

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
REQUEST FOR PROPOSAL
URBAN FEDERAL AID PROJECT NO. SU-8-984(165) (PCN-22292)

1.025 Miles

GRADING, SALVAGED BASE, PCC PAVEMENT, STORM SEWER, WATERMAIN, TRAFFIC SIGNAL, LIGHTING,
SHARED USE PATH

UNIVERSITY DR N, FARGO - 32ND AVE N TO 40TH AVE N

CASS COUNTY

DBE Race Conscious Goal - 7.00%

BID OPENING: The bidder's proposal will be accepted via the Bid Express on-line bidding exchange at www.bidx.com until **09:30AM Central Time on April 09, 2021.**

Prior to submitting a Proposal, the Bidder shall complete all applicable sections and properly execute the Proposal Form in accordance with the specifications.

Proposal Form of:

(Firm Name)

(Address, City, State, Zipcode)

(For official use only)

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Project: SU-8-984(165) (PCN-22292)

The company, firm, corporation, or individual hereby acknowledges that it has designated a responsible person or persons as having the authority to obligate the company, firm, or individual, through electronic or paper submittal, to the terms and conditions described herein and in the contract documents. The designated responsible person submitting this proposal shall be hereafter known as the bidder. By submitting this proposal, the bidder fully accepts and agrees to all the provisions of the proposal. The bidder also certifies that the information given in this proposal is true and the certifications made in this proposal are correct.

The bidder acknowledges that they have thoroughly examined the plans, proposal form, specifications, supplemental specifications, special provisions and agrees that they constitute essential parts of this proposal.

The bidder acknowledges that all line items which contain a quantity shall have a unit price bid. Any line item which is bid lump sum shall contain a lump sum bid price.

The bidder acknowledges that they understand that the quantities of work required by the plans and specifications are approximate only and are subject to increases and decreases; the bidder understands that all quantities of work actually required must be performed and that payment therefore shall be at the prices stipulated herein; that the bidder proposes to timely furnish the specified materials in the quantities required and to furnish the machinery, equipment, labor and expertise necessary to competently complete the proposed work in the time specified.

NON-COLLUSION AND DEBARMENT CERTIFICATION

The bidder certifies that neither he/she, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this bid.

By submitting this proposal, the bidder certifies to the best of his/her knowledge and belief that he/she and his/her principles:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal Department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or perform a public (Federal, State or Local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property

Project: SU-8-984(165) (PCN-22292)

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- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or Local) with commission of any of the offenses enumerated in paragraph b. of the certification; and
 - d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or Local) terminated for cause or default

Where the prospective bidder is unable to certify to any of the statements in this certification, the bidder shall submit an explanation in the blanks provided herein. The explanation will not necessarily result in denial of participation in a contract:

Explanation: _____

If the prequalified bidder's status changes, he/she shall immediately submit a new fully executed non-collusion affidavit and debarment certification with an explanation of the change to the Contract Office prior to submitting the bid.

Failure to furnish a certification or an explanation will be grounds for rejection of a bid.

BID LIMITATION (Optional)

The bidder who desires to bid on more than one project on which bids are to be opened on the same date, and who also desires to avoid receiving an award of more projects than the bidder is equipped to handle, may bid on multiple projects and limit the total amount of work awarded to the bidder on selected projects by completing the "Bid Limitation".

The Bid Limitation must be filled in on each proposal form for which the Bidder desires protection. Each such proposal must be covered by a proposal guaranty.

The bid limitation can be made by declaring the total dollar value of work OR total number of projects a bidder is willing to perform.

The Bidder desires to disqualify all of his/her bids on this bid opening that exceed a total dollar value of \$ _____

OR

that exceed a total number of _____ projects.

The Bidder hereby authorizes the Department to determine which bids shall be disqualified.

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PERMISSIBLE DISCOUNT (optional)

Only when invited to do so in the Request for Proposal by Special Provision, Bidders are permitted to offer a discount on a specific project (discount project) if they are awarded the contract on one or more additional projects bid at the same bid opening time and date. The bidder must present the proposal so that it can be considered with or without the discount. The bid or discount offered on the "discount project" will not affect the determination of the low bid of any other project.

When discounts are offered, they must be presented as a reduction in the unit price for one or more items of work in the specified proposal (discount project).

