



February 20, 2026

ADDENDUM 1 – JOB 24136

TO: All prospective bidders on Project UGP-1-988(052), Job No. 24136 scheduled for the February 27, 2026 bid opening.

This addendum has been issued for the above referenced Job, Please see the attached summary from Derek D. Pfeifer, P.E. dated February 19, 2026 for an explanation of changes.

This addendum is to be incorporated into the bidder's proposal for this project. If there are bid item changes the AASHTOWare Project Bids files should be updated by downloading the addendum file from the Bid Express on-line bidding exchange at <http://www.bidx.com/> and load it into the AASHTOWare Project Bids program.

A handwritten signature in blue ink, appearing to read "P. Murdoff".

PHILLIP MURDOFF, P.E. – CONSTRUCTION SERVICES ENGINEER

80: jwj

Enclosure

PLAN ADDENDUM SUMMARY AND APPROVAL

PROJECT INFORMATION		
Date: 2/19/2026	Project: UGP-1-988(052)	PCN: 24136
Lead Designer: KIJ Engineering, LLC	Technical Support: Sengaroun Marohl	
Bid Opening Date: 2/27/26	Job Number: 24136	Addendum Number: 1

PLAN SHEET CHANGES		
Section	Sheet(s)	Description
2	1	Update Section 6 sheet numbers.
6	6	Add to Note 722-P05: Include all costs to salvage and delivery of existing casting, furnish a new casting , raise or lower existing manholes, including any additional structure riser sections or adjustment rings, and adjusting pipe inverts in the price bid for "MANHOLE REPAIR".
6	7	Add to Note 724-P05: Install restrained joints on either side of each fitting and valve a minimum distance of 50 lineal feet and 2 uncut sections of pipe for all watermain larger than 12 inches. (Summarized) Add to Note 724-P05: Tighten all bolts with a torque wrench according to the manufacturer's recommendations. Retain a copy of the manufacturer's installation guide on site. (Summarized)
6	8-10	Sheets were reprinted due to added notes on sheet 7 moving the location of notes on each sheet. No notes were added or changed on these sheets.
6	11	Add Note 724-P20: Temporary Water Supply Add Note 724-P21: Water and Sewer Pipe Laying Note numbers 724-P20 through 724-P22 changed to note numbers 724-P22 through 724-P24 due to the addition of notes 724-P20 and 724-P21.
6	12	Added Sheet due to the addition of notes 724-P20 and 724-P21 shifting subsequent notes down. Note on this page did not change.
6	13-15	Changed sheet numbers for added sheet 12. Notes on these sheets did not change.
6	16	Add to Note 970-P02: Porous Pave XL is an approved product. Sheet number was changed from sheet 15 to sheet 16.
8	2-3	Update Estimated Quantities sheet to add bid item 724 0670 "Temporary Water Service" bid item.
110	11-12	Revised special signs 16 through 21 to Type XI reflective sheeting.

SPECIAL PROVISION CHANGES		
SP Number	Page(s)	Description

BID ITEMS CHANGES					
Spec	Code	Description	Unit	Previous Quantity	Revised Quantity
724	0670	Temporary Water Service	L SUM	0	1

APPROVAL



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

2/19/2026
 Date

BID ITEMS

Project: UGP-1-988(052) (PCN-24136)

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	0370	REMOVAL OF TREES 10IN	EA	6.				
003	201	0380	REMOVAL OF TREES 18IN	EA	1.				
004	202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	9,074.				
005	202	0130	REMOVAL OF CURB & GUTTER	LF	2,697.				
006	202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	5,013.				
007	202	0173	REMOVAL OF SEWER PIPE	LF	2,455.				
008	202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	2,091.				
009	202	0210	REMOVAL OF MANHOLES	EA	6.				
010	202	0230	REMOVAL OF INLETS	EA	8.				
011	202	0235	REMOVAL OF CATCH BASIN	EA	10.				
012	203	0101	COMMON EXCAVATION-TYPE A	CY	1,238.				
013	203	0109	TOPSOIL	CY	311.				
014	203	0119	TOPSOIL-IMPORTED	CY	48.				
015	203	0140	BORROW-EXCAVATION	CY	442.				
016	216	0100	WATER	M GAL	173.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
017	230	0165	SUBGRADE PREPARATION-TYPE A-12IN	STA	17.800				
018	251	0200	SEEDING CLASS II	ACRE	.450				
019	253	0201	HYDRAULIC MULCH	ACRE	.900				
020	302	0121	AGGREGATE BASE COURSE CL 5	CY	3,406.				
021	550	0300	8IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	8,198.				
022	550	0330	NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED	SY	375.				
023	702	0100	MOBILIZATION	L SUM	1.				
024	704	1000	TRAFFIC CONTROL SIGNS	UNIT	1,081.				
025	704	1052	TYPE III BARRICADE	EA	21.				
026	704	1054	SIDEWALK BARRICADE	EA	8.				
027	704	1058	PEDESTRIAN WALKWAY	LF	2,151.				
028	704	1060	DELINEATOR DRUMS	EA	30.				
029	704	1067	TUBULAR MARKERS	EA	19.				
030	704	1500	OBLITERATION OF PAVEMENT MARKING	SF	254.				
031	704	2108	TEMPORARY CURB RAMP	EA	12.				
032	708	1540	INLET PROTECTION-SPECIAL	EA	19.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
033	708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	19.				
034	709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	10,107.				
035	710	0210	TEMPORARY BYPASS-SITE I	EA	1.				
036	710	0220	TEMPORARY BYPASS-SITE II	EA	1.				
037	714	0210	PIPE CONC REINF 15IN CL III-STORM DRAIN	LF	836.				
038	714	0315	PIPE CONC REINF 18IN CL III-STORM DRAIN	LF	199.				
039	714	0620	PIPE CONC REINF 24IN CL III-STORM DRAIN	LF	251.				
040	714	0825	PIPE CONC REINF 30IN CL III-STORM DRAIN	LF	741.				
041	714	7025	PIPE PVC 8IN	LF	46.				
042	714	9000	STORM SEWER CLEANOUT	LF	1.				
043	722	0100	MANHOLE 48IN	EA	2.				
044	722	0110	MANHOLE 60IN	EA	5.				
045	722	0300	MANHOLE SANITARY	EA	1.				
046	722	3410	MANHOLE REPAIR	EA	2.				
047	722	3510	INLET-TYPE 2	EA	3.				
048	722	3520	INLET-TYPE 2 DOUBLE	EA	9.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
049	722	4060	INLET MOUNTABLE CURB-TYPE B	EA	4.				
050	722	6200	ADJUST MANHOLE	EA	2.				
051	724	0270	REMOVE GATE VALVE & BOX	EA	7.				
052	724	0290	GATE VALVE & BOX 4IN	EA	6.				
053	724	0300	GATE VALVE & BOX 6IN	EA	12.				
054	724	0310	GATE VALVE & BOX 8IN	EA	7.				
055	724	0314	GATE VALVE & BOX 12IN	EA	5.				
056	724	0412	8IN HYDRANT	EA	3.				
057	724	0430	REMOVE HYDRANT	EA	2.				
058	724	0611	WATER SERVICE LINE 1IN	LF	651.				
059	724	0621	WATER SERVICE LINE 2IN	LF	107.				
060	724	0629	WATER SERVICE LINE 4IN	LF	189.				
061	724	0636	WATER SERVICE LINE 6IN	LF	413.				
062	724	0670	TEMPORARY WATER SERVICE	L SUM	1.				
063	724	0830	WATERMAIN 8IN PVC	LF	1,101.				
064	724	0850	WATERMAIN 12IN PVC	LF	865.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
065	724	0905	CURB STOP & BOX 1IN	EA	15.				
066	724	0910	CURB STOP & BOX 2IN	EA	11.				
067	724	0944	CONNECTION TO EXISTING MAIN	EA	11.				
068	724	0955	WATER SERVICE CONNECTION 1IN	EA	16.				
069	724	0960	WATER SERVICE CONNECTION 2IN	EA	11.				
070	724	0962	WATER SERVICE CONNECTION 2 1/2IN	EA	1.				
071	724	0970	WATER LINE CONNECTION 4IN	EA	1.				
072	724	0975	WATER LINE CONNECTION 6IN	EA	2.				
073	724	1035	SPRINKLER RELOCATION	L SUM	1.				
074	724	1110	8IN SANITARY SEWER PIPE	LF	13.				
075	724	1117	12IN SANITARY SEWER PIPE	LF	80.				
076	724	1120	6IN SEWER SERVICE PIPE	LF	79.				
077	724	6031	ABANDON WATER MAIN/SERVICE LINE	LF	1,829.				
078	724	7014	REMOVE GATE VALVE BOX	EA	7.				
079	724	7053	REMOVE CURB BOX RISER	EA	30.				
080	724	9002	SANITARY SEWER CLEANOUT	EA	2.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
081	744	0100	POLYSTYRENE INSULATION BOARD	BD FT	5,664.				
082	748	0140	CURB & GUTTER-TYPE I	LF	3,642.				
083	748	0520	CURB-TYPE I	LF	185.				
084	748	0540	CURB	LF	133.				
085	748	1020	VALLEY GUTTER 36IN	SY	315.				
086	750	0115	SIDEWALK CONCRETE 4IN	SY	2,717.				
087	750	0140	SIDEWALK CONCRETE 6IN	SY	542.				
088	750	0150	SIDEWALK TRENCH DRAIN	EA	4.				
089	750	0300	STEPS CONCRETE	L SUM	1.				
090	750	1016	DRIVEWAY CONCRETE 6IN REINFORCED	SY	673.				
091	750	1021	DRIVEWAY CONCRETE 8IN REINFORCED	SY	305.				
092	750	2115	DETECTABLE WARNING PANELS	SF	348.				
093	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	119.				
094	754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	85.				
095	754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	386.				
096	762	0103	PVMT MK PAINTED-MESSAGE	SF	60.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
097	762	0110	EPOXY PVMT MK 4IN LINE-GROOVED	LF	3,372.				
098	762	0131	EPOXY PVMT MK 6IN LINE-GROOVED	LF	922.				
099	762	0135	EPOXY PVMT MK 24IN LINE-GROOVED	LF	116.				
100	762	1104	PVMT MK PAINTED 4IN LINE	LF	650.				
101	762	1140	PVMT MK PAINTED CURB TOP & FACE	LF	80.				
102	766	0120	RESET MAILBOX	EA	2.				
103	770	0020	CONCRETE FOUNDATION-HIGHWAY LIGHTING	EA	23.				
104	770	0100	PULL BOX	EA	2.				
105	770	0330	2IN DIAMETER RIGID CONDUIT	LF	2,585.				
106	770	0505	UNDERGROUND CONDUCTOR NO6-TYPE RHW	LF	12,672.				
107	770	0605	UNDERGROUND CONDUCTOR NO6-TYPE THW	LF	2,807.				
108	770	1066	LT STD 6FT MA 30FT MT HT	EA	6.				
109	770	4086	ORNAMENTAL LT STD 12FT MT HT	EA	17.				
110	770	4210	LED LUMINAIRE	EA	17.				
111	770	4542	RELOCATE LUMINAIRE	EA	6.				
112	770	4560	REMOVE LIGHT STANDARD	EA	13.				

