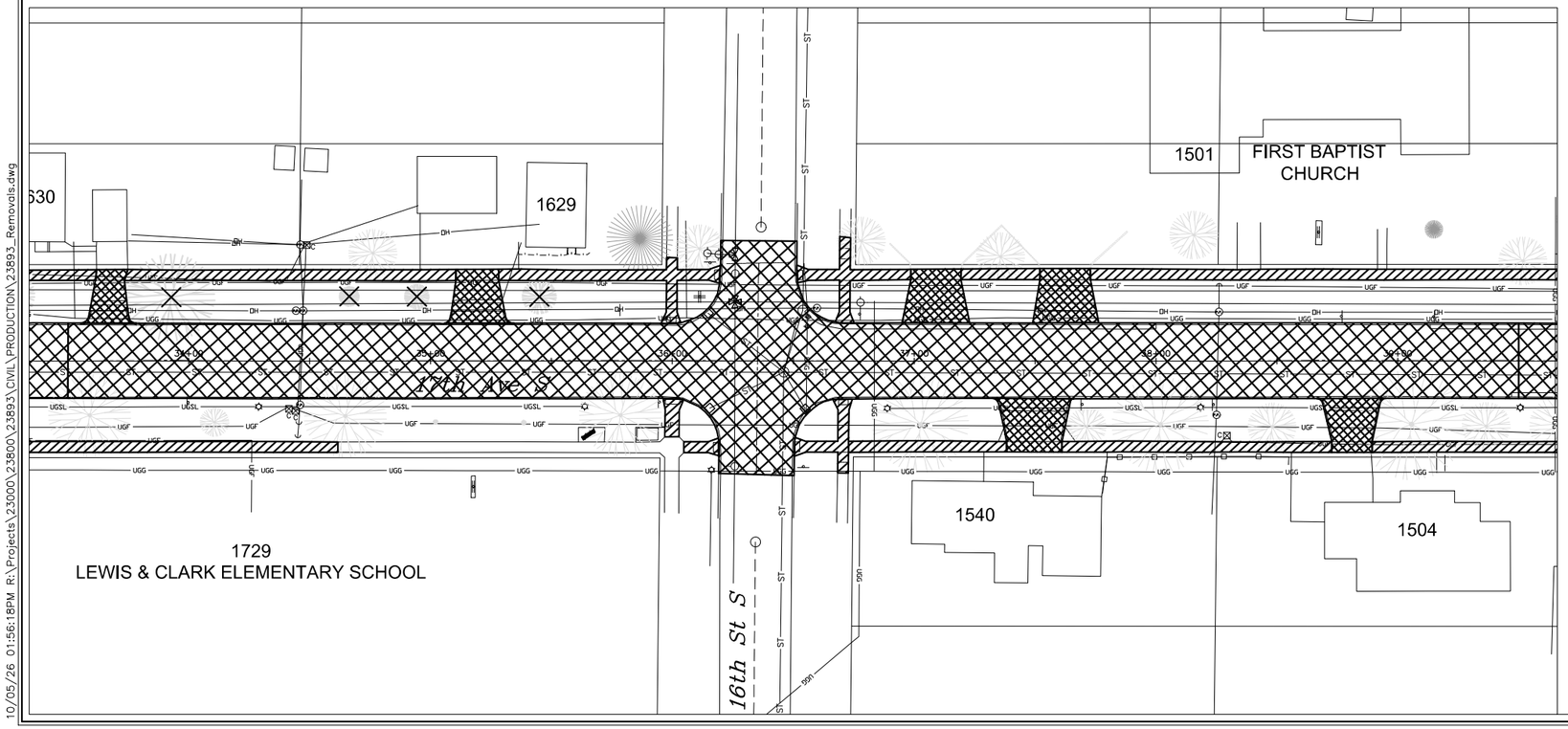
CITY OF FARGO Improvement District *BR-26-G1*

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	40	3

SPEC	CODE	PAY ITEM	QTY	UNIT
201	0370	Removal of Trees 10IN Sta 33+28	1	EA
201	0380	Removal of Trees 18IN Sta 33+92	1	EA
202	0114	Removal of Concrete Pavement Sta 27+00 to Sta 39+50	1551	SY
202	0138	Removal of Pavement Sta 27+00 to Sta 39+50	4234	TON

0 30' 60'

- REMOVE PAVING ALL THICKNESS, ALL TYPES
- REMOVE CONCRETE DRIVEWAY
- REMOVE CONCRETE SIDEWALK
- REMOVE TREES

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REVISIONS

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SEAL

REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Removals - Surface

17th Ave S Reconstruction
(University Dr To 25th St)

CITY OF FARGO Improvement District *BR-26-G1*

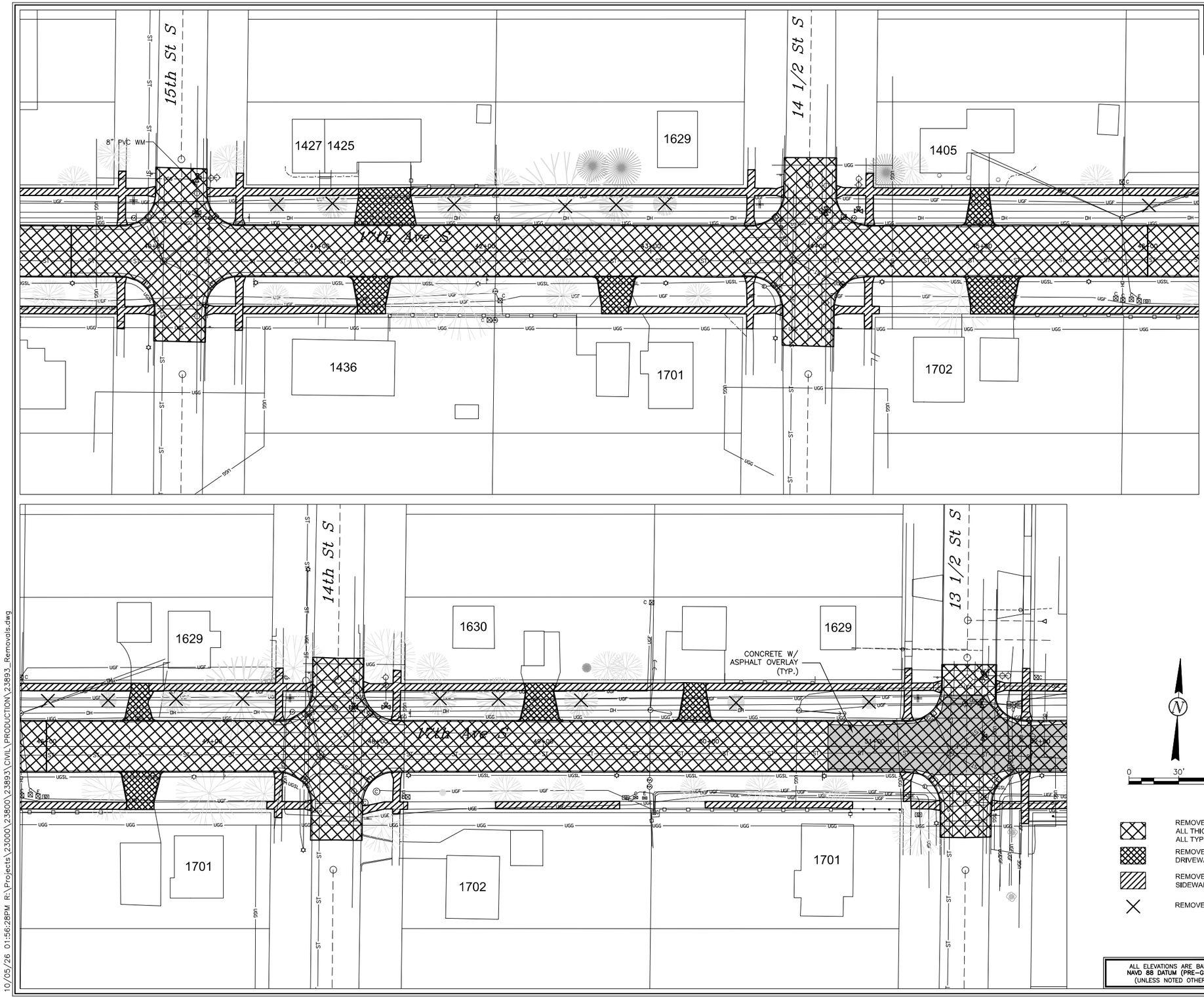
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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	40	4

SPEC	CODE	PAY ITEM	QTY UNIT
201	0370	Removal of Trees 10IN Sta 41+81 to Sta 49+23	3 EA
201	0380	Removal of Trees 18IN Sta 47+16	1 EA
201	0390	Removal of Trees 30IN Sta 42+46	1 EA
202	0114	Removal of Concrete Pavement Sta 39+60 to Sta 51+94	1001 SY
202	0136	Removal of Pavement Sta 31+60 Sta 51+94	4002 TON



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REVISIONS

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REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Removals - Surface

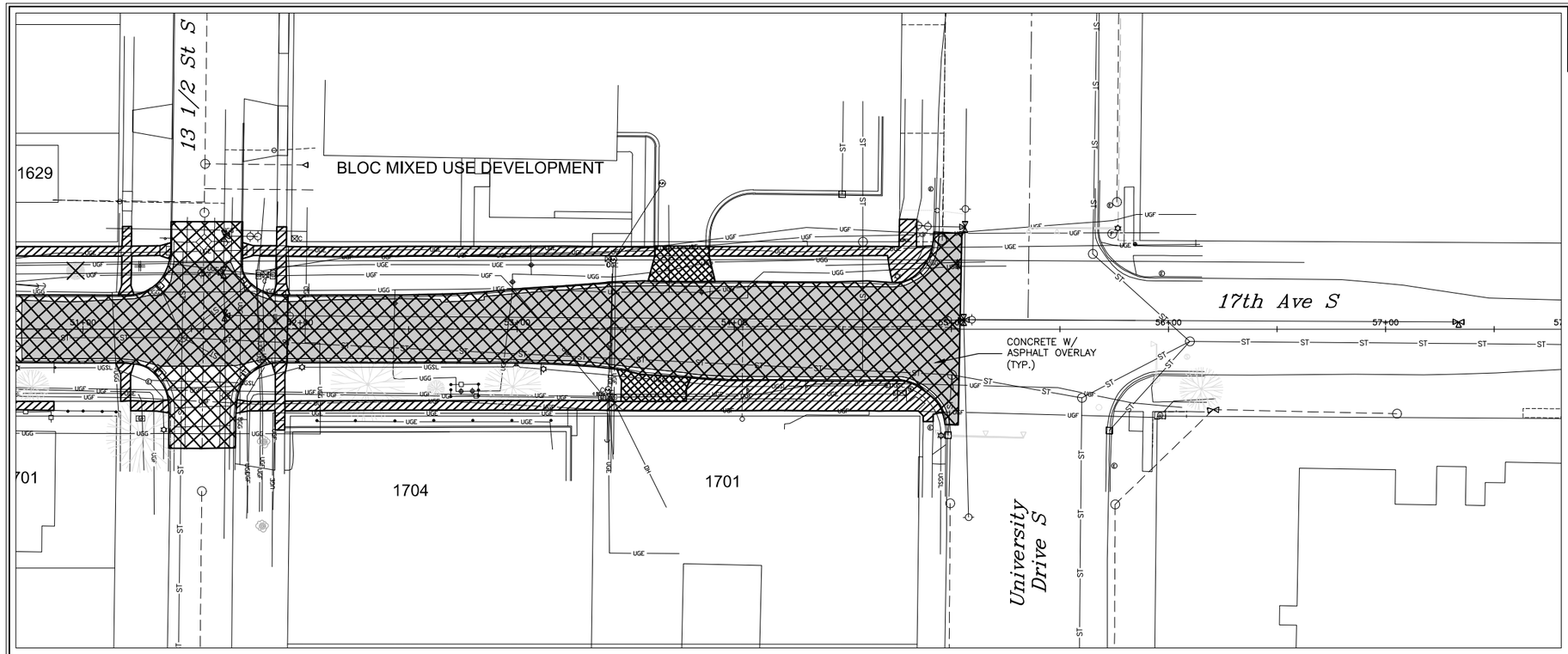
17th Ave S Reconstruction
(University Dr To 25th St)

CITY OF FARGO Improvement District *BR-26-G1*

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	40	5

SPEC	CODE	PAY ITEM	QTY UNIT
202	0114	Removal of Concrete Pavement	
		Sta 51+94 to Sta 55+50	620 SY
202	0136	Removal of Pavement	
		Sta 51+94 to Sta 55+50	1160 TON

0 30' 60'

REMOVE PAVING ALL THICKNESS, ALL TYPES

REMOVE CONCRETE DRIVEWAY

REMOVE CONCRETE SIDEWALK

REMOVE TREES

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM (PRE-GEOID18). (UNLESS NOTED OTHERWISE)

REVISIONS		
③	②	① 10/05/2026

SEAL

REGISTERED PROFESSIONAL ENGINEER
NORTH DAKOTA
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26

Removals - Surface

17th Ave S Reconstruction
(University Dr To 25th St)

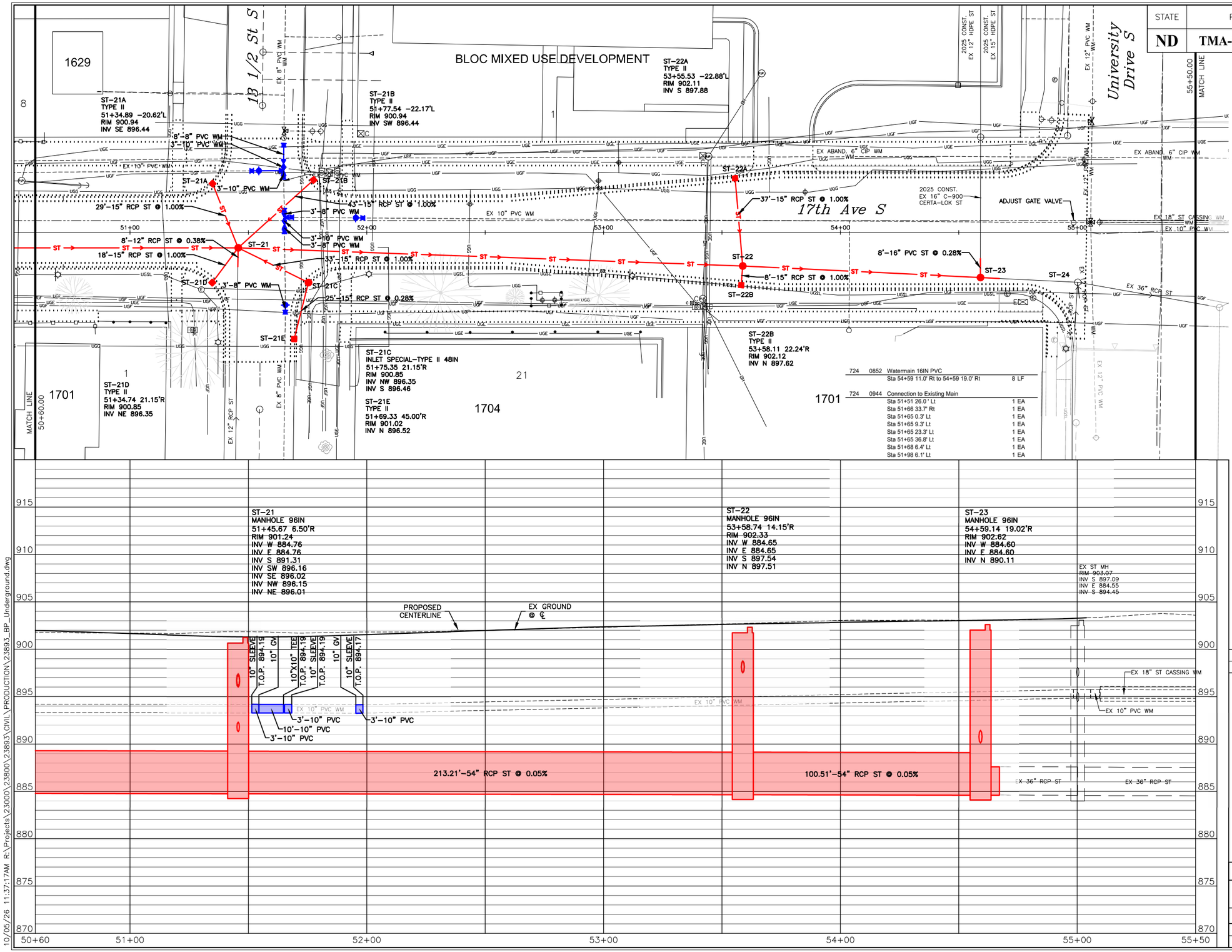
CITY OF FARGO Improvement District *BR-26-G1*

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	055	11



SPEC	CODE	PAY ITEM	QTY UNIT
714	0115	Pipe Conc Reinf 12IN CL III-Storm Drain	
		Sta 51+46 14.5' Rt to 51+46 6.5' Rt	8 LF
714	0210	Pipe Conc Reinf 15IN CL III-Storm Drain	
		Sta 51+35 21.2' Rt to 51+46 6.5' Rt	18 LF
		Sta 51+46 14.5' Rt to 51+35 20.6' Lt	29 LF
		Sta 51+46 14.5' Rt to 51+78 22.2' Lt	43 LF
		Sta 51+69 45.0' Rt to 51+75 21.2' Rt	25 LF
		Sta 51+75 21.2' Rt to 51+46 6.5' Rt	33 LF
		Sta 53+55 22.9' Lt to 54+59 19.0' Rt	37 LF
		Sta 53+58 22.2' Rt to 54+59 19.0' Rt	8 LF
714	0910	Pipe Conc Reinf 36IN CL III-Storm Drain	
		Sta 54+59 19.0' Rt to 54+67 19.1' Rt	8 LF
714	1212	Pipe Conc Reinf 54IN CL III-Storm Drain	
		Sta 50+60 6.5' Rt to 51+46 6.5' Rt	86 LF
		Sta 51+46 6.5' Rt to 53+59 14.2' Rt	213 LF
		Sta 53+59 14.2' Rt to 54+59 19.0' Rt	101 LF
722	0140	Manhole 96IN	
		Sta 51+48 6.5' Rt	1 EA
		Sta 53+59 14.2' Rt	1 EA
		Sta 54+59 19.0' Rt	1 EA
722	3510	Inlet-Type 2	
		Sta 51+35 21.2' Rt	1 EA
		Sta 51+35 20.6' Lt	1 EA
		Sta 51+69 45.0' Rt	1 EA
		Sta 51+78 22.2' Lt	1 EA
		Sta 53+55 22.9' Lt	1 EA
		Sta 53+58 22.2' Rt	1 EA
722	3701	Inlet Special-Type 2 48IN	
		Sta 51+75 21.2' Rt	1 EA
724	0210	Fittings Ductile Iron	
		Sta 51+65 3.3' Lt (10"x8" Reducer)	50 LBS
		Sta 51+65 6.3' Lt (10"x10" Tee)	120 LBS
		Sta 51+65 26.1' Lt (10"x10" Tee)	120 LBS
		Sta 51+65 29.1' Lt (10"x8" Reducer)	50 LBS
724	0310	Gate Valve & Box 8IN	
		Sta 51+66 30.7' Rt	1 EA
724	0315	Gate Valve & Box 10IN	
		Sta 51+54 26.0' Lt	1 EA
		Sta 51+95 6.1' Lt	1 EA
724	0830	Watermain 8IN PVC	
		Sta 51+66 30.7' Rt to 51+66 33.7' Rt	3 LF
		Sta 51+65 0.3' Lt to 51+65 3.3' Lt	3 LF
		Sta 51+65 29.1' Lt to 51+65 36.8' Lt	8 LF
724	0840	Watermain 10IN PVC	
		Sta 51+51 26.0' Lt to 51+65 26.0' Lt	14 LF
		Sta 51+65 3.3' Lt to 51+65 9.3'Lt	6 LF
		Sta 51+65 23.3' Lt to 51+65 29.1' Lt	6 LF
		Sta 51+95 6.1' Lt to 51+98 6.1' Lt	3 LF

REVISIONS

③	②	① 10/05/2026

SEAL

REGISTERED PROFESSIONAL ENGINEER
NORTH DAKOTA
Taylor Braaten
PE-29068
Taylor Braaten
DATE: 10/05/26

17th Ave S Utilities - 50+60 to 55+50

17th Ave S Reconstruction
(University Dr To 25th St)

CITY OF FARGO Improvement District *BR-26-GI*

DESIGN BY: TJB	CHECKED BY: EAG
DRAWN BY: DLM/LRL	ORIG DATE: 07/07/26

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	110	1

Station	Offset	Sign	Assembly	Flat Sheet for Signs		Telespar 12 gauge Sign Support			Vertical	Reset	Anchor	Mounting Type			Comments
				IV	XI	1st	2nd	Size	Clearance	Sign		Reinf Sleeve	Light Standard	Omni-Directional	
RP	Lt / Rt	No.	No.	SF	SF	LF	LF	inch x inch	FT	EA	LF	EA	EA	EA	
4+14	Rt	SA-A			8.0				7.0				1		Mount on Light Standard
4+48	Lt				6.0	10.2		2 x 2	7.0		4.0				
5+42	Rt	SA-B			3.8				7.0				1		Mount on Light Standard
6+00	Rt		1		5.2	9.7		2 x 2	7.0		4.0				
6+05	Rt	1E		8.2		7.9		2 x 2	7.0		4.0				
6+96	Lt		14		4.0	9.2		2 x 2	7.0		4.0				
7+41	Rt		14		4.0	9.2		2 x 2	7.0		4.0				
8+71	Rt	SA-B			3.8	10.7		2 x 2	7.0		4.0				
8+86	Lt	1E		7.6		7.9		2 x 2	7.0		4.0				
8+90	Lt		1		5.2	9.7		2 x 2	7.0		4.0				
9+32	Rt		1		5.2	9.7		2 x 2	7.0		4.0				
9+35	Rt	1E		7.6		7.9		2 x 2	7.0		4.0				
9+50	Lt		7		1.5	8.7		2 x 2	7.0		4.0				
10+75	Lt	SA-C			7.3				7.0				1		Mount on Light Standard
12+15	Rt	1E		9.0		7.9		2 x 2	7.0		4.0				
12+59	Rt		1		5.2	9.7		2 x 2	7.0		4.0				
12+98	Lt		7		1.5	8.7		2 x 2	7.0		4.0				
14+12	Rt		14		4.0				7.0				1		Mount on Light Standard
15+46	Rt	1E		7.6		7.9		2 x 2	7.0		4.0				
15+90	Rt		1		5.2	9.7		2 x 2	7.0		4.0				
17+31	Rt	SA-B			3.8				7.0				1		Mount on Light Standard
19+32	Rt	SA-D			6.7	10.7		2 x 2	7.0		4.0				
20+30	Rt		14		4.0				7.0				1		Mount on Light Standard
20+75	Lt	BA-A			6.8								1		Mount on Signal
20+86	Rt	BA-A			6.8								1		Mount on Signal
21+00	Rt		7		1.5	8.7		2 x 2	7.0		4.0				
21+59	Lt		7		1.5				7.0				1		Mount on Power Pole
22+22	Lt	SA-D			6.7	10.7		2 x 2	7.0		4.0				
23+70	Rt	SA-D			6.7	10.7		2 x 2	7.0		4.0				
24+30	Rt		14		4				7.0				1		Mount on Light Standard
24+97	Lt	SA-E			6.5	11.7		2 x 2	7.0		4.0				
25+50	Lt	SA-D			6.7	10.7		2 x 2	7.0		4.0				
28+42	Rt		7		1.5	8.7		2 x 2	7.0		4.0				

REVISIONS

③ | ② | ① 10/05/2026

SEAL

REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Sign Summary

17th Ave S Reconstruction
(University Dr To 25th St)

CITY OF FARGO Improvement District *BR-26-GI*

DESIGN BY: TJB	CHECKED BY: EAG
DRAWN BY: DLM/LRL	ORIG DATE: 07/07/26

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	110	2

Station	Offset	Sign	Assembly	Flat Sheet for Signs		Telespar 12 gauge Sign Support			Vertical	Reset	Anchor		Mounting Type		Comments
RP	Lt / Rt	No.	No.	IV SF	XI SF	1st LF	2nd LF	Size inch x inch	Clearance FT	Sign EA	LF	Reinf Sleeve EA	Light Standard EA	Omni-Directional EA	
28+42	Rt	SA-F			8.2	12.2		2 x 2	7.0		4.0				
28+57	Lt	1E		7.6		7.9		2 x 2	7.0		4.0				
28+68	Lt	SA-F			8.2	12.2		2 x 2	7.0		4.0				
29+03	Rt	SA-F			8.2	12.2		2 x 2	7.0		4.0				
29+27	Lt	SA-F			8.2	12.2		2 x 2	7.0		4.0				
29+27	Lt		7		1.5	8.7		2 x 2	7.0		4.0				
30+75	Lt	SA-G			9.5				7.0				1		Mount on Power Pole
32+20	Lt	SA-D			6.7	10.7		2 x 2	7.0		4.0				
32+36	Lt	1E		8.2		7.9		2 x 2	7.0		4.0				
32+43	Lt		1		5.2	9.7		2 x 2	7.0		4.0				
32+78	Rt		1		5.2	9.7		2 x 2	7.0		4.0				
34+00	Rt	SA-H			9.0	12.2		2 x 2	7.0		4.0				
35+78	Lt		23		8.0								1		Mount on Signal
35+88	Rt	SA-F			8.2	12.2		2 x 2	7.0		4.0				
35+88	Rt		7		1.5	8.7		2 x 2	7.0		4.0				
36+08	Lt	1E		7.6		7.9		2 x 2	7.0		4.0				
36+17	Lt	SA-F			8.2	12.2		2 x 2	7.0		4.0				
36+54	Rt	SA-F			8.2	12.2		2 x 2	7.0		4.0				
36+84	Lt	SA-F			8.2	12.2		2 x 2	7.0		4.0				
36+84	Lt		7		1.5	8.7		2 x 2	7.0		4.0				
38+24	Rt	SA-C			7.3				7.0				1		Mount on Light Standard
38+76	Lt	SA-D			6.7	10.7		2 x 2	7.0		4.0				
39+14	Lt		23		8.0	11.2		2 x 2	7.0		4.0				
39+89	Lt	1E		7.6		7.9		2 x 2	7.0		4.0				
39+98	Lt		1		5.2	9.7		2 x 2	7.0		4.0				
40+33	Rt		1		5.2	9.7		2 x 2	7.0		4.0				
40+58	Lt		7		1.5	8.7		2 x 2	7.0		4.0				
40+62	Rt		7		1.5				7.0				1		Mount on Light Standard
42+01	Lt		14		4				7.0				1		Mount on Light Standard
42+06	Lt		7		1.5				7.0				1		Mount on Power Pole
43+68	Lt	1E		8.2		7.9		2 x 2	7.0		4.0				
43+78	Lt		1		5.2	9.7		2 x 2	7.0		4.0				
44+13	Rt		1		5.2	9.7		2 x 2	7.0		4.0				
45+65	Rt		14		4				7.0				1		Mount on Light Standard

REVISIONS		
③	②	① 10/05/2026

SEAL

REGISTERED PROFESSIONAL ENGINEER
NORTH DAKOTA
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26

Sign Summary

17th Ave S Reconstruction
(University Dr To 25th St)

CITY OF FARGO Improvement District *BR-26-GI*

DESIGN BY: TJB	CHECKED BY: EAG
DRAWN BY: DLM/LRL	ORIG DATE: 07/07/26

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Docusign Envelope ID: 907275EE-EE25-873A-8089-FB18538B6CAE

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	110	3

Station	Offset	Sign	Assembly	Flat Sheet for Signs		Telespar 12 gauge Sign Support			Vertical	Reset	Anchor	Mounting Type			Comments
				IV	XI	1st	2nd	Size	Clearance	Sign		Reinf Sleeve	Light Standard	Omni-Directional	
RP	Lt / Rt	No.	No.	SF	SF	LF	LF	inch x inch	FT	EA	LF	EA	EA	EA	
47+35	Rt		7		1.5	8.7		2 x 2	7.0		4.0				
47+48	Lt	1E		7.6		7.9		2 x 2	7.0		4.0				
47+59	Lt		1		5.2	9.7		2 x 2	7.0		4.0				
47+94	Rt		1		5.2	9.7		2 x 2	7.0		4.0				
48+19	Lt		7		1.5	8.7		2 x 2	7.0		4.0				
50+87	SA-B				5.5				7.0				1		Mount on Light Standard
51+28	Lt	1E		8.2		7.9		2 x 2	7.0		4.0				
51+37	Lt		1		5.2	9.7		2 x 2	7.0		4.0				
51+73	Rt		1		5.2	9.7		2 x 2	7.0		4.0				
52+54	Rt		37		10	9.2		2 x 2	7.0		4.0				
52+59	Lt	SA-G			9.5	12.7		2 x 2	7.0		4.0				
54+73	Lt									1					Mount on Signal
Grand Total				95 SF	350.9 SF	585.4 LF				1 EA	240 LF		18 EA		

REVISIONS

③	②	① 10/05/2026

SEAL

REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph
Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Sign Summary

17th Ave S Reconstruction
(University Dr To 25th St)

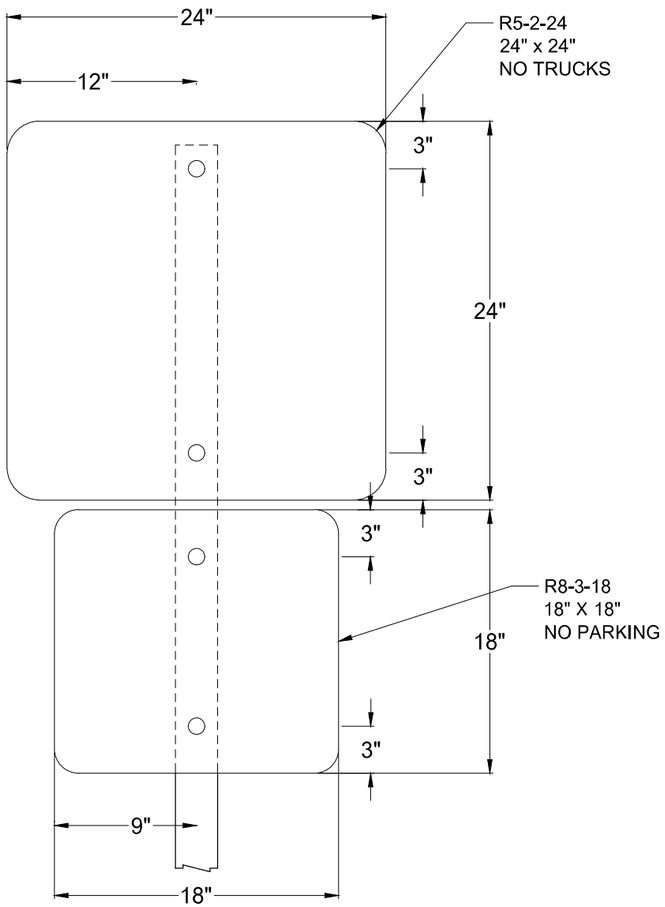
CITY OF FARGO Improvement District *BR-26-GI*