Space for Offering Discounts:

Item No: _____

Description: _____

Unit: _____

Proposal Quantity: _____ Unit Price Reduction: \$ _____ Discount: \$ _____

Item No: _____

Description: _____

Unit: _____

Proposal Quantity: _____ Unit Price Reduction: \$ _____ Discount: \$ _____

Item No: _____

Description: _____

Unit: _____

Proposal Quantity: _____ Unit Price Reduction: \$ _____ Discount: \$ _____

TOTAL DISCOUNT _____

It is understood that the discount will only apply if awarded under the conditions as listed above and signed by the bidder.

Project: SU-8-984(165) (PCN-22292)

RECEIPT OF ADDENDA ACKNOWLEDGEMENT

We hereby acknowledge receipt of the following addenda:

Addendum # _____ Dated _____

Addendum # _____ Dated _____

Addendum # _____ Dated _____

Addendum # _____ Dated _____

Addendum # _____ Dated _____

Addendum # _____ Dated _____

PROPOSAL GUARANTY

A proposal guaranty is required. The proposal guaranty must comply with Section 102.09, "Proposal Guarantee" of the Standard Specifications.

TYPE OF PROPOSAL GUARANTY APPLIED TO THIS PROJECT (Check one):

_____ Annual Bid Bond*

_____ Single Project Bid Bond

_____ Certified or Cashier's Check

*Annual Bid Bond is required when submitting proposals electronically

BID ITEMS

Project: SU-8-984(165) (PCN-22292)

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	108	0001	CRITICAL PATH METHOD SCHEDULE	L SUM	1.				
003	202	0136	REMOVAL OF PAVEMENT	TON	7,317.				
004	202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	1.				
005	202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	329.				
006	203	0101	COMMON EXCAVATION-TYPE A	CY	16,059.				
007	203	0109	TOPSOIL	CY	7,166.				
008	203	0138	COMMON EXCAVATION-SUBCUT	CY	1,400.				
009	216	0100	WATER	M GAL	230.				
010	230	0165	SUBGRADE PREPARATION-TYPE A-12IN	STA	53.				
011	251	0300	SEEDING CLASS III	ACRE	6.860				
012	251	2000	TEMPORARY COVER CROP	ACRE	8.830				
013	253	0201	HYDRAULIC MULCH	ACRE	15.690				
014	256	0100	RIPRAP GRADE I	CY	7.				
015	256	0300	RIPRAP GRADE III	CY	122.				
016	260	0200	SILT FENCE SUPPORTED	LF	228.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
017	260	0201	REMOVE SILT FENCE SUPPORTED	LF	228.				
018	261	0120	FIBER ROLLS 20IN	LF	720.				
019	261	0121	REMOVE FIBER ROLLS 20IN	LF	322.				
020	302	0101	SALVAGED BASE COURSE	CY	9,956.				
021	302	9970	TYPE II PIPE BEDDING	CY	650.				
022	430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	103.				
023	550	0310	10IN NON REINF CONCRETE PVMT CL AE-DOWELED	SY	17,289.				
024	702	0100	MOBILIZATION	L SUM	1.				
025	704	0100	FLAGGING	MHR	1,000.				
026	704	1000	TRAFFIC CONTROL SIGNS	UNIT	1,707.				
027	704	1052	TYPE III BARRICADE	EA	38.				
028	704	1054	SIDEWALK BARRICADE	EA	10.				
029	704	1060	DELINEATOR DRUMS	EA	267.				
030	704	4011	PORTABLE CHANGEABLE MESSAGE SIGN	EA	3.				
031	706	0400	FIELD OFFICE	EA	1.				
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	708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	52.				
034	709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	21,389.				
035	709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	699.				
036	714	0210	PIPE CONC REINF 15IN CL III-STORM DRAIN	LF	806.				
037	714	0315	PIPE CONC REINF 18IN CL III-STORM DRAIN	LF	39.				
038	714	0620	PIPE CONC REINF 24IN CL III-STORM DRAIN	LF	451.				
039	714	0825	PIPE CONC REINF 30IN CL III-STORM DRAIN	LF	544.				
040	714	0910	PIPE CONC REINF 36IN CL III-STORM DRAIN	LF	501.				
041	714	1010	PIPE CONC REINF 42IN CL III-STORM DRAIN	LF	501.				
042	714	1110	PIPE CONC REINF 48IN CL III-STORM DRAIN	LF	1,235.				
043	714	1212	PIPE CONC REINF 54IN CL III-STORM DRAIN	LF	1,390.				
044	714	1500	PIPE CONC REINF 72IN CL II	LF	14.				
045	714	3050	END SECT-CONC REINF 54IN	EA	1.				
046	714	4099	PIPE CONDUIT 18IN-APPROACH	LF	107.				
047	714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	1.				
048	714	9696	EDGEDRAIN NON PERMEABLE BASE	LF	10,454.				