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PLAN SECTIONS

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8	1 - 3	Quantities
10	1	Basis of Estimate
20	1 - 15	Details
30	1 - 6	Typical Sections
40	1 - 6	Removals
50	1 - 2	Structure Exhibits
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60	1 - 11	Plan & Profile
76	1 - 6	Temporary Erosion Control
77	1 - 6	Permanent Erosion Control
81	1	Survey Coordinate and Curve Data
85	1 - 13	Pedestrian Facilities & Streetscape Layout
90	1 - 6	Paving Layout
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110	1 - 15	Signing & Pavement Marking Layout
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Number	Description
D-101-1, 2, 3, 4	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
D-101-20, 21	Line Styles
D-101-30, 31, 32, 33	Symbols
D-550-2	Longitudinal Joint Details
D-550-3	Transverse Contraction Joint Details
D-550-4	Transverse Expansion Joint Detail
D-550-5	Transverse Construction Joint
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post
D-704-9	Construction Sign Details - Terminal And Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-11, 11A	Construction Sign Details - Warning Signs
D-704-13	Barricade And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-21	Detour And Roadway Diversion Sign Layouts
D-704-23	Short Term Urban Detour And Lane Closure On A Divided Highway Layouts
D-704-50	Portable Sign Support Assembly
D-714-27	Pipe Installation Detail for Longitudinal Mainline Pipe or Pipe Not Under the Roadway
D-722-5	Manhole Details
D-722-5A	Floating Manhole Casting
D-724-1	Waterworks
D-748-1	Curb & Gutter And Valley Gutter
D-750-1	Concrete Driveway - Urban
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D-754-23	Perforated Tube Assembly Details
D-754-24, 25	Mounting Details Perforated Tube
D-754-24A	Breakaway Coupler System For Perforated Tubes
D-754-26, 27, 39	Sign Punching, Stringer and Support Location Details Regulatory, Warning and Guide Signs
D-754-80	Light Standard, Signal Standard, and Span Wire Mounted Sign Assembly Detail
D-754-86	911 Sign Support Information And Sign Details
D-754-87	Sign Punching, Stringer And Support Location Details For Street Name Signs And 911 Signs
D-762-1	Pavement Marking Message Details
D-762-4	Pavement Marking
D-770-1	Concrete Foundations (Traffic Signals & Highway Lighting)
D-770-2	Feed Points (Roadway Lighting)
D-770-3	Pull Box Details
D-770-4	Lighting And Signal Details

SPECIAL PROVISIONS

Number	Description
SSP 1	Temporary Erosion and Sediment Best Management Practices
SSP 3	Local Agency Contracts
SP 66(25)	Utility Coordination
SP 67(25)	Temporary Pedestrian Facilities

NOTES

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722-P02 INLET AND MANHOLE CASTINGS: Provide Neenah Foundry Company R-3067 with Type V grates and 3030 Style open curb box, East Jordan Iron Works Number 7030 with Type M6 grates and Type T2 Backs, or approved equivalent for all "Inlet-Type 2". Provide Neenah Foundry Company R-3295-2 with Type V grates and 3030 Style open curb box, East Jordan Iron Works Number 7031 with Type M4 grates and Type T5 Backs, or approved equivalent for all "Inlet-Type 2 Double".

Provide Neenah Foundry Company R-3362 with Type L concave down grates, East Jordan Iron Works Number 7567M, or approved equivalent for all "Inlet Mountable Curb -Type B".

Provide Neenah Foundry Company R-1955-1 floating casting or East Jordan Iron Works Number 3025 with concealed pick holes and self-sealing platen lid, or approved equivalent for all new or existing manholes that lie within the limits of new roadway. Place flush all castings to within 1/8 inch below the pavement that lie within the roadway. See Standard Drawing D-722-5A "FLOATING MANHOLE CASTING."

Provide Neenah Foundry Company R-1733, East Jordan Iron Works Number 1205, or Municipal Castings, Inc. Number 301 with concealed pick holes and self-sealing platen lid, or approved equivalent for all other manholes outside of the roadway.

Include all labor, materials, and equipment necessary for casting installation and adjustment in the price bid for the respective inlet or manhole.

722-P03 POLYMER ADJUSTMENT RINGS: Provide polymer adjustment rings that are injection molded High Density Polyethylene (HDPE) as manufactured by Ladtech, Inc, IPEX Inc, or approved equivalent conforming to ASTM D-4976. Provide polymer adjusting rings that have an internal dimension that does not restrict the opening size of the manhole or inlet casting. Rings must be 2 to 6 inches thick, cross slope adjusting rings may be allowed with approval by Engineer.

Include all labor, materials, and equipment necessary for the concrete adjustment rings in the price bid for the respective inlet or manhole.

722-P04 INFILTRATION AND INFLOW (I&I) BARRIER: Outfit all new, adjusted, or repaired manholes with an APM Permaform infiltration and inflow (I&I) barrier manufactured by Strike Products or approved equivalent, installed and field tested according to the manufacturers' specifications. Set the manhole cover with the adjusting rings and casting around the I&I barrier.

Provide a watertight seal to the top of manhole barrel using butyl sealant, or approved equivalent, as specified by the manufacturer of the I&I Barrier. Before applying the sealant and the I&I barrier, ensure the top of the manhole is free of dust and debris. Sufficient quantity of sealant, per manufacturer, must be used to accommodate flaws in the top of manhole barrel.

If deemed necessary by the Engineer, to check the seal of the I&I barrier, fill the excavated area around the I&I barrier with water to a level above the joint between the I&I barrier and the top of manhole barrel. If any leakage or moisture is present in the area inside the manhole around the seal, remove the I&I barrier and reseal at no additional cost.

Do not seal the bottom ring placed on the I&I barrier to the I&I barrier to allow infiltrated water to escape. Seal all successive rings above the bottom ring together per manufacturer's

recommendations. Extend the bottom of the I&I barrier a minimum of 2 inches above the top ring. If a floating manhole casting is used, trim the I&I barrier extending above the top ring so that the I&I barrier does not interfere with the manhole casting's ability to function. Outfit all pressure-reducing valve and air release valve manholes with a Cap 'N Seal as manufactured by Strike Products, MMG Solutions, or approved equivalent.

Include all labor, materials, and equipment necessary for the I&I Barrier in the price bid for the respective manhole.

722-P05 MANHOLE REPAIR: Include salvaging existing casting, furnish and adjustment of new casting on existing manhole to the elevation, grade, or dimensions as indicated on the Drawings or as ordered by the Engineer. The structures are assumed to be clean prior to the beginning of the adjustment construction unless otherwise agreed to with the Engineer.

Salvage existing castings and deliver to the Owner at City of Mandan Public Works Department: 411 6th Ave SW, Mandan, North Dakota 58554.

Carefully salvage existing casting and install new castings as indicated in the Plans. If the height of a rectangular casting is to be increased, the addition may be of solid concrete block or precast concrete riser section. Use solid concrete block to increase the height of circular castings. Replace all weak and faulty parts of the existing structure and complete the extension. Where the casting, grating, I & I barrier, or cover is to be lowered, remove the masonry or concrete to sufficient depth so that a seat of proper dimensions may be reconstructed to receive the casting, grating, I & I barrier, or cover at the new grade. Set castings in full mortar beds or otherwise secured as shown on the plans.

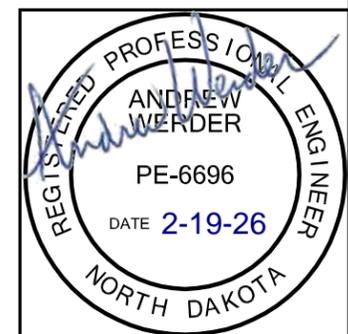
Use mortar containing a compound of 1-part Portland cement to 2-parts of sand by volume to which lime may be added not to exceed 10 percent of the cement by weight. Accurately set casting to correct elevation and line so that no subsequent adjustment will be necessary. If necessary, use tapered or sloped adjusting risers.

Adjust pipe inverts by cutting the opening and grouting in the connecting pipe. Fill sumps with concrete to accommodate lowest invert elevation unless otherwise indicated on the plans. Place and shape the concrete fill to form an invert to eliminate trapping of debris and/or sediment. Provide suitable backfill for repaired manholes.

Include all costs to salvage and delivery of existing casting, furnish a new casting, raise or lower existing manholes, including any additional structure riser sections or adjustment rings, and adjusting pipe inverts in the price bid for "MANHOLE REPAIR".

722-P06 ADJUST MANHOLE: This bid item provides for the salvaging of various existing castings and furnish and adjustment of new castings to the proper grade. A maximum of six rings will be allowed. "Adjust Manhole" shall be used when adjustments can be made by adding or removing adjusting rings. Bid items "Adjust Manhole" and "Manhole Repair" may interchange based on field findings.

Salvage existing castings and deliver to the Owner at City of Mandan Public Works Department: 411 6th Ave SW, Mandan, North Dakota 58554.



NOTES

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Include all labor, materials, and equipment necessary to complete the salvaging of existing casting, furnishing a new casting, and adjustment in the price bid for "Adjust Manhole".

722-P07 SANITARY MANHOLE: Include the riser height as indicated in the plans for the "Manhole Sanitary" bid item. Do not install steps in sanitary manholes.