DESIGN BY: TJB	CHECKED BY: EAG
DRAWN BY: DLM/LRL	ORIG DATE: 07/07/26

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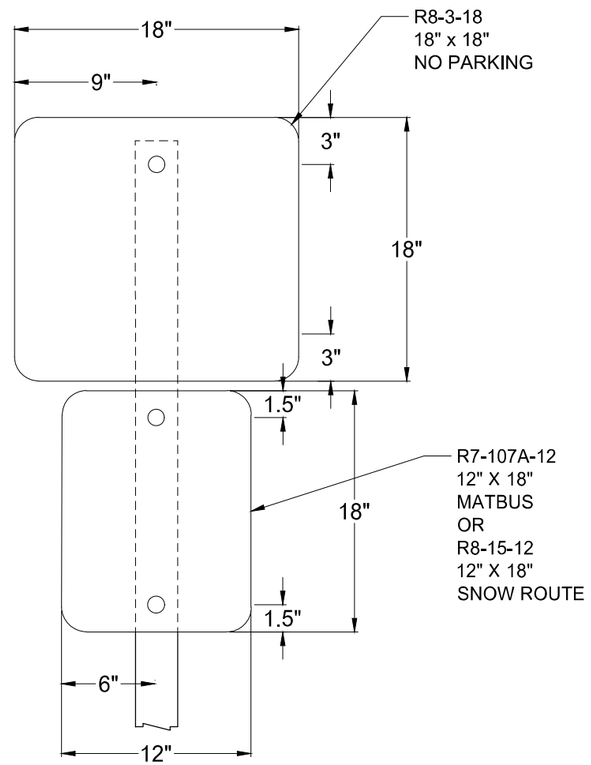
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	110	22



SPECIAL ASSEMBLY A
NO SCALE

4+14 Rt

NOTES:
Perforated Tube
Design Area: 8.05 SF
Pay Area: 8.05 SF



SPECIAL ASSEMBLY B
NO SCALE

4+48 Lt	17+31 Rt
5+42 Rt	32+02 Rt
8+71 Rt	50+87 Rt

NOTES:
Perforated Tube
Design Area: 3.75 SF
Pay Area: 3.75 SF

REVISIONS

③	②	① 10/05/2026

SEAL

REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Special Assemblies

17th Ave S Reconstruction
(University Dr To 25th St)

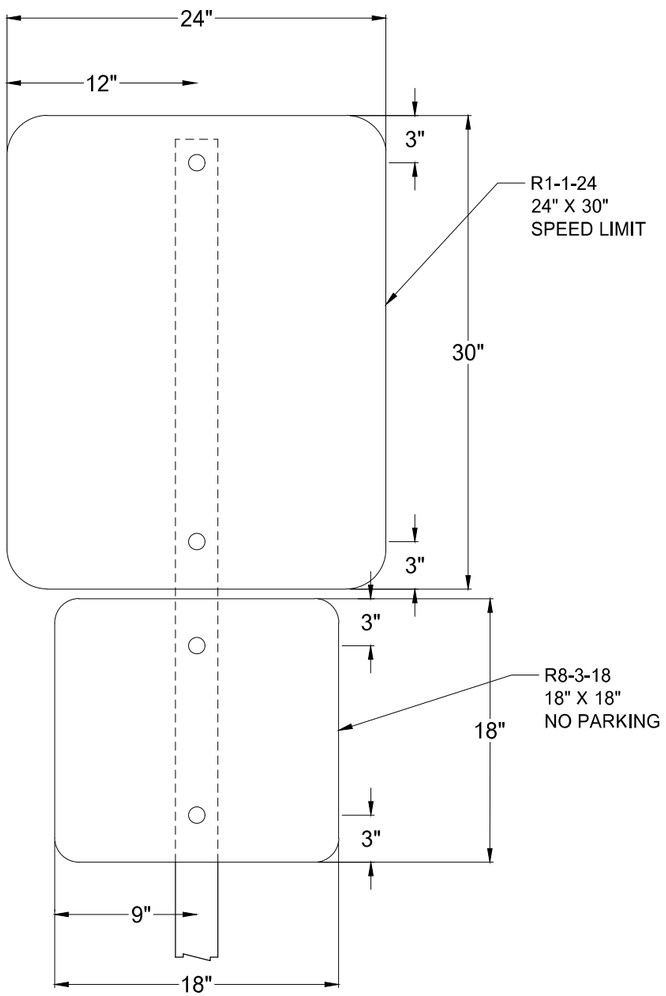
CITY OF FARGO Improvement District *BR-26-G1*

DESIGN BY: TJB	CHECKED BY: EAG
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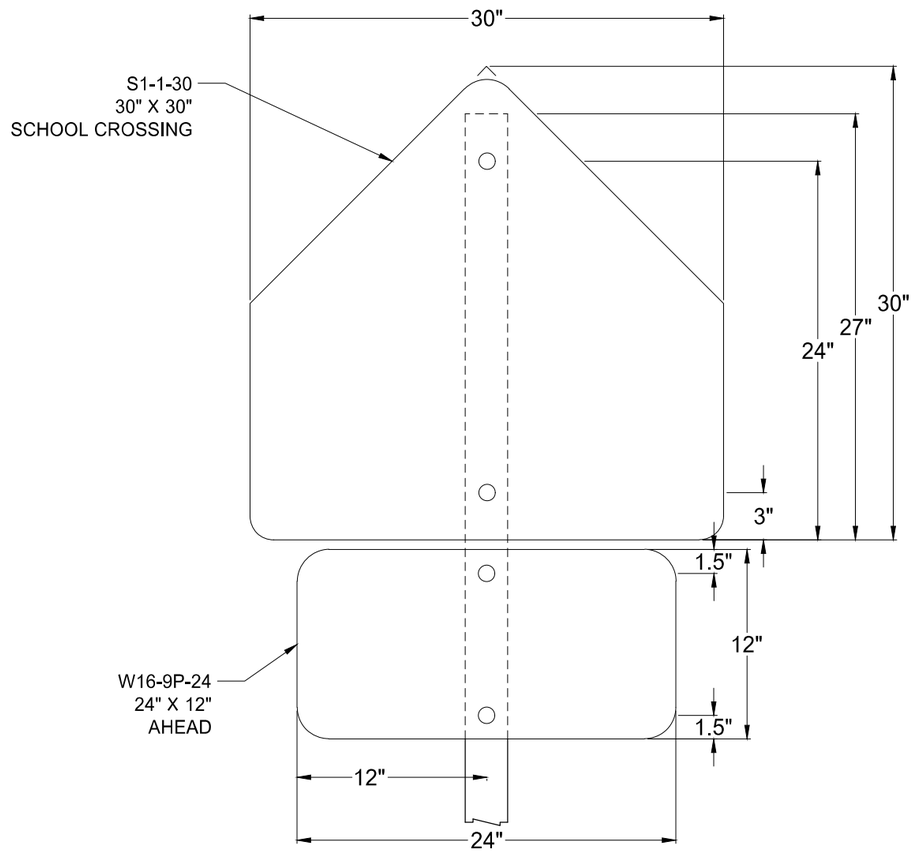
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	110	23



SPECIAL ASSEMBLY C
NO SCALE

10+75 Rt
38+24 Rt

NOTES:
Perforated Tube
Design Area: 7.25 SF
Pay Area: 7.25 SF



SPECIAL ASSEMBLY D
NO SCALE

22+22 Lt	19+32 Rt
25+50 Lt	23+70 Rt
32+20 Lt	
38+76 Lt	

NOTES:
Perforated Tube
Design Area: 6.7 SF
Pay Area: 6.7 SF

REVISIONS

③	②	① 10/05/2026

SEAL

REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph
Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Special Assemblies

17th Ave S Reconstruction
(University Dr To 25th St)

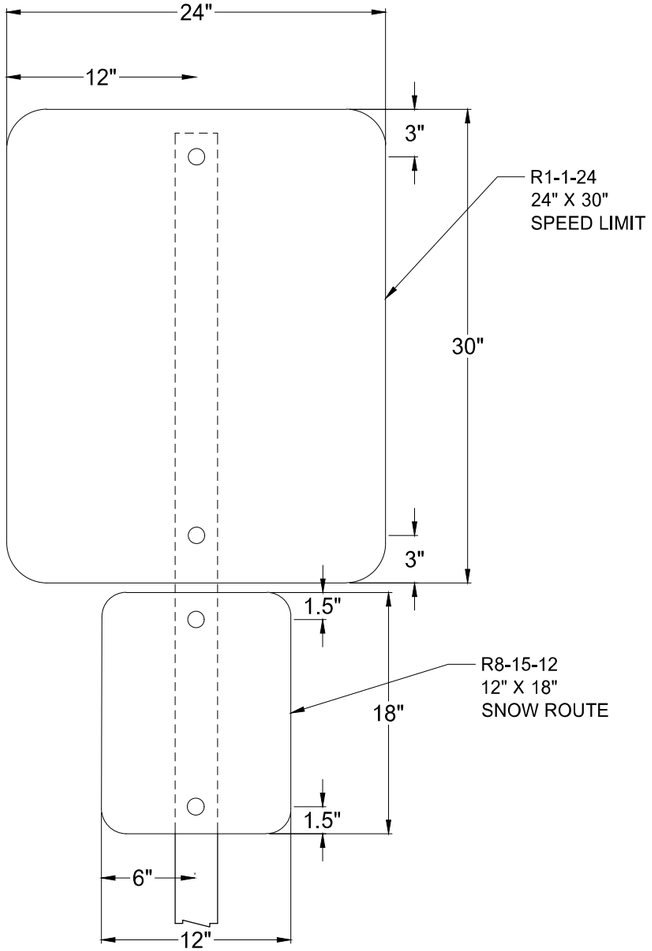
CITY OF FARGO Improvement District *BR-26-G1*

DESIGN BY: TJB	CHECKED BY: EAG
DRAWN BY: DLM/LRL	ORIG DATE: 07/07/26

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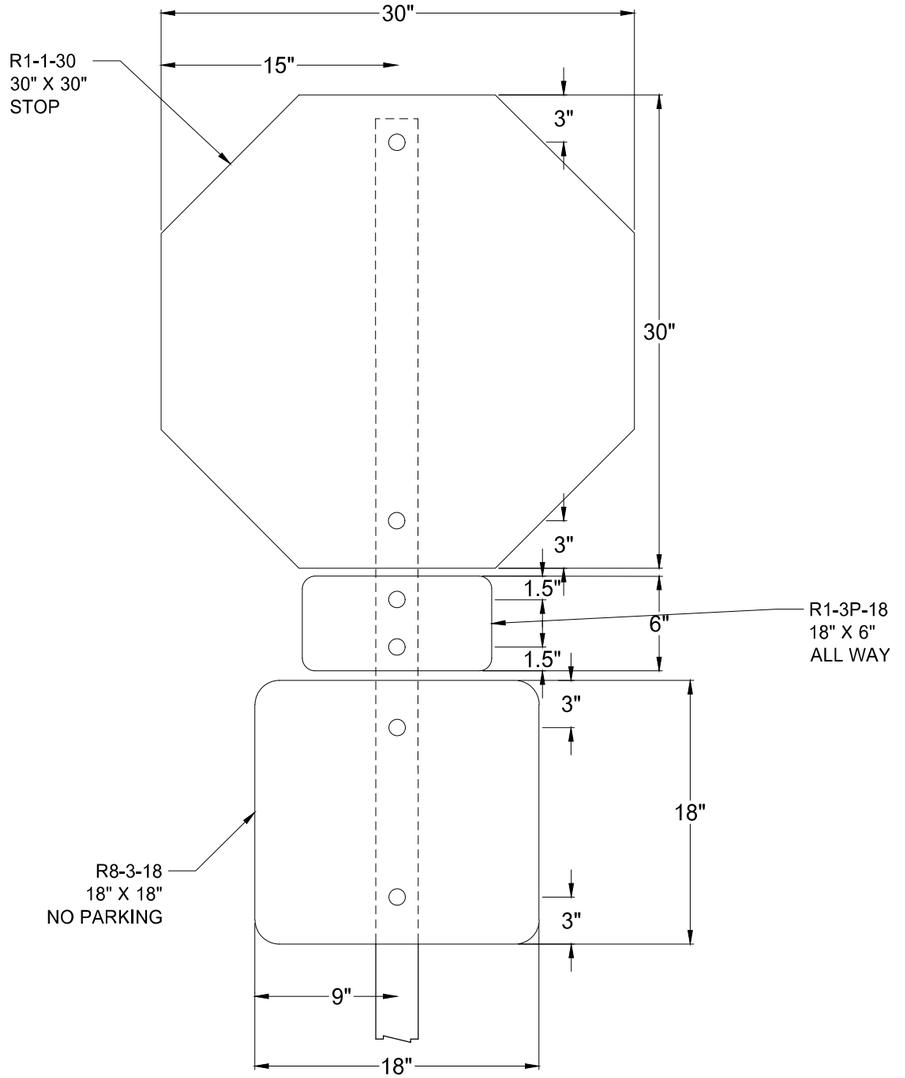
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	110	24



SPECIAL ASSEMBLY E
NO SCALE

24+97 Lt

NOTES:
Perforated Tube
Design Area: 6.5 SF
Pay Area: 6.5 SF



SPECIAL ASSEMBLY F
NO SCALE

28+68 Lt	28+42 Rt
29+27 Lt	29+03 Rt
36+17 Lt	35+88 Rt
36+84 Lt	36+54 Rt

NOTES:
Perforated Tube
Design Area: 8.2 SF
Pay Area: 8.2 SF

REVISIONS

③	②	① 10/05/2026

SEAL

REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Special Assemblies

17th Ave S Reconstruction
(University Dr To 25th St)

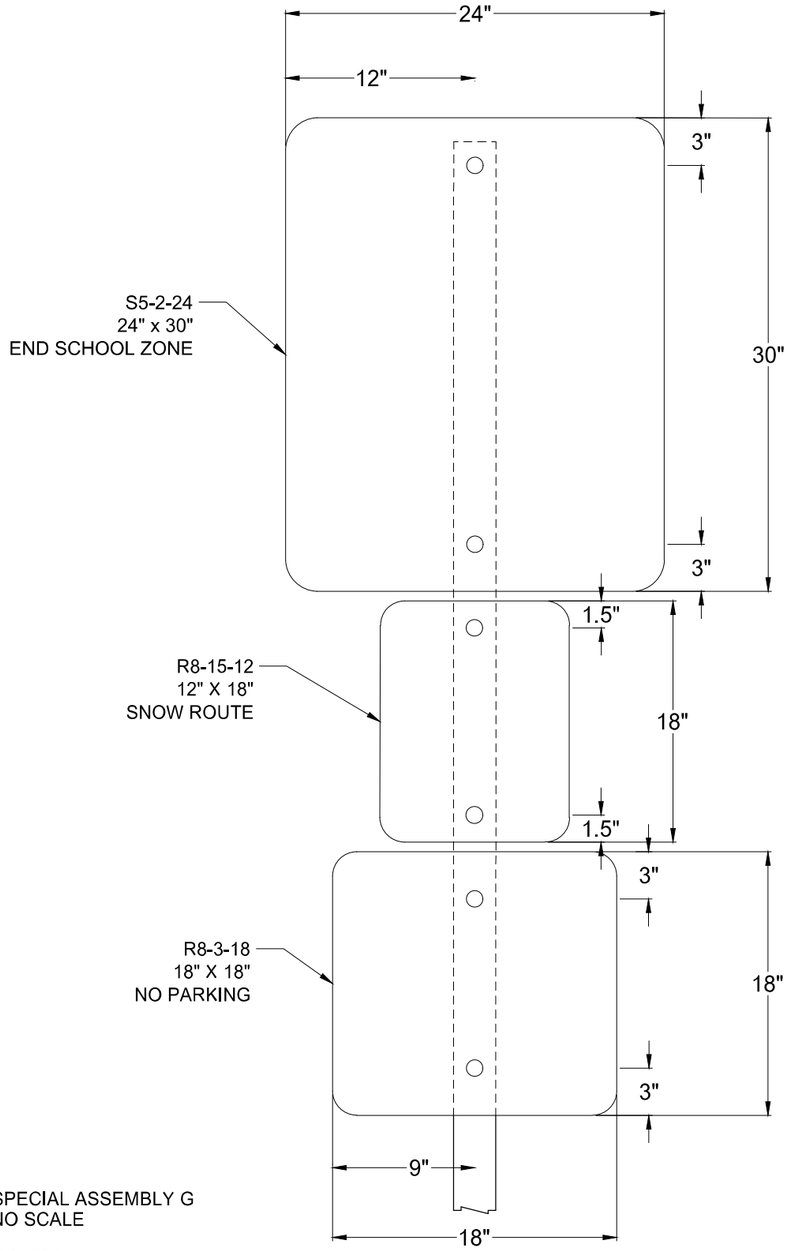
CITY OF FARGO Improvement District *BR-26-G1*

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DRAWN BY: DLM/LRL	ORIG DATE: 07/07/26

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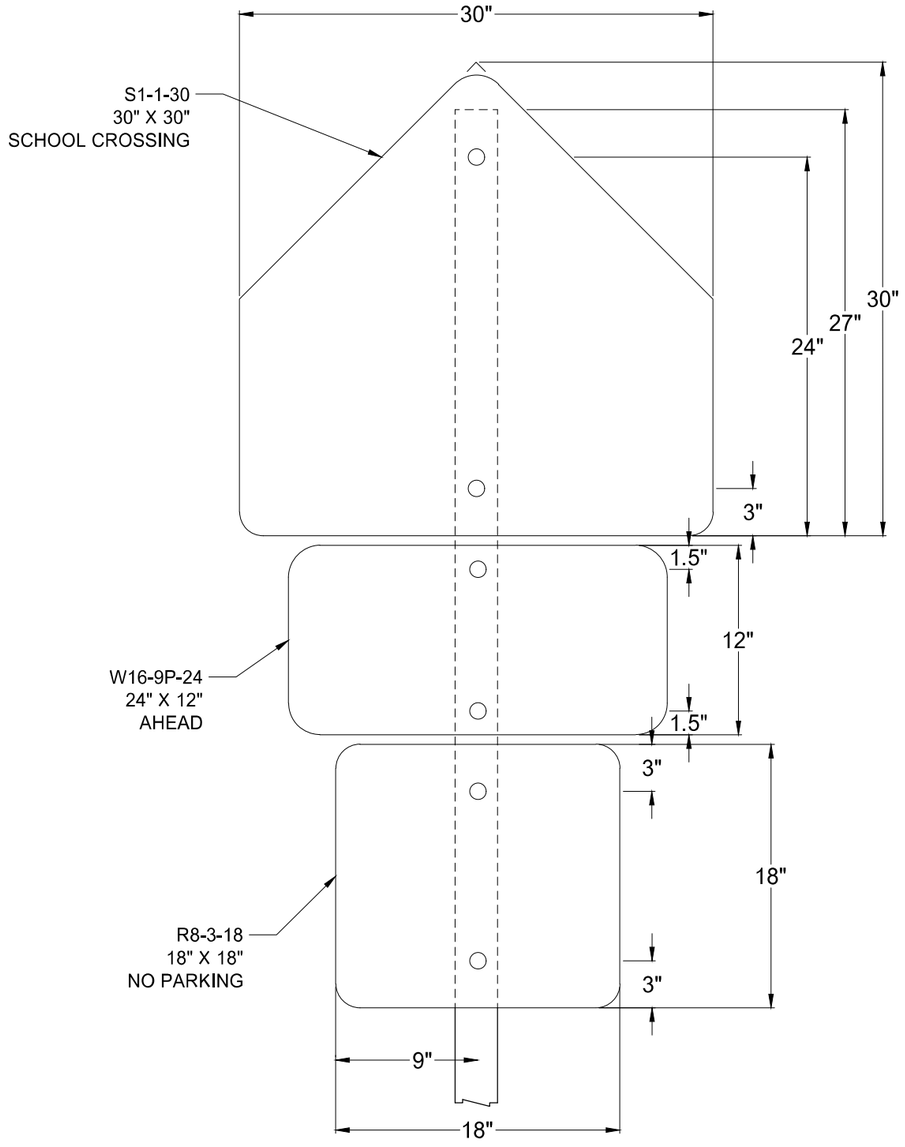
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-CRP-8-984 (181)	110	25



SPECIAL ASSEMBLY G
NO SCALE

30+75 Lt
52+59 Lt

NOTES:
Perforated Tube
Design Area: 9.5 SF
Pay Area: 9.5 SF



SPECIAL ASSEMBLY H
NO SCALE

34+00 RT

NOTES:
Perforated Tube
Design Area: 8.95 SF
Pay Area: 8.95 SF

REVISIONS

③	②	① 10/05/2026

SEAL

REGISTERED PROFESSIONAL ENGINEER
Dylan Joseph Dunn
PE-28894
DATE: 10/05/26
NORTH DAKOTA

Special Assemblies

17th Ave S Reconstruction
(University Dr To 25th St)

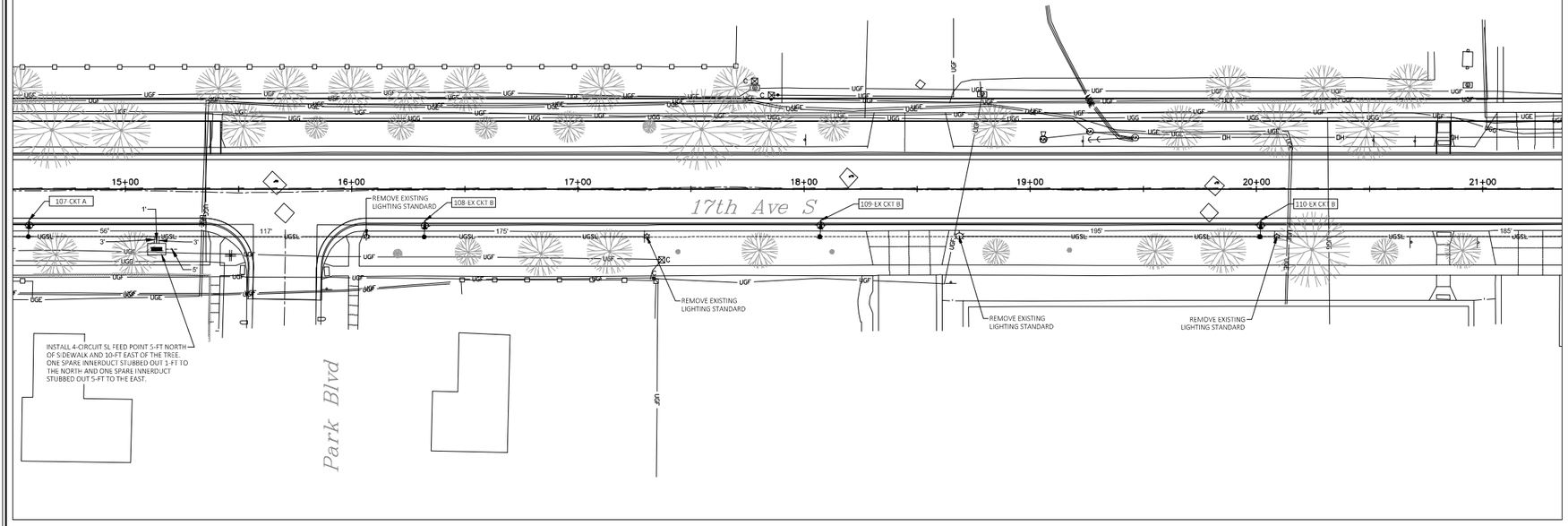
CITY OF FARGO Improvement District *BR-26-G1*

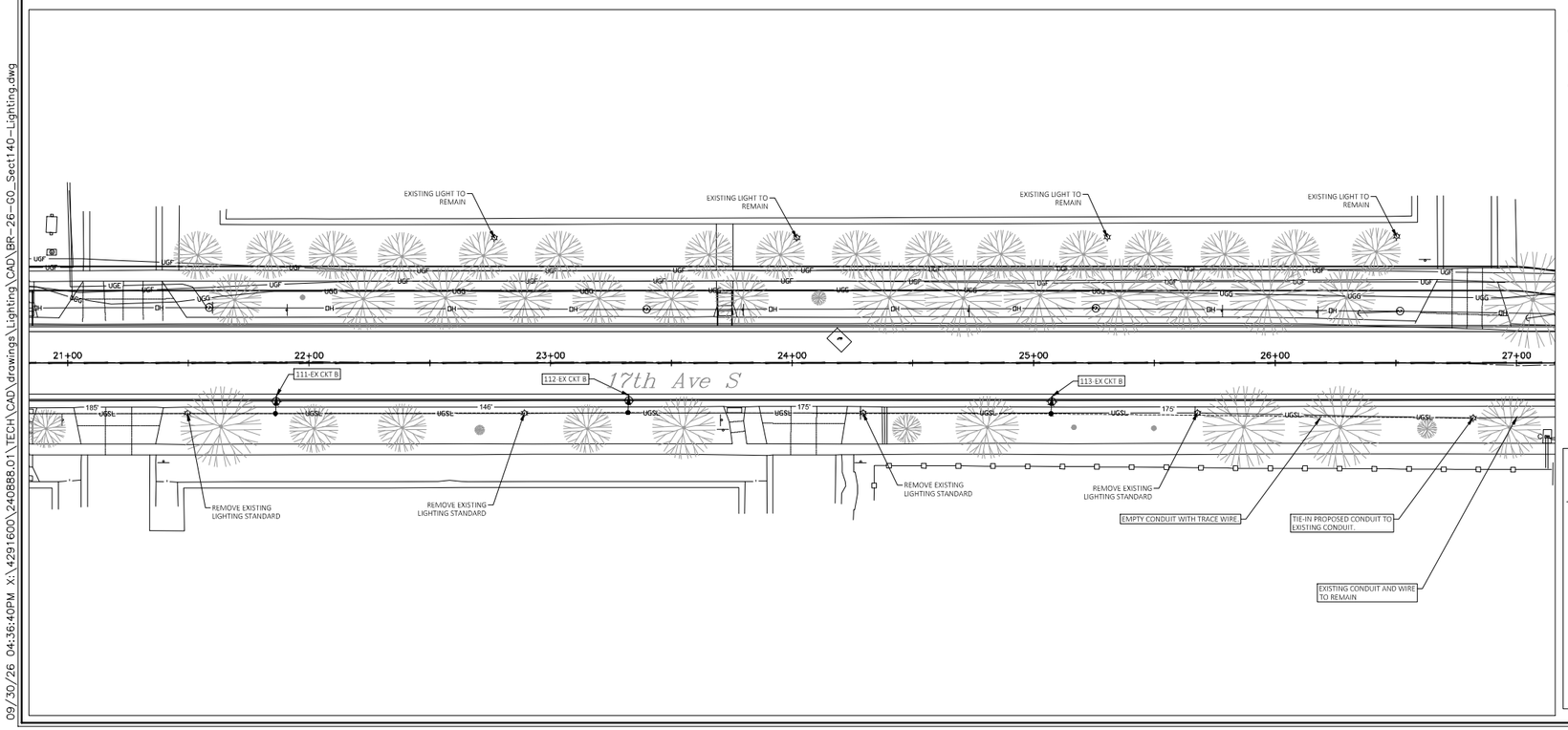
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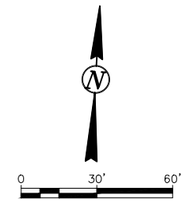
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Mead & Hunt	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	TMA-SU-8-984 (181)	140	2







LIGHTING QUANTITIES

DESCRIPTION	1.5" Dia. HDPE Innerduct	2" Dia. HDPE Innerduct	LED Luminaire - Type A	Light Standard - Type A	6' Concrete Base	# 6 Triplex USE	NO 12 AWG Copper Clad HDPE	NO 12 AWG 3 Conductor Cable	PVC Pull Box	Remove & Salvage Feed Point	4-Circuit SL Feed Point	LIGHTING SYSTEM
UNIT	LF	LF	EA	EA	EA	LF	LF	LF	EA	EA	EA	
QUANTITY	2230	156	13	13	13	2625	2386	325	1	1	1	

DO NOT BID ITEMS SEPARATELY BUT INCLUDE ALL ITEMS IN THIS SHEET IN THE BID ITEM 'LIGHTING SYSTEM.'