BID ITEMS

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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	1.				
050	722	0140	MANHOLE 96IN	EA	1.				
051	722	3315	6IN PVC SEWER PLUG	EA	1.				
052	722	3499	INLET	EA	1.				
053	722	3510	INLET-TYPE 2	EA	3.				
054	722	3701	INLET SPECIAL-TYPE 2 48IN	EA	10.				
055	722	3761	INLET SPECIAL-TYPE 2 60IN	EA	2.				
056	722	3766	INLET SPECIAL-TYPE 2 72IN	EA	1.				
057	722	3768	INLET SPECIAL-TYPE 2 84IN	EA	7.				
058	722	3769	INLET SPECIAL-TYPE 2 96IN	EA	2.				
059	722	4005	INLET CATCH BASIN	EA	17.				
060	722	4108	INLET SPECIAL CATCH BASIN 48IN	EA	3.				
061	722	6160	ADJUST INLET	EA	1.				
062	722	6200	ADJUST MANHOLE	EA	4.				
063	724	0210	FITTINGS-DUCTILE IRON	LBS	6,756.				
064	724	0300	GATE VALVE & BOX 6IN	EA	12.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
065	724	0314	GATE VALVE & BOX 12IN	EA	1.				
066	724	0317	GATE VALVE & BOX 16IN	EA	4.				
067	724	0410	HYDRANT-INSTALL 5IN	EA	12.				
068	724	0807	PLUG 8IN WATERMAIN	EA	3.				
069	724	0808	PLUG 12IN WATERMAN	EA	1.				
070	724	0810	WATERMAIN 6IN PVC	LF	180.				
071	724	0830	WATERMAIN 8IN PVC	LF	96.				
072	724	0850	WATERMAIN 12IN PVC	LF	9.				
073	724	0852	WATERMAIN 16IN PVC	LF	5,305.				
074	744	0050	INSULATION BOARD	CF	128.				
075	748	0190	CURB & GUTTER-TYPE I 30IN	LF	10,797.				
076	750	0030	PIGMENTED IMPRINTED CONCRETE	SY	73.				
077	750	0120	SIDEWALK CONCRETE 5IN REINF	SY	6,707.				
078	750	0140	SIDEWALK CONCRETE 6IN	SY	158.				
079	750	1000	DRIVEWAY CONCRETE	SY	188.				
080	750	2115	DETECTABLE WARNING PANELS	SF	317.				

BID ITEMS

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$	000	\$\$\$\$	00
081	752	0911	TEMPORARY SAFETY FENCE	LF	200.				
082	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	103.				
083	754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	185.				
084	754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	306.				
085	754	0592	RESET SIGN PANEL	EA	5.				
086	754	0593	RESET SIGN SUPPORT	EA	4.				
087	754	0805	OBJECT MARKERS - CULVERTS	EA	10.				
088	762	0113	EPOXY PVMT MK 4IN LINE	LF	100.				
089	762	0116	EPOXY PVMT MK 16IN LINE	LF	86.				
090	762	0117	EPOXY PVMT MK 24IN LINE	LF	230.				
091	762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	182.				
092	762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	347.				
093	762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	1,121.				
094	762	1317	PREFORMED PATTERNED PVMT MK 16IN LINE-GROOVED	LF	162.				
095	762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED	LF	498.				
096	762	1344	PREF PATT PVMT MK 7IN LINE CONTRAST-GROOVED	LF	4,476.				

Project: SU-8-984(165) (PCN-22292)

Type of Work: GRADING, SALVAGED BASE, PCC PAVEMENT, STORM SEWER, WATERMAIN, TRAFFIC SIGNAL, LIGHTING, SHARED USE PATH

County: CASS

Length: 1.0250 Miles

TIME FOR COMPLETION:

The undersigned Bidder agrees, if awarded the contract, to prosecute the work with sufficient forces and equipment to complete the contract work within the allowable time specified as follows:

WORKING DAY CONTRACT: NA working days are provided. The Department will begin charging working days beginning NA or the date work begins on the project site, whichever is earlier.