722-P08 CLEANOUT: Construct cleanout according to the detail in Section 20 and conform to the following criteria. Furnish a pipe that is polyvinyl chloride sewer (PVC) pipe. For pipe that is 15 inches or smaller provide a pipe that conforms to the requirements of ASTM D3034 for TYPE PSM, PVC sewer pipe and fittings and have an SDR of 35, all of which is stamped on the pipe. For polyvinyl chloride sewer pipe 18 inches or larger provide a pipe that conforms to the requirements of ASTM F679-PS46. For PVC sewer main line pipe and PVC sewer service pipe provide an elastomeric gasket-type joint that has a watertight seal. A solvent cement-type joint will not be allowed. Provide PVC wye branches that are of the "factory-assembled type." The top of the pipe shall have a PVC threaded clean out adapter with a PVC threaded plug placed under a Neenah No. R-1976 or East Jordan Iron Works No. 1578 or approved equivalent cover set in concrete.

Include all labor and materials in the detail in the bid item, "Sanitary Sewer Cleanout" and "Storm Sewer Cleanout".

724-P01 WATERMAIN GENERAL: Notify the Fire Department of any loss of service of a fire hydrant or ability to use a fire hydrant one day before the occurrence. Provide notification when hydrant is back in service. Existing gate valves can only be operated by City of Mandan representatives. The Contractor can operate newly installed valves until the project is accepted. Existing valves may not close tight enough to get a watertight closure. The Contractor may have to work without a total water shut off with no extra charge to the City of Mandan. In the event extra valves have to be shut down to slow the flow of water, there shall be no extra charge to the City of Mandan by the Contractor for the time, up to 2 hours, to accomplish the water shutdown. Provide 24-hour notice for any shut downs of existing lines with the City of Mandan Utility Shop (701) 667-3240.

724-P02 WATERMAIN MATERIALS GENERAL: All products (treatment chemicals and materials) that may come into contact with water intended for use in a potable water system are required to meet American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standards 60 & 61, as appropriate, a product will be considered as meeting these standards if so certified by NSF, the underwriters laboratories, or other organizations accredited by ANSI to test and certify such products.

724-P03 WATERMAIN PIPE AND FITTINGS: Provide watermain that is Polyvinyl Chloride (PVC). Provide PVC pipe meeting the requirements of AWWA C900 or C905 or C909 or the latest revision thereof and furnished in Cast Iron Pipe equivalent outside diameters with elastomeric joints. Furnish PVC pipe with a pressure class of PC150 with a DR of 18 and PC235.

Utilize a pipe material supplier that is ISO 9001 or 9002 registered.

Minimum depth of cover for all watermain and water service lines is 7.5 feet.

Provide all hydrants and fittings, including tees, bends 22½ degrees and larger, tapping saddles 3 inches and larger, and reducers of two pipe sizes or more with suitable reaction blocking to prevent movement of fittings and hydrants when the pipe is under pressure. Utilize concrete thrust blocking between the fitting and against an undisturbed vertical trench

wall and allow pipe and fitting joints to be accessible for repair according to details shown in Section 20 and NDDOT D-724-1. Include the costs for all in the bid item for "()IN Watermain".

Provide restrained joints for vertical adjustments or areas where adequate reaction blocking is not feasible as shown in the Plans. Install restrained joints on either side of each fitting and valve a minimum distance of 50 lineal feet and 2 uncut sections of pipe for all watermain larger than 12 inches. Obtain approval for all restraining systems for Polyvinyl Chloride pipe include Certa-Lok, Yellowmine, and EBAA Iron Inc. Furnish ductile Iron fittings manufactured in accordance with AWWA/ANSI C153/A21.53 or AWWA/ANSI C110/A21.10. Furnish ductile Iron fittings that have a working pressure of 350 pounds per square inch conforming with AWWA/ANSI C153/A21.53 or AWWA/ANSI C110/A21.10. Provide all Cast Iron and Ductile Iron fittings as cement mortar lined and contain an exterior bituminous seal conforming with AWWA/ANSI C104/A21.4. Install all fittings utilizing mechanical restrained in addition to thrust blocking. Include all fittings in the price bid for "()IN Watermain".

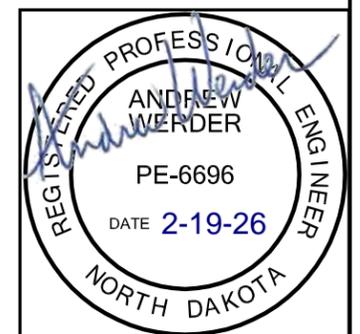
Furnish and install marking tape located 2 feet above the top of all watermain installed under the contract. Provide tape that is of the non-detectable type and that has a minimum width of 5 inches. Provide a tape that is blue in color with the words "CAUTION WATER LINE BELOW" imprinted on the tape in black capital letters. Provide marking tape that is equal to that manufactured by Presco standard grade. Provide trace wire that is high-strength copper clad steel (CCS) wire, 450-lb min rated break strength, 30mil HDPE insulation. Color per APWA uniform standards. Make splices with sealant-filled connectors designed for direct bury. Approved Manufacturers: Copperhead Ind., Kris- Tech Wire or approved equal. Attach to pipe and provide ground rods per manufactures recommendations. Provide terminal boxes as called for on plan. Coordinate testing and verification with owners' equipment.

Encase all ductile iron and cast iron valves, fittings, and hydrants with 8-mil linear low-density (LLD) polyethylene film in accordance with ANSI/AWWA C105/A21.5. Include the cost of all encasements in the price bid for "Watermain ()IN" and "Gate Valve & Box ()IN".

Alternate bolts for mechanical joint fittings, valves, and hydrants with one-half stainless steel and one-half low alloy steel. Provide stainless steel bolts that are Grade 304. Tighten all bolts with a torque wrench according to the manufacturer's recommendations. Retain a copy of the manufacturer's installation guide on site.

724-P04 WATER SERVICE MATERIALS GENERAL:

Provide polyethylene water service line of iron pipe size (IPS) manufactured from ultra-high molecular weight polyethylene (average molecular weight of 1,750,000) of virgin materials and meeting the requirements of Type III Class "C" Category 5-P34 polyethylene as defined in ASTM D1248. Provide pipe designated UHMWPE 3408, with a design stress of 630 pounds per square inch (630 psi) and a working pressure of 150 pounds per square inch (150 psi) for water at 73.4°F. Provide pipe that conforms to ASTM D2239 with a standard dimension ratio (SDR) of 7. Provide pipe that is permanently imprinted with the manufacturer's brand name, pipe size, identification of the National Sanitation Foundation (NSF) approval, ASTM specification, recommended working pressure, and production date code. Provide connection fittings that are compression fittings (gasket type), stab fitting with O-ring seal (Mueller Insta-Tite or approved equivalent), or an insert type 1209 - 2 Rev. December 2019 fitting



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(Ford Pack Joint Coupling Series 66, or approved equivalent, for 1½-inch and 2- inch polyethylene only).

Furnish and install marking tape located 2 feet above the top of all watermain installed under the contract. Provide tape that is of the non-detectable type and that has a minimum width of 5 inches. Provide tape that is blue in color with the words "CAUTION WATER LINE BELOW" imprinted on the tape in black capital letters. Provide marking tape that is equal to that manufactured by Presco standard grade. Provide trace wire that is high-strength copper clad steel (CCS) wire, 450-lb min rated break strength, 30mil HDPE insulation. Color per APWA uniform standards. Make splices with sealant-filled connectors designed for direct bury. Approved Manufacturers: Copperhead Ind., Kris- Tech Wire or approved equal. Attach to pipe and provide ground rods per manufactures recommendations. Provide terminal boxes as called for on plan. Coordinate testing and verification with owners' equipment.

Provide corporation stops that are Mueller No. H-15000 or McDonald No. 74701 or Ford F600 or FB600 for copper water pipe, or approved equivalent.

Provide curb stops that are Mueller No. B-25154, Mueller No. H15154, Mueller No.V-25226, McDonald No. 76104, McDonald No. 76104-22, FORD B22, Ford B66, or Ford B77, without drain, having a Minneapolis Pattern, or approved equivalent. Install curb stops using the proper tools as recommended by the manufacturer.

Provide curb boxes that are McDonald No. 5614 or Mueller No. H10302 (1 1/4-inch diameter upper section), Mueller No. H-88703 or McDonald No. 5660, for 1¼-inch or smaller curb stops. Furnish curb boxes that are Mueller No. H-10304 or McDonald No. 5615 (2-inch diameter upper section) for 1½-inch or larger curb stops, or approved equivalent. Install stationary rods with curb stop boxes. Extend the length of the curb box by 8 feet. Install curb stops on a 6" square by 4-inch thick concrete or brick pad. Encase all curb boxes with 8-mil linear low-density (LLD) polyethylene film in accordance with ANSI/AWWA C105/A21.5. Include the price for all encasement in the bid item for the pipe.

Provide concrete for pipe cradles and saddles that conforms to the requirements of Section 501.

724-P05 ABANDON WATERMAIN/SERVICE LINE: Plug and abandon pipes at the locations designated in the plans. Plug all exposed ends of the watermain to be abandoned with concrete. Pump the pipe full of controlled density backfill to prevent any future collapse or failure of the abandoned pipe. Controlled density backfill consists of cement, water, fly ash and fine aggregate at the ratio specified below. Place controlled density backfill as shown in the plans. Mix the material continuously during pumping or placement to keep the solution from separating. Include all costs for labor, materials, and equipment in the bid price for "Abandon Watermain/Service Line".

Controlled Density Backfill Mix Design	
Material	Weight
Cement	70 lb
Fly Ash	125 lb
Fine Aggregate	2,600 lb
Water	50 Gal

724-P06 REMOVE GATE VALVE BOX: Remove gate valve box bid item as intended includes the removal of the gate valve box and abandoning the existing valve in place. Confirm that all existing valves to be abandoned are closed prior to removal of box.

724-P07 WATER SERVICE LINE 1IN: Include all costs of connecting the proposed 1-inch water service connection to the existing connection size.

724-P08 WATER SERVICE LINE 2IN: Include all costs of connecting the proposed 2-inch water service connection to the existing connection size.

724-P09 WATER SERVICE CONNECTION 1IN: Include all costs of connecting the 1 inch proposed water service connection to the existing connection size.