LIGHT STANDARD TYPE A:

- 20' BLACK RESIDENTIAL STREET LIGHT POLE SMALL TYPE III FIXTURE - 175' SPACING, RESIDENTIAL: LUMEC POLE ATR74N-003-17.5-BKTX/ELW-4-006-1A-BKTX

LUMINAIRE TYPE A:

- BLACK RESIDENTIAL 20' STREET LIGHT POLE FIXTURE WITH 4' ARM (7237-7677 LUMENS/ 40-54 WATTS) LUMEC ROADFOCUS PLUS RPM-40W40LED-740-G1-R3M-UNV-DMG-PH9-BK (7420L/40W)

SHEET NOTES:

1. REMOVE DESIGNATED EXISTING LUMINAIRES, POLE, AND FOUNDATION
2. DISCONNECT EXISTING CIRCUITS AND REMOVE CABLES NO LONGER IN USE
3. ABANDON EXISTING CONDUITS IN PLACE
4. STREET LIGHT BASES SHALL BE 6' FROM BACK OF CURB UNLESS OTHERWISE NOTED ON THE PLANS
5. LOCATION CAN VARY BASED ON EXISTING UNDERGROUND FACILITIES
6. COORDINATE WITH PROJECT ENGINEER AFTER LOCATIONS HAVE BEEN MARKED
7. CONNECT EXISTING INTERDUCT/CONDUCTOR INTO NEW PULLBOX
8. INSTALL 1.5" INNERDUCT WITH TRACE WIRE
9. ALL FIXTURES/POLES REMOVED SHALL BE DELIVERED TO THE CITY OF FARGO

LEGEND

- LIGHTING CONDUIT
- LUMINAIRE TYPE "A" ON LIGHT STANDARD TYPE "A" WITH LUM/CIRCUIT NUMBER.
- PULL BOX
- PULL BOX IDENTIFICATION NUMBER

LIGHT STANDARD IDENTIFICATION NUMBER

1XX-EX CKT A

EXISTING CIRCUIT OR SPARE CIRCUIT TIE-IN IDENTIFICATION

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM (PRE-GEOID18). (UNLESS NOTED OTHERWISE)

REVISIONS

③	②	①

SEAL

REGISTERED PROFESSIONAL ENGINEER
MURAT N JENIDI
Murat Jenidi
PE-40954
DATE 10/6/2026
NORTH DAKOTA

LIGHTING - LAYOUT

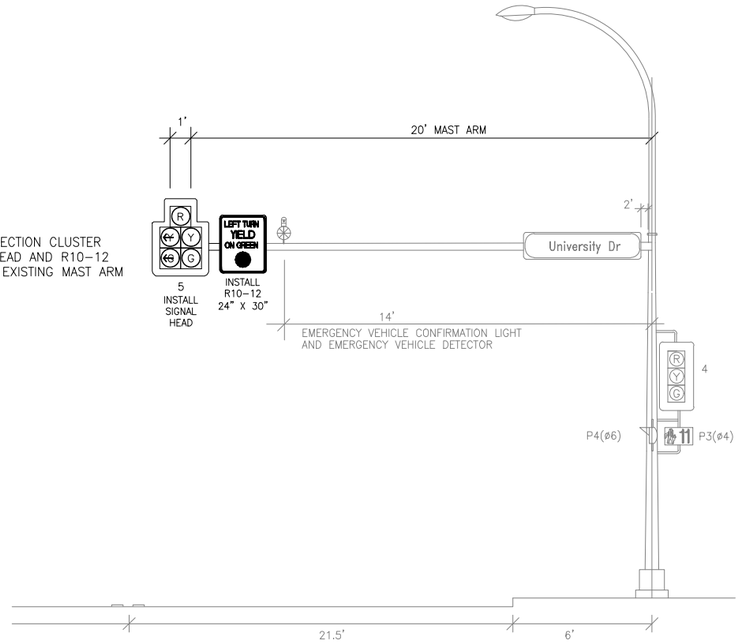
CITY OF FARGO *BR-26-G1*

DESIGN BY:	BGK	CHECKED BY:	MNJ
DRAWN BY:	JMR	ORIG DATE:	07/07/2026

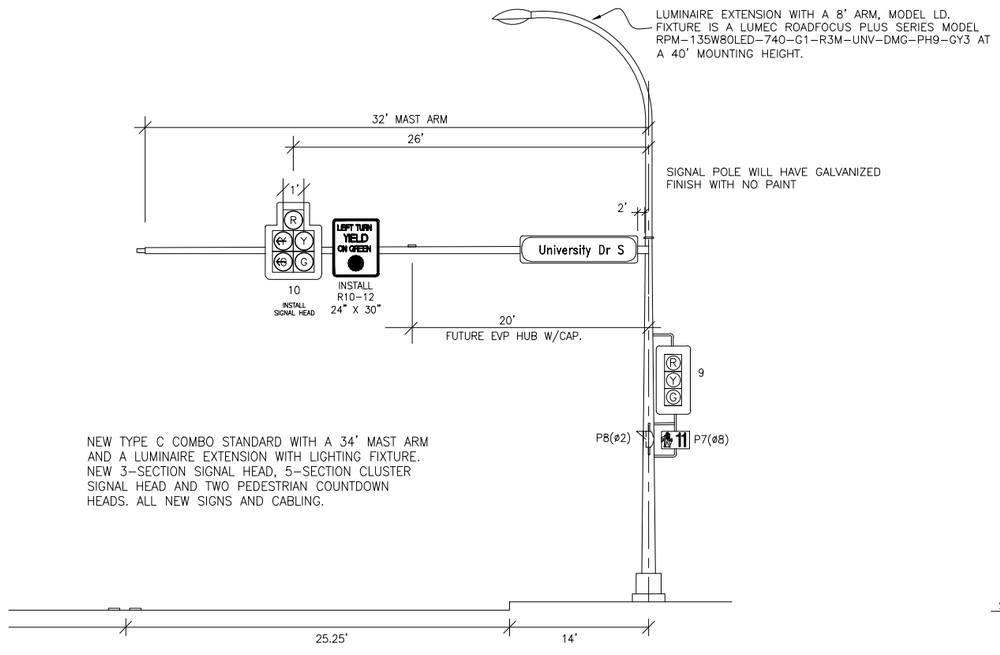
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Mead & Hunt	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	TMA-SU-8-984 (181)	150	5



ø4 EAST–BOUND APPROACH CROSS–SECTION



ø8 WEST–BOUND APPROACH CROSS–SECTION

TRAFFIC SIGNAL QUANTITIES

DESCRIPTION	REMOVE CONCRETE FOUNDATION	REMOVE PULL BOX	REMOVE 1-WAY 3 SECTION HEAD & SIGN	REMOVE COMBINATION SIGNAL & LIGHT STANDARDS	PEDESTRIAN PUSH BUTTON OST	42" CONCRETE FOUNDATION - TRAFFIC SIGNALS	PVC PULL BOX	1" DIA. RIGID CONDUIT	2" DIA. RIGID CONDUIT	4" DIA. RIGID CONDUIT	NO. 14 AWG 2 CONDUCTOR CABLE	NO. 14 AWG 2 CONDUCTOR CABLE	NO. 14 AWG 5 CONDUCTOR CABLE	NO. 14 AWG 7 CONDUCTOR CABLE	NO. 14 AWG 20 CONDUCTOR CABLE	LOOP LEAD IN WIRE	PREFORMED LOOP DETECTOR	LOOP WIRE	SAW SLOT	R10-X12 SIGN - MA MTD	1-WAY 3 SECTION HEAD W/ 12" LENS - POST MTD	1-WAY 5 SECTION HEAD W/ 12" LENS - MA MTD	PEDESTRIAN PUSHBUTTON W/ SIGN	PEDESTRIAN COUNTDOWN SIGNAL HEAD - POST MTD	COMBO 32Ft MA SIG & LT STD - TYPE C	REVISE TRAFFIC SIGNAL SYSTEM - SITE 2
UNIT	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	LF	LF	EA	EA	EA	EA	EA	EA	
SIGNAL POLE 1			1											45	113					1		1				
SIGNAL POLE 2						1						30	17	55						1	1	1		2	1	
PEDESTRIAN PUSH BUTTON POST 1					1																		1			
PEDESTRIAN PUSH BUTTON POST 2					1																		1			
VARIOUS LOCATIONS	1	1		1			3	22	61	70	246					872	9	872	84							
TOTAL	1	1	1	1	2	1	3	22	61	70	246	30	17	100	113	872	9	872	84	2	1	2	2	2	1	

DO NOT BID ITEMS SEPARATELY BUT INCLUDE ALL ITEMS IN THIS SHEET IN THE BID ITEM 'REVISE TRAFFIC SIGNAL SYSTEM - SITE 2.'

HEAD AND CONDUCTOR SCHEDULE

CONDUCTORS			CABLE 1 NEW (14 - 20) WB STD.		CABLE 2 EXISTING (14 - 12) EB STD.	
	BASE	TRACER	HEAD	INDICATION	HEAD	INDICATION
1	BLACK		P8	**ø2 WALK**	P4	ø6 WALK
2	WHITE			**NEUTRAL**		NEUTRAL
3	RED			**SPARE**		**SPARE**
4	GREEN			**GROUND**		GROUND
5	ORANGE		10	**ø3 YELLOW**	4,5	**ø7 YELLOW**
6	BLUE		10	**ø3 GREEN**	4,5	**ø7 GREEN**
7	WHITE	BLACK	P8	**ø2 DT WALK**	P4	ø6 DT WALK
8	RED	BLACK	9,10	**ø8 RED**	4,5	**ø4 RED**
9	GREEN	BLACK	P7	**ø8 WALK**	P3	ø4 WALK
10	ORANGE	BLACK	9,10	**ø8 YELLOW**	4,5	**ø4 YELLOW**
11	BLUE	BLACK	9,10	**ø8 GREEN**	4,5	**ø4 GREEN**
12	BLACK	WHITE	P7	**ø8 DT WALK**	P3	ø4 DT WALK
13	RED	WHITE		**SPARE**		
14	GREEN	WHITE		**SPARE**		
15	ORANGE	WHITE		**SPARE**		
16	BLUE	WHITE		**SPARE**		
17	BLACK	RED		**SPARE**		
18	WHITE	RED		**SPARE**		
19	GREEN	RED		**SPARE**		
20	ORANGE	RED		**SPARE**		

*BOLD REPRESENTS NEW WIRE ASSIGNMENT

DETECTION ZONE	NUMBER OF LOOPS	PHASE	SIZE (FEET)	TYPE OF LOOP	NUMBER OF TURNS	CONDUCTOR (L.F.)	SAW SLOT (L.F.)
D3-1A	2	3	6 X 6	PRESENCE	3	216	84
D4-1	3	4	6 X 6	PRESENCE	3	270	--
D4-3	2	4	6 X 6	PRESENCE	3	220	--
D7-1	4	7	6 X 6	PRESENCE	3	568	--

PHASE-LOOP
DIRECTION
CONTROLLER INPUT LOCATION
LOOP TYPE

CH.1		1-1	NBLT	2-1	SB	3-1A	WBLT	4-1	EB	5-1	SBLT	6-1	NB	7-1	EBLT	8-1	WB	PE1	NB	PE3	WB		
		VD1	PR	VD2	P	VD3	PR	VD4	PR	VD5	PR	VD6	P	VD7	PR	VD8	PR		Ø1&Ø6				
CH.2						3-1a	WBLT	4-3	EB									PE2	SB	PE4	EB		
		SD1		SD2		SD3	PR	SD4	PR	SD5		SD6		SD7		SD8			Ø2&Ø5		Ø4&Ø7		
REF	POWER SUPPLY	DT1		DT2		DT3		DT4		DT5		DT6		DT7		DT8		OD1		OD2			

SAME PHASE MULTIPLE LEAD-INS
LETTERS A-D
LANE LOCATION START
"A" ON THE CENTER LINE
TO CURB.

TYPICAL 8 PHASE DETECTOR LABLE

PHASE-LOOP
(N)-1 = (2,4,6,8)-PASSAGE
(N)-1 = (2,4,6,8)-PRESENCE
(N)-2 = (2,4,6,8)-CALLING
(N)-1 = (1,3,5,7)-LEFT TURN
(N)-3 = (2,4,6,8)-RIGHT TURN
(N)-5 = (1,2,3,4,5,6,7,8)- COUNT LOOP

LOOP TYPE
P = PASSAGE
PR = PRESENCE
C = CALLING
LT = LEFT TURN
RT = RIGHT TURN
T = COUNT LOOP

CONTROLLER INPUT LOCATION
VD(#) = VEHICLE DETECTOR (1-8)
SD(#) = SPECIAL DETECTOR (1-8)
PD(#) = PEDESTRIAN DETECTOR (1-8)

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM (PRE–GEOID18). (UNLESS NOTED OTHERWISE)

REVISIONS
③ ② ①

SEAL

REGISTERED PROFESSIONAL ENGINEER
MURAT N JENIDI
PE-40954
DATE 10/6/2026
NORTH DAKOTA

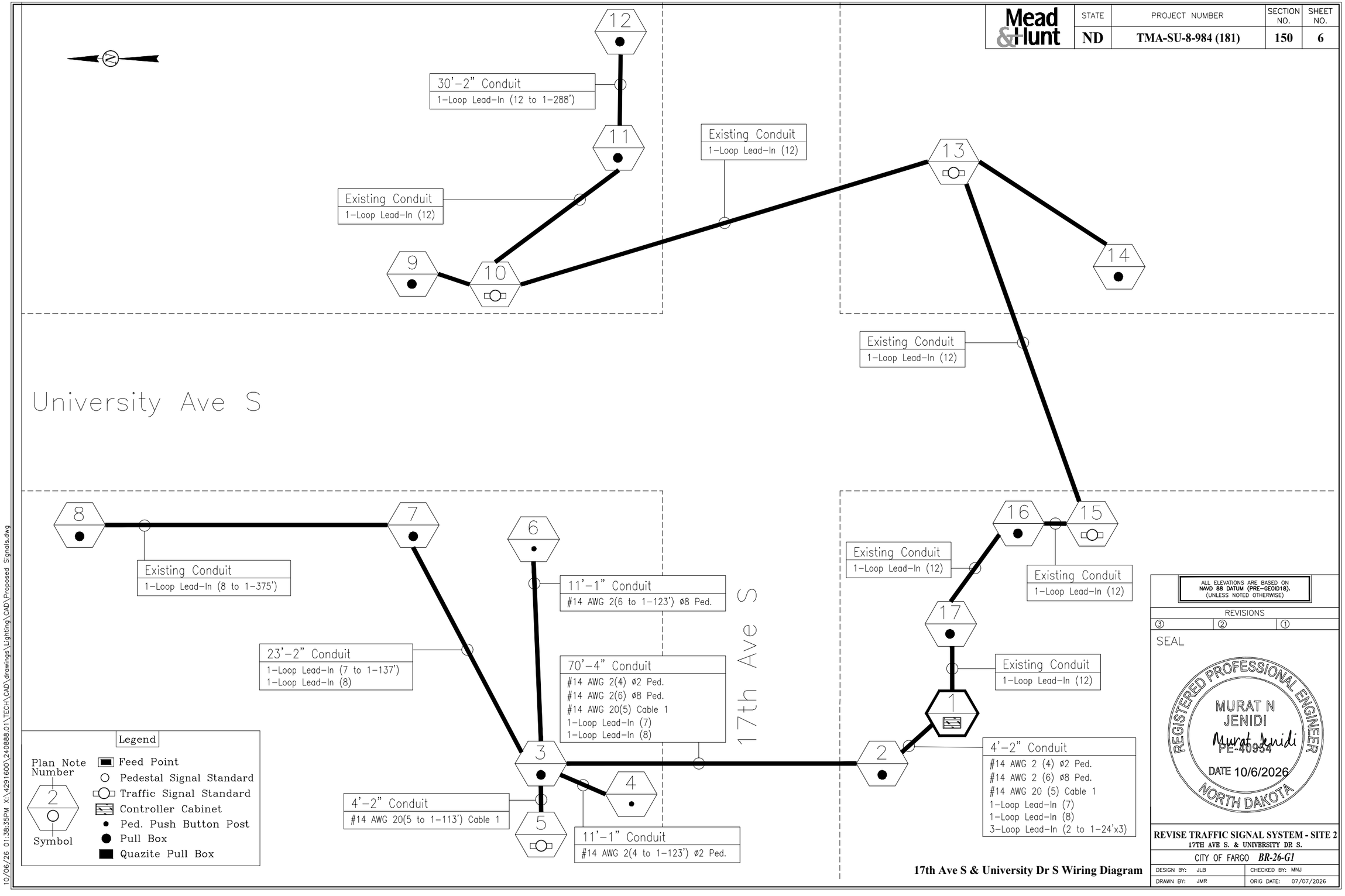
REVISE TRAFFIC SIGNAL SYSTEM - SITE 2
17TH AVE S. & UNIVERSITY DR S.
CITY OF FARGO *BR-26-G1*

DESIGN BY: JLB	CHECKED BY: MNJ
DRAWN BY: JMR	ORIG DATE: 07/07/2026

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Mead & Hunt	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	TMA-SU-8-984 (181)	150	6



17th Ave S & University Dr S Wiring Diagram

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM (PRE-GEOID18). (UNLESS NOTED OTHERWISE)

REVISIONS

③	②	①

SEAL

REGISTERED PROFESSIONAL ENGINEER
MURAT N JENIDI
PE-40934
DATE 10/6/2026
NORTH DAKOTA

REVISE TRAFFIC SIGNAL SYSTEM - SITE 2
17TH AVE S. & UNIVERSITY DR S.
CITY OF FARGO *BR-26-G1*

DESIGN BY: JLB	CHECKED BY: MNJ
DRAWN BY: JMR	ORIG DATE: 07/07/2026

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NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

UTILITY COORDINATION

TMA-SU-CRP-8-984(181) – PCN 24237

DESCRIPTION

This work consists of coordinating the construction schedule with third party utility companies owning facilities within the project limits, verifying the location of those facilities during construction, and resolving issues with those utilities.

The requirements in this Special Provision replace the requirements of Section 105.03, "Cooperation With Utility Owners".

ATTACHMENTS

Appendix A – Utility Coordination Table
Appendix B – Utility Exhibits

DEFINITIONS

Conflict: A utility in need of relocation or adjustment for the construction to proceed in that area.

Protect in Place (PIP): A utility that does not need relocation, but needs precautions to protect the utility during construction activities.

Utility Encounter (UE): A Conflict or Protect in Place situation involving an existing third party owned utility.

UTILITY COMPANY CONTACTS

UTILITY COMPANY	CONTACT NAME	PHONE NUMBER	EMAIL
702 COMMUNICATIONS	**Kirt Liedahl**	218-284-5767	kliedahl@702Communications.com
CONSOLIDATED COMMUNICATIONS	**Noah Cressell**	206-999-7169	noah.cressell@consolidated.com
LUMEN	**Trevor Christensen**	701-451-7058	Trevor.A.Christensen@lumen.com
McLEOD USA / WINDSTREAM COMMUNICATIONS	**Lori Ketter**	920-410-6902	lori.ketter@windstream.com
MIDCO	**Corey Wixo**	605-271-0202	Corey.Wixo@Midco.com
SANFORD HEALTH	**Phil Siek**	701-234-6876	phillip.siek@sanfordhealth.org
SPARKLIGHT	**Allan Friedt**	701-367-3721	Allan.Friedt@sparklight.biz
XCEL GAS	**Thomas Berseth**	701-640-1406	Thomas.M.Berseth@xcelenergy.com
XCEL POWER	**Destin Cole**	701-241-8645	destin.cole@xcelenergy.com

CONTRACTOR RESPONSIBILITIES

A. Responsibilities.

The responsibilities for utility coordination include the following:

- Conduct the preconstruction utility coordination meeting;
- Main a point of contact for all utility companies;
- Maintain a schedule for utility activities;
- Hold weekly utility meetings in addition to the weekly planning and reporting meeting and report on the utility meetings at the weekly planning and reporting meeting;
- Follow up with any utility companies that do not show up to construction meetings;
- Coordinate work efforts of the utility companies, revise work schedules and traffic control as necessary to ensure adequate cooperation between UE and construction work;
- Develop and update the utility coordination plan;
- Provide a weekly written summary for contacts and meetings to the Engineer; and
- Coordinate with all of the other parties to update the project schedule specified in Section 108.03, “Progress Schedule”.

B. Utility Coordination Plan.

Develop a utility coordination plan with each utility company that includes the phasing and scheduling requirements for UE.

C. Record of Utility Outage Notifications.

Request a copy of notifications that utility companies provide to customers for service outages. Maintain copies of all notifications until the Contractor signs the final estimate.

D. Utility Coordination Schedule.

Create and maintain a construction schedule that includes timelines for the phasing of utility coordination work. Include information contained in the contract documents and information obtained during coordination discussions with utility owners. Written agreements between the Contractor and a utility company will govern over information contained in contract documents; however, the agreements must be signed by the NDDOT, Contractor and Utility Company to be effective. Written agreements are considered contract revisions, however they are not eligible for additional compensation or additional time unless agreed to separately by the Engineer.

The Utility Coordination Table contains information related to the utility coordination requirements at each area designated as a UE. The timelines included on the Table may be longer than shown if the Contractor requests multiple resolutions simultaneously. Adjust work schedules as required to accommodate utility resolutions.

Revisions to the construction schedule due to a utility company or companies non-conformance with agreed upon schedules or failure to reasonably coordinate work efforts with the Contractor will be considered excusable, non-compensable delays as specified in Section 108.06, “Determination of and Extensions to the Contract Time”.

Failure by the Contractor to reasonably coordinate schedules with a utility company or companies for UE identified in the contract, or failure to document coordination efforts will be considered non-excusable delays as specified in Section 108.06, “Determination of and Extensions to the Contract Time”.

CONSTRUCTION REQUIREMENTS

A. General.

The vertical and horizontal utility locations shown in the plans are approximate. Plan locations should not be interpreted as exact for bidding or construction purposes.

Utility facilities shown on the plans, if any, are for reference purposes only and may not constitute an exhaustive representation of all utility facilities within the project. Notify the North Dakota One Call System (811) before starting the work, so they may locate and mark all utility facilities within the project. Receive utility locates for Department-owned, publicly-owned, and privately-owned utility facilities, whether on or off the One Call System.

Comply with Chapter 49-23 of the NDCC in determining the location of underground utilities.

B. Utilities Identified in Plans.

Coordinate UE work with the affected utility owners. Maintain continuous communication with the Engineer, affected subcontractors, and affected utility owners until UE will no longer affect or be affected by the Contractor.

Cooperate with utility owners in relocating and adjusting utility facilities to minimize interruption to service and duplication of work by utility owners.

The Contract documents show all known UE for the project.

If a UE identified as a Protect in Place is determined to be a Conflict during construction, the Engineer will make necessary revisions to the Contract as specified in Section 104.02, “Contract Revisions”. These types of changes will be considered excusable, compensable delays as specified in Section 108.06, “Determination of and Extensions to the Contract Time”.

C. Utilities Encountered During Work.

1. General

Neither of the cases discussed in this subsection relieve the Contractor of liability that may arise under provisions of the NDCC.

2. Unidentified Utility Encounters

The Department will bear costs associated with revisions to the work as specified in Section 104.02 B, “Differing Site Conditions” only if the Engineer determines that all of the following conditions exist:

- a UE exists that was not designated in the plans; and
- the UE is in a location that affects the prosecution of the work to construct the project as designed.

3. Utility Encounters Created Due to Actions Performed by the Contractor

If a new UE is created due to actions performed by the Contractor for the Contractor’s convenience; the Contractor shall account for and protect the affected facilities. Before performing these actions, the Contractor shall coordinate with the utility owner. The Department will not make additional payments to the Contractor nor the utility owner for UE created in this manner and will not provide additional time to the Contractor for completing the work.

If utility companies incur costs, the Department will not participate in those costs and will not make payment to the Contractor for those costs.

D. Utility Coordination Meetings.

1. Preconstruction Utility Meeting.
Arrange the meeting with the utility owners, the Contractor and affected subcontractors, local agency representatives, and the Engineer to occur no later than two weeks after the preconstruction meeting. At the meeting, provide an agenda and a tentative construction schedule for planning UE work; after the meeting, publish minutes and distribute a copy to all meeting attendees within 48 hours of the conclusion of the meeting.

2. Weekly Utility Coordination Meeting.
Organize a weekly meeting to discuss utility coordination efforts with utility companies and affected subcontractors, local authorities, the Engineer and others who may have an interest in utility coordination efforts. Hold the weekly utility coordination meeting immediately before the weekly planning and reporting meeting. Publish minutes and distribute copies to all meeting attendees within 48 hours of the conclusion of the meeting.

The intent of this meeting is to disseminate information regarding ongoing and upcoming UE work and to ensure that all affected parties are collaborating and sharing information related to that work.

Provide a summary of the discussion at the weekly planning and reporting meeting.

E. Fire Hydrants.
Before starting work that affects a fire hydrant, coordinate with the local fire authority to determine if provisions need to be in place before starting the work. If provisions are necessary, obtain the approval of the local fire authority before beginning the work affecting the fire hydrant.

F. Damage and Interruptions.
If the Contractor causes damage to utility facilities, the Contractor is responsible for the costs of restoring or repairing the damaged utility facility to a condition equal to or better than the condition existing before the damage occurred. Immediately notify the utility owner of the damage or, if the owner is unknown, the One Call System. Do not conceal, attempt to conceal, or make repairs to the utility facilities until approved by the utility owner. If this damage causes interruption to utility service, continuously coordinate with the utility owner until the service is fully restored.

The Department will not pay the Contractor for the cost to restore utility facilities or repair damage to utility facilities and will consider any delays resulting from this damage to be non-excusable in accordance with Section 108.06, “Determination of and Extensions to the Contract Time.”

G. Utility Criteria.
The Utility Coordination Table and Utility Exhibits contain specific information related to each UE location.

H. Protection Procedures

Level 3: Contractor to adjust utilities to install storm drain. Contractor to notify utility 1 week in advance of installation to allow for opportunity for representative to be onsite during adjustments.

Level 4: Utility company to relocate utility within project limits. Contract to notify Utility Company of schedule 2 weeks before earthwork operations and accommodate relocation efforts. Protect existing utility before and after relocation.

Utility Coordination Table Appendix A of SP 92(25)

TMA-SU-8-984 (181) PCN 24237

UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT										Protect in Place	Conflict
SPARKL-1	UTIL-1	3+04	-40	LT	to	3+07	-28	LT	LT	17th Ave S	12.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
SPARKL-2	UTIL-1	3+17	-40	LT	to	14+25	-33	LT	LT	17th Ave S	7.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
SPARKL-3	UTIL-1	3+52	23	RT	to	4+09	25	RT	RT	17th Ave S	2.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
LUMEN-1	UTIL-1	3+52	29	RT	to	12+39	-43	LT	Crossing	17th Ave S	72.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
CONCOM-1	UTIL-1	3+55	37	RT	to	7+45	40	RT	RT	17th Ave S	3.0	FT	-	Level 2	Protect in Place	Consolidated Communications	Fiber Optic	X	
MIDCO-1	UTIL-1	3+50	39	RT	to	4+11	39	RT	RT	17th Ave S	0.0	FT	-	Level 2	Protect in Place	Midcontinent Communications	Fiber Optic	X	
XCEENE-G-1	UTIL-1	4+00	-38	LT	to	9+38	29	RT	Crossing	17th Ave S	67.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
SPARKL-4	UTIL-1	4+09	39	RT	to	4+10	26	RT	RT	17th Ave S	13.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
SPARKL-5	UTIL-1	4+11	26	RT	to	7+41	29	RT	RT	17th Ave S	3.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
MIDCO-2	UTIL-1	4+12	39	RT	to	14+00	41	RT	RT	17th Ave S	2.0	FT	-	Level 2	Protect in Place	Midcontinent Communications	Fiber Optic	X	
XCEENE-G-2	UTIL-1	4+71	28	RT	to	4+72	-38	LT	Crossing	17th Ave S	66.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-E-1	UTIL-1	5+45	51	RT	to	6+15	43	RT	RT	17th Ave S	8.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-E-2	UTIL-1	5+46	-40	LT	to	9+52	-41	LT	LT	17th Ave S	1.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
LUMEN-2	UTIL-1	6+00	-40	LT	to	21+02	-41	LT	LT	17th Ave S	1.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
702COM-1	UTIL-2	7+07	-40	LT	to	17+76	-44	LT	LT	17th Ave S	4.0	FT	-	Level 2	Protect in Place	702 Communications	Fiber Optic	X	
SPARKL-6	UTIL-2	7+38	40	RT	to	7+40	30	RT	RT	17th Ave S	10.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
SPARKL-7	UTIL-2	7+42	29	RT	to	10+72	30	RT	RT	17th Ave S	1.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
CONCOM-2	UTIL-2	8+75	39	RT	to	8+77	-40	LT	Crossing	17th Ave S	79.0	FT	-	Level 2	Protect in Place	Consolidated Communications	Fiber Optic	X	
XCEENE-E-3	UTIL-2	8+76	-46	LT	to	9+51	-43	LT	LT	17th Ave S	3.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	

Utility Coordination Table Appendix A of SP 92(25)

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UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT										Protect in Place	Conflict
XCEENE-E-4	UTIL-2	8+76	-47	LT	to	9+51	-44	LT	LT	17th Ave S	3.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-G-3	UTIL-2	9+37	45	RT	to	9+39	-46	LT	Crossing	17th Ave S	89.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-G-4	UTIL-2	9+38	32	RT	to	15+43	49	RT	RT	17th Ave S	17.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-E-5	UTIL-2	9+53	-41	LT	to	12+50	-41	LT	LT	17th Ave S	0.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
SPARKL-8	UTIL-2	10+71	39	RT	to	10+73	30	RT	RT	17th Ave S	9.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
SPARKL-9	UTIL-2	10+75	30	RT	to	14+05	27	RT	RT	17th Ave S	3.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
LUMEN-3	UTIL-3	12+05	45	RT	to	12+39	-42	LT	Crossing	17th Ave S	87.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
LUMEN-4	UTIL-3	12+05	45	RT	to	12+39	-43	LT	LT	17th Ave S	88.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
LUMEN-5	UTIL-3	12+40	-42	LT	to	12+75	46	RT	Crossing	17th Ave S	88.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
LUMEN-6	UTIL-3	12+40	-42	LT	to	12+75	46	RT	Crossing	17th Ave S	88.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
MIDCO-3	UTIL-3	14+01	41	RT	to	17+32	39	RT	RT	17th Ave S	2.0	FT	-	Level 2	Protect in Place	Midcontinent Communications	Fiber Optic	X	
SPARKL-10	UTIL-3	14+06	27	RT	to	17+36	31	RT	RT	17th Ave S	4.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
SPARKL-11	UTIL-3	14+25	-33	LT	to	14+29	-33	LT	LT	17th Ave S	0.0	FT	-	Level 4	Relocate Vault Out of Path	Sparklight	Fiber Optic		X
SPARKL-12	UTIL-3	14+29	-33	LT	to	26+95	-34	LT	LT	17th Ave S	1.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
XCEENE-E-6	UTIL-3	15+32	40	RT	to	20+14	40	RT	RT	17th Ave S	0.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-7	UTIL-3	15+34	40	RT	to	19+25	26	LT	Crossing	17th Ave S	14.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-G-5	UTIL-3	15+35	32	RT	to	28+11	-29	LT	Crossing	17th Ave S	61.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
SPARKL-13	UTIL-4	17+32	40	RT	to	17+36	32	RT	RT	17th Ave S	72.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
MIDCO-4	UTIL-4	17+34	40	RT	to	18+79	-41	LT	LT	17th Ave S	81.0	FT	-	Level 2	Protect in Place	Midcontinent Communications	Fiber Optic	X	

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT										Protect in Place	Conflict
XCEENE-E-8	UTIL-4	19+25	-40	LT	to	19+45	-21	LT	LT	17th Ave S	19.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-9	UTIL-4	19+25	-40	LT	to	19+45	-21	LT	LT	17th Ave S	19.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-10	UTIL-4	19+26	-40	LT	to	19+45	-22	LT	LT	17th Ave S	18.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-11	UTIL-4	19+07	-22	LT	to	19+26	-24	LT	LT	17th Ave S	2.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-12	UTIL-4	19+25	-21	LT	to	50+82	-20	LT	LT	17th Ave S	1.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-13	UTIL-4	19+28	-25	LT	to	20+13	40	RT	Crossing	17th Ave S	65.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-G-6	UTIL-4	20+31	-31	LT	to	20+32	40	RT	Crossing	17th Ave S	71.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
702COM-2	UTIL-5	21+82	-40	LT	to	51+83	-25	LT	LT	17th Ave S	12.0	FT	-	Level 2	Protect in Place	702 Communications	Fiber Optic	X	
XCEENE-E-14	UTIL-6	27+04	-18	LT	to	27+15	-20	LT	LT	17th Ave S	2.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-15	UTIL-6	27+17	40	RT	to	27+18	-40	LT	Crossing	17th Ave S	80.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
LUMEN-7	UTIL-6	27+13	31	RT	to	27+20	-16	LT	Crossing	17th Ave S	47.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
LUMEN-8	UTIL-6	27+13	31	RT	to	34+26	40	RT	RT	17th Ave S	9.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
MIDCO-5	UTIL-6	27+49	-40	LT	to	30+77	-41	LT	LT	17th Ave S	1.0	FT	-	Level 2	Protect in Place	Midcontinent Communications	Fiber Optic	X	
XCEENE-G-7	UTIL-6	28+11	-29	LT	to	28+13	-29	LT	LT	17th Ave S	0.0	FT	-	Level 3	Protect in Place	Xcel Energy	Gas Line		X
WINDST-1	UTIL-6	28+52	48	RT	to	28+53	-42	LT	Crossing	17th Ave S	90.0	FT	-	Level 2	Protect in Place	Windstream	Fiber Optic	X	
XCEENE-G-8	UTIL-6	28+13	-29	LT	to	28+66	-32	LT	LT	17th Ave S	3.0	FT	-	Level 2	Adjust Valve Box	Xcel Energy	Gas Line	X	
XCEENE-G-9	UTIL-6	28+66	-32	LT	to	28+68	-33	LT	LT	17th Ave S	1.0	FT	-	Level 3	Protect in Place	Xcel Energy	Gas Line		X
XCEENE-G-10	UTIL-6	28+67	-33	LT	to	28+67	-48	LT	LT	17th Ave S	15.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
MIDCO-6	UTIL-6	28+67	50	RT	to	28+68	-44	LT	Crossing	17th Ave S	94.0	FT	-	Level 2	Protect in Place	Midcontinent Communications	Fiber Optic	X	