CALENDAR DAY CONTRACT: NA calendar days are provided. The completion date will be determined by adding NA calendar days to NA or the date work begins on the project site, whichever is earlier.

COMPLETION DATE CONTRACT The project completion date is 12/01/2021 *. The Department provides a minimum of NA working days. The Department will begin charging working days beginning NA or the date work begins on the project site, whichever is earlier.

***REFER TO NOTE 108-P01 COMPLETION DATE FOR ADDITIONAL TIME AND LIQUIDATED DAMAGE REQUIREMENTS.**

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Type of Work: GRADING, SALVAGED BASE, PCC PAVEMENT, STORM SEWER, WATERMAIN, TRAFFIC SIGNAL, LIGHTING, SHARED USE PATH

County: CASS

Length: 1.0250 Miles

UTILIZATION OF DISADVANTAGED BUSINESS ENTERPRISE (M/WBE):

The undersigned Bidder certifies that the information given on behalf of the Bidder in Special Provision, "Utilization of Disadvantaged Business Enterprise" (M/WBE), is true and correct and that the bidder has met the assigned goals or has met the good faith effort requirements of the Special Provision.

CONTRACT EXECUTION:

The undersigned Bidder agrees, if awarded the contract, to execute the contract form and furnish a contract bond within fifteen calendar days, as determined by NDCC Section 1-02-15, after date of notice of award, in accordance with the provisions of Sections 103.05 and 103.06 of the Standard Specifications.

AFFIDAVIT:

STATE OF _____)
) **ss.**
COUNTY OF _____)

The undersigned bidder, being duly sworn, does depose and say that they are an authorized representative of _____
CONTRACTOR NAME
of _____, a
MAILING ADDRESS

- Individual Partnership Joint Venture Corporation

and that they have read, understand, acknowledge, and accept the entire proposal form; and that all statements made by said bidder are true and correct.

_____, TITLE _____
BIDDER MUST SIGN ON THIS LINE

TYPE OR PRINT SIGNATURE ON THIS LINE

Subscribed and sworn to before me this day.

COUNTY

(Seal)

STATE DATE

NOTARY PUBLIC

My commission expires _____

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

Job # 01, SU-8-984(165)

Grading, Salvaged Base, PCC Pavement, Storm Sewer, Watermain
Traffic Signal, Lighting, Shared Use Path

INDEX OF PROVISIONS

Road Restriction Permits

Hot Line Notice

Price Schedule for Miscellaneous Items dated October 1, 2014 (PS-1)

SP DBE Program - Race Conscious dated February 1, 2018

E.E.O. Affirmative Action Requirements dated March 15, 2014

Appendix A of the Title VI Assurances dated September 8, 2020

Appendix E of the Title VI Assurances dated September 8, 2020

SP Cargo Preference Act

Required Contract Provisions Federal Aid Construction Contracts
(Form FHWA 1273 Rev. May 1, 2012)

SP Certified Payrolls, dated 9-6-17

SP DBE Project Payment Reporting, dated 10-3-17

NOTICE - Electrician

Labor Rates from U.S. Department of Labor dated February 12, 2021 (Mod. No. 1)

On-The-Job Training Program dated October 1, 2016

SSP 1 Temporary Erosion & Sediment Best Management Practices

SSP 3 Local Agency Contracts

SSP 5 Limitations of Operations

SSP 7 Bitumen Testing Price Adjustments

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SSP 8 Federal Prohibition on Certain Technological Hardware

SSP 9 HMA Acceptance

SP 227(20) Utility Coordination

SP 228(20) Airport Coordination

SP 229(20) City Paving, Storm Sewer and Watermain Specifications

SP 230(20) City Lighting and Traffic Signal Specifications

SP 231 (20) Commercial Grade Asphalt

PSP 60(20) Permits and Environmental Considerations

SP Fuel Cost Adjustment Clause dated September 8, 2006

Contract

Contract Bond

NOTICE

TO: All prospective bidders on all North Dakota Department of Transportation Highway Construction