724-P10 CONNECTION TO EXISTING MAIN: Connection to existing main bid item is intended for areas where it is not feasible to install a tapping sleeve and valve; resulting in the need to shut down the existing main to cut in the proposed tee, gate valve, or appurtenance as indicated in the plans to make the connection to the existing water main. Coordinate with and receive permission from the City of Mandan Public Works Department at least one week prior to undertaking connections that will result in water main shutdowns. Protect existing infrastructure against deleterious substances and damage.

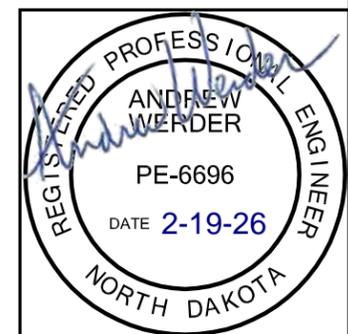
Plan in advance to have all required equipment, materials, and labor on hand at the time of undertaking the connections so that work can proceed continuously (around the clock) if necessary or if requested by City of Mandan Public Works Department to complete connections in the minimum time. Coordinate operation of existing valves and other appurtenances with the City of Mandan Public Works Department.

If a water service interruption affects a customer, who for legitimate reasons cannot be without service for the time in question, either reschedule the work to a time the customer can be without service or arrange to supply temporary service for said customer.

Include all costs for materials, labor, and equipment necessary to furnish and install connections as shown on the plans in the price bid for "Connection to Existing Main".

724-P11 GATE VALVES: Provide gate valves manufactured by American Flow Control or American AVK Company or approved equal under the minimum requirements in design, material, and workmanship conforming to the latest AWWA Standard C515. The metals used shall be in accordance with AWWA and ASTM Standards. Install all gate valves with a non-rising stem, O-ring stem seals, 2-inch operating nuts, and open counterclockwise. Provide all gate valves with a resilient synthetic rubber coating seat attached to the wedge, manufactured and designed in accordance with the latest AWWA Standard C515. Provide a resilient-seated gate valve body and bonnet that is coated, inside and out, with a fusion bonded epoxy in accordance with AWWA C550. Confirm the waterway has a full unobstructed flow without recesses in the bottom. Provide bonnet bolts that are stainless steel. Install all gate valves with mechanical restraint.

Place all valves on a minimum 6" thick pad of sufficient dimensions for valve size. Provide a stem extension for all valves that fastens to the operating nut with a SS set screw. Provide an operating nut that is drilled or otherwise indented to accept the set screw and provide a secure connection that will prevent an extension from



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coming loose during operation.

Provide valve boxes that are of a quality equal to that manufactured by Tyler Pipe Model 6860, Star Pipe Products Cast Iron Heavy Duty Model "G" or approved equal with bases and dimensions of each section to be as follows:

- No. 6 round base for 16-inch and smaller gate valves.
- No. 160 oval base for 24-inch or larger.
- Covers marked "Water."
- Top Section 25 1/2 inches long.
- Extension pieces as required.

Provide valve box debris plugs as manufactured by Infact Corporation or an approved equivalent for new and reset valve boxes.

Provide gate valve adaptors manufactured by Adaptor, Inc. or approved equivalent. Provide an adaptor that is 1/4-inch steel with a UV protective coating and a 3/4-inch gasket attached to the adaptor.

Provide a valve box that is capable of a minimum 6-inch top adjustment in either direction, up or down, to or from, the finished grades shown in the plans.

Include the cost of valve box extensions, adaptors, debris plugs, and installation in the price bid for "Gate Valve & Box ()IN".

724-P12 TAPPING SLEEVE WITH TAPPING VALVE: For pipe sizes of 6 inches to 24 inches, provide a tapping sleeve that is stainless steel with a stainless steel flange and bolts and conforms to the "Smith Blair" Type 663 or "Romac" Type SST, "Power Seal" 3480AS or approved equivalent. Provide a tapping valve that conforms to City of Mandan Standard Specification 901-2.5 for Gate Valves. Tapping 901 - 6 Rev. May 2024 saddles and install according to manufacturer's installation instructions. Torque the tapping saddle bolts using a calibrated torque wrench with a handle at least 12 inches in length.

Hydrostatically pressure test the tapping saddles with valves on the main prior to requesting a tap. Administer a test that is minimum 125 pounds per square inch for a duration of 30 minutes.

The City of Mandan Public Works will inspect the tap of the watermain. Give Mandan Public Works 48-hour notice of tapping of a watermain.

724-P13 REMOVE GATE VALVE & BOX: Remove and salvage existing gate valves at locations shown on the plans. Deliver salvaged gate valves to the Owner at City of Mandan Public Works Department: 411 6th Ave SW, Mandan, North Dakota 58554.

Include all costs for removal and salvage of existing gate valves and delivery of salvage gate valves in the price bid for "Remove Gate Valve & Box".

724-P14 HYDRANTS: Manufacture hydrants in accordance with the requirements of AWWA C502. Equip hydrants with break-a-way type traffic flanges and two (2) 2½-inch hose connections with National Standard Threads and one (1) 4 1/2-inch pumper connection with National Standard Threads. Provide a 5¼-inch Waterous Pacer Model WB-67-250 as manufactured

by American Flow Control or 5¼-inch American Darling Model B-62-B as manufactured by American Flow Control or an approved equal for all 6-inch and 8-inch hydrants.

Have a minimum of 24 inches between the 2½-inch hose connection and the nominal ground line groove for all new or reset hydrants. Provide a bury depth of 8½ feet from the ground line groove to bottom of hydrant base unless otherwise called for in the plans. Provide brass, Class 304 or 316 stainless steel, or have an epoxy coating as such to prevent corrosion for the life of the fire hydrant for all metal internal moving parts below ground. Provide stainless steel for all washers and barrel bolts below ground level. Provide hydrant lower rod with Class 304 or 316 stainless steel or have an epoxy coating as such to prevent corrosion for the life of the fire hydrant. Install according to detail shown in Section 20.

Provide gravel drainage rock that consists of granular material in accordance with the requirements of gradation shown in the following table:

Square Mesh Sieve Size	Percent By Weight Passing
2"	100%
No. 4	0-10%

Furnish and install all new hydrants with a 48-inch Red FH800 American Series Fire Hydrant Marker manufactured by Flexstake Inc. of Fort Myers Florida, or an approved equal.

Mechanically restrain all non-terminal hydrants temporarily placed for future watermain extensions to tee.

Furnish and install hydrant extensions, as needed per plans, per manufacturer's recommendations. Maximum extension length will be three vertical feet. Do not stack multiple extensions. Extensions are considered incidental to the price bid for "8in Hydrant".

724-P15 REMOVE HYDRANT: Remove existing hydrant at locations shown on the plans by:

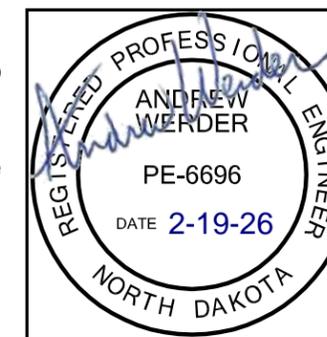
- Remove and salvage existing fire hydrants
- Remove and dispose of existing watermain piping for the hydrant lead.
- Cap existing mainline tee if necessary.
- Deliver salvaged hydrants to the City of Mandan Public Works Department.

Include all costs of removal and salvage hydrants, removal and disposal of hydrant watermain lead, capping the mainline tee, and delivery of salvaged hydrants in the price bid for "Remove Hydrant".

724-P16 REMOVE CURB BOX RISER: Remove existing curb stop, curb stop box, curb stop riser, and all other components of the curb stop and box system at all locations shown on the plans unless specifically noted otherwise.

Include all costs for removal in the price bid for "Remove Curb Stop Riser"

724-P17 WATERMAIN PRESSURE TESTING: Provide hydrostatic pressure test under the supervision of the Engineer in accordance with AWWA C605 after the pipe has been laid for all new pipe or any valve sections. Fill the test section with water and gradually



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increase the pressure to 150 pounds per square inch and hold for at least two hours with no leakage.

If defects are found, immediately make the necessary repairs, at no additional cost to the Owner. Furnish all tools, equipment, temporary caps or plugs, and material necessary to make the pressure test. The City of Mandan will provide the water for filling the pipe.

Include all costs for material and pressure testing in the price bid for "Watermain ()IN" or "Water Service Line ()IN."

724-P18 **DISINFECTION AND BACTERIOLOGICAL TESTING:** After the new mains, replacement mains, and valved extensions have been tested, they shall be flushed until all foreign material has been removed.

Make chlorination applications under supervision of the Engineer in accordance with AWWA C651. Feed water into the new line with chlorine applied in amounts to maintain a chlorine residual of 50 milligrams per liter for 24 hours or chlorine residual of 200 milligrams per liter for three (3) hours.

Operate all valves and hydrants in the treated section during this to disinfect the appurtenance. Do not allow heavily chlorinated water to remain in prolonged contact (maximum of 48 hours) with the watermain pipe. Flush chlorine from the main through hydrants and taps until all excess chlorine has been removed. Repair all grass, new or existing, damaged by the chlorination and flushing process. No chlorination water will be permitted in the watermain trench.

Furnish all tools, equipment, materials, and chlorine to complete the chlorination process, incidental to other bid items. Obtain permission from the Engineer prior to discharging chlorinated water into any drainage way. Provide chlorination taps so at least one set of samples may be collected from every segment of the new watermain at 1,200 feet maximum intervals, with one set from the end of the line and at least one set from each branch exceeding 50 feet in length.

After final flushing each 1,200-foot maximum segment and branches greater than 50 L.F., and before the new watermain is connected to the distribution system, collect two consecutive sets of acceptable samples, per 1,200-foot maximum main segment or 50-foot branch, taken at least 24 hours apart, from the new main. Perform all sampling in the presence of the Engineer.

Record the locations where samples were taken. Perform sampling with due care to prevent contamination using sterile bottles provided by the testing laboratory. It is not recommended that samples be collected from hoses or fire hydrants. Deliver all samples for laboratory analysis at a State of North Dakota certified testing laboratory for bacteriological quality to demonstrate the absence of coliform organisms. Repeat flushing, chlorination, sampling, and testing until passing results are obtained. Do not allow super chlorinated water from the disinfection of a potable distribution system to reach waters of the state until the total residual chlorine level has become non-detectable. Any sample result less than 0.05 mg/l will be considered "non-detectable."