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT										Protect in Place	Conflict
XCEENE-G-11	UTIL-6	28+67	-32	LT	to	28+68	40	RT	Crossing	17th Ave S	72.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-E-16	UTIL-6	29+17	40	RT	to	29+18	-63	LT	Crossing	17th Ave S	103.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-17	UTIL-6	30+18	-40	LT	to	30+73	-21	LT	LT	17th Ave S	19.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-18	UTIL-6	30+74	20	RT	to	30+74	-40	LT	Crossing	17th Ave S	60.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-19	UTIL-6	30+76	-22	LT	to	31+13	-40	LT	LT	17th Ave S	18.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
LUMEN-9	UTIL-6	30+76	20	RT	to	34+41	19	RT	RT	17th Ave S	1.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
MIDCO-7	UTIL-6	30+80	-40	LT	to	34+44	-40	LT	LT	17th Ave S	0.0	FT	-	Level 2	Protect in Place	Midcontinent Communications	Fiber Optic	X	
LUMEN-10	UTIL-7	34+43	19	RT	to	42+08	29	RT	RT	17th Ave S	10.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
MIDCO-8	UTIL-7	34+45	19	RT	to	34+48	-40	LT	Crossing	17th Ave S	59.0	FT	-	Level 2	Protect in Place	Midcontinent Communications	Fiber Optic	X	
XCEENE-E-20	UTIL-7	34+46	20	RT	to	34+47	-22	LT	Crossing	17th Ave S	44.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-G-12	UTIL-8	28+68	-32	LT	to	55+04	-29	LT	LT	17th Ave S	3.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-G-13	UTIL-8	35+05	-42	LT	to	36+06	-18	LT	LT	17th Ave S	22.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-G-14	UTIL-8	36+54	-40	LT	to	36+55	22	RT	Crossing	17th Ave S	62.0	FT	-	Level 2	Adjust Valve Box	Xcel Energy	Gas Line	X	
XCEENE-G-15	UTIL-8	36+56	-13	LT	to	36+56	-15	LT	LT	17th Ave S	2.0	FT	-	Level 3	Adjust Valve Box	Xcel Energy	Gas Line		X
XCEENE-E-21	UTIL-8	38+24	40	RT	to	38+26	-32	LT	Crossing	17th Ave S	72.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
LUMEN-11	UTIL-8	38+30	32	RT	to	42+08	30	RT	RT	17th Ave S	2.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
XCEENE-G-16	UTIL-8	36+56	-17	LT	to	36+56	-19	LT	LT	17th Ave S	2.0	FT	-	Level 3	Protect in Place	Xcel Energy	Gas Line		X
XCEENE-G-17	UTIL-8	40+32	40	RT	to	40+34	-49	LT	Crossing	17th Ave S	89.0	FT	-	Level 2	Adjust Valve Box	Xcel Energy	Gas Line	X	
XCEENE-G-18	UTIL-8	40+33	-13	LT	to	40+33	-15	LT	LT	17th Ave S	2.0	FT	-	Level 3	Adjust Valve Box	Xcel Energy	Gas Line		X

Utility Coordination Table Appendix A of SP 92(25)

TMA-SU-8-984 (181) PCN 24237

UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT										Protect in Place	Conflict
XCEENE-E-22	UTIL-9	42+06	40	RT	to	42+07	-40	LT	Crossing	17th Ave S	80.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
LUMEN-12	UTIL-9	42+10	30	RT	to	45+97	31	RT	RT	17th Ave S	1.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
XCEENE-G-19	UTIL-9	40+33	-19	LT	to	40+33	-21	LT	LT	17th Ave S	2.0	FT	-	Level 3	Protect in Place	Xcel Energy	Gas Line		X
XCEENE-G-20	UTIL-9	43+78	41	RT	to	43+79	-56	LT	Crossing	17th Ave S	97.0	FT	-	Level 2	Adjust Valve Box	Xcel Energy	Gas Line	X	
XCEENE-G-21	UTIL-9	43+78	-14	LT	to	43+78	-16	LT	LT	17th Ave S	2.0	FT	-	Level 3	Adjust Valve Box	Xcel Energy	Gas Line		X
XCEENE-E-23	UTIL-9	45+38	-40	LT	to	45+83	-20	LT	LT	17th Ave S	20.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-24	UTIL-9	45+40	-40	LT	to	45+83	-20	LT	LT	17th Ave S	20.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-25	UTIL-10	45+84	19	LT	to	45+95	28	RT	Crossing	17th Ave S	9.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
MIDCO-9	UTIL-10	45+84	-41	LT	to	49+63	-40	LT	LT	17th Ave S	1.0	FT	-	Level 2	Protect in Place	Midcontinent Communications	Fiber Optic	X	
XCEENE-E-26	UTIL-10	45+85	-40	LT	to	45+85	38	RT	Crossing	17th Ave S	78.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-27	UTIL-10	45+86	-20	LT	to	46+38	-40	LT	LT	17th Ave S	20.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-28	UTIL-10	45+86	-20	LT	to	46+43	-40	LT	LT	17th Ave S	20.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
LUMEN-13	UTIL-10	46+01	31	RT	to	47+90	33	RT	RT	17th Ave S	2.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
MIDCO-10	UTIL-10	47+36	-48	LT	to	47+37	49	RT	Crossing	17th Ave S	97.0	FT	-	Level 2	Protect in Place	Midcontinent Communications	Fiber Optic	X	
XCEENE-E-29	UTIL-10	47+47	19	LT	to	51+27	49	RT	Crossing	17th Ave S	30.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-G-22	UTIL-10	43+78	-17	LT	to	43+78	-19	LT	LT	17th Ave S	2.0	FT	-	Level 3	Adjust Valve Box	Xcel Energy	Gas Line		X
XCEENE-G-23	UTIL-10	47+58	-13	LT	to	47+58	-14	LT	LT	17th Ave S	1.0	FT	-	Level 3	Adjust Valve Box	Xcel Energy	Gas Line		X
XCEENE-G-24	UTIL-10	47+58	-18	LT	to	47+58	-20	LT	LT	17th Ave S	2.0	FT	-	Level 3	Protect in Place	Xcel Energy	Gas Line		X
LUMEN-14	UTIL-10	48+01	26	RT	to	49+67	38	RT	RT	17th Ave S	12.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	

Utility Coordination Table Appendix A of SP 92(25)

TMA-SU-8-984 (181) PCN 24237

UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT										Protect in Place	Conflict
LUMEN-15	UTIL-10	49+52	30	RT	to	49+66	38	RT	RT	17th Ave S	8.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
XCEENE-E-30	UTIL-10	49+64	40	RT	to	49+65	-40	LT	Crossing	17th Ave S	80.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
LUMEN-16	UTIL-10	49+67	38	RT	to	53+37	31	RT	RT	17th Ave S	7.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
LUMEN-17	UTIL-10	49+67	38	RT	to	51+32	59	RT	RT	17th Ave S	21.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
LUMEN-18	UTIL-10	49+67	38	RT	to	53+33	36	RT	RT	17th Ave S	2.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
XCEENE-G-25	UTIL-10	47+57	41	RT	to	47+57	-44	LT	Crossing	17th Ave S	85.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-E-31	UTIL-10	50+54	-23	LT	to	55+04	-37	LT	LT	17th Ave S	14.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
SPARKL-14	UTIL-10	50+55	-20	LT	to	51+86	-25	LT	LT	17th Ave S	8.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
XCEENE-G-26	UTIL-11	50+52	37	RT	to	50+53	-17	LT	Crossing	17th Ave S	54.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-G-27	UTIL-11	51+13	-17	LT	to	51+16	40	RT	Crossing	17th Ave S	57.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-G-28	UTIL-11	51+15	-17	LT	to	51+16	-40	LT	LT	17th Ave S	23.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-E-32	UTIL-11	51+75	57	RT	to	53+42	40	RT	Crossing	17th Ave S	17.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
LUMEN-19	UTIL-11	51+76	60	RT	to	53+37	31	RT	RT	17th Ave S	29.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
702COM-3	UTIL-11	51+80	-23	LT	to	51+81	58	RT	Crossing	17th Ave S	87.0	FT	-	Level 2	Protect in Place	702 Communications	Fiber Optic	X	
SANHEM-1	UTIL-11	51+82	58	RT	to	54+07	-40	LT	Crossing	17th Ave S	98.0	FT	-	Level 2	Protect in Place	Sanford Health/Moorhead Electric	Fiber Optic	X	

Utility Coordination Table Appendix A of SP 92(25)

TMA-SU-8-984 (181) PCN 24237

UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT										Protect in Place	Conflict
702COM-4	UTIL-11	51+81	-27	LT	to	51+82	-40	LT	LT	17th Ave S	87.0	FT	-	Level 2	Protect in Place	702 Communications	Fiber Optic	X	
702COM-5	UTIL-11	51+81	-23	LT	to	51+81	-27	LT	LT	17th Ave S	4.0	FT	-	Level 2	Relocate Pedestal Out of Path	702 Communications	Fiber Optic	X	
SPARKL-15	UTIL-11	51+87	-23	LT	to	51+87	-27	LT	LT	17th Ave S	4.0	FT	-	Level 2	Relocate Voult Out of Path	Sparklight	Fiber Optic	X	
702COM-6	UTIL-11	51+84	-24	LT	to	51+84	-27	LT	LT	17th Ave S	3.0	FT	-	Level 2	Protect in Place	702 Communications	Fiber Optic	X	
SPARKL-16	UTIL-11	51+88	-25	LT	to	53+38	29	RT	Crossing	17th Ave S	57.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
ESSENT-1	UTIL-11	51+88	58	RT	to	53+42	40	RT	RT	17th Ave S	18.0	FT	-	Level 2	Protect in Place	Essentia	Fiber Optic	X	
CONCOM-3	UTIL-11	51+88	58	RT	to	51+89	-47	LT	Crossing	17th Ave S	105.0	FT	-	Level 2	Protect in Place	Consolidated Communications	Fiber Optic	X	
XCEENE-G-29	UTIL-11	51+72	62	RT	to	51+73	-49	LT	Crossing	17th Ave S	111.0	FT	-	Level 2	Protect in Place	Xcel Energy	Gas Line	X	
XCEENE-G-30	UTIL-11	52+43	-18	LT	to	55+04	-30	LT	Crossing	17th Ave S	12.0	FT	-	Level 2	Adjust Valve Box	Xcel Energy	Gas Line	X	
XCEENE-G-31	UTIL-11	52+43	-11	LT	to	52+43	-13	LT	LT	17th Ave S	2.0	FT	-	Level 3	Adjust Valve Box	Xcel Energy	Gas Line		X
XCEENE-G-32	UTIL-11	52+98	-21	LT	to	52+98	-22	LT	LT	17th Ave S	1.0	FT	-	Level 3	Protect in Place	Xcel Energy	Gas Line		X
XCEENE-G-33	UTIL-11	53+06	-39	LT	to	53+06	-25	LT	LT	17th Ave S	14.0	FT	-	Level 2	Adjust Valve Box	Xcel Energy	Gas Line	X	
XCEENE-E-33	UTIL-11	53+42	26	RT	to	53+44	-30	LT	Crossing	17th Ave S	56.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
LUMEN-20	UTIL-11	53+42	32	RT	to	55+03	38	RT	RT	17th Ave S	6.0	FT	-	Level 2	Protect in Place	Lumen	Fiber Optic	X	
SPARKL-16	UTIL-11	51+88	-25	LT	to	53+38	29	RT	Crossing	17th Ave S	57.0	FT	-	Level 2	Protect in Place	Sparklight	Fiber Optic	X	
XCEENE-E-34	UTIL-11	53+43	30	RT	to	54+75	30	RT	RT	17th Ave S	0.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-E-35	UTIL-11	53+44	40	RT	to	53+45	-31	LT	Crossing	17th Ave S	71.0	FT	-	Level 2	Protect in Place	Xcel Energy	Underground Power	X	
XCEENE-G-36	UTIL-11	53+70	-40	LT	to	53+70	-17	LT	LT	17th Ave S	23.0	FT	-	Level 2	Adjust Valve Box	Xcel Energy	Gas Line	X	

Utility Coordination Table Appendix A of SP 92(25)

TMA-SU-8-984 (181) PCN 24237

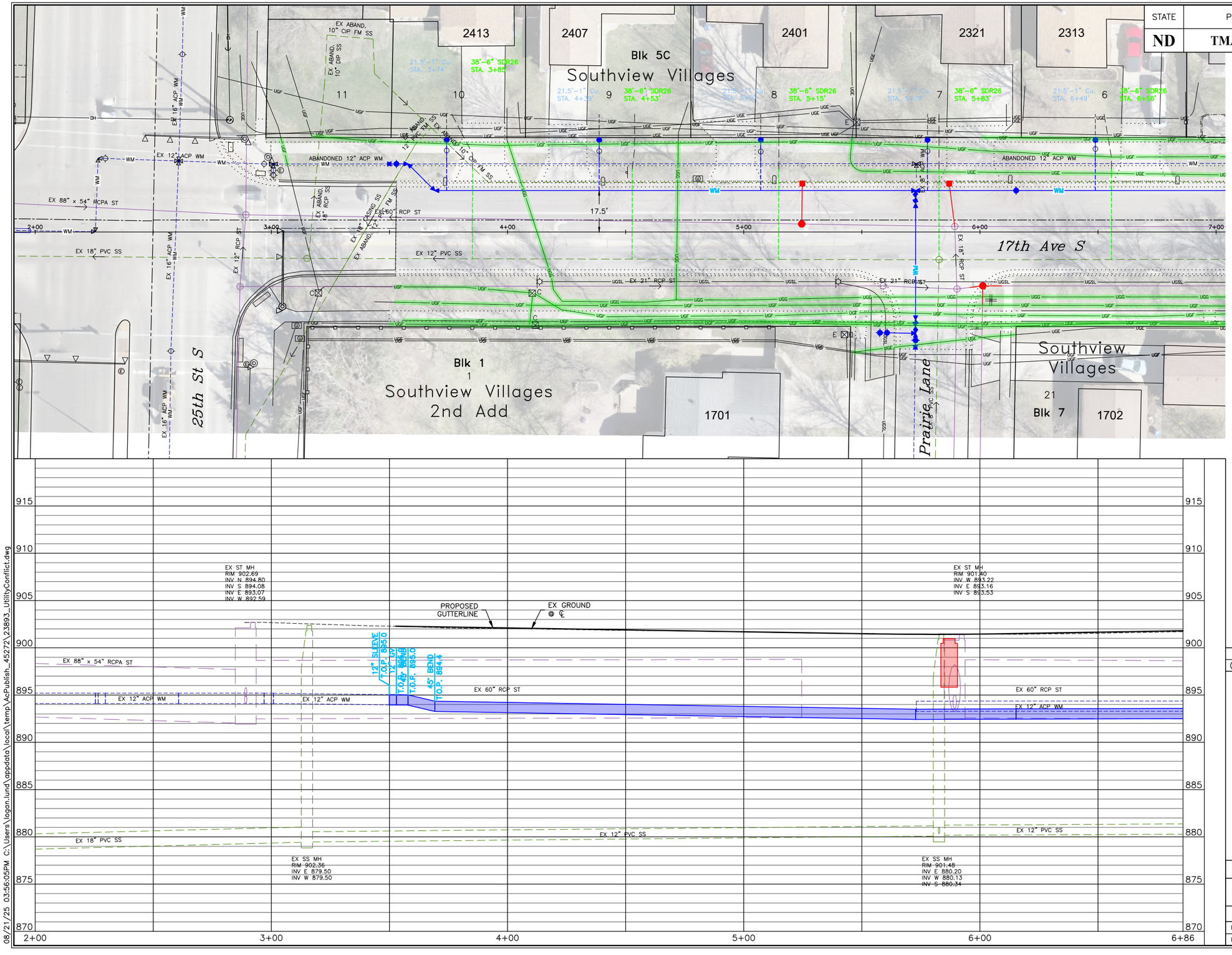
UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT										Protect in Place	Conflict

SEE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION SPECIAL PROVISION UTILITY COORDINATION FOR CONTACT INFORMATION

UTILITY ENCOUNTER LEVEL DESIGNATIONS

UE LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
Level 2	Construction activities will occur above and/or below the utility line. No relocation needed for the utility but may need precautions to protect the utility in place during construction activities.
Level 3	Utility permanently impacted by proposed improvements and requires vertical adjustment only. Horizontal location of utility will not change.
Level 4	Utility permanently impacted by proposed improvements and requires complete relocation. Vertical and horizontal location of utility will change.
Proposed Level 1	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 1.
Proposed Level 2	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 2.
Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction disposition, removal, and/or remain in place.

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-8-984 (181)	UTIL	1



UTILITY ENCOUNTER LEVEL DESIGNATIONS

UE LEVEL	DESCRIPTION
LEVEL 1	UTILITY NOT AFFECTED BY PROPOSED IMPROVEMENTS, NO IMPACTS.
LEVEL 2	CONSTRUCTION ACTIVITIES WILL OCCUR ABOVE AND/OR BELOW THE UTILITY LINE. NO RELOCATION NEEDED FOR THE UTILITY BUT MAY NEED PRECAUTIONS TO PROTECT THE UTILITY IN PLACE DURING CONSTRUCTION ACTIVITIES.
LEVEL 3	UTILITY PERMANENTLY IMPACTED BY PROPOSED IMPROVEMENTS AND REQUIRES VERTICAL ADJUSTMENT ONLY. HORIZONTAL LOCATION OF UTILITY WILL NOT CHANGE.
LEVEL 4	UTILITY PERMANENTLY IMPACTED BY PROPOSED IMPROVEMENTS AND REQUIRES COMPLETE RELOCATION. VERTICAL AND HORIZONTAL LOCATION OF UTILITY WILL CHANGE.
PROPOSED LEVEL 1	UTILITY THAT IS TO BE RELOCATED BY THE UTILITY COMPANY, AND AFTER UTILITY IS RELOCATED TO THE NEW LOCATION, THE FINAL ENCOUNTER LEVEL WOULD BE THAT OF LEVEL 1.
PROPOSED LEVEL 2	UTILITY THAT IS TO BE RELOCATED BY THE UTILITY COMPANY, AND AFTER UTILITY IS RELOCATED TO THE NEW LOCATION, THE FINAL ENCOUNTER LEVEL WOULD BE THAT OF LEVEL 2.
ABANDONED	UTILITY LINE THAT WAS AN ENCOUNTER AND IS NOW ABANDONED IN PLACE. SEE COMMENTS FOR CONSTRUCTION DISPOSITION, REMOVAL, AND/OR REMAIN IN PLACE.

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM (PRE-GEOID18). (UNLESS NOTED OTHERWISE)

REVISIONS

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SEAL

PRELIMINARY

17th Ave S Utilities - 2+00 to 6+86

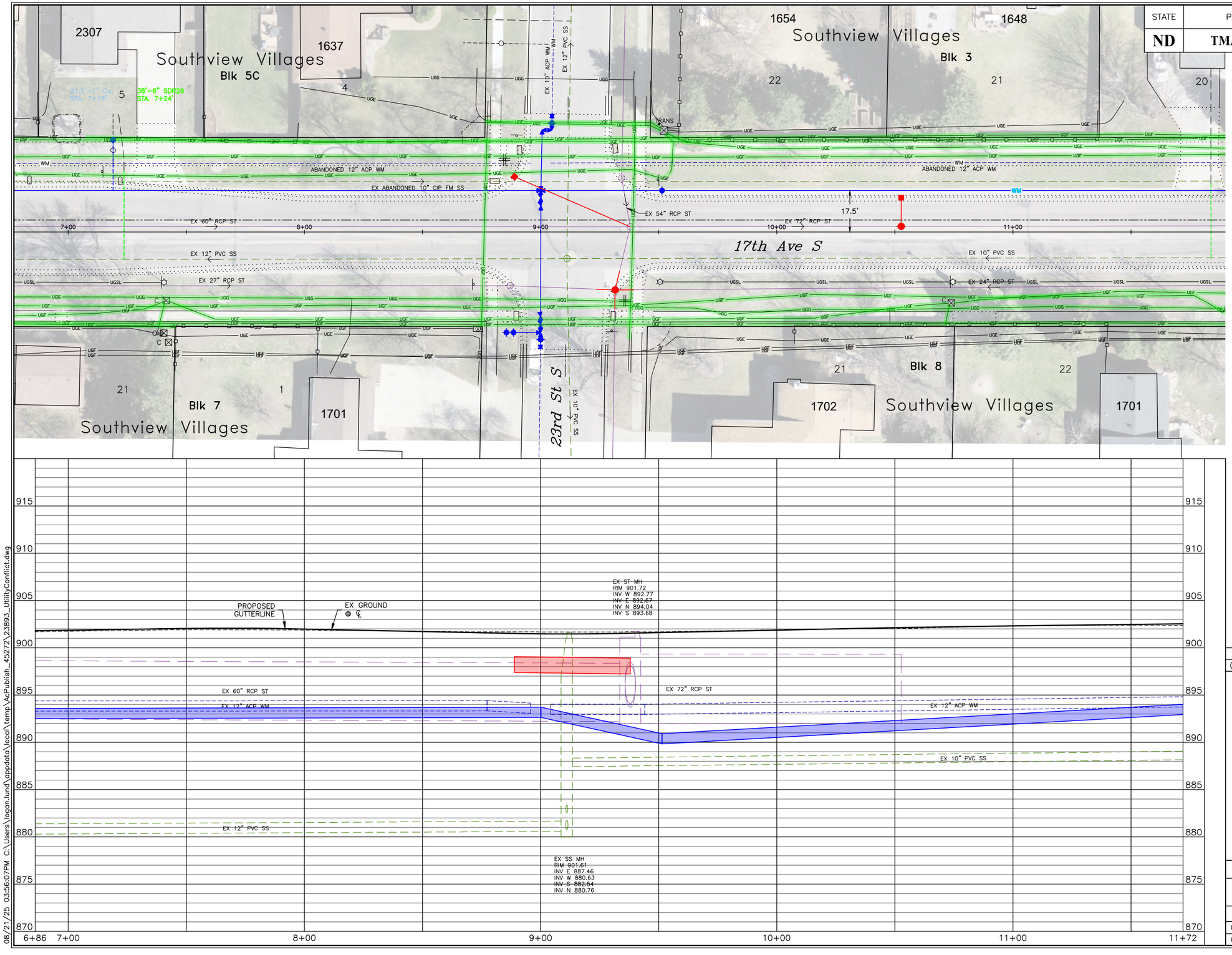
17th Ave S Reconstruction
(University Dr To 25th St)

CITY OF FARGO Improvement District *BR-26-G1*

DESIGN BY: DJD	CHECKED BY: EAG
DRAWN BY: DLM/LPL	ORIG DATE: PlanDate

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-8-984 (181)	UTIL	2



UTILITY ENCOUNTER LEVEL DESIGNATIONS

UE LEVEL	DESCRIPTION
LEVEL 1	UTILITY NOT AFFECTED BY PROPOSED IMPROVEMENTS, NO IMPACTS.
LEVEL 2	CONSTRUCTION ACTIVITIES WILL OCCUR ABOVE AND/OR BELOW THE UTILITY LINE. NO RELOCATION NEEDED FOR THE UTILITY BUT MAY NEED PRECAUTIONS TO PROTECT THE UTILITY IN PLACE DURING CONSTRUCTION ACTIVITIES.
LEVEL 3	UTILITY PERMANENTLY IMPACTED BY PROPOSED IMPROVEMENTS AND REQUIRES VERTICAL ADJUSTMENT ONLY. HORIZONTAL LOCATION OF UTILITY WILL NOT CHANGE.
LEVEL 4	UTILITY PERMANENTLY IMPACTED BY PROPOSED IMPROVEMENTS AND REQUIRES COMPLETE RELOCATION. VERTICAL AND HORIZONTAL LOCATION OF UTILITY WILL CHANGE.
PROPOSED LEVEL 1	UTILITY THAT IS TO BE RELOCATED BY THE UTILITY COMPANY, AND AFTER UTILITY IS RELOCATED TO THE NEW LOCATION, THE FINAL ENCOUNTER LEVEL WOULD BE THAT OF LEVEL 1.
PROPOSED LEVEL 2	UTILITY THAT IS TO BE RELOCATED BY THE UTILITY COMPANY, AND AFTER UTILITY IS RELOCATED TO THE NEW LOCATION, THE FINAL ENCOUNTER LEVEL WOULD BE THAT OF LEVEL 2.
ABANDONED	UTILITY LINE THAT WAS AN ENCOUNTER AND IS NOW ABANDONED IN PLACE. SEE COMMENTS FOR CONSTRUCTION DISPOSITION, REMOVAL, AND/OR REMAIN IN PLACE.

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM (PRE-GEOID18). (UNLESS NOTED OTHERWISE)

REVISIONS

③	②	①

SEAL

PRELIMINARY

17th Ave S Utilities - 6+86 to 11+72

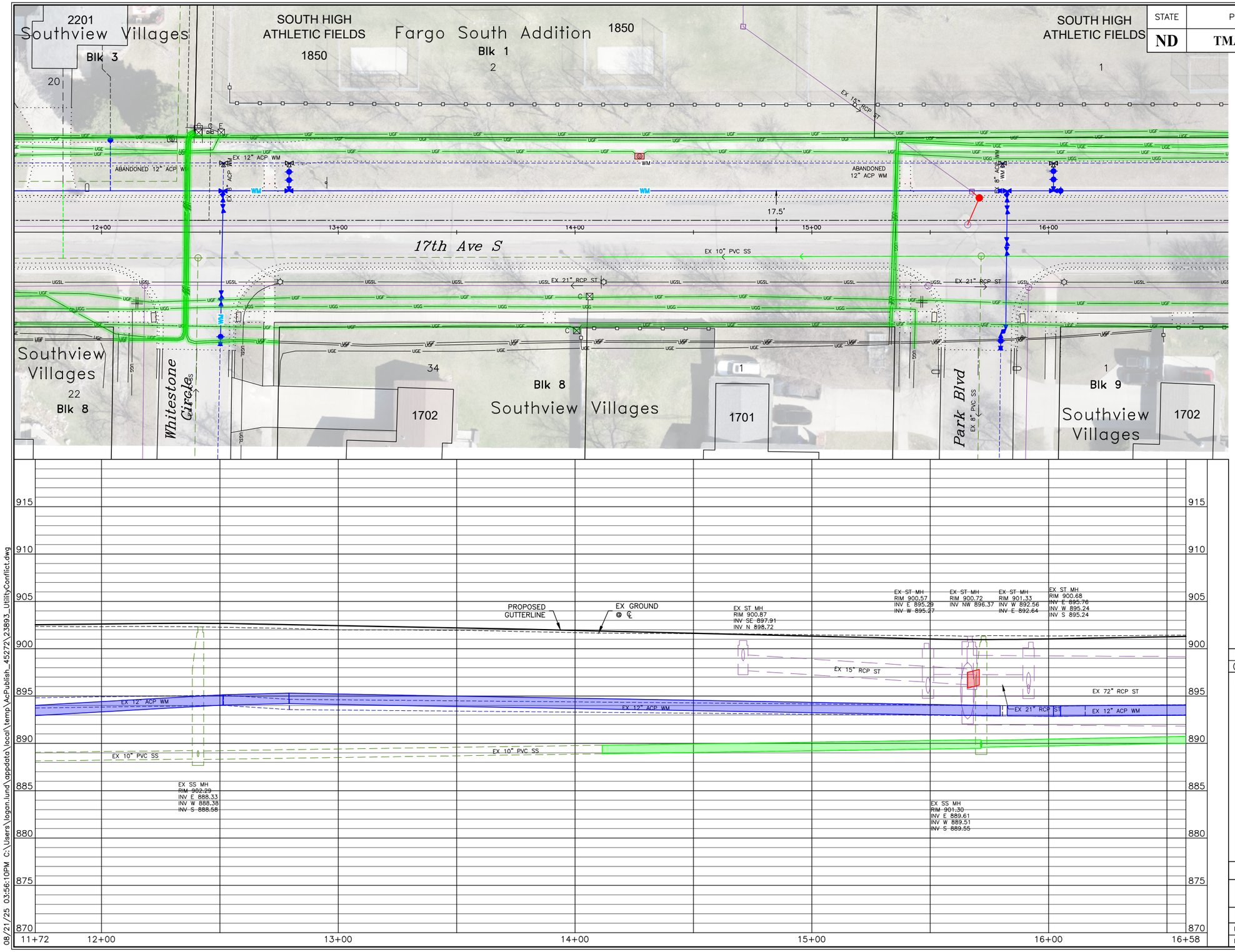
17th Ave S Reconstruction
(University Dr To 25th St)

CITY OF FARGO Improvement District *BR-26-G1*

DESIGN BY: DJD	CHECKED BY: EAG
DRAWN BY: DLM/LPL	ORIG DATE: PlanDate

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-8-984 (181)	UTIL	3



0 20' 40'

UTILITY ENCOUNTER LEVEL DESIGNATIONS

UE LEVEL	DESCRIPTION
LEVEL 1	UTILITY NOT AFFECTED BY PROPOSED IMPROVEMENTS, NO IMPACTS.
LEVEL 2	CONSTRUCTION ACTIVITIES WILL OCCUR ABOVE AND/OR BELOW THE UTILITY LINE. NO RELOCATION NEEDED FOR THE UTILITY BUT MAY NEED PRECAUTIONS TO PROTECT THE UTILITY IN PLACE DURING CONSTRUCTION ACTIVITIES.
LEVEL 3	UTILITY PERMANENTLY IMPACTED BY PROPOSED IMPROVEMENTS AND REQUIRES VERTICAL ADJUSTMENT ONLY. HORIZONTAL LOCATION OF UTILITY WILL NOT CHANGE.
LEVEL 4	UTILITY PERMANENTLY IMPACTED BY PROPOSED IMPROVEMENTS AND REQUIRES COMPLETE RELOCATION. VERTICAL AND HORIZONTAL LOCATION OF UTILITY WILL CHANGE.
PROPOSED LEVEL 1	UTILITY THAT IS TO BE RELOCATED BY THE UTILITY COMPANY, AND AFTER UTILITY IS RELOCATED TO THE NEW LOCATION, THE FINAL ENCOUNTER LEVEL WOULD BE THAT OF LEVEL 1.
PROPOSED LEVEL 2	UTILITY THAT IS TO BE RELOCATED BY THE UTILITY COMPANY, AND AFTER UTILITY IS RELOCATED TO THE NEW LOCATION, THE FINAL ENCOUNTER LEVEL WOULD BE THAT OF LEVEL 2.
ABANDONED	UTILITY LINE THAT WAS AN ENCOUNTER AND IS NOW ABANDONED IN PLACE. SEE COMMENTS FOR CONSTRUCTION DISPOSITION, REMOVAL, AND/OR REMAIN IN PLACE.

ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM (PRE-GEOID18). (UNLESS NOTED OTHERWISE)

REVISIONS

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SEAL

PRELIMINARY

17th Ave S Utilities - 11+72 to 16+58

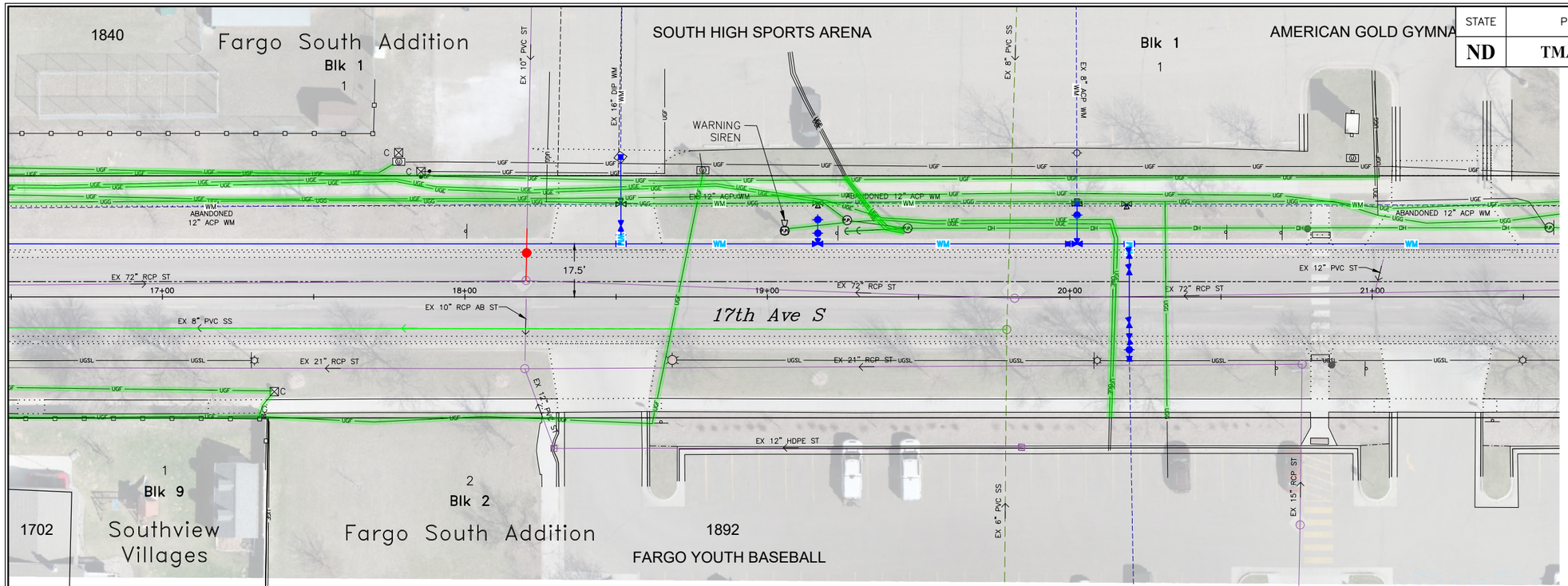
17th Ave S Reconstruction
(University Dr To 25th St)

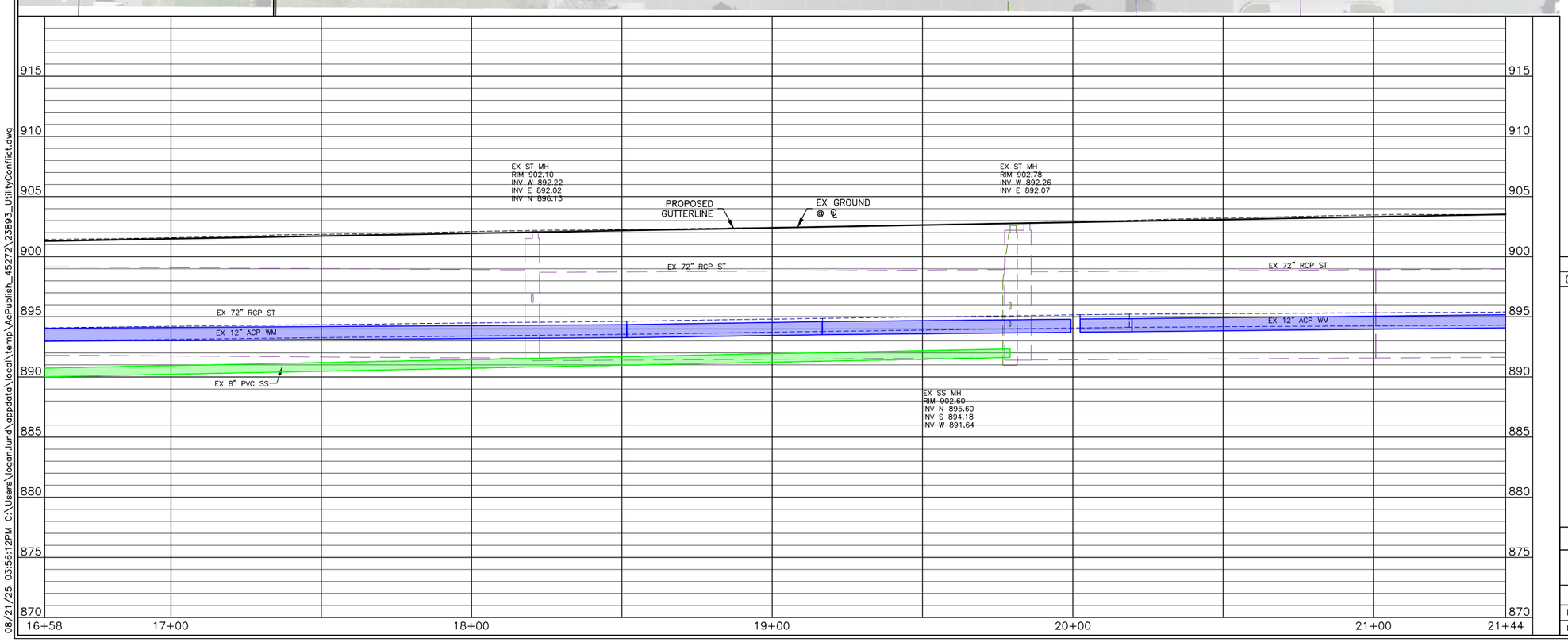
CITY OF FARGO Improvement District *BR-26-G1*

DESIGN BY: DJD	CHECKED BY: EAG
DRAWN BY: DLM/LPL	ORIG DATE: PlanDate

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-8-984 (181)	UTIL	4





0 20' 40'

UTILITY ENCOUNTER LEVEL DESIGNATIONS

UE LEVEL	DESCRIPTION
LEVEL 1	UTILITY NOT AFFECTED BY PROPOSED IMPROVEMENTS, NO IMPACTS.
LEVEL 2	CONSTRUCTION ACTIVITIES WILL OCCUR ABOVE AND/OR BELOW THE UTILITY LINE. NO RELOCATION NEEDED FOR THE UTILITY BUT MAY NEED PRECAUTIONS TO PROTECT THE UTILITY IN PLACE DURING CONSTRUCTION ACTIVITIES.
LEVEL 3	UTILITY PERMANENTLY IMPACTED BY PROPOSED IMPROVEMENTS AND REQUIRES VERTICAL ADJUSTMENT ONLY. HORIZONTAL LOCATION OF UTILITY WILL NOT CHANGE.
LEVEL 4	UTILITY PERMANENTLY IMPACTED BY PROPOSED IMPROVEMENTS AND REQUIRES COMPLETE RELOCATION. VERTICAL AND HORIZONTAL LOCATION OF UTILITY WILL CHANGE.
PROPOSED LEVEL 1	UTILITY THAT IS TO BE RELOCATED BY THE UTILITY COMPANY, AND AFTER UTILITY IS RELOCATED TO THE NEW LOCATION, THE FINAL ENCOUNTER LEVEL WOULD BE THAT OF LEVEL 1.
PROPOSED LEVEL 2	UTILITY THAT IS TO BE RELOCATED BY THE UTILITY COMPANY, AND AFTER UTILITY IS RELOCATED TO THE NEW LOCATION, THE FINAL ENCOUNTER LEVEL WOULD BE THAT OF LEVEL 2.
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REVISIONS

3	2	1

SEAL

PRELIMINARY

17th Ave S Utilities - 16+58 to 21+44

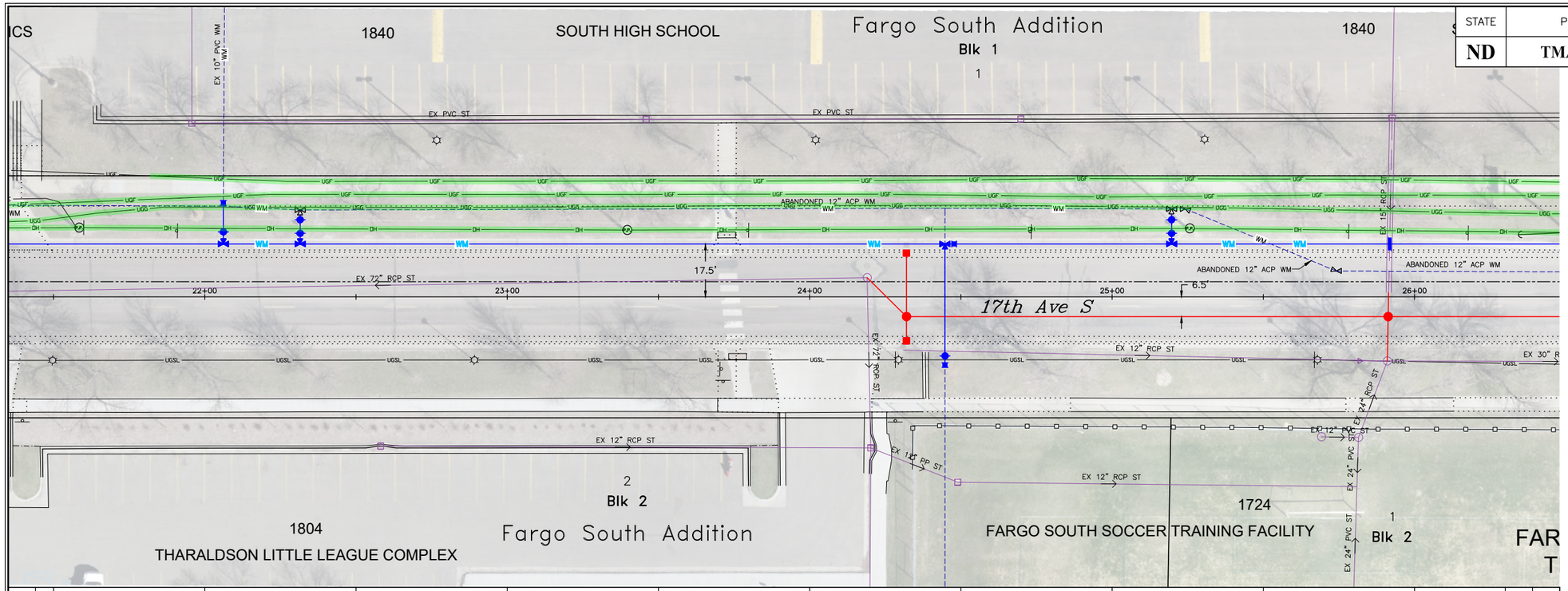
17th Ave S Reconstruction
(University Dr To 25th St)

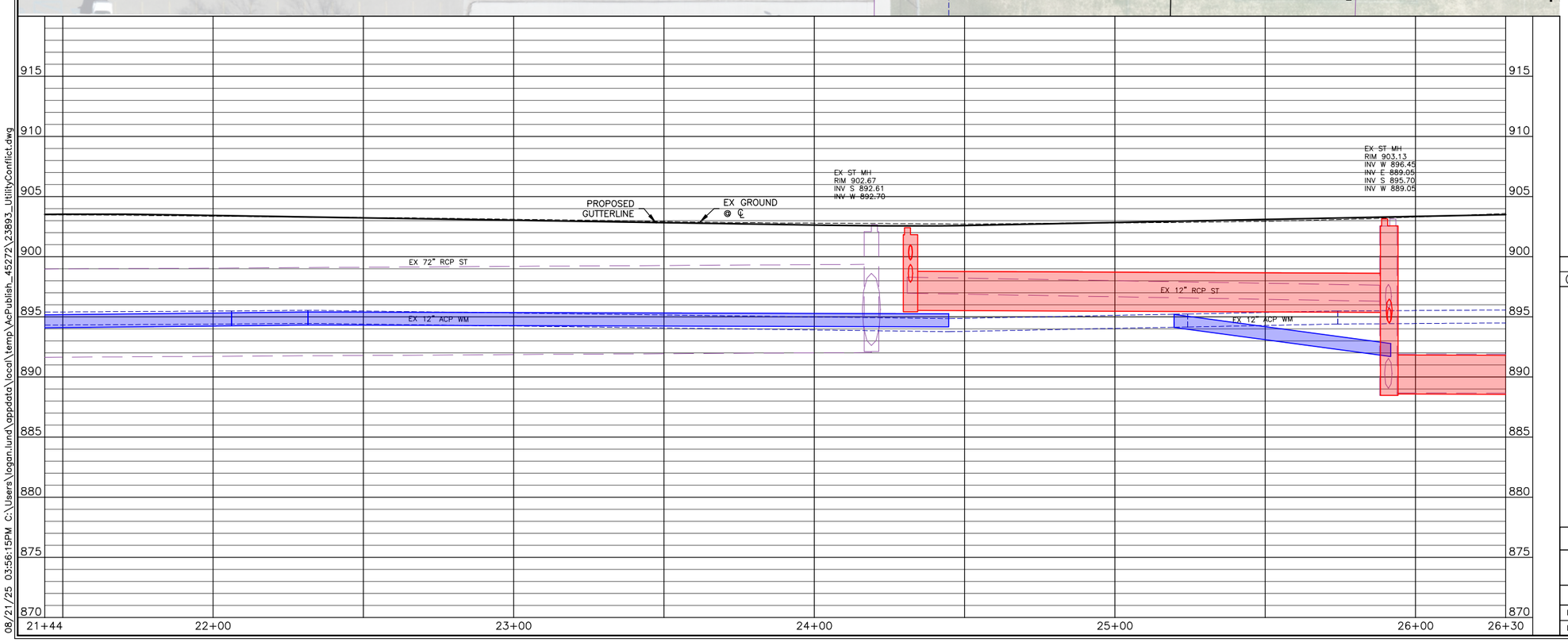
CITY OF FARGO Improvement District *BR-26-G1*

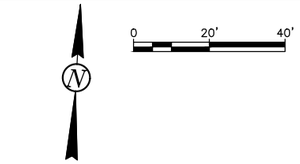
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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-8-984 (181)	UTIL	5







UTILITY ENCOUNTER LEVEL DESIGNATIONS

UE LEVEL	DESCRIPTION
LEVEL 1	UTILITY NOT AFFECTED BY PROPOSED IMPROVEMENTS, NO IMPACTS.
LEVEL 2	CONSTRUCTION ACTIVITIES WILL OCCUR ABOVE AND/OR BELOW THE UTILITY LINE. NO RELOCATION NEEDED FOR THE UTILITY BUT MAY NEED PRECAUTIONS TO PROTECT THE UTILITY IN PLACE DURING CONSTRUCTION ACTIVITIES.
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REVISIONS

3	2	1

SEAL

PRELIMINARY

17th Ave S Utilities - 21+44 to 26+30

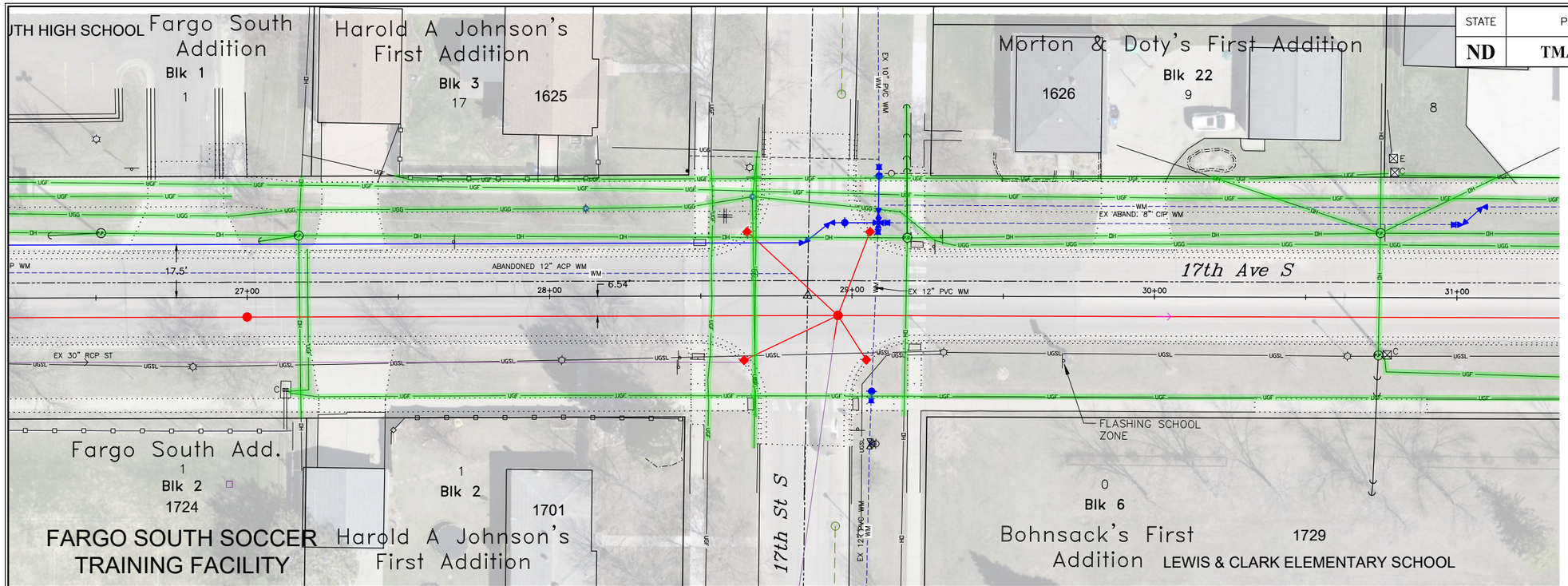
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(University Dr To 25th St)

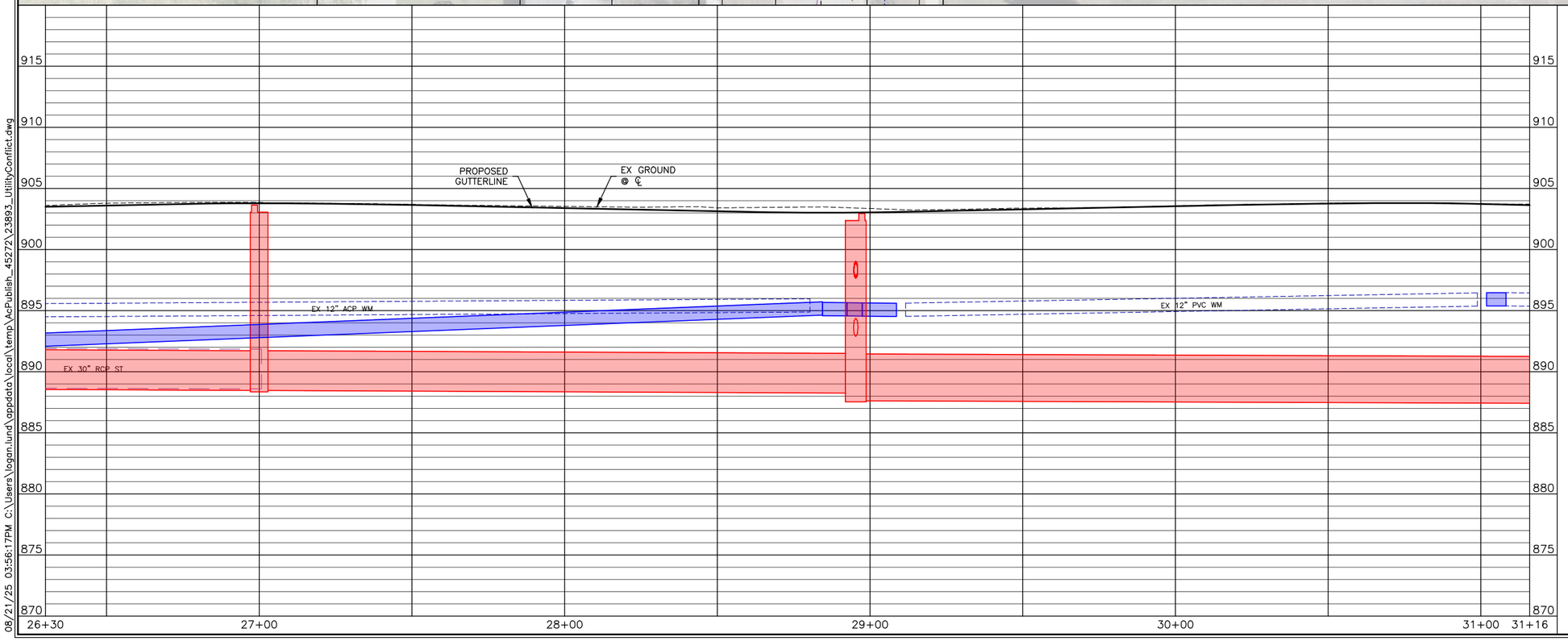
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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-8-984 (181)	UTIL	6





0 20' 40'

UTILITY ENCOUNTER LEVEL DESIGNATIONS

UE LEVEL	DESCRIPTION
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REVISIONS

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SEAL

PRELIMINARY

17th Ave S Utilities - 26+30 to 31+16

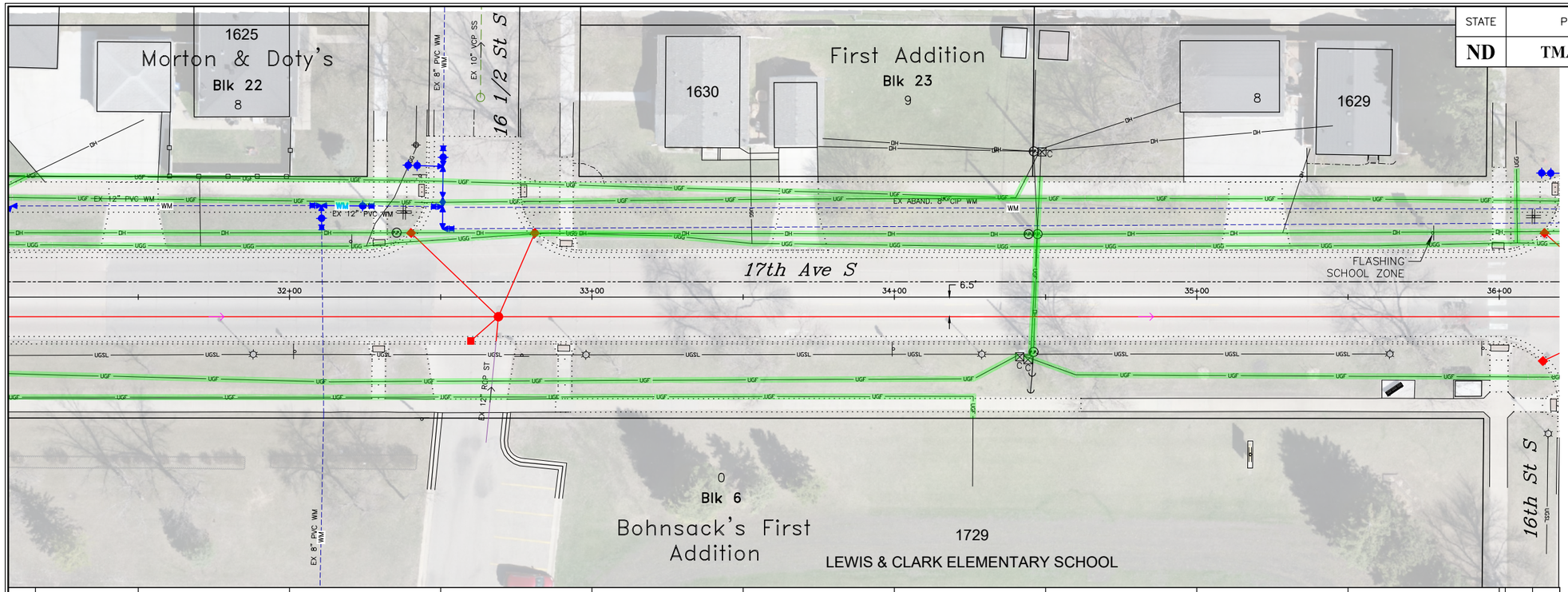
17th Ave S Reconstruction
(University Dr To 25th St)

CITY OF FARGO Improvement District *BR-26-G1*

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-8-984 (181)	UTIL	7



0 20' 40'

UTILITY ENCOUNTER LEVEL DESIGNATIONS

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REVISIONS

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SEAL

PRELIMINARY

17th Ave S Utilities - 31+16 to 36+02

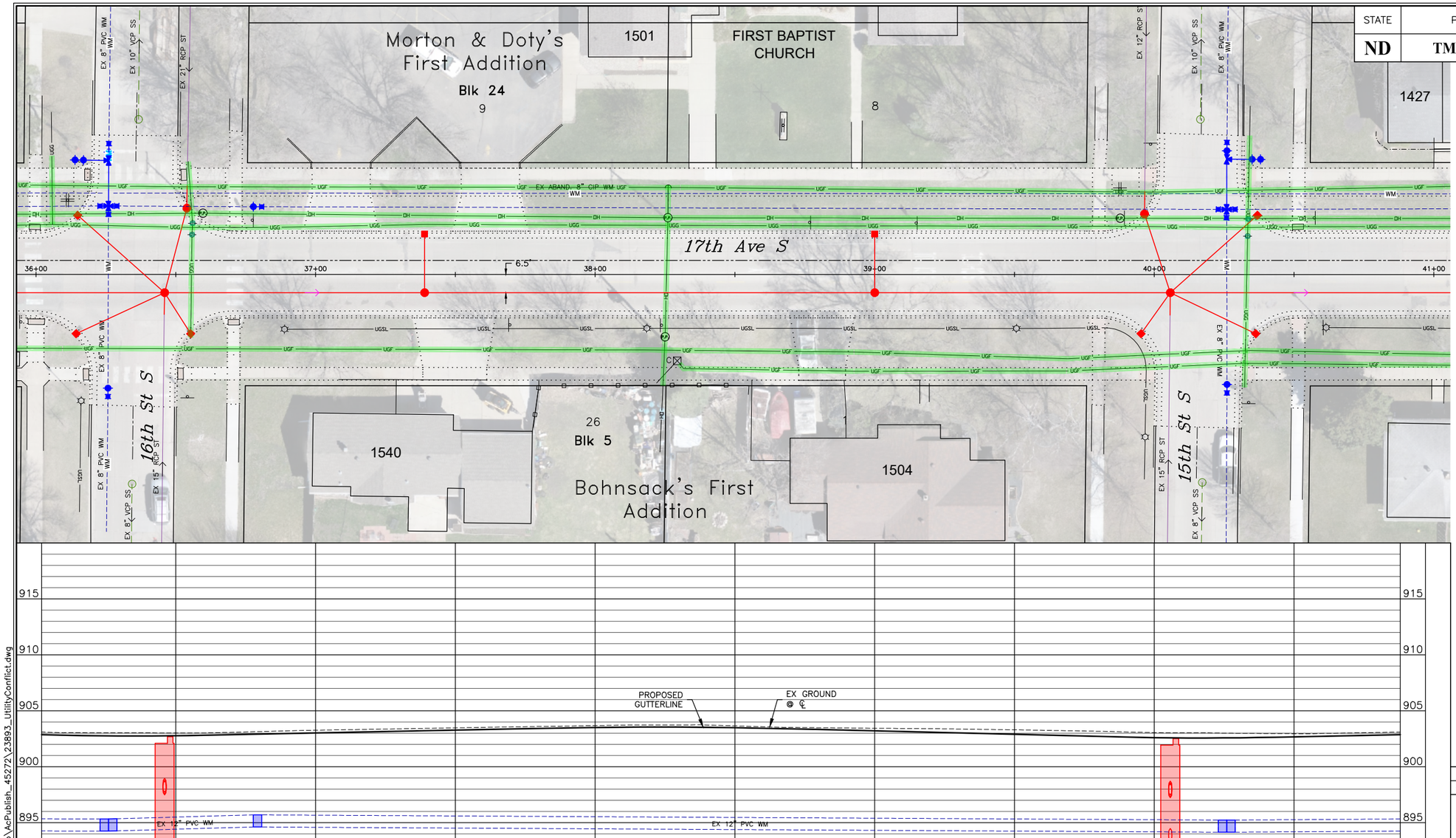
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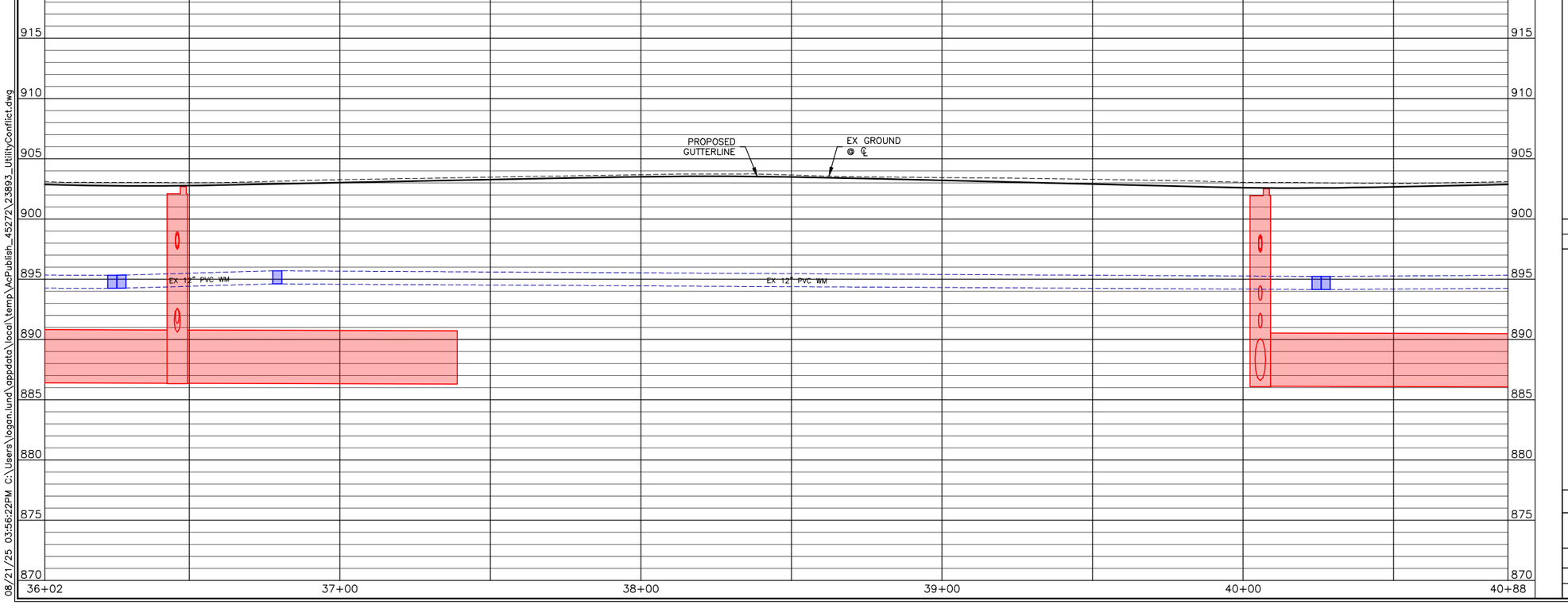
CITY OF FARGO Improvement District *BR-26-G1*

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-8-984 (181)	UTIL	8





UTILITY ENCOUNTER LEVEL DESIGNATIONS

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REVISIONS

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SEAL

PRELIMINARY

17th Ave S Utilities - 36+02 to 40+88

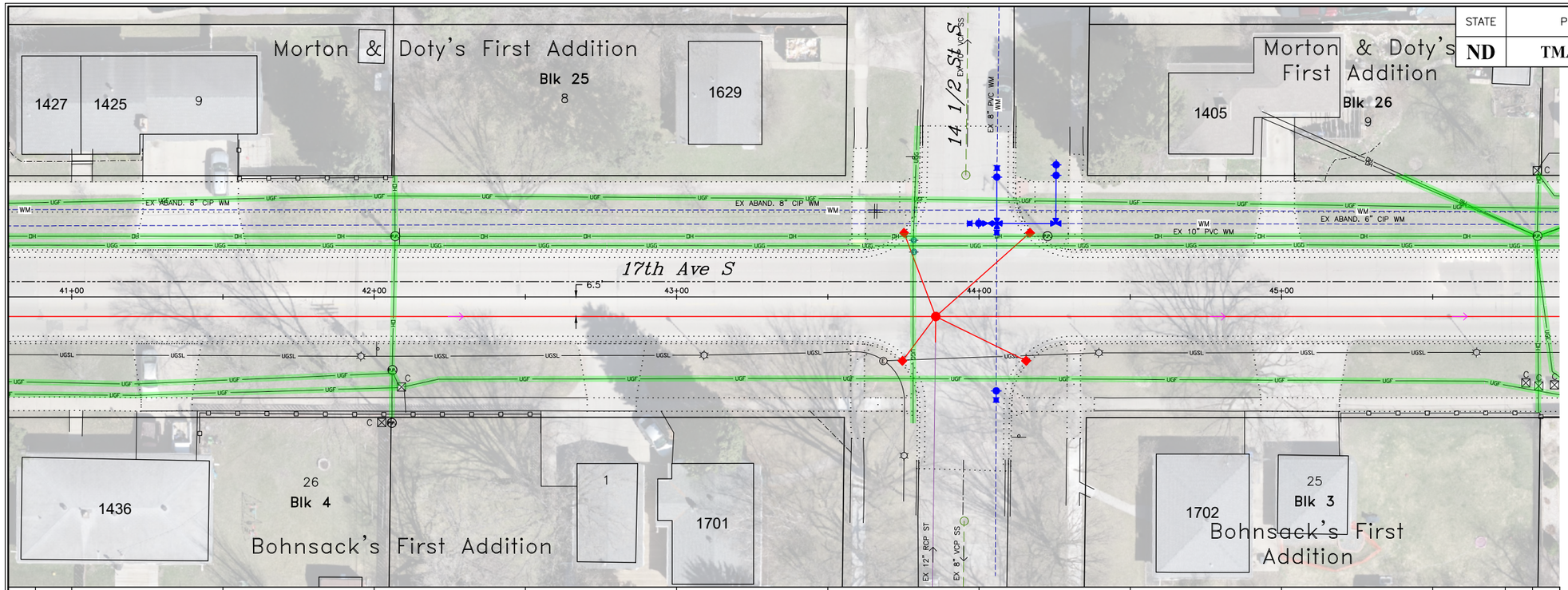
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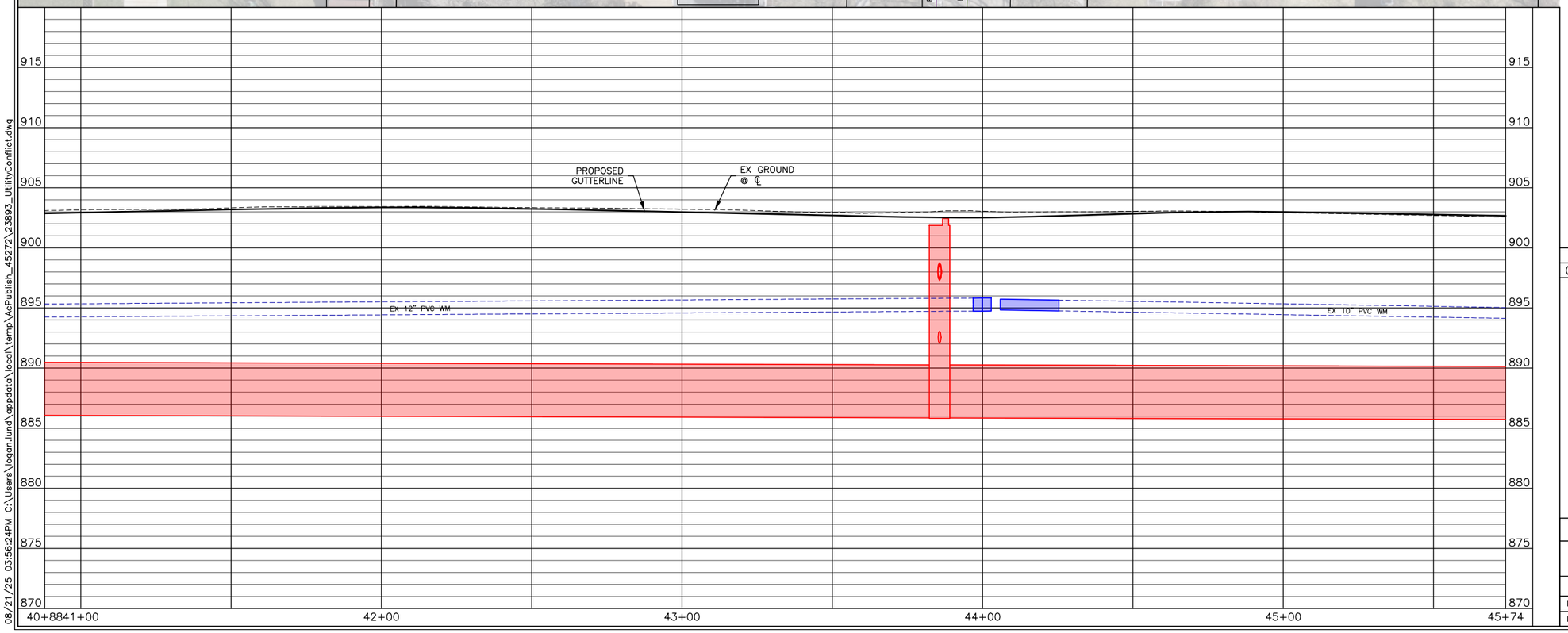
CITY OF FARGO Improvement District *BR-26-G1*

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-8-984 (181)	UTIL	9





UTILITY ENCOUNTER LEVEL DESIGNATIONS

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REVISIONS

3	2	1

SEAL

PRELIMINARY

17th Ave S Utilities - 40+88 to 45+74

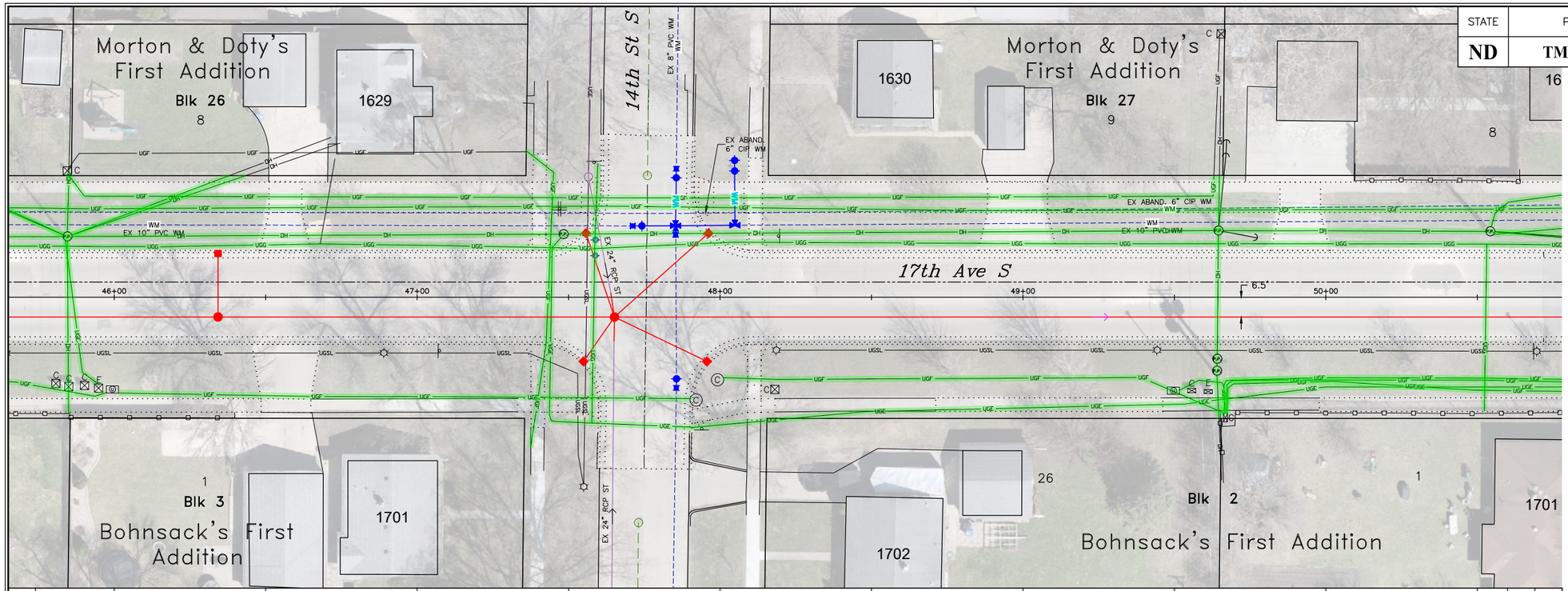
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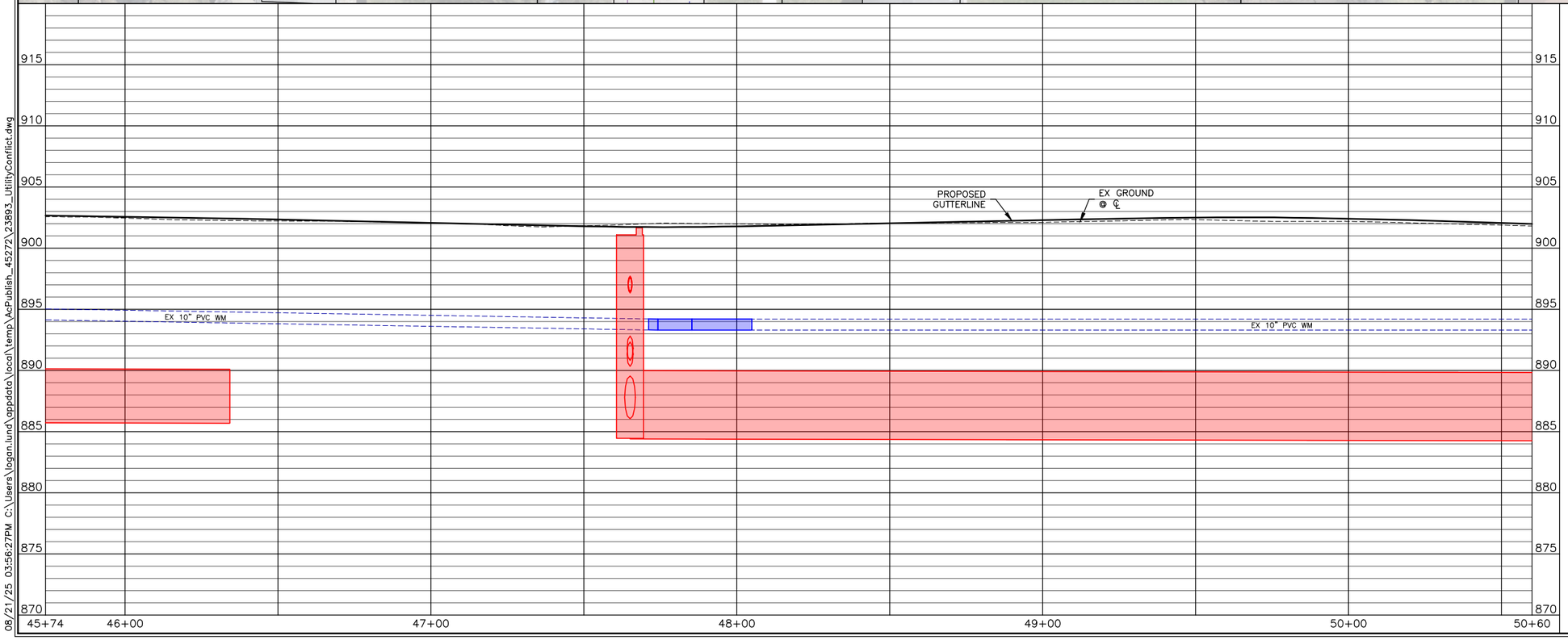
CITY OF FARGO Improvement District *BR-26-G1*

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-8-984 (181)	UTIL	10





0 20' 40'

UTILITY ENCOUNTER LEVEL DESIGNATIONS

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REVISIONS

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SEAL

PRELIMINARY

17th Ave S Utilities - 45+74 to 50+60

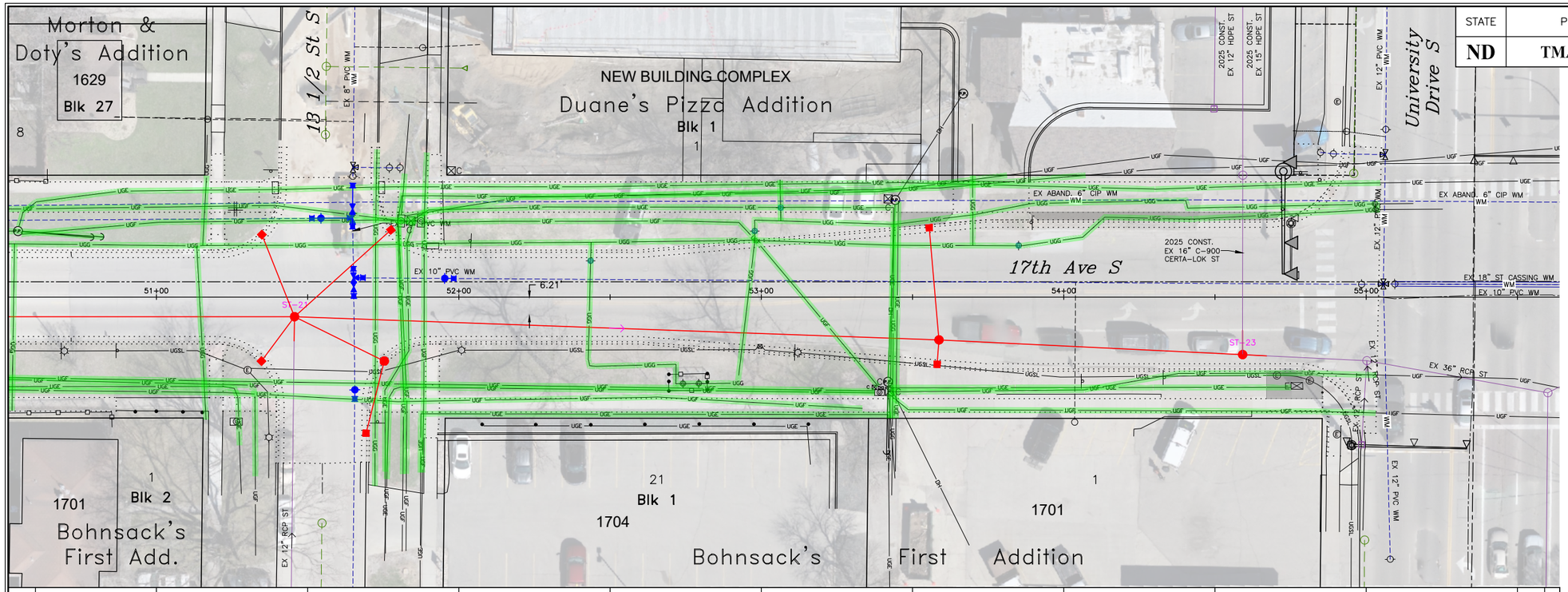
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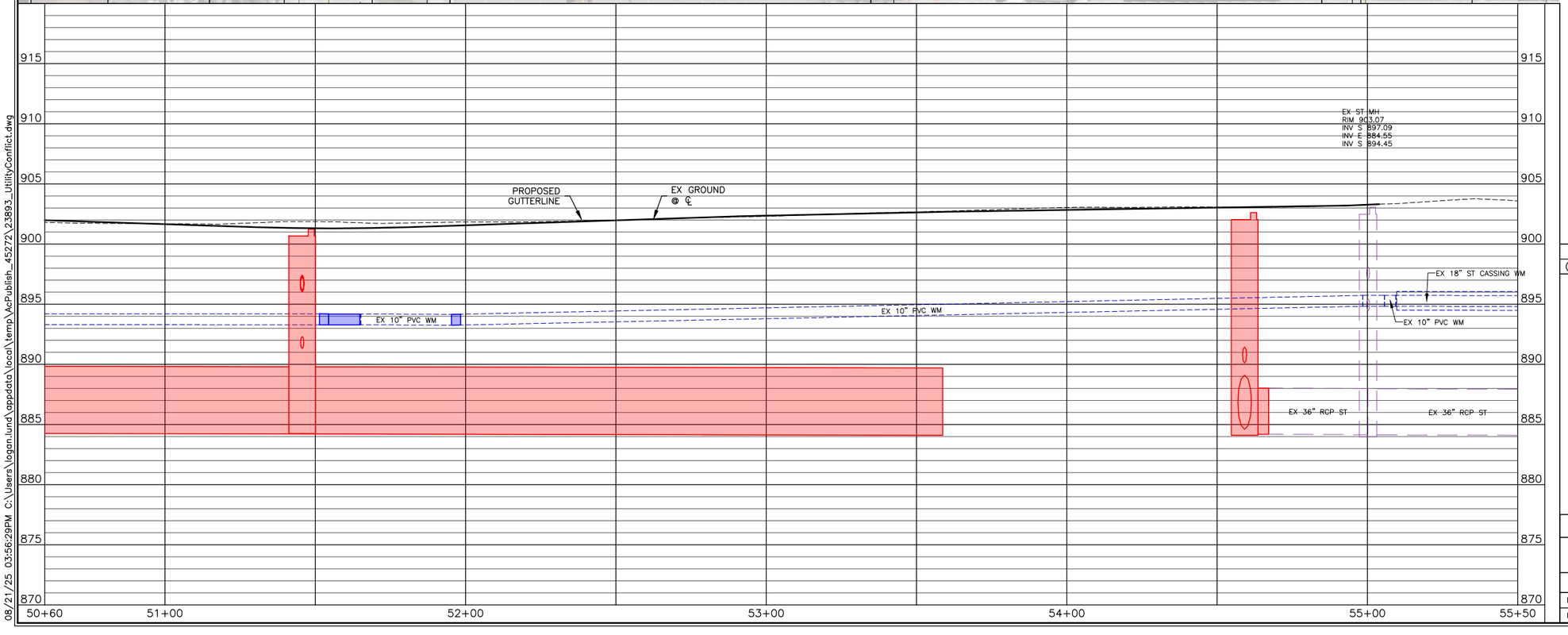
CITY OF FARGO Improvement District *BR-26-G1*

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DRAWN BY: DLM/LPL	ORIG DATE: PlanDate

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TMA-SU-8-984 (181)	UTIL	11





0 20' 40'

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REVISIONS

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SEAL

PRELIMINARY

17th Ave S Utilities - 50+60 to 55+50

17th Ave S Reconstruction
(University Dr To 25th St)

CITY OF FARGO Improvement District *BR-26-G1*

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NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

CITY OF FARGO STANDARD SPECIFICATIONS

Project: TMA-SU-8-984(181); PCN 24237

I hereby certify that this specification 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 North Dakota.



1. SUMMARY

A. The City of Fargo has Standard Specifications to cover the street lighting and traffic signal portions of the project. Revisions to the Standard Specifications are provided within this Special Provision. The following City of Fargo Specifications are included:

Section	Title
4200	Traffic Signal
4400	Street Lighting

The above included specifications may reference other City of Fargo Standard Specifications that are not included as part of this special provision. The specification references not included should default to the comparable specifications found in the NDDOT Standard Specifications for Road and Bridge Construction.

2. GENERAL

A. All related requirements in these portions of the City of Fargo specifications not included in this special provision default to the NDDOT Standard Specifications for Road and Bridge Construction. This includes references to legal requirements, quality assurance, product delivery, storage, and handling, submittals,

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substitutions, and other references omitted from the City of Fargo Standard Specifications.

B. The schedule of material testing should be in accordance with the most recent version of the NDDOT Field Sampling and Testing manual at the time of bid letting.

C. Payment and measurement for street lighting and traffic signal items are in accordance with this special provision, except as noted, for the following items:

Spec	Code	NDDOT Pay Item Name	City of Fargo Specification Number & Detail	
770	0001	LIGHTING SYSTEM	4400	5.1-5.4
770	4567	REMOVING LIGHTING SYSTEM	4400	
772	2110	FLASHING BEACON – POST MOUNTED	4200	5.1, 5.2, 5.13, & 5.21
772	2906	REVISE TRAFFIC SIGNAL SYSTEM – SITE 1	4200	5.4, 5.13, & 5.15
772	2907	REVISE TRAFFIC SIGNAL SYSTEM – SITE 2	4200	5.1-5.4, 5.10, 5.11, 5.13, & 5.16

D. Pay item names comply with standard NDDOT naming conventions as listed above.

3. REVISIONS TO THE CITY OF FARGO SPECIFICATIONS

SECTION 4200
TRAFFIC SIGNALS

Delete all of Section 4200 and **Replace** with the following:

PART 1: DESCRIPTION OF WORK

This work will consist of, but is not limited to, furnishing and installing traffic signal systems, modifying traffic signal systems, pedestrian and school flashing systems, communication systems, traffic surveillance camera systems, and battery back-up systems. All work and material will meet the National Electric Code, the North Dakota State Electrical Board, the local utility company, and the ordinances established by the City of Fargo. All materials will be furnished and installed new unless specified otherwise in the Special Instructions for Bidders or Plans.

PART 2: MATERIALS

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All listed products will have a listing label physically placed on the actual product. All electrical equipment, materials, and devices mentioned in the NEC (National Electrical Code) requires that listed or labeled products be installed in accordance with any instructions included in their listing or labeling, and will meet NEC standards.

2.1. SHOP DRAWINGS

2.1.1. The Contractor will provide an electronic PDF file of shop drawings and certifications required by the City of Fargo within 15 days after the contracts have been signed by the City Commission. All shop drawings and certifications need to be approved prior to any work being started. The Contractor will be responsible for the accuracy of the shop drawings. The Engineer's review does not relieve the Contractor of full responsibility for providing a quality product that meets Specifications.

2.1.2. All manufacturer warranties and guarantees with respect to materials, parts, workmanship, or performance which the products covered by the proposal will be secured and included with the shop drawing submittal.

2.1.3. The Contractor will submit shop drawings on the following listed items for approval:

- Vehicle Heads
  - Housing
  - Back Plate (including screws and washers)
  - LED Sections
  - Mounting Hardware-Must include complete installation instructions
  - Visors-Cup or Cutaway
- Pedestrian Heads
  - Housing
  - Visor
  - LED section
  - Mounting Hardware-Must include complete installation instructions
- Signal Standards
  - Standard
  - Mast Arm
  - Transformer Base
  - Anchor Bolts
  - Bolts, Nuts, & Washers
  - Luminaire Extension & Fixture
  - Mouse Proofing
  - Paint, Primer, Galvanizing Coatings
- Pull Box/Vault
  - Frame-Non Concrete and In Concrete
  - Cover
  - Pull Box

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- Pedestrian Push Buttons
    - Button
    - Housing
    - Sign
    - Post
    - No.16 AWG 3(Polara APS)
    - APS Ped Head Module
- Detection Loops
    - Loop Wire
    - Loop Sealant
    - Loop Lead-in
    - Splice Kits
    - Conduit & Innerduct (HDPE)
    - All sizes
- Signal Control Cables
    - No.14 AWG 20
    - No.14 AWG 12
    - No.14 AWG 7
    - No.14 AWG 5
    - No.14 AWG 3
    - No.14 AWG 2
- Labeling Tape

2.2. SERVICE MANUALS

2.2.1. The Contractor will furnish the Engineer/Project Manager with one service/operational manual, for all traffic signal parts and equipment.

2.2.2. Each service/operational manual will include the following minimum information:

- Detailed description of operation and instructions for initial set-up
- All schematics and wiring diagrams of the unit
- Recommended servicing and service troubleshooting
- Complete parts list
- Recommended spare parts list

2.3. TRAFFIC SIGNAL STANDARDS

2.3.1. TYPE IV TRAFFIC SIGNAL STANDARD

- All Type IV signal standards will be manufactured by Millerbernd Manufacturing, Winsted, MN, or approved Valmont equal
- All Type IV signal standards will be designed for AASHTO 5th Edition 2010 Interim with a wind velocity of 90mph. Fatigue category III for mast arm lengths less than 40’ and Fatigue Category II for mast arm lengths equal to or greater than 40’
- All Type IV signal standards will have 4 anchor bolts, 17” bolt pattern for mast arm lengths less than 40’ and 28” for mast arm lengths equal to or greater than 40’

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- All Type IV signal standards will be galvanized dipped and unpainted.
- If plans call for poles and T-base to be painted, colors will be as follows:
- Transformer base – galvanized and gloss black.
- Mast arm – galvanized and gloss black, or yellow* (see plans)
- Upright Shaft – galvanized or and gloss black, or yellow*(see plans)
  * Yellow color will be No.13538 of Federal Standard No. 595 B.

2.3.2. TYPE V TRAFFIC SIGNAL STANDARD

- All Type V signal standards will be manufactured by Millerbernd Manufacturing, Winsted, MN, or approved Valmont equal
- All Type V signal standard transformer bases will have an aluminum breakaway Akron Foundry Co.TB1-20, 1975 AASHTO approved or approved equal.
- All Type V signal standards will be galvanized dipped, and unpainted.
- If plans call for poles and T-base to be painted, colors will be as follows:
- Transformer base – galvanized and gloss Colors will be as follows:
- Transformer base – galvanized, and gloss black
- Shaft – galvanized and gloss black, or yellow*(see plans)
  * Yellow color will be No.13538 of Federal Standard No. 595 B.
- All Type V signal standards will be 10’ or 17.5’ – see plans

2.4. PEDESTION PUSH BUTTON

2.4.1. PEDESTRIAN PUSH BUTTON POST

- All pedestrian push button posts will be manufactured by Frey Manufacturing or Pelco Part #PB-5237-SCH40-5-P33, will be unpainted, unless matching existing intersection, or specified in plans. Post will be mounted onto concrete according to manufacturer’s specifications and will include all parts to tether post to an anchor bolt. Section 4200 Detail Drawing 5.15.

2.4.2. APS SYSTEM

- System will be a Polara 3-wire System with iPHCU3S ped head control units and iNS2 APS buttons (see plans for number of units). Wire between the pedestrian button and head will be an un-spliced No.16 AWG 3 conductor. Pedestrian buttons will have a 5” x 7“ faceplate with Braille options and the corresponding directional arrow. One spare button with (2) spare signs, (1) for street, and (1) for Avenue will be provided with the system. All Contractor, or Manufacture supplied APS pedestrian systems, and/or parts will have a **5 Year** warranty.

2.4.3. PEDESTRIAN PUSH BUTTONS AND SIGNS

- Pedestrian push buttons will be a Polara Rees Style Bulldog Button with momentary L.E.D. Model #RBDSP-014-Y-2H (Yellow). Pedestrian push buttons will have a Pelco SE-2000 Rectangular Series box pole mount #SE-0295-P01 (Yellow). Pedestrian crossing signs will be an 11th Edition MUTCD R10-25, 5” x 7” size, H.I.P. Sheeting, .080” aluminum sign thickness.

2.5. VEHICLE/PEDESTRIAN INDICATION HEADS

2.5.1. VEHICLE INDICATION HEADS

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- All signal mounting hardware will be iron. ALL hub plates/shoes will be aluminum. Color WILL be black unless noted in plans.
- All red, yellow, and green indications will be L.E.D. meeting or exceeding the latest standards of the Institute of Transportation Engineers. All LED's will have a 15-year warranty, and warranty will include all shipping costs of defective LED's to and from manufacturer. Approved 12" L.E.D. balls are Dialight "XL" series red ball part number 433-1210-003XL15, yellow ball part number 433-3230-901XL15, green ball part number 433-2220-001XL15, or Leotek DT series red ball part number TSL-12R-DT-A1, yellow ball part number TSL-12Y-DT-A1, green ball part number TSL-12G-DT-A1, or GE GTX City ELA series red ball part number DR6-RTFB-ELA, yellow ball part number DR6-YTFB-ELA, green ball part number DR6-GTFB-ELA . Approved 12" L.E.D. arrows are Dialight red arrow part number 432-1314-001XOD15, yellow arrow part number 431-3334-901XOD15, and green arrow part number 432-2324-001XOD15, or Leotek DT series red arrow part number TSL-12RA-DT-A1, yellow arrow part number TSL-12YA-DT-A1, green arrow part number TSL-12GA-DT-A1, or GE GTX City ELA series red arrow part number DR6-RTAAN-ELA, yellow arrow part number DR6-YTAAN-ELA, green arrow part number DR6-GTAAN-ELA.
- All vehicle heads will be SG polycarbonate. Five section cluster mast arm mounted heads will be installed using a Frey Manufacturing 52CA Cluster Adapter with a 45V angled plumbizer and a 32C Clamp Adapter. All vehicle and pedestrian heads will be manufactured by Siemens Eagle, McCain, or approved equal. All signal heads will be required to have reinforcement plate kits installed on them. All 5 section doghouse style heads will have the doors hinge on outside of the head, so all heads can be opened at the same time. All signal heads are required to have **ALUMINUM** cap, or cutaway style vison installed on them.
- All traffic signal back plates will be louvered aluminum and have a minimum thickness of .063". Back plates will be installed using 3/4" O.D. x 3/16" I.D. x standard thickness washers on all screws. Washers will be stainless steel #10 fender washers. Screws used to attach the back plates to the signal head will be highest quality stainless steel ½" #10 pan head tap screws, if a magnet sticks to either they will be rejected.