Supply written records of all test results to the Engineer as soon as possible. To expedite construction progress, it is necessary that the test results be furnished as soon as testing is completed.

If trench water has entered the new main during construction or, if in the opinion of the Engineer, excessive quantities of dirt or debris have entered the new main, after removing dirt and debris to the satisfaction of the Engineer, take bacteriological samples at intervals of approximately 200 feet or as directed by Engineer. Record location of all sample locations. Take samples of water that has stood in the new main for at least 16 hours after final flushing has been completed.

Direct the testing laboratory to test for coliforms and e-coli using the "Colilert" or other Engineer approved equivalent test. The "Colilert" test is a pass/fail test that does not quantify the amount of bacteria. A failed test is indicated by any presence of coliforms or e-coli.

If the initial disinfection fails to produce satisfactory bacteriological results, the new main may be re-flushed and resampled. If check samples also fail to produce acceptable results, re-chlorinate the watermain by the continuous-feed or slug method of chlorination until satisfactory results are obtained.

Take bacteriological samples after repairs or short connection pieces are completed to provide a record for determining the procedure's effectiveness. If the direction of flow is unknown, take samples on each side of the repair or connection. If positive bacteriological samples are recorded, evaluate the situation to determine corrective action, and continue daily sampling until two (2) consecutive negative samples are recorded.

Include all costs for disinfection and bacteriological testing, including taps, in the price bid for "Watermain ()IN."

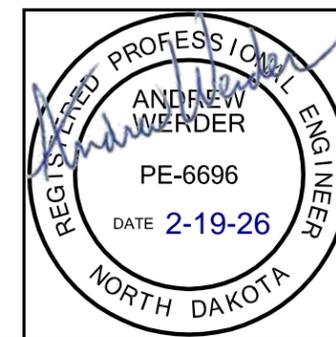
724-P19 **SPRINKLER RELOCATION:** Adjacent properties have underground sprinkler systems that will be impacted by the project. Locations are shown in Section 40. Coordinate with each property owner to determine the quantity of sprinkler heads and hoses that will be impacted prior to construction. Replace the sprinkler heads and hoses with new materials matching the existing in locations that will provide sufficient water coverage.

If the work to replace the sprinkler heads and hoses requires access outside of the right-of-way or temporary construction easement, gain written access from the landowner to complete the work and submit a copy of the agreement to the Engineer.

The following locations have known impacts on existing private sprinkler systems:

- 604 1st Street NW
- 408 1st Street NW
- 211 5th Avenue NW

Include all costs for materials, labor, and equipment in the bid price for "Sprinkler Relocation".



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724-P20 TEMPORARY WATER SUPPLY: Provide a continuous water supply to the affected properties throughout construction. Design allows installation of new watermain to occur while existing watermain is in service and minimize the use of above grade temporary water supply distribution and service connections to affected properties.

Utilize temporary water service connections between the existing and new watermain to fill new watermain for testing, flushing, and disinfection of new watermain. Use a polyethylene or PVC pipe with saddles or sleeves and corporation stops or gate valves. The method and type of materials will be approved by the Engineer prior to setting up temporary water supply. Maintain service in existing and new watermain while making service connections. Connect services and make permanent watermain connections after passing Bac-T test results are provided to Engineer. Fully remove temporary water supply connections after making permanent watermain connections.

Minimize use of above grade temporary water supply distribution systems. If above grade temporary water system is required, provide a plan to Engineer for approval. Use a polyethylene or PVC pipe. Rubberized garden hoses may not be used unless they are approved NSF 64 compliant. Disinfect and collect bacteriological samples for the temporary water supply system per note 724-P18. Provide passing Bac-T test results to the Engineer prior to use of temporary water supply. Contractor is responsible for any damage that occurs from the temporary water supply system.

Include all materials, labor and equipment necessary to provide temporary water supply in the price bid for "Temporary Water Service".

724-P21 WATER AND SEWER PIPE LAYING: Inspect pipes for defects before lowering and while suspended. Do not install damaged or unsound pipe. Remove all foreign matter or dirt from the inside of the pipe before it is lowered into its position in the trench and keep clean during and after laying. Prevent dirt from entering the joint space. At times when pipe laying is not in progress, close the open ends of the pipe by approved means so no trench water is permitted to enter the pipe.

Cutting pipe for inserting valves, fittings, or closure pieces in a neat and workmanlike manner without damage to the pipe. Unless otherwise directed, lay pipe with the bell ends facing the direction of laying. Where pipe deflections are necessary, do not exceed manufacturer's recommended degree of deflection.

During the pipe laying operation, have a temporary watertight plug available to install in the last pipe laid at the end of each work day or to install during the work day, to prevent water or other foreign material from entering the newly installed pipe.

724-P22 SANITARY SEWER PIPE AND FITTINGS: For sanitary sewer less than 18", provide and install pipe and fittings meeting PVC ASTM D3034 requirements for type Plastic Sewer Main (PSM) having an SDR of 26, stamped on the pipe. Install elastomeric gasket-type joint providing a watertight seal conforming to ASTM D3212 for all PVC sewer main line pipe and PVC sewer service pipe.

Furnish and install marking tape located 2 feet above the top of all sanitary sewer mains installed under the contract. Provide tape that is the non-detectable type and has a minimum width of 5 inches. Provide tape that is green in color with the words "CAUTION SEWER LINE BELOW" imprinted on the tape in black capital letters. Provide marking tape that is equal to that manufactured by Presco standard grade. Provide trace wire that is high-strength copper

clad steel (CCS) wire, 450-lb min rated break strength, 30mil HDPE insulation. Color per APWA uniform standards. Make splices with sealant-filled connectors designed for direct bury. Approved Manufacturers: Copperhead Ind., Kris- Tech Wire or approved equal. Attach to pipe and provide ground rods per manufactures recommendations. Provide terminal boxes as called for on plan. Coordinate testing and verification with owners' equipment.

Perform mandrel testing in all sanitary sewer 8-inches in diameter or larger no less than 30-days following installation, backfilling, and receiving passing compaction tests. Ensure circular deflections do not exceed the maximum allowable deflection requirements herein by more than 5 percent. Furnish pipe that has maximum average inside pipe diameter equal to the average outside diameter per applicable ASTM Standards minus 2 minimum wall thicknesses per applicable ASTM Standards. Use a rigid, nonadjustable, 9-leg minimum mandrel having an effective length not less than its nominal diameter, fabricated of steel or aluminum with pull rings at either end, and stamped or engraved to indicate the pipe material specification, nominal size, and outside diameter. Pull the mandrel through the pipe by hand, if it fails to pass through the pipe, it will be deemed to be over-deflected. Uncover any over-deflected pipe and, if not damaged, remove and reinstall. Remove damaged pipe from the work site and replace with new pipe. Provide re-testing, if required, at no additional cost.

Perform hydrostatic or low air pressure testing of all sanitary sewer. For hydrostatic testing, perform an exfiltration or infiltration test with a minimum positive head of 2 feet. Prevent exfiltration or infiltration from exceeding 100 gallons per inch of internal pipe diameter, per mil, per day. For Air testing, conduct an air test, as a minimum, conforming to the test procedure as described in ASTM F1417 for plastic pipe.

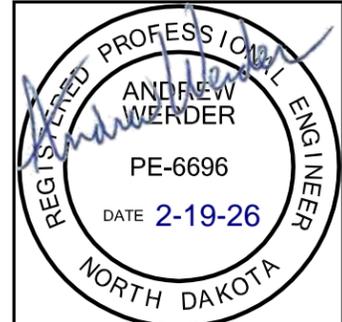
Flush all sanitary sewer pipe and manholes with clean water.

Furnish rubber gaskets for PVC sewer pipe joints that are of the elastomeric type providing a watertight seal and that conform to ASTM D3212.

Furnish wye branches that are of the same material as the main line sanitary sewer pipe.

Include all costs for labor, materials and equipment necessary for the installation including: pipe, fittings, plugs, bedding material, marking tape, flushing, circular deflection and leakage testing and retesting in the price bid for "()IN Sanitary Sewer Pipe".

724-P23 CONNECT TO EXISTING SEWER MAIN: Whenever a wye branch is not available for a sewer service connection, provide a connection to the sewer main that is one of the following: (a) A "factory assembled" wye branch may be cut into an existing PVC sewer main using gasketed repair couplings to the existing PVC sewer main. (b) A "factory assembled" wye branch may be cut into an existing VC sewer main using Shear Guard couplings, or approved equivalent, to the existing VC sewer main. (c) PVC, VC, or RC sewer main may be connected to the existing VC sewer main service using an Inserta Tee as manufactured by Inserta Fittings Co., or approved equivalent. Make the tap into the existing PVC, VC, or RC sewer main. Call the Mandan Public Works to schedule an inspection of the tap.



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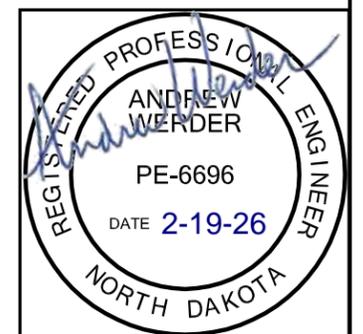
- 724-P24 TELEWISE STORM AND SANITARY SEWER MAIN: Provide television inspection for all newly constructed storm sewer and sanitary sewer mains meeting the following requirements:
- Flush all storm and sanitary sewer main and manholes with clean water.
 - Engage a subcontractor normally involved in this type of work.
 - Provide a high-quality digital video with a report for each section of sewer main televised clearly marked as to the project number and recording number, utilize visual footage counter showing the distance of the camera from the manhole.
 - Provide recordings and report to the Engineer for acceptance.
 - Immediately replace or repair any sewer failing inspection.
 - Reinspect all repaired sections.

The cost for televising the storm sewer and sanitary sewer mains is included in the price bid for "Pipe Conc Reinf ()IN CL III-Storm Drain" or "()IN Sanitary Sewer Pipe".

- 744-P01 INSULATION BOARD: Furnish and install the insulation meeting the requirements of AASHTO M230 required to protect the water main at the locations and dimensions shown in Section 57, and the detail shown in Section 20.