2.5.2. PEDESTRIAN INDICATION HEADS

- All pedestrian head mounting hardware will be iron. ALL hub plates/shoes will be aluminum. Color WILL be black unless noted in plans.
- All pedestrian heads will be 16"x18" countdown pedestrian signals. Approved pedestrian countdown signals are GE "VLA" series part number PS7-CFF1-VLA, or Dialight ITE Compliant pedestrian countdown signal part number 430-6479-001X or Leotek SPC Superior Performance countdown series part number TSL-PED-16-SPC-V1.
- All pedestrian heads will be SG polycarbonate.

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- All pedestrian heads will be manufactured by Siemens Eagle, McCain, or approved equal. All pedestrian heads will include a 16” aluminum tunnel visor, aluminum door, and aluminum frame.

2.6. PULL BOXES AND VAULTS

2.6.1. TRAFFIC SIGNAL AND FIBER (NON-SPLICE) PULLBOXES

- Pull boxes will be 24” diameter by 48” deep, PVC that meets ASTM F679 standards. The casting will be either Neenah R-1733 in concrete areas, or EJ V1600-3 in non-concrete areas, or approved equal, and covers will be made from 3/8” diamond plated steel as per Section 4200 Detail Drawing 5.16, and have “Electric” on it. All PVC pull boxes installed in concrete areas will have a bell end installed on the bottom to prevent frost heaving.

2.7. CONDUIT

2.7.1. NONMETALLIC CONDUIT WILL BE EITHER POLYVINYL CHLORIDE (HEAVY WALL – PVC) OR HIGH-DENSITY POLYETHYLENE (HDPE) CONDUIT, BOTH AS SPECIFIED BELOW:

- PVC conduit will meet the requirements of UL 651, suitable for direct burial applications, and will have a minimum wall thickness equivalent to Schedule 40 as defined by ASTM 1785.
- HDPE conduit will meet the requirements of UL 651, and either ASTM 2447 or ASTM 3035, suitable for direct burial applications. HDPE conduit will have a minimum wall thickness equivalent to Schedule 40 as defined by ASTM 2447 or DR 15.5 as defined by ASTM 3035. Will be ORANGE for fiber/communications, and RED for high/low voltage power circuits.

2.8. TRAFFIC SIGNAL CONDUCTORS/CONTROL CABLES

2.8.1. MULTI-CONDUCTOR CONTROL CABLES IMSA 20-1

- All multi-conductor control cables will be #14AWG stranded copper, and will meet ISMA 20-1 specifications, including:
  - Conductors: Stranded annealed bare copper class B per ASTM B3 and B8
  - 600V Rated
  - Insulation: Polyethylene PE
  - Rip Cord: High strength rip cord for ease of jacket removal
  - Separator: Polyester tape
  - Jacket: Black polyethylene PE jacket
  - These cables are capable of operating continuously at a conductor temperature between -20°C and 75°C.

2.8.2. LOOP LEAD-IN CABLE IMSA 50-2

- The Loop Lead-in cables will be #14AWG stranded tinned copper, and meet ISMA 50-2 specifications, including:
  - Conductors: Stranded annealed tinned copper per ASTM B33 and B8
  - 600V Rated
  - Insulation: High Molecular Weight Polyethylene HMWPE

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- Rip Cord: High strength rip cord for ease of jacket removal
- Drain Wire: #16AWG Tinned copper
- Overall Shield: 100% coverage aluminum/polyester foil shield
- Jacket: Black polyethylene PE jacket

2.8.3. IN GROUND LOOP CABLE IMSA 51-7

- The loop wire will be IMSA 51-7 “tube loop” detector cable, having a ¼-inch HDPE tube jacket, covering a #14 AWG XHHW/XLPE stranded copper conductor.

2.8.4. LOCATE/TRACE WIRE

- The wire will be 600V rated #12AWG Copper Clad trace wire with HDPE insulation, and rated at a minimum 250 LB of breaking load.
- The wire will be RED when installed with electrical cables, and ORANGE when installed with fiber optic cables.

2.8.5. CABLE LABELS

- Labels will be machine printed on a tape width of 1/2”. All lettering will be 20pt. uppercase block style letters. The labeling tape will be designed for outdoor use. The tape will have a minimum outdoor durability rating of 5 years in temperature ranging from 180°F to -40°F. The labels will be capable of being applied outdoors at temperatures as low as 0°F.

2.9. VEHICLE DETECTION

2.9.1. PREFORMED LOOPS

- NEW CONCRETE- Loop wire will be IMSA 51-7 “tube loop” detector cable, having a ¼-inch HDPE tube jacket, covering a #14 AWG XHHW/XLPE stranded copper conductor.
- MILLED ASPHALT- Loop wire will be IMSA 51-7 “tube loop” detector cable, having a ¼-inch HDPE tube jacket, covering a #14 AWG XHHW/XLPE stranded copper conductor.

2.9.2. SAWED VEHICLE LOOPS

- Loop wire will be IMSA 51-7 “tube loop” detector cable, having a ¼-inch HDPE tube jacket, covering a #14 AWG XHHW/XLPE stranded copper conductor.

2.9.3. SEALANT MATERIAL

- Sealant will be 3M Detector Loop Sealant 5000 – Approved for all new sawed in concrete, asphalt and milled asphalt.
- W.R. Meadows hot applied sealant product 3405, may ONLY be used as an alternate for milled loops that are being overlaid with asphalt.

2.9.4. SPLICING MATERIAL

- All loop splices will be encapsulated in an URASEAL Product No. CK200 epoxy splice kit. Kit must be used within 1 year from manufacturing date.

2.10 PEDESTRIAN FLASHING BEACON ASSEMBLY

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2.10.1 CONTROLLER CABINET AND ASSEMBLY 120 VOLT SYSTEM

- The Contractor will supply a fully wired and terminated pedestrian flasher cabinet manufactured by Mobotrex, part # FC-FARGO-PB-ACT/FC-1189-PM. The cabinet will have its own 15 AMP circuit breaker. Cabinet dimensions will be 36”H x 20” W x 15”D and have a fan & thermostat. ALL components WILL have minimum temperature rating range from -40 degrees F to +160 degrees F.
- The Contractor will provide one spare flasher and one spare relay for each cabinet relay.

2.10.2 SOLAR 12 VDC PEDESTRIAN PUSH BUTTON ACTIVATED SYSTEM

- Pedestrian flashing beacon will be a solar pedestrian flasher manufactured by RTC Manufacturing, Inc. Each solar flasher will include the following items:
  - Combination flasher/battery cabinet with #2 Corbin lock and Uni-Strut or RTC hinge bracket (502364HB) mounting system.
  - Wired back panel w/toggle switch and a MorningStar Prostar or SunSaver solar charge controller.
  - 2-circuit 12 VDC flasher
  - Programmable Timer Relay for adjusting flash time to cross roadway
  - Master/Remote wireless communication for pedestrian button activation between both flashers
  - 3 EA- 12” yellow 12 VDC LED’s
  - 50-watt solar panel
  - 1 EA 100-amp hour Deep Cycle Gel cell battery
  - 17.5’ Type V, the standards will meet the specifications in section - 2.3.2 - TYPE V TRAFFIC SIGNAL STANDARD.
  - 3 EA- 12” federal yellow SG Polycarbonate signals with visors and mounting brackets
  - All signs shown on Section 4200 Detail Drawing 5.21

2.10.3 FLASHER EQUIPMENT

- All hardware and equipment shown on Section 4200 Detail Drawing 5.21.
- All beacon head mounting hardware, pedestal adapters/collars will be iron – absolutely no aluminum.
- All beacon heads will be SG polycarbonate or approved equal and installed level on all sides.
- Yellow indications will be approved L.E.D. signal heads.

2.10.4 PEDESTRIAN FLASHING BEACON UPRIGHT STANDARD

- The Contractor will provide all new 17.5’ Type V pedestrian flasher standards. The standards will meet the specifications in section - 2.3.2 - TYPE V TRAFFIC SIGNAL STANDARD.

2.10.5 PEDESTRIAN PUSH BUTTONS AND SIGNS

- Pedestrian push buttons will be a Polara Rees Style Bulldog Button with momentary L.E.D. Model #RBDSP-014-Y-2H (Yellow). Pedestrian push buttons

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will have a Pelco SE-2000 Rectangular Series box pole mount #SE-0295-P01 (Yellow). Pedestrian crossing signs will be an 11th Edition MUTCD R10-25, 5" x 7" size, H.I.P. Sheeting, .080" aluminum sign thickness.

PART 3: INSTALLATION / REMOVALS

3.1. TRAFFIC SIGNAL STANDARDS

3.1.1. FURNISH AND INSTALL TYPE IV TRAFFIC SIGNAL STANDARD

- All signal standards will be installed in accordance to Section 4200 Detail Drawing 5.3
- Contractor is responsible for verifying and following minimum horizontal and vertical clearance between light and/or signal standards and overhead power lines.
- All signal poles will be Contractor provided unless otherwise noted on the signal plan
- The packing material will be removed from standards when stored outside and as per manufacturer's requirements to prevent damage to the standard's finish.
- The City will inspect the standards upon delivery from the manufacturer, and any damage to the signal standards, transformer bases, hardware, luminaire extension, or anchor bolts. After the date of delivery and acceptance by the City will be the Contractor's responsibility to repair or replace as directed by the Engineer.
- Furnishing and installing mast arm and signal standard signs on new signal standards is incidental to the bid price for all types of combo and signal standards for which no direct compensation will be made.
- The Contractor will provide Mastarm wire entrance fittings. Fittings will be a 1 ½" 45 degree galvanized steel elbow on each signal standard upright, cost incidental to the price bid for the signal standard.
- Round T-base bottom openings will use the Rodent Barriers LLC, or Halek Solutions mouse guard or approved equal and must be installed according the manufacturer's instructions. If the bottom of the T-base is an octagon opening then, the signal standard transformer bases will have Xcluder double stacked 1.5" Fill BLOCKS continuously around the inside of the lower plate to prevent rodents from accessing the transformer base through space between concrete foundation and the lower plate.
- All standards will be plumbed with leveling nuts. The hand hole will be located away from traffic and the mast arms will be perpendicular to the roadway centerline.
- All hardware will be galvanized, and all treads will have a covering of anti-seize.
- Spliced or pulled through conductors will have sufficient slack to extend a minimum of 24 inches outside of the enclosure.
- All transformer base terminations will be made using a Wago Lever Nut (Series 222), installed and labeled as per Section 4200 Detail Drawing 5.13. Contractor will install Atom Lube or approved equal dielectric grease in all used or unused entrances of the Lever Nut.

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- Signal standard anchor bolt nuts WILL be torqued according to NDDOT Standard Specification 770.04-G, excluding the 10am deadline, **with a City of Fargo representative present**, to the following foot-pounds:

Bolt Diameter (inches)	Torque (foot-pounds)
1	300
1 1/4	630
1 1/2	1120
1 3/4	1820
2	2770
2 1/4	4010
2 1/2	5550

3.1.2. FURNISH AND INSTALL TYPE V TRAFFIC SIGNAL STANDARD

- All type V signal standards will be installed in accordance to Section 4200 Detail Drawing 5.2
- The packing material will be removed from standards when stored outside and as per manufacturer's requirements to prevent damage to the standard's finish.
- All standards will be plumbed with leveling nuts. The hand hole will be located away from traffic and the mast arms will be perpendicular to the roadway centerline.
- All hardware will be galvanized, and all treads will have a covering of anti-seize.
- Spliced or pulled through conductors will have sufficient slack to extend a minimum of 24 inches outside of the enclosure.
- All transformer base terminations will be made using a Wago Lever Nut (Series 222), installed and labeled as per Section 4200 Detail Drawing 5.13. Contractor will install Atom Lube or approved equal dielectric grease in all used or unused entrances of the Lever Nut.
- Signal standard transformer bases will have Xcluder gasket 2800G Item# 162728, two may be need to for proper seal.
- Torque 1" bolt/nuts to 300-foot pounds.

3.2. PEDESTION PUSH BUTTON

3.2.1. PEDESTRIAN PUSH BUTTON POST

- Post will be installed in accordance with *Section 4200 Detail Drawing 5.15*.
- Posts will have a spun aluminum finish, or will match the color of the signal standards if installed at an existing intersection.
- All pushbutton cable runs from the push button to the controller cabinet, and push button to pedestrian head, will not be spliced.

3.2.2. APS PEDESTRIAN PUSH BUTTON

- Pedestrian push buttons will be bolted directly to the traffic signal standards. Do not use bandit for this purpose.
- Pushbutton will be mounted at 42" from top of ground directly in front of button.

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- All APS push buttons will be BLACK in color, or will match the color of the signal standards if installed at an existing intersection.
- All pushbutton cable runs from the push button to the controller cabinet, and push button to pedestrian head, will not be spliced.
- The field termination wires inside the button will be protected by the power gel from a Tyco Electronics GelCap-SL-2/0 Street light splice kit.

3.3. VEHICLE AND PEDESTRIAN INDICATION HEADS

3.3.1. VEHICLE INDICATION HEADS

- All vehicle heads will be installed in accordance with *Section 4200 Detail Drawing 5.4*.
- All housings and mounting arms will be BLACK in color, or will match the color of the signal standards if installed at an existing intersection.
- All vehicle heads alignment for post and pedestal vehicle heads mounted on signal standards, will be leveled on all 4-sides, and aimed to the center of the oncoming traffic lane 200 feet from the stop bar. Left turn heads that are post, and pedestal mounted, will be aimed to the center of the left turn lane, 200 feet from the stop bar. Mast arm heads will be parallel to oncoming traffic.
- All vehicle heads will include furnishing and installing 12-inch L.E.D. vehicle signals existing signal head housing for the existing red, yellow, and green vehicle indications. The price bid will include all materials and labor for each L.E.D. vehicle signal installed.
- Contractor will install Wago 222-series Lever Nuts on all splices in vehicle heads. Contractor will install Atom Lube or approved equal dielectric grease in all used or unused entrances of the Lever Nut.
- The mounting arms of vehicle heads must be threaded into plate/shoes/elbows/etc, to a minimum 1/8” past through the setscrew hole. All mounting hardware will be galvanized and Anti-Seize WILL be applied to all treads. When securing post mounted vehicle heads to mounting arms a threaded “chase” nipple will be used, and the rubber gasket goes on the inside of head.
- Outside jacket/insulation of the multi-conductor wire entering into signal head, will extend a minimum of 1” and maximum of 2” before removing.
- All conductor from the signal heads to the splice in transformer base will be included in the cost of furnishing and installing of signal head. ALL incoming conductors will extend a minimum of 2 feet out of each vehicle housing.
- Astro/Sky brackets are approved for use on mast arm mounted 5-section heads. Astro/Sky brackets may also be used to mount new heads on existing mast arms that do not have an existing tendon on the mast arm. Shop drawings for signal heads will indicate the type of mounting.
- Contractor will complete the “Signal Head Height” sheet, after they measure the height of all signal heads after installation and road is at final

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grade. Heads should be 18' to 19' (to the bottom of the back plate) of height at completion.

3.3.2. PEDESTRIAN INDICATION HEADS

- All pedestrian heads will be installed in accordance with *Section 4200 Detail Drawing 5.4*.
- All pedestrian heads will be installed level on all sides.
- All housings and mounting arms will be BLACK in color, or will match the color of the signal standards if installed at an existing intersection.
- All pedestrian signal sections will include furnishing and installing 16" L.E.D. countdown pedestrian into the existing pedestrian signal head housing. The price bid will include all materials and labor for each L.E.D. pedestrian signal installed.
- Contractor will install Wago 222-series Lever Nuts on all splices in pedestrian heads. Contractor will install Atom Lube or approved equal dielectric grease in all used or unused entrances of the Lever Nut.
- The mounting arms of pedestrian heads must be threaded into plate/shoes/elbows/etc, to a minimum 1/8" past through the setscrew hole. All mounting hardware will be galvanized and Anti-Seize WILL be applied to all treads. When securing post mounted pedestrian heads to mounting arms a threaded "chase" nipple will be used, and the rubber gasket goes on the inside of head.
- Outside jacket/insulation of the multi-conductor wire entering into signal head, will extend a minimum of 1" and maximum of 2" before removing.
- All conductor from the signal heads to the splice in transformer base will be included in the cost of furnishing and installing of pedestrian head. ALL incoming conductors will extend a minimum of 2 feet out of each vehicle housing.

3.4. PULLBOX/VAULTS

3.4.1. FURNISH AND INSTALL PULLBOX

- All pullboxes will be installed in accordance with *Section 4200 Detail Drawing 5.16*.
- All pullboxes in landscaped areas, will have the top of the box level with the final grade, and sloped to match the slope of the final grade on all four quadrants.
- All pullboxes in concrete area will be set with the top of the box flush with the final grade at all four quadrants.
- All pullboxes and covers will be a minimum of 36" from the back of the curb unless approved by the engineer.
- All boxes will have a minimum of 2' of pea rock below for drainage that extends 6" beyond the outside edge of the pullbox, and backfill around pullboxes will be a Class 3 gravel with 95% compaction.

3.5. CONDUIT

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3.5.1. FURNISH AND INSTALL CONDUIT ALL SIZES

- Install the conduit in accordance with NEC or National Electrical Safety Code (NESC) requirements and the Design Standards. Consider the locations of conduit as shown in the Plans as approximate. Construct conduit runs as straight as possible, and obtain the Engineer's approval for all major deviations in conduit locations from those shown in the Plans.
- All conduit will be installed at a depth between 24-34 inches below final grade.
- Nonmetallic conduit will be either polyvinyl chloride (heavy wall – PVC) or high-density polyethylene (HDPE) conduit, both as specified below. HDPE conduit will meet the requirements of UL 651, and either ASTM 2447 or ASTM 3035, suitable for direct burial applications. HDPE conduit will have a minimum wall thickness equivalent to Schedule 40 as defined by ASTM 2447 or DR 15.5 as defined by ASTM 3035. Will be ORANGE for fiber/communications, and RED for high/low voltage power circuits.
- Restore the conduit trench construction area to an acceptable condition. Such work includes repair or replacement of all pavement areas, sidewalks, driveways, curbs, structures, landscaping, grass areas (including removal of excavated materials and spoils), removal and disposal of drilling fluids, and backfilling areas disturbed by the conduit installation.
- All trenched or backhoed areas under sidewalks, driveways, or roads will be backfilled with a Class 3 gravel to a 90% compaction.
- HDPE or PVC conduit will not be installed when either the conduit temperature or ambient temperature is below –10 F.
- ALL directional bored conduit will be HDPE innerduct and will be un-spliced from foundation to foundation or pull box.
- Conduit will be installed at the location shown on the plans. Conduit will be bored under existing pavement. Boring conduit will be considered incidental to the bid price for conduit and for which no additional compensation will be made. ALL bored conduits WILL be HDPE inner duct.
- All conduits will have bell ends installed on both ends of the conduit run. All conduits will extend into pull boxes a minimum of 2" and a maximum of 3" at a depth of 24". Install Excluder Rodent Guard in all conduits in the pull boxes and foundations.
- All conduits will have a red No. 12 Copper Clad trace including empty/spare. All runs will be grounded.

3.6. TRAFFIC SIGNAL CONDUCTORS/CONTROL CABLES/WIRE

3.6.1. MULTI-CONDUCTOR CONTROL CABLES IMSA 20-1

- All cables will be un-spliced from controller cabinet to signal standard.
- All cables will be installed in an approved conduit, NO direct buried allowed.
- Pulled through conductors will have sufficient slack to extend a minimum of 18 inches above the pull box opening.

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- Additional cable in pull boxes will be coiled neatly; Contractor will correct any tangled cables.
- Any cables damaged during installation, will be removed completely, and replaced at Contractors expense.
- Additional cable quantities will be installed to provide for slack and the wiring of controllers, and signal heads (all slack will be left in the nearest pull box unless noted) as follows:
  - 10’ at the controller
  - 20’ at post-mounted and pedestal-mounted vehicular signal heads
  - 18’ at post-mounted and pedestal-mounted pedestrian signal heads
  - 8’ at each pedestrian push button
  - 18’ at each flashing beacon sign support
  - 23’ at each signal pole with mast arm plus the length of the mast arm, plus an additional 2’ for plumbizers, and post mount(this is 2’ from entrance into head) and an additional 5’ for an Astro bracket mount
  - 5’ at each foundation for each incoming and outgoing pedestrian and signal head control circuit
  - 2’ inside each vehicle and pedestrian head section
  - 43’ plus length of mastarm for Opticom and indicator light, contractor will pull out any excess of five feet from transformer base and store in the nearest pull box
  - 3’ at each foundation for each incoming and outgoing circuit, which passes through the foundation with no connection being made
  - 10’ at each pullbox

3.6.2. LOOP LEAD-IN CABLE IMSA 50-2

- All cables will be un-spliced from controller cabinet to pull box.
- All cables will be installed in an approved conduit, NO direct buried allowed.
- Any cables damaged during installation, will be removed completely, and replaced at Contractors expense.
- Pulled through conductors will have sufficient slack to extend a minimum of 18 inches above the pull box opening.
- Additional 10’ of loop lead-in cable is required when spliced to the loop in the pull box.

3.6.3. IN GROUND LOOP WIRE IMSA 51-7

- All cables will be installed and spliced in accordance with *Section 4200 Detail Drawing 5.10 and 5.11*.
- Any cables damaged during installation, will be removed completely, and replaced at Contractors expense.
- Additional 10’ of cable on each lead is required to splice the loop in the pull box.

3.6.4. LOCATE/TRACE WIRE

- All trace wires will be clearly labeled, and remove a ½” of insulation at the end of each wire.

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- All conduits will have a trace wire installed, including spare.
- All runs will be grounded.
- If needed, splice trace wire with an approved underground splice connector, splice must be done in pull box.

3.6.5. CABLE LABELS

- The label tape will be affixed around the perimeter of cable with the tail at 90° to the cable. All lettering will be on the tail of the label and readable without moving the cables. See *Section 4200 Detail Drawing 5.13*.
- All labeling materials will be approved by the City before installing.
- Labels will be readable without moving the cables. All field cables installed by the Contractor will be labeled with the cable designations:

TYPE	LABEL	LABEL LOCATION
Fiber cable	Comm./intersection address of other end	Within 12" of conduit
Fiber Splice Case, Jumper(s) & box(s)	Fiber Jumper-Fiber #, fiber panel-Fiber #	*Section 4200 Detail Drawing 5.18*
Pedestrian push button	Phase/location (i.e. θ2-NW, θ2-SW, θ2-S MED, etc.)	Within 6" of terminals
Loop lead-in	Detection zone (i.e. D2-1, D2-2, etc.)	Within 6" of terminals
Control cable	Cable number & location (i.e. Cable 1-NW, Cable 2-SW, etc.)	Within 12" of conduit
Opticom cable	Pre-empt number/location (i.e. P.E. 1-NW, P.E. 2-SW, etc.)	Within 6" of terminal
Camera power cable	Camera no./location (i.e. camera 1/NW)	Within 6" of terminal
CAT 6 cable	Camera no./location (i.e. camera 1/NW)	Within 6" of terminal
Transformer Base Cables	Head # & Cable # and label individual head wires, (i.e. phase 2R,2Y,2G, 2W, 2DW, OLA-R i.e. head# P1,P2,V1, V2,V10, V10A, Neutral+each head #)	*Section 4200 Detail Drawing 5.13*
Head Cabinet Controller Wires	Tie the RED-YELLOW-GREEN wires together with electrical tape for each cable head and label with the plan head number (i.e. Head #1, Head #2, P1, P2)	Within 6" of terminal

3.7. VEHICLE DETECTION

3.7.1. PREFORMED LOOPS

- All preformed loops will be installed accordance with *Section 4200 Detail Drawing 5.10*.
- Preformed loops will be installed on all new pavement replacements.

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- Each loop will have its own conduit, installed a minimum of 4” below grade, and will be installed from the pull box to the same panel in which the loop is installed.
- All preformed loops will be installed on bolster chairs and secured down with (3) 7” stakes per section.
- All loop conduits WILL enter the pull box directly perpendicular from under the curb, NO running conduits parallel under curb or sidewalk.

3.7.2. SAWED VEHICLE LOOPS IN CONCRETE

- All sawed loops will be installed in accordance with *Section 4200 Detail Drawing 5.11*.
- All sawed loops will have 3 turns of approved IMSA 51-7 loop wire.
- Sawed loops will be shown on the plans and the Loop Detector Detail Sheet. The loop location will be marked on the pavement. The loop will be placed in the lane for which it was intended, perpendicular to the lane, and to the size shown in the Contract. The Engineer may move the loop location longitudinally to avoid joints, pavement cracks, manholes, and other obstructions.
- Loops installed on an existing roadway surface will have conduit installed from the pull box to the gutter or roadway edge as specified on *Section 4200 Detail Drawing 5.11*. The excavation from the saw slot at the gutter or roadway edge will be made by means of a punch or drill type tool, rather than by usual excavating methods. The visible portion of the gutter will not be cut for conduit installation. The conduit will be installed to directly receive the loop wire in line and not at an angle. The hole to receive the conduit will be at a depth below the roadway surface so there is a minimum of 2 inches of cover on top of the conduit when installed. Duct Seal will be inserted into the loop pipe to prevent any sealant from entering the pipe and the top 2 inches of the cover over the conduit hole will be sealed with the same sealant used to close the saw slot. The conduit and the pull box will be installed at the same time.
- Loop saw slot cut will be 2” in concrete.
- Pavement slot will be sawed with a self-propelled power saw equipped with a depth gauge and alignment guide. The pavement slot will be cut cleanly and well defined. The saw slot will be overlapped at all corners and right-angle corners will be cored as shown on the Standard Drawings. The saw slot may be made at any time before installation of the wire. Slots will be cleaned immediately after the cutting operation.
- Saw slots will be sealed with 3M Detector Loop Sealant 5000. Before sealing the saw slot, each saw slot will be thoroughly dried, cleaned of all dust, dirt, concrete scale, and other foreign matter. Sandblast all sealed areas, then blow out with a jet of compressed air to remove sandblaster material. The joint faces will be clean and dry when the joints are sealed. Joints will not be sealed when air temperature is above 100 degrees or below 40 degrees F.

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- Failure of the saw slot material in either adhesion or cohesion in the first year after the final acceptance date will be cause for rejection and will be repaired at the Contractor's expense.
- Any interruption of the normal flow of traffic will be the minimum time necessary for installation of the road loop. Work will not begin until all material, equipment, and personnel are at the site. Type III Barricades, warning signs, arrow board, and flag persons will be placed to protect the workers and the traveling public.

3.7.3. SAWED VEHICLE LOOPS IN ASPHALT

- All sawed loops will be installed in accordance with *Section 4200 Detail Drawing 5.11*.
- All sawed loops will have 3 turns of approved IMSA 51-7 loop wire.
- Loop saw slot cut will be 3" deep in asphalt, if asphalt condition is not in good shape, engineer may change saw depth.
- Loops will be installed after the surface has been milled and prior to the first lift of new asphalt.
- Pavement slot will be sawed with a self-propelled power saw equipped with a depth gauge and alignment guide. The pavement slot will be cut cleanly and well defined. The saw slot cut will be overlapped at all corners and right-angle corners will be cored as shown on *Section 4200 Detail Drawing 5.11*. The saw slot may be made at any time before installation of the wire, but slots will be cleaned immediately after the cutting operation.
- Saw slots will be sealed with 3M Detector Loop Sealant 5000. Before sealing the saw slot, each saw slot will be thoroughly dried, cleaned of all dust, dirt, concrete scale, and other foreign matter. Sandblast all sealed areas, then blow out with a jet of compressed air to remove sandblaster material. The joint faces will be clean and dry when the joints are sealed. Joints will not be sealed when air temperature is above 100 degrees or below 40 degrees F.

3.7.4. TESTING DETECTION LOOPS

- Before installing the URASEAL loop splice kit, the loop will be checked for continuity, inductance, and insulation resistance. The test will be made in the Engineer's presence, and the necessary equipment needed to perform these tests will be furnished by the Contractor. The City reserves the right to retest, and these test results will govern the acceptance or rejection of the loop installation. Tests will be made as follows:
- Continuity test - each loop detector circuit will be tested for continuity at two locations:
    - Each individual loop detector at the pull box before splicing with the loop detector lead-in cable will have a value less than 0.5 ohms.
    - Loop detector and lead-in cable system at the traffic signal controller cabinet or detector cabinet after splicing in the pull box will have a value less than 5 ohms. The continuity test ohm reading at the traffic signal

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controller cabinet or detector cabinet will be greater than the ohm reading measured at the loop detector at the pull box.

- Inductance- test each loop detector and lead-in cable system will have an inductance test measured at the traffic signal controller cabinet or detector cabinet. The inductance will be in the range of 50 to 700 microhenrys.
- Insulation Resistance- test insulation resistance by applying 500 volts DC at the traffic signal controller cabinet or at the detector cabinet between one loop detector lead-in conductor and the cabinet ground rod. The insulation resistance will have a value of 500 mega ohms or greater.
- A vehicle loop detector test will be performed and recorded before the initial inspection using a City provided form. This form will be used for rechecking the loops at the final inspection.
- The City will retest all loops at the Final Inspection.

3.7.5. SPLICING DETECTION LOOPS

- All splicing will be done in accordance with *Section 4200 Detail Drawing 5.10 and 5.11*.
- Loop lead-in and loop conductors will be lightly sanded, cleaned with an approved electrical cable cleaner, and wiped clean with a clean towel. Wires **WILL BE SOLDERED**, then wire nut or crimp connected (levernuts are not allowed).
- Loop conductors in the splice kit will not be taped together. Splice will be installed in approved URASEAL splice kit, according to manufactures specifications. No part of the splice should be touching outside of kit.
- Loop lead-in and loop wires will have sufficient slack to extend a minimum of 6', and a maximum of 10' feet above the pull box opening and installed in the pullbox with the splice kit taped a length of 1" PVC such that the splice is secured in the upper 1/3 of pull box.