Provide and install a minimum of 4-inches thick insulation centered over the watermain. Offset the insulation board joints between each layer. Install pipe bedding material between pipe and insulation.

Include all costs for insulation board in the price bid for "Polystyrene Insulation Board".



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- 748-P01 CURB-TYPE I: Engineer will determine after removal of existing concrete if CURB-TYPE 1 is required to protect any exposed foundation. No payment will be made for curb that is not installed.

- 748-P02 CURB: This bid item is intended for concrete landscaping curb for the planters and rock beds. Provide concrete that is 4,000 psi strength concrete with tooled joints spaced evenly at 3'-4' centers. Construct the curb style as mower edge – 4" depth by 6" width. Provide a color that is standard gray concrete. Provide a landscape fabric for the planters that is DeWitt Weed-Barrier 20 Year (4.1 OZ), Typar 3401, or an equivalent.

Include all costs for labor, equipment, and material necessary for the concrete planter curb and fabric in this bid item.

- 750-P01 DRIVEWAY CONCRETE REINFORCED: Install reinforced driveways with No. 4 bars @ 24" on center both ways, placed mid-depth in the slab. All driveways are to be tied to curb and gutter or sidewalk by No. 4 x 12" dowel bars placed mid depth at 24" on center. All joints are to be sawed.

Include all costs for the labor, equipment, and material necessary to construct the driveways in the price bid for "Driveway Concrete _in Reinforced".

- 750-P02 SIDEWALK CONCRETE: Tie all sidewalk adjacent to existing concrete with No. 4 x 12" Def Tie Bars placed mid depth at a max spacing of 18". Include all labor, equipment, and materials required to install the tie bars in the price bid for "Sidewalk Concrete _in".

- 750-P03 SIDEWALK JOINTING: Saw a centerline longitudinal joint on concrete sidewalk greater than 7.5 feet in width. Do not exceed a 1.0 to 1.5 length to width ratio. Saw all longitudinal and transverse contraction joints. Saw joints in a timely manner to prevent any uncontrolled random cracking. If random cracking occurs, remove and replace all damaged panels at the Contractor's expense.

Include all costs for the labor, equipment, and material necessary to construct the sidewalks in the price bid for "Sidewalk Concrete _in".

- 750-P04 DETECTABLE WARNING PANELS: Use yellow painted ductile cast iron plates.

- 750-P05 SIDEWALK TRENCH DRAINS: Install sidewalk trench drains to the dimensions shown in Section 20. Take care not to damage existing roof drains while replacing sidewalk. Adjust as needed. All costs of labor, materials, and equipment to install sidewalk trench drains are included in the price for "Sidewalk Trench Drain."

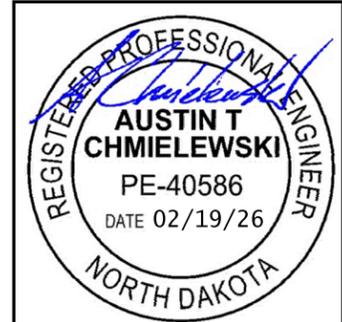
- 750-P06 ENTRANCE RAMP: Construct the concrete retaining wall, stairway, and ramp prior to installing the adjacent sidewalk. Include all costs for the labor, equipment, and material necessary to construct the retaining wall, stairway, and ramp in the price bid for "Steps Concrete". Refer to Section 20 for details and incidental quantities.

- 754-P01 SIGNS: Salvage street signs, sign panels, and surface mounted breakaway bases. Sign removals for parking restrictions may be disposed of. Deliver to the Mandan Public Works Shop at 411 6th Ave SW. Coordinate delivery with City of Mandan Street Superintendent Brian Dirk at 701-667-3240 a minimum of 24 hours in advance of delivery.

Include all costs to remove, salvage, and deliver signs and supports in the price bid for "Flat Sheet for Signs-Type __ Refl Sheeting" and "Steel Galv Posts-Telescoping Perforated Tube".

- 762-P01 PAVEMENT MARKING: Re-establish permanent double yellow centerline striping within 7 days of opening 6th Avenue NW to traffic.

- 766-P01 RESET MAILBOX: Coordinate with United States Postal Service for resetting drop boxes identified in Section 40. Include all costs to remove, relocate, and install drop boxes in the price bid for "Reset Mailbox".



NOTES

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770-P01 LIGHT STANDARD 6FT MA 30FT MT HT BREAKAWAY: Provide a steel, galvanized davit type, breakaway light standard with transformer bases and factory installed internal vibration dampeners. Face hand holes in the opposite direction of roadway. Duct seal all conduit stubs in the concrete foundation. Install double locknut washers on all anchor bolts. Provide a shaft with one longitudinal weld and a minimum yield strength of 50,000 psi. Construct davit type mast arm of same material and by the same method as the shaft. Provide a tenon adaptor in the mast arm for luminaire mounting. Provide grounding lug inside of the hand hold.

Verify anchor bolt spacing in the field prior to construction. Notify the Engineer at least 24 hours prior to pouring concrete foundations such that the form with the anchor bolt placement, rebar, conduit stub-ins and ground rod can be inspected. Finish the foundation with a 4" thick, 30"x30" square top with 1" chamfer around all sides.

Include all materials, labor and equipment necessary to furnish and install the light standard in the price bid for "LT STD 6FT MA 30FT MT HT"

770-P02 ORNAMENTAL LIGHT STANDARD: Provide the ornamental light standards as shown in the plans. Provide PEMCO PLB-112-4-12-F-0.125-T300-N-BK lighting standards. Mount the light standards on a round concrete foundation.

Luminaires for the Ornamental Light Standard shall be Cooper Lighting ACN-080-LED-E-U-33-X-4-2-BK.

Provide poles with the following accessories:

- Low Profile Duplex GFCI Receptacle with in-use cover,
- 2-Single Banner Arms Model Number: BA-24-1-BBA-F-2EB-BK
- 1 Decorative Planter Arms with planter rings (PSC31)

Post wiring shall be No. 10 AWG stranded copper with ground, Type THHN-600 volt cable of the same type specified for the underground distribution circuits. Post wiring fuses shall be a type FNM 5 ampere fuse with a Buss type HEB in line fuse holder.

Include all materials, labor and equipment necessary to furnish and install the Ornamental Light Standard and Luminaire in the price bid for "Ornamental LT STD 12FT MT HT" and "LED Luminaire".

770-P03 REVISE LIGHTING FEED POINT: Revise the feed point at the location indicated in the plans. See NDDOT standard drawing D770-02 for additional requirements. Coordinate with the electric utility, Mandan Public Works, for connection to the electrical service and meter Coordinate with Utility a minimum of 30 days before the installation of service. Run conduit through the feed point foundation to the inside of the cabinet. Provide all the necessary breakers, wires, conduit, and equipment as shown in the detail and panel schedule. Duct seal all conduit stubs in concrete foundation.

Include all materials, labor and equipment necessary to furnish and revise the feed point in the locations shown in the price bid for "Modify Existing Feed Point".

770-P04 LIGHTING SYSTEM REMOVALS: Stockpile salvaged light standards and luminaire items determined by the Engineer. Include all costs to remove, salvage, and dispose of existing lighting elements in the price bid for "Remove Light Standard".

Deliver to the Mandan Public Works Shop at 411 6th Ave SW. Coordinate delivery with City of Mandan Street Superintendent Brian Dirk at 701-667-3240 a minimum of 24 hours in advance of delivery.

770-P05 SPLICE CONNECTORS: Provide Penn-Union IPBNA2/0XS splice connectors at pole hand holes. Provide Homac, Type RAB-X-URD-BUSS submersible insulated subsurface terminal splice connectors at pull boxes.

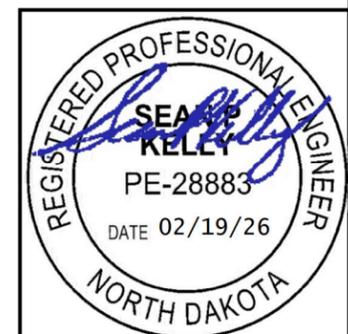
770-P06 MARKER TAPE: Install marker tape 5" below finished grade in cable trenches above underground conductors. Provide 6-inch wide, red plastic tape marked "Caution – Buried Electric Cable."

770-P07 CONDUIT INSTALLATION: Bore conduits in areas where existing sidewalks, driveway or concrete pavement are to remain. Include all costs to bore, trench and transition from boring to trenching in the price bid for "2in Diameter Rigid Conduit".

770-P08 CONCRETE FOUNDATION HIGHWAY LIGHTING: Provide light standard foundations according to Standard Drawing D-770-01 and the following dimensions:

- 12FT Standards with 24-inch diameter and 6-feet deep
- 30FT Standards with 24-inch diameter and 7-feet deep

Verify bolt circle and projection. Include spare conduit and cap end at all foundations located at the end of a circuit. Include all materials, labor and equipment necessary to furnish and install in the price bid for "Concrete Foundation-Highway Lighting".



NOTES

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970-P01 TREES:

Extend plant establishment period for a period of 1 year commencing on date of acceptance by Engineer/City Forester/City Arborist.

Notify the City of Mandan Forestry Department (701) 667-3240 for an inspection of all plant material 1 week prior to installation.

Do not install plant material when ambient temperatures may drop below 35 degrees F or rise above 90 degrees F. Do not install plant material when wind velocity exceeds 30 mph. Acceptable planting dates are as follows:

Spring: April 15 – June 15

Fall: September 15 – October 15

June 15 – September 15, upon written approval by Engineer.

Properly care for all trees from the time of planting until the contract plant establishment period expires. Proper care consists of supplemental watering, weeding, pruning, spraying, tightening/adjusting tree tie straps and other work as necessary to keep the trees in a neat appearance and in a healthy growing condition.

Planting: Remove subsoil excavated in each planting hole and backfill all tree pits with planting soil mixture (See note below.). Install trees as shown in the details. Trees that are installed too deep or too shallow will not be accepted.

Furnish and install planting soil mixture in the tree pits as shown in the detail. Provide planting soil mixture which consists of a mixture of peat moss, topsoil, and sand in a ratio of 1:1:1 by volume. Provide peat moss with:

- 75% minimum of partially decomposed stems and leaves of sphagnum, hypnum, polytrichum, and other mosses in which the fibrous and cellular structure is still recognizable. It shall be nearly free of decomposed colloidal residue, wood, and other foreign matter, and shall be brown to black in color. Humus peat will not be acceptable.
- a moisture content not exceeding 60% by weight.
- ash content not exceeding 20%, based on the oven dry weight of the material.
- pH value not less than 3.2 nor greater than 7.0 at 25° C.
- water holding capacity not less than 400% by weight, on an oven dry basis.

Furnish a certificate stating the type of peat moss, brand name, and the country or place of origin. If packed in bales, provide certificate from marking on bales.

Provide sand that 100% passes a 3/8" sieve.

Install fertilizer planting tablets: AgSafe 20-10-5 Mycorrhizae BioFertilizer Tablets or otherwise approved by Engineer; slow-release nonburning, polymer coated – Install one 21gram tablet for every 1/2 inch of caliper.

Include all work required to furnish, prepare, deliver, and install planting soil mixture in the tree pits in the price bid for individual tree.

Water all trees within 2 hours of being planted to thoroughly saturate backfill and eliminate voids.

Perform complete watering at 5 to 7-day intervals, which may be adjusted when weather conditions and soil moisture permit. Additional watering may be ordered by the Engineer at any time during the plant establishment period should conditions require such watering. Furnish and install a 15-gallon slow release supplemental water bag for each tree planted.

Place a sufficient amount of water in each supplemental water bag at the time of each watering to keep plants in a moist condition, and to keep the plant in a healthy growing condition.

Supplemental water bags will become the property of the City of Mandan following acceptance of trees. The City of Mandan will remove all supplemental water bags after the growing season and will remove all bracing and guying materials.

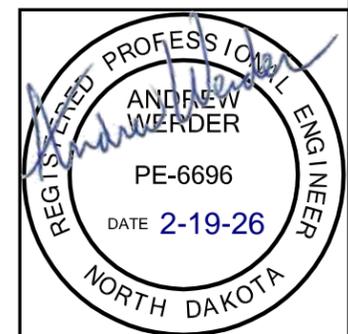
Within 24 hours of installation, stake trees and install pea gravel in accordance with details.

Replace all trees that die, show evidence of dying, or disease, during the plant establishment period at the earliest appropriate planting time after this condition becomes apparent. Replacements are to be of the same size and species as originally specified.

Near the end of the applicable plant establishment period an inspection of the trees will be made and only those found to be in a healthy growing condition will be accepted. Those trees not in a healthy growing condition will be replaced by the Contractor at the Contractor's expense. Replacements are to be of the same size and species as originally specified.

Include all costs for maintenance, warranty, watering, supplemental water bags, pea gravel, fertilizer planting tablets, tree guy anchoring/staking systems, planting soil mixture, and other items necessary for completion of the tree plantings in the price bid for individual tree.

Payment for trees will be made at specific intervals. Fifty percent (50%) will be distributed after initial planting, twenty five percent (25%) on July 1, 2027 upon acceptance of proper plant care maintenance, and twenty five percent (25%) on September 15, 2027 upon acceptance of proper plant care maintenance and final acceptance. Keep detailed records of maintenance activities and notify the Engineer 24 hours in advance of maintenance activities in order to receive full payment for each period. Submit maintenance records to the Engineer prior to the partial payment dates listed above to receive payment.



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970-P02 TREE GRATES: Furnish and install 60" square KBI Porous Flexi-Pave, Dark Brown Color, Cypress Color, or approved equivalent. Tree grates are not to have openings greater than 1/2" wide. Install tree grates per the manufacturer's recommendations and standard details, final locations will be approved by the Engineer. Include all costs to furnish and install and other items necessary to complete the tree grate installation in the price bid for "Tree Grate". Approved manufacturers are as follows:

Atlantic Power & Infrastructure Corp.
 Product: KSI Flexi-Pave
 Size: 60" x 60"
 Color: Granite
 Tree Opening Size: 16" diameter

Capitol Flexi-Pave
 Product: Flexi-Pave AS2000
 Size: 60" x 60"
 Color: Salt & Pepper Granite
 Tree Opening Size: 16" diameter

Porous Pave, Inc.
 Product: Porous Pave XL
 Size: 60" x 60"
 Color: Gray-Black
 Tree Opening Size: 16" diameter

970-P03 TRASH RECEPTACLE: Furnish and install steel trash receptacles, where indicated and shown on plans. All trash receptacles shall be surface mounted to the concrete pavement at the proposed locations per manufacturer's recommendations and standard details. Install the following trash receptacle that matches existing trash receptacles installed in Downtown Mandan.

Dumor
 Trash receptacle, Model: 102-32SH
 Color: Black
 Installation: Surface mount

Victor Stanley
 Trash receptacle, Model: FC-12
 Color: Black
 Installation: Surface mount

Include all costs to furnish and install trash receptacles in the price bid for "Trash Receptacle".

970-P04 BENCH: Furnish and install 6' metal benches, where indicated and shown on plans. All benches shall be surface mounted to the concrete pavement at the proposed locations per manufacturer's recommendations and standard details. Install the following bench that matches existing benches installed in Downtown Mandan.

Dumor
 Bench without backrest, 6-foot, Model: 92-60
 Options: End armrests
 Color: Black
 Installation: Surface Mount

Victor Stanley
 Bench without backrest, 6-foot, Model: CR-296
 Options: End armrests
 Color: Black
 Installation: Surface Mount

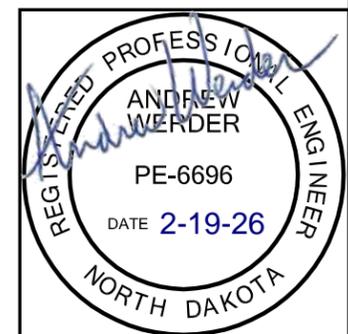
Include all costs to furnish and install benches in the price bid for "BENCH".

970-P05 LANDSCAPE PREPARTATION: This bid item is intended for cost of rock mulch. Provide mulching material that is 1 1/2" crushed landscape rock and include the cost in this bid item.

990-P01 GUARD POST-PERMANENT: Install bollard per the manufacturer's recommendations and standard details, final locations will be approved by the Engineer. Include all labor, materials, and equipment necessary to complete the work in the price bid for "Guard Post-Permanent". Approved manufacturers are as follows:

Victor Stanley
 Product: Street Sentry
 Model: L-214
 Size: 4.5" X 36"
 Color: Powder Coated Black with Two White Reflective Strips
 Installation: Ground Mount

Reliance Foundry
 Product: Fixed Steel Bollard
 Model: R-8400
 Size: 4.5" X 36"
 Color: Powder Coated Black with Two White Reflective Strips
 Installation: Ground Mount



Estimated Quantities

Revised 2/19/2026	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	8	2

SPEC	CODE	ITEM DESCRIPTION	UNIT	UGP: Funding A	100% City: Funding B	TOTAL
722	3520	INLET-TYPE 2 DOUBLE	EA		9	9
722	4060	INLET MOUNTABLE CURB-TYPE B	EA		4	4
722	6200	ADJUST MANHOLE	EA		2	2
724	0270	REMOVE GATE VALVE & BOX	EA		7	7
724	0290	GATE VALVE & BOX 4IN	EA		6	6
724	0300	GATE VALVE & BOX 6IN	EA		12	12
724	0310	GATE VALVE & BOX 8IN	EA		7	7
724	0314	GATE VALVE & BOX 12IN	EA		5	5
724	0412	8IN HYDRANT	EA		3	3
724	0430	REMOVE HYDRANT	EA		2	2
724	0611	WATER SERVICE LINE 1IN	LF		651	651
724	0621	WATER SERVICE LINE 2IN	LF		107	107
724	0629	WATER SERVICE LINE 4IN	LF		189	189
724	0636	WATER SERVICE LINE 6IN	LF		413	413
724	0670	TEMPORARY WATER SERVICE	L SUM		1	1
724	0830	WATERMAIN 8IN PVC	LF		1101	1101
724	0850	WATERMAIN 12IN PVC	LF		865	865
724	0905	CURB STOP & BOX 1IN	EA		15	15
724	0910	CURB STOP & BOX 2IN	EA		11	11
724	0944	CONNECTION TO EXISTING MAIN	EA		11	11
724	0955	WATER SERVICE CONNECTION 1IN	EA		16	16
724	0960	WATER SERVICE CONNECTION 2IN	EA		11	11
724	0962	WATER SERVICE CONNECTION 2 1/2IN	EA		1	1
724	0970	WATER LINE CONNECTION 4IN	EA		1	1
724	0975	WATER LINE CONNECTION 6IN	EA		2	2
724	1035	SPRINKLER RELOCATION	L SUM	1		1
724	1110	8IN SANITARY SEWER PIPE	LF		13	13
724	1117	12IN SANITARY SEWER PIPE	LF		80	80
724	1120	6IN SEWER SERVICE PIPE	LF		79	79
724	6031	ABANDON WATER MAIN/SERVICE LINE	LF		1829	1829
724	7014	REMOVE GATE VALVE BOX	EA		7	7
724	7053	REMOVE CURB BOX RISER	EA		30	30
724	9002	SANITARY SEWER CLEANOUT	EA		2	2
744	0100	POLYSTYRENE INSULATION BOARD	BD FT		5664	5664
748	0140	CURB & GUTTER-TYPE I	LF	3642		3642
748	0520	CURB-TYPE I	LF	185		185
748	0540	CURB	LF	133		133
748	1020	VALLEY GUTTER 36IN	SY	315		315
750	0115	SIDEWALK CONCRETE 4IN	SY	2717		2717
750	0140	SIDEWALK CONCRETE 6IN	SY	542		542
750	0150	SIDEWALK TRENCH DRAIN	EA	4		4
750	0300	STEPS CONCRETE	L SUM	1		1
750	1016	DRIVEWAY CONCRETE 6IN REINFORCED	SY	673		673
750	1021	DRIVEWAY CONCRETE 8IN REINFORCED	SY	305		305
750	2115	DETECTABLE WARNING PANELS	SF	348		348
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	119		119
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	85		85