3.8. REMOVAL OF TRAFFIC SIGNAL EQUIPMENT

3.8.1. REMOVE AND SALVAGE TRAFFIC SIGNAL EQUIPMENT

- The item includes the removal and salvage of all equipment and wiring, and removal and disposal of all unused below ground conduit and foundations. All salvaged material will be documented on the "Salvaged Checklist Sheet" with a detailed description and item count, and delivered by the Contractor to a City storage facility, or disposed of, as directed by the Engineer. The Contractor will protect all salvage material. Materials that are damaged by the Contractor's removal process or mishandling will be replaced with new equipment at the Contractor's expense.
- Before removing existing equipment, arrangements will be made for the local utility company to disconnect the power source. When the meter is no longer needed, the local utility will remove it. The Contractor will disconnect all wiring to the equipment and completely remove the item from its foundation.

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- The traffic signal heads, mounting brackets, and pedestrian buttons and signs will be removed from the standards, and the signal heads will be removed from the mounting brackets.
- Removal and disposal of traffic control cabinet concrete foundation will be disposed properly at Contractors expense.

3.8.2. REMOVE AND SALVAGE SIGNAL STANDARD

- All signal standards removed from the project will become property of the City of Fargo, unless noted in plans, or directed by engineer. Signal standards and mast arms will be delivered to the City of Fargo Pole Lot for storage, or taken to Fargo Iron and Metal for metal scrap salvage. Proceed check written to "City of Fargo Street Lighting" for the amount issued for the signal standard scrap metal.
- The Engineer in the field will determined if the removed signal standard will be scrapped. All costs for removing and salvaging signal standards will be incidental to the price bid for remove and salvage signal equipment.

3.9. PEDESTRIAN FLASHING BEACON ASSEMBLY

3.9.1. CONTROLLER CABINET AND ASSEMBLY 120 VOLT SYSTEM

- The Contractor will supply a fully wired and terminated pedestrian button activated flasher cabinet manufactured by Mobotrex with a flashing circuit panel, general-purpose relay, flasher relay and multifunction time delay relay. Relays will all be NEMA hardened. Cabinet will have its own 15 AMP circuit breaker. Cabinet dimensions will be 36"H x 20" W x 15"D. When installing the flasher cabinet onto an existing cabinet, a bead of Sika Flex silver silicone caulk will be placed completely around the flasher cabinet where it is attached to an existing cabinet. TS2 cabinets can use load switches and controller programming to run beacons.

3.9.2. FLASHER EQUIPMENT

- Pedestrian flashers will be installed in accordance with *Section 4200 Detail Drawing 5.21.*
- All beacon head mounting hardware, pedestal adapters/collars will be iron – absolutely no aluminum.
- All beacon heads will be SG polycarbonate or approved equal and installed level on all sides.
- Yellow indications will be L.E.D. signal heads.

3.10. SUBSTANTIAL AND FINAL COMPLETION

3.10.1. SUBSTANTIAL

- The project will not be substantially complete until the signal system is fully functional. This includes the completions of all pay items, and fully functional fiber optic communication system.

3.10.2. FINAL

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- The project will be Finally completed when all punch list items from the substantial inspection are completed, and all items installed on the project are completed as per specifications and functioning without issues.

3.11. INSPECTIONS/WARRANTY

3.11.1. INITIAL INSPECTION

- After the Contractor has completed the installation of the signal system(s) and any clean up items, the Contractor will complete the "Contractor's Pre-Initial Traffic Signal Inspection Check List" provided by the City. The Contractor will inspect each item on the checklist. The Contractor's personnel that actually did the inspection will initial each item showing that it has been completed. The completed checklist will be forwarded to the Engineer/Project Manager, along with the request for an initial inspection on the form provided by the City. The Engineer/Project Manager will set a date and time for the initial inspection.
- The Engineer or Inspector may stop the initial inspection if items on the checklist are not completed, and require the Contractor to resubmit their request for an initial inspection after completing the required items on the "Contractor's Pre-Initial Traffic Signal Inspection Checklist".
- At the time of inspection, the Contractor is required to open and close all pull boxes, open and close all signal standard doors, remove and hold wiring to allow for inspection. Contractor will be present within 10' of each item being inspected, to ensure clarity on what needs to be corrected.
- Any items requiring additional work after the initial inspection will be noted by the City on the checklist. The Contractor will complete work on all items prior to requesting a final inspection.
- Inspections will not be performed between November 1st and April 1st. Inspections will not be done if there is rain, snow, if wind greater than 20mph, or if the temperature is less than 45° F or to the Engineers discretion.

3.11.2. FINAL INSPECTION

- A final inspection can be scheduled a minimum of 30 days after the initial inspection date. The Contractor will submit, in writing to the Engineer, that all punch list items have been completed, and request a final inspection on the form provided by the City.
- The Engineer or Inspector may stop the final inspection if items from the initial inspection are not completed, and require the Contractor to resubmit their request for final inspection after completing the required work.
- The City of Fargo will perform one initial inspection, and one final inspection at no cost to the Contractor. If additional initial or final inspections need to be performed, the Prime Contractor will be assess a fee of $250 for each time an additional initial or final inspection.
- The project will not be final until the City accepts the project and assigns a final acceptance date. The date of final acceptance will be 30 days without failure for the City to accept the system. If the system fails during the 30-day

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acceptance period, the 30 days will start over after the failure has been repaired and inspected by the City.

- The Contractor is responsible for all maintenance, and repair/replacement caused by accident, vandalism, or road/sidewalk maintenance of the signal system until the date of final acceptance, which includes being responsible for the system 24 hours a day, 365 days a year, until the project has qualified for final acceptance.

3.11.3. WARRANTY

- The Contractor will guarantee all materials, work and equipment for a period of at least one year from the date of final acceptance. Contractor is responsible for repairing/correcting any warranty issues within 72 hours, or within 2 hours, if the issue a public safety concern. If Contractor is not able to correct these issues in this time period, the City of Fargo has the right to hire another Contractor, and cost will be forwarded to the original Contractor.

PART 4: MEASUREMENT & PAYMENT

4.1. MEASUREMENT AND PAYMENT

The Payment for all items will be full compensation for all labor, material, fully functioning equipment and miscellaneous items necessary for constructing these items in place.

4.1.1. PEDESTRIAN FLASHING BEACON ASSEMBLY

- The measurement for payment will be for each (EA) pedestrian flashing beacon assembly furnished and installed in accordance with Sections 2.10 and 3.9. Payment will be made under the bid item “FLASHING BEACON – POST MOUNTED.”

4.2. F&I FURNISH AND INSTALL

4.2.1. THE MEASUREMENT FOR PAYMENT WILL BE TO FURNISH AND INSTALL EACH (EA)

- Pedestrian Flashing Beacon Assembly

4.2.2. THE MEASUREMENT FOR PAYMENT WILL BE TO FURNISH AND INSTALL LUMP SUM (LS)

- REVISE TRAFFIC SIGNAL SYSTEM – SITE 1
- REVISE TRAFFIC SIGNAL SYSTEM – SITE 2

SECTION 4400
STREET LIGHTING

Delete all of Section 4400 and **Replace** with the following:

PART 1: DESCRIPTION OF WORK

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The work to be done under this section of the Specifications will consist of furnishing and installing a complete and operational street lighting system.

PART 2: MATERIALS

2.1. GENERAL

The Contractor will furnish the specified material unless substitute materials are approved in writing by the Engineer. All materials will be furnished and installed new unless otherwise specified in the Special Instructions for Bidders or Plans.

2.2. CONDUIT

2.2.1. CONDUIT

Conduit will be red 1.5" high-density polyethylene (HDPE) innerduct unless otherwise shown on plans. Polyvinyl chloride (heavy wall – PVC) will be allowed in certain situations with written approval from the project Engineer.

2.2.1.1. HDPE.

HDPE innerduct will meet the requirements of UL 651 and either ASTM 2447 or ASTM 3035 suitable for direct burial applications. HDPE innerduct will have a minimum wall thickness equivalent to Schedule 40 as defined by ASTM 2447 or DR 15.5 as defined by ASTM 3035. HDPE innerduct will not be installed when either the innerduct temperature or ambient temperature is below –10° F.

2.2.1.2. PVC.

PVC conduit will meet the requirements of UL 651 suitable for direct burial applications and will have a minimum wall thickness equivalent to Schedule 40 as defined by ASTM 1785. Above ground PVC conduit will be schedule 80.

2.3. CONDUCTORS

2.3.1. UNDERGROUND CONDUCTORS

Underground circuit conductors will be stranded copper, Type "USE", conductors insulated for direct burial and rated 600 volts. Conductor sheath will be marked as to voltage, AWG, type (USE), and manufacturer. All conductors will be Triplex and continuously color coded (red, black and green). Conductors will be of the size shown on the plans.

2.3.2. STREET LIGHT STANDARD CONDUCTOR

The conductor required for the street light standards between distribution conductors and luminaire will consist of No. 12 AWG stranded copper, Type "USE", rated 600 volts and be color coded "Black/Red/Green". Provide ground conductor from the luminaire to the hand hole.

2.3.3. LOCATE/TRACE WIRE

The wire will be 600V rated #12AWG Copper Clad trace wire with HDPE insulation, and rated at a minimum 250 LB of breaking load. The wire will be RED when installed with electrical cables.

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2.4. SPLICE CONNECTIONS

Splice connections in street light bases and feed points will be a Panduit PCSB4-__-12Y or Burndy BIBS4__, clear insulated aluminum multi-tap connector. Splice connections in pull boxes will be a Burndy direct burial UNITAP Connector, BIBS350_DB. All other conductor splice connections will be UL listed, with PowerGel sealant type connections meeting all codes for desired applications and be preapproved by the engineer before using.

Street Light fuses will be a type FNM 10 amp fuse with a Eaton Bussmann BAF-10, type HEB-AA or a Littlefuse BLF010, type LEB-AAK in line fuse holder. Heat shrink will be 3M ITCSN 0400 12-6 AWG 600 volt rated or approved equal.

Extending existing wire in existing, relocated or replaced street lights, Contractor will use Burndy YS8CA1 (#8 wire) or a Burndy YS6CA1 (#6 wire) and 3M ITCSN 0400 heat shrink.

2.5. PULL BOX

2.5.1. PULL BOX

All pull boxes will be 24” diameter by 48” deep, PVC that meets ASTM F679 standards. The casting will be either Neenah R-1733 in concrete areas, or EJ V1600-3 in non-concrete areas, or approved equal, and covers will be made from 3/8” diamond plated steel as per Section 4400 Detail Drawing 5.04, and have “Electric” on it. All PVC pull boxes installed in concrete areas will have a bell end installed on the bottom to prevent frost heaving.

2.6. FEED POINT

Pedestal type feed point will be concrete pad mounted (see plans for size of cabinet and number of circuits). The pedestal cabinet will have a NEMA 3R rating. The cabinet will be constructed of 16 gauge #304 stainless steel, stainless steel hardware and a padlockable stainless steel handle with 3-point latch operation, continuous hinged deadfront, 2” drip shield, gasketed lexan photocell window on side and back of pedestal cabinet. All circuit breakers will be rated 22,000 AIC. The pedestal cabinet will also include a factory installed interior mounted meter trim which meets the size requirements of the local utility company and a viewport window with gasketed lexan located on the front door of pedestal cabinet. Meter will be provided by the local utility company. All outside seams will be completely welded with no open gaps.

All photo eye lighting controls will be manufactured by Tyco Electronics, model SST-PV-IES with a 20 to 40 second on and off delay or approved equal.

Prefabricated feed point enclosure to be assembled by States Electric, UL 508 listed, service entrance rated, or approved equal.

2.7. STREET LIGHTING STANDARDS

Refer to plans for Special Instructions for information on size and type of standards.

2.7.1 Mouse Proofing

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H-base and T-base standards require mouse proofing with Xcluder Pole Gasket 2800g item #162728 or approved Halek Soultions rodent intrusion guard.

2.7.2 Grounding

Grounding rod will be 10' x ½" and pole grounding lugs will be copper, and the wire to connect the lugs will be #6 bare copper.

2.7.3 Mounting arms for straight non-Davit Poles

Mounting arms will be steel galvanized or galvanized and painted black. All mounting arms will have a minimum of 4 galvanized or stainless steel set screw bolts and will have an indent stopper just below the arm to prevent the arm from falling down the tenon and pinching the wire.

2.7.4 Wire Strain Relief

UV Black Pure Nylon Heavy Duty Cable Ties with a temperature rating of -40 to 185 degrees Fahrenheit, plenum rated with a strength rating of 120lbs.

2.8. STREET LIGHTING LUMINAIRES

Refer to plans or Special Instructions for information on size and type of luminaires.

2.8.1. Lamps

All lamps will be a LED corncob lamp as specified in the plans. Contractor will supply and install all lamps with an Eaton Crouse-Hinds weatherproof lamp holder gasket, model TP7170.

2.8.2 Mogul Lamp Socket

All mogul lamp sockets will be an Ex-39 Leviton 8756-J mogul socket with Satco Paper Insulator model 80-2215

2.8.2 Luminaires

Refer to the plans for the brand and model of luminaires.

PART 3: CONSTRUCTION

3.1. GENERAL

3.1.1. GENERAL

All work and material will meet the National Electric Code, the North Dakota State Electrical Board, the local utility company, and the ordinances established by the City of Fargo.

3.1.2. SHOP DRAWINGS

The Contractor will provide an electronic PDF file of shop drawings. The Contractor will submit shop drawings on the following listed items for approval:

1. Conductors, underground and inside pole.
2. Pull Boxes

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3. Feed Point: cabinet, relays, switches, panels and photo cells.

4. Street Light Standards, including all necessary calculations and drawings used in designing these poles.

5. Street Light Luminaires and bulbs

6. Splice materials

7. Items requested by Engineer

3.1.3. OVERHEAD LINES CLEARANCE.

The Contractor is responsible for verifying and following the minimum horizontal and vertical clearance between street light standards/luminaires and power lines, before any concrete bases are installed near power lines.

3.2. CONSTRUCTION REQUIREMENTS

3.2.1. CONCRETE BASE

See plans for detail of Concrete Base size requirements and construction requirements. It will be the Contractor's responsibility to verify shop drawing information, provided by the manufacturer of the street light standards, for anchor bolt size, bolt circle diameter and anchor bolt projections.

Column forms will be used for the top 12" of base tops. Square top forms will not be allowed. Verify anchor bolt projection requirements. Conduit with bell end will have a maximum height of 2" above concrete base surface and the ground rod will be a maximum of 1-1/2" above conduit with bell end. Finish of the base top will be level without any irregularities or depressions in the concrete. Grinding of base top or filling of depressions will not be allowed and any base not meeting these requirements will be removed and replaced at the Contractors expense. Column forms will be removed as part of clean up before landscaping. **Bases will have a minimum seven day cure time before any standards will be installed.** Excess dirt from the drilling of base hole will be removed from the project site daily. Street light base will have the anchor bolts, ground rod and conduits installed before concrete is poured. Concrete will be vibrated around anchor bolts and base. Within 3 days of street light bases being poured, the Contractor will install well pipe covers to protect the street light base and conduits. The well pipe cover will remain in place until the street light standard is installed. Any bases that have live conductors going in and out of the base will have 37" traffic drum installed and secured to the base to protect the live wires and be marked with red electrical caution tape. See Section 4400 Detail Drawing 5.02.

Concrete will be in accordance with Section 2100 of specifications.

Any base damaged will be replaced at the Contractor's expense.

3.2.2. CONDUIT

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Innerduct will be installed at the location shown on the plans and will be connected to stubbed out 1.5" conduit at all concrete base and feed point locations. Installation of innerduct will be at a depth of 24 to 32" below finished grade. The innerduct will be placed in line with bases. Innerduct will be bored under existing pavement (jacking will only be allowed under existing sidewalks and multi use paths) and in areas of mature trees, established sod and all others locations shown on plans. All innerduct/conduits entering a pull box will extend between 2-3" into the box. Any trench under sidewalks need to backfilled with class 5.

All innerduct/conduit will have bell ends installed on both ends of the innerduct/conduit run. All innerduct/conduit containing conductor/cables will be sealed with duct seal at the feed point cabinets and with Xcluder at pull boxes and street light standard bases. All spare conduits will be plugged with an expanding rubber pipe plug at the feed point cabinet, pull boxes, and street light standard bases and the plug will be labeled with the direction the conduit is stubbed out.

3.2.3. CONDUCTORS

Distribution circuits will be routed as shown on plans. Any deviation in routing of circuits must be approved by the project Engineer.

Luminaire or outlet circuits are to be fused in the base of each lighting standard. Heat shrink fuse holders for a distance of 4" on each side of the fuse holder. Fuse holders to be complete with proper fuse to protect the luminaire. If required for an outlet circuit the neutral conductor will be solidly connected and unfused throughout the system. Each luminaire will require its own set of conductors and fuse holders.

Contractor will install a wire strain relief for the luminaire conductors by drilling a ½" hole on the bottom part of the tenon, exactly ½" away from the end of the tenon and use a wire tie to secure the three luminaire conductors that run down the pole to the base.

Ground conductors will be bonded to standards by a copper ground lug and to the following by approved grounding methods per national electrical code, ground rod at standard base, feed point enclosure, feed point panels, relay cabinets and ground rods. A continuous #6 solid bare conductor will be installed from the splice connector to the ground rod and then to the ground lug on standard.

3.2.4. ADDITIONAL CONDUCTOR LENGTHS AND SPLICING

3.2.4.1. *Splices and conductors in street light standard.* Splices and fuse holders will have sufficient slack to separately extend 24" outside of the street light standard hand hole, meaning the fuse holder will be able to extend 24" outside of the standard hand hole while the splice is still stored in the shaft of the standard. Splices and fuse holders will NOT be spooled in bottom of the street light standard, they will be stored pointing up into the shaft of the standard. Contractor will use the correct multi-tap connector that meets the NEC allowing only one wire under each lug. Strip wires according to manufacturer's specifications before inserting them into the connector and wrap the conductors together with electrical tape approximately 8" below the connector. All connectors will be

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torqued according to the manufacturer's specifications using an approved torque tool. Torque specification is 50inch LBS for #4-8 wire and 45inch LBS for #10-14 wire, for the connectors inside the street light. When finished torqueing the connector, the Contractor will re-install the protective dust caps and then wrap the caps with electrical tape three times, only wrapping the cap area and not the bottom half of the connector so the terminations can be clearly seen. If any existing conductors need to be extended the Contractor will extend the wire use a Burndy YS8CA1 (#8 wire) or a Burndy YS6CA1 (#6 wire) use the same existing gauge wire and install 3" of heat shrink on both sides of the splice. See Section 4400 Detail Drawing 5.03.

3.2.4.2. *Splices and conductors in pull box.* Splices will extend a minimum of four feet above finished grade. Splices in pull boxes will have the splice connection secured to a length of 1" PVC with electrical tape such that the splice is secured in the upper 1/3 of the pull box. If any existing conductors need to be extended the Contractor will extend the wire with the same existing gauge wire and install 3" of heat shrink on both sides of the splice. All connectors will be torqued according to the manufacturer's specifications using an approved torque tool. Torque specification is 125-150 inch LBS for #12-6 wire and 180-240 inch LBS for #4-3/0 wire, for the connectors inside the pull box.

3.2.4.3. *Feed Point.* Spool up an additional 36-42 inches for each circuit feeder conductor into bottom of feed point cabinet. If any existing conductors need to be extended the Contractor will extend the wire with the same existing gauge wire and install 3" of heat shrink on both sides of the splice. All wire in the feed point will have a wire Ferrule installed on the end of the stripped wire before it is terminated onto the contactor.

3.2.5. PULL BOX

All pull boxes will be installed accordance with Section 4400 Detail Drawing 5.04. All pull boxes in landscaped areas, will have the top of the box level with the final grade, and sloped to match the slope of the final grade on all four quadrants. All pull boxes in concrete area will be set with the top of the box flush with the final grade at all four quadrants. All pull boxes and covers will be a minimum of 24" from the back of the curb unless approved by the engineer. All boxes will have a minimum of 2' of pea rock below for drainage, and backfill around pull boxes will be a Class 3 gravel with 95% compaction.

3.2.6. FEED POINT

All street light feed points will be pad mounted. See Section 4400 Detail Drawing 5.01 for details of concrete pad, cabinet size and feed point wiring schematic with number of circuits. Padlock will be obtained from the City of Fargo Engineering Department.

A rubber gasket will be installed between the feed point and foundation, and bead of Sikaflex 15LM construction sealant will be placed continuously around the outside of the cabinet at the seam between the cabinet and the foundation. All other exposed outer cabinet seams will be sealed with a bead of Sikaflex 15LM construction sealant.

Feed points will require two ground rods that are spaced 6' to 7' apart.

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All exposed conduit will be 2" schedule 80 PVC with a galvanized steel conduit guard. Concrete pad, riser (if needed) and other miscellaneous items needed to make feed point operational will be incidental. Verify connection requirements with the local utility company. The Contractor must contact the project Engineer and local utility company to verify specific location and elevation of feed point. The Contractor will also communicate with the utility company specific connection requirements. The meter will be furnished and installed by the utility company.

Exposed conduit on pole mounted feed points or on feeder runs from the electrical company to the feed point will be installed according to Section 4400 Detail Drawing 5.05 and as following:

i. 2" SCH80 PVC, minimum 10' sticks installed with factory coupling pointed down, no other couplings are allowed. Conduit needs to be strapped according to NEC.

ii. PVC weather head entrance.

iii. 5' steel galvanized conduit guard, 6" below ground, and 4'6" above ground.

iv. All straps, conduit guard, feed points, disconnects, and other necessary materials will use galvanized 3" long fully threaded ¼" lag screw for mounting/securing.

v. Riser will not face toward sidewalks or streets and will be on the backside of traffic flow direction or as otherwise directed by the project Engineer.

3.2.7. STREET LIGHT STANDARDS

Refer to Plans for information on size and type of standards. The Contractor will take delivery of standards from the manufacturer and will be responsible for the storage and transportation of standards. The packing material will be removed from standards when stored outside and as per manufacturer's requirements to prevent damage to the standard's finish. Anti-seize will be applied on all anchor bolts and nuts, and on all other fasteners attached to the street light standard and mounting arm. Standards will be installed level and be grounded. Mouse proofing will be installed according to the manufacturer's instructions and recommendations.

Any damage to the standards will be the Contractor's responsibility to repair or replace as directed by the Engineer.

3.2.8. STREET LIGHT LUMINAIRES

Refer to Plans for information on type of luminaires. The Contractor will take delivery of luminaires from the manufacturer and will be responsible for the storage and transportation of luminaires All luminaires will be grounded with a ground wire from the fixture to base/pole ground connector. Anti-seize will be applied to all mounting bolts, fasteners and latches on all luminaires.

Any damage to the luminaires will be the Contractor's responsibility to repair or replace as directed by the Engineer.

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3.2.9. INSTALL STANDARDS AND LUMINAIRES

Refer to Plans for information on size and type of standards and luminaires. The Contractor will take delivery of standards and luminaires from the manufacturer or the City of Fargo and will be responsible for the storage, transportation, installation of standards and luminaires, all wiring within standards and lamps. If the standards and luminaires are supplied by the City of Fargo for installation, the Contractor will assume the standard one year warranty typically associated with Contractor provided materials.

3.2.10. REMOVE LIGHT STANDARD

The Contractor will remove standard and luminaire and deliver to the City of Fargo Street Lighting Department located at 4630 15th Avenue North or to an alternate site as directed by the project Engineer. Any standard/luminaire damaged during the removal, storage or transporting will be replaced at the Contractors expense.

3.2.11. REMOVE BASE

The Contractor will remove the concrete base as shown on the plans or as directed by the project Engineer. The Contractor will backfill with at least 6” of topsoil and properly compact the location of the removed base and any adjacent disturbed area and then seed the disturbed area.

3.2.12. REMOVE FEED POINT

The Contractor will be responsible for removal of feed point, concrete foundation, conduit, conductor, installation and grading of at least 6” of topsoil, seeding, backfilling and compaction in the disturbed area. The removed feed point will be delivered to The City of Fargo Street Lighting Department located at 4630 15th Avenue North.

3.2.13. SALVAGE OF MATERIAL

All existing screw-in-bases, standards, luminaires, feed points, conductor and pull boxes designated for removal will remain the property of the City of Fargo unless otherwise noted on the plans or directed by the project Engineer. Salvaged screw-in-bases will have any dirt or other material removed from inside and outside of the bases tube. If material is deemed unsalvageable, it is the Contractors responsibility to dispose of properly. No materials will be allowed to be buried on project site. It will be the Contractors responsibility to deliver salvaged materials to the City of Fargo Street Lighting Department located at 4630 15th Ave. N., or at an alternate site within the city limits as directed by the project Engineer. All salvaged materials will be returned to the City of Fargo and the Contractor will fill out a City of Fargo Street Light Salvage sheet and sign with the returned materials.

3.2.14. STREET LIGHTING INITIAL AND FINAL INSPECTION AND SUBSTANTIAL COMPLETION

The project will not be classified as substantially complete until the street lighting system is functional, including the completions of all pay items.

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After the Contractor has completed the installation of the street lighting system and any clean up items, he will complete the “Contractor’s Street Lighting Check List”, provided by the City. Each item on the checklist will be inspected and initialed by the Contractor’s personnel performing this inspection, noting that all deficiencies have been corrected. The Contractor will forward the completed check list to the project Engineer along with the request for an initial inspection. The Engineer will set a date and time for the inspection. The Contractor will be present at this inspection and is required to open and close all pull boxes, street light standard hand holes and remove and hold wiring to allow for inspection of splices, fuse holders and anchor bolt nut tightness.

All items requiring additional work after the initial inspection will be noted by the City on the checklist. After the Contractor has completed any deficiencies, the Contractor will request for final inspection. The project will not be classified as final until the City accepts the project and assigns a final acceptance date. The Contractor is responsible for all maintenance of the street lighting system until the date of final acceptance.

Initial and final inspections will not be performed between November 1st and April 1st. Inspections will not be done if there is rain or snow or wind greater than 15mph or if the temperature is less than 50° F.

The City of Fargo will perform one final inspection at no cost to the Contractor. The Contractor will be assessed a fee of $500 for each additional final inspection performed by the City.

PART 4: GUARANTEE, MEASUREMENT & PAYMENT

4.1. GUARANTEE

The guarantee will be per the contract with the following additions. All manufacturer warranties and guarantees with respect to materials, parts, workmanship, or performance which the products covered by the proposal will be secured and included with the shop drawing submittal. All LED fixtures supplied will have a 10 year manufacturer warranty. All LED corn cob bulbs will have a 5 year manufacturer warranty. Warranties will be noted on the shop drawings before they are approved.

4.2. MEASUREMENT AND PAYMENT

Payment for all items will be full compensation for all labor, material, equipment and miscellaneous items necessary for constructing these items in place.

4.2.1 CONCRETE BASE

The measurement for payment will be for each (EA) size of concrete base installed. Drilling of base hole or hand digging where required, concrete, column forms, anchor bolts, reinforcing rods, conduit, ground rod, and any miscellaneous items necessary for the concrete base will be incidental to the item and will not be measured for payment.

4.2.2. INNERDUCT/CONDUIT

Payment will be made for each size of innerduct/conduit and measured by the linear foot (LF). The measurement for payment will be the length of innerduct/conduit installed

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from center of concrete base to center of concrete base, pull box or feed point. The method used to install innerduct/conduit (such as boring, jacking or trenching) will not be measured but will be incidental to innerduct/conduit. Couplings/fittings used at concrete bases, and the method of innerduct installation, will not be measured for payment but will be included in the price bid for conduit.

4.2.3. CONDUCTOR

Payment will be made for each size of conductor and measured by the linear foot (LF). The measurement for payment will be the length of conductor installed from center of concrete base to center of concrete base, pull box or feed point. Additional quantities required as detailed in Part 2 and Part 3 of this Section will not be measured for payment but will be incidental.

4.2.4. PULL BOX

The measurement for payment will be for each (EA) type of pull box installed. Pull box, all gel type connectors if splice is required, backfill and restoration of surrounding area to original conditions will be incidental.

4.2.5. FEED POINT

Measurement and payment will be made for each (EA) feed point installed and operational. Cabinet, concrete foundation and pad, conduit, meter trim, riser with weather head (if needed), ground rods, conductor and conduit between feed point and transformer (for Xcel Energy areas, sized as per Xcel Energy requirements) and other miscellaneous items needed to have a complete and operational feed point will be incidental to item. Additional conductor lengths at splices and feed points will not be measured for payment but will be incidental. The Contractor is responsible for all coordination and costs involved with getting power to the feed point and setting up the meter service. This will be incidental to the price bid for “Feed Point”.

4.2.6. STREET LIGHT STANDARD

The measurement for payment will be for each (EA) type of street light standard supplied for installation, or to be supplied to the City of Fargo for maintenance stock. See plans for type of standard required. The cost bid for this item will include providing unloading, storage and transportation to project site and to the City of Fargo Street Lighting Department.

4.2.7. STREET LIGHT LUMINAIRE

The measurement for payment will be for each (EA) type of street light luminaire supplied for installation, or to be supplied to the City of Fargo for maintenance stock. See plans for type of luminaire required. Cost of lamp will be incidental to price bid for luminaire. The cost bid for this item will include providing unloading, storage and transportation to project site and to the City of Fargo Street Lighting Department.

4.2.8. INSTALL STANDARD AND LUMINAIRE

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The measurement for payment will be for each (EA) street light standard and luminaire installed as a complete and operational unit. Incidental to this cost will be all storage, transportation, all wiring and connections within standards, the standard one year warranty typically associated with Contractor provided materials on City of Fargo supplied standards and luminaires. Cost for street light standard conductor, fuse holders and fuses will not be measured for payment and will be incidental to the price bid to install standards and luminaire. Cost to install standards with twin mast arms and luminaires will be incidental to the price bid.

4.2.9. REMOVE LIGHT STANDARD

The measurement for payment will be for each (EA) street light standard removed. The removal and transporting of standards and luminaires will be incidental to the price bid.

4.2.10. REMOVE BASE

The measurement for payment will be for each (EA) concrete base removed. The removal of foundation/base, back filling and compaction, transporting and disposal of base will be incidental to the price bid. The removal of foundation/base, back filling and compaction, transporting and disposal of bases will be incidental to the price bid.

4.2.11. REMOVE FEED POINT

The measurement for payment will be for each (EA) feed point removed. The removal, backfilling and compaction, transportation and disposal of feed point and foundation will be incidental to the price bid. The removal, installation and grading of at least 6” of topsoil, seeding, backfilling and compaction, transportation and disposal of feed point and foundation will be incidental to the price bid.

4.2.12. REMOVAL AND/OR SALVAGE OF MATERIALS

Unless specifically called out as a bid item, all costs associated with the removal or salvage of materials, including proper disposal of removed materials and/or delivery of salvaged materials, will be incidental to the project.

Where a bid item exists for removal and the item is deemed to be salvaged per Section 3 “SALVAGE OF MATERIAL” above, the contract unit price for the removal item will include all costs to salvage and deliver the material as specified.

4.2.13. OTHER COSTS

All other costs for work necessary to properly complete the work specified herein will not be bid items; the costs will be charged to other items unless a bid item is specifically included on the bid sheet.