Estimated Quantities

Revised 2/19/2026	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	8	3

SPEC	CODE	ITEM DESCRIPTION	UNIT	UGP: Funding A	100% City: Funding B	TOTAL
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	386		386
762	0103	PVMT MK PAINTED-MESSAGE	SF	60		60
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED	LF	3372		3372
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED	LF	922		922
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED	LF	116		116
762	1104	PVMT MK PAINTED 4IN LINE	LF	650		650
762	1140	PVMT MK PAINTED CURB TOP & FACE	LF	80		80
766	0120	RESET MAILBOX	EA	2		2
770	0020	CONCRETE FOUNDATION-HIGHWAY LIGHTING	EA	23		23
770	0100	PULL BOX	EA	2		2
770	0330	2IN DIAMETER RIGID CONDUIT	LF	2585		2585
770	0505	UNDERGROUND CONDUCTOR NO6-TYPE RHW	LF	12672		12672
770	0605	UNDERGROUND CONDUCTOR NO6-TYPE THW	LF	2807		2807
770	1066	LT STD 6FT MA 30FT MT HT	EA	6		6
770	4086	ORNAMENTAL LT STD 12FT MT HT	EA	17		17
770	4210	LED LUMINAIRE	EA	17		17
770	4542	RELOCATE LUMINAIRE	EA	6		6
770	4560	REMOVE LIGHT STANDARD	EA	13		13
770	4582	REMOVE CONCRETE FOUNDATION	EA	13		13
770	9270	MODIFY EXISTING FEED POINT	EA	1		1
970	0008	LANDSCAPE PREPARATION	SY	89		89
970	0200	DECORATIVE CONCRETE PLANTER	EA	7		7
970	0300	BENCH	EA	3		3
970	0320	TRASH RECEPTACLE	EA	2		2
970	0601	TREE GRATE	EA	4		4
970	1000	TREES	EA	28		28
990	0220	GUARD POST-PERMANENT	EA	12		12

SIGN NUMBER	SS16
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective COLOR: White
LEGEND/BORDER	TYPE: XI Reflective COLOR: Red

STATION(S):
102+50 Lt - OCL_1stSt
103+25 Rt - OCL_1stSt
103+75 Lt - OCL_1stSt
106+04 Rt - OCL_1stSt
107+30 Rt - OCL_1stSt

AREA: 1.5 Sq.Ft.



Xi Reflective

Dimensions are in inches.tenths
Letter locations are panel edge to lower left corner

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN_DBL	2.13	1.5	7.75	2	0

LETTER POSITION (X)						LENGTH	SIZE	SERIES			
N	O					4	3	C 2000			
4	6.23										
P	A	R	K	I	N	G	9.75	3	B 2000		
1.13	2.5	4.31	5.82	7.35	8.04	9.59					
M	O	N	,	W	E	D		5.95	1	C 2000	
3.03	3.89	4.68	5.39	6.55	7.45	8.13	8.82				
&	F	R	I				3.5	1	C 2000		
4.26	5.13	6.24	6.89	7.62							
1	A	M	-		7	A	M	6.46	1	C 2000	
2.78	3.13	3.91	4.68	5.71	6.09	7.12	7.8	8.58			

SIGN NUMBER	SS18
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective COLOR: White
LEGEND/BORDER	TYPE: XI Reflective COLOR: Red

STATION(S):
101+83 Rt - OCL_1stSt
104+20 Lt - OCL_1stSt
105+53 Rt - OCL_1stSt
107+96 Lt - OCL_1stSt

AREA: 1.5 Sq.Ft.



Dimensions are in inches.tenths
Letter locations are panel edge to lower left corner

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.13	1.5	2	7.75	90

LETTER POSITION (X)						LENGTH	SIZE	SERIES			
N	O					4	3	C 2000			
4	6.23										
P	A	R	K	I	N	G	9.75	3	B 2000		
1.13	2.5	4.31	5.81	7.35	8.04	9.59					
M	O	N	,	W	E	D		5.95	1	C 2000	
3.03	3.89	4.68	5.39	6.54	7.44	8.12	8.81				
&	F	R	I				3.5	1	C 2000		
4.25	5.12	6.23	6.88	7.61							
1	A	M	-		7	A	M	6.46	1	C 2000	
2.77	3.12	3.9	4.67	5.7	6.08	7.11	7.79	8.57			

SIGN NUMBER	SS17
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective COLOR: White
LEGEND/BORDER	TYPE: XI Reflective COLOR: Red

STATION(S):
102+02 Lt - OCL_1stSt
104+26 Rt - OCL_1stSt
107+03 Lt - OCL_1stSt
107+98 Rt - OCL_1stSt
109+39 Lt - OCL_1stSt

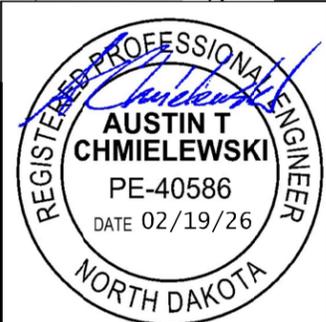
AREA: 1.5 Sq.Ft.



Dimensions are in inches.tenths
Letter locations are panel edge to lower left corner

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.12	1.5	2	7.76	270

LETTER POSITION (X)						LENGTH	SIZE	SERIES			
N	O					4	3	C 2000			
4	6.23										
P	A	R	K	I	N	G	9.75	3	B 2000		
1.13	2.5	4.31	5.81	7.35	8.04	9.59					
M	O	N	,	W	E	D		5.95	1	C 2000	
3.03	3.89	4.68	5.39	6.54	7.44	8.12	8.81				
&	F	R	I				3.5	1	C 2000		
4.25	5.12	6.23	6.88	7.61							
1	A	M	-		7	A	M	6.46	1	C 2000	
2.77	3.12	3.9	4.67	5.7	6.08	7.11	7.79	8.57			



Rev'd. 2/18/26			
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Rev'd.			
DOWNTOWN STREET RECONSTRUCTION CITY OF MANDAN, NORTH DAKOTA 4TH AVENUE NW			
	PERMANENT SIGNING SPECIAL SIGNS		
	<table border="0"> <tr> <td>DRAWN BY RB</td> <td>CHKD BY AC</td> <td>PROJECT NO. 1904-02191</td> </tr> </table>	DRAWN BY RB	CHKD BY AC
DRAWN BY RB	CHKD BY AC	PROJECT NO. 1904-02191	

SIGN NUMBER	SS19
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective COLOR: White
LEGEND/BORDER	TYPE: XI Reflective COLOR: Red

STATION(S):
41+39 Rt - OCL_4thAve
41+59 Lt - OCL_4thAve
42+04 Rt - OCL_4thAve
42+87 Lt - OCL_4thAve

AREA: 1.5 Sq.Ft.



Dimensions are in inches.tenths
Letter locations are panel edge to lower left corner

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN_DBL	2.13	1.5	7.75	2	0

LETTER POSITION (X)										LENGTH	SIZE	SERIES
N	O									4	3	C 2000
4	6.23											
P	A	R	K	I	N	G				9.75	3	B 2000
1.13	2.5	4.31	5.81	7.35	8.04	9.59						
T	U	E	S							4.64	1	C 2000
3.68	4.33	5.11	5.74	6.36	7.45							
T	H	U	R	S						3.45	1	C 2000
4.27	4.92	5.7	6.48	7.16								
1	A	M								6.46	1	C 2000
2.77	3.12	3.9	4.67	5.7	6.08	7.11	7.79	8.57				

SIGN NUMBER	SS21
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective COLOR: White
LEGEND/BORDER	TYPE: XI Reflective COLOR: Red

STATION(S):
40+75 Rt - OCL_4thAve
43+47 Lt - OCL_4thAve

AREA: 1.5 Sq.Ft.



Dimensions are in inches.tenths
Letter locations are panel edge to lower left corner

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.13	1.5	2	7.75	90

LETTER POSITION (X)										LENGTH	SIZE	SERIES
N	O									4	3	C 2000
4	6.23											
P	A	R	K	I	N	G				9.75	3	B 2000
1.13	2.5	4.31	5.82	7.35	8.04	9.59						
T	U	E	S							4.64	1	C 2000
3.68	4.33	5.11	5.74	6.36	7.45							
T	H	U	R	S						3.45	1	C 2000
4.28	4.93	5.71	6.49	7.17								
1	A	M								6.46	1	C 2000
2.77	3.12	3.9	4.67	5.7	6.08	7.11	7.79	8.57				

SIGN NUMBER	SS20
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective COLOR: White
LEGEND/BORDER	TYPE: XI Reflective COLOR: Red

STATION(S):
40+74 Lt - OCL_4thAve
42+86 Rt - OCL_4thAve

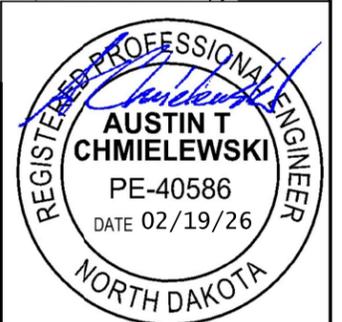
AREA: 1.5 Sq.Ft.



Dimensions are in inches.tenths
Letter locations are panel edge to lower left corner

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.12	1.5	2	7.76	270

LETTER POSITION (X)										LENGTH	SIZE	SERIES
N	O									4	3	C 2000
4	6.23											
P	A	R	K	I	N	G				9.75	3	B 2000
1.13	2.5	4.31	5.82	7.35	8.04	9.59						
T	U	E	S							4.64	1	C 2000
3.68	4.33	5.11	5.74	6.36	7.45							
T	H	U	R	S						3.45	1	C 2000
4.28	4.93	5.71	6.49	7.17								
1	A	M								6.46	1	C 2000
2.77	3.12	3.9	4.67	5.7	6.08	7.11	7.79	8.57				



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Rev'd.						
Rev'd.						
Rev'd.						
DOWNTOWN STREET RECONSTRUCTION CITY OF MANDAN, NORTH DAKOTA 4TH AVENUE NW						
	PERMANENT SIGNING SPECIAL SIGNS					
	<table border="0"> <tr> <td>DRAWN BY</td> <td>CHKD BY</td> <td>PROJECT NO.</td> </tr> <tr> <td>RB</td> <td>AC</td> <td>1904-02191</td> </tr> </table>	DRAWN BY	CHKD BY	PROJECT NO.	RB	AC
DRAWN BY	CHKD BY	PROJECT NO.				
RB	AC	1904-02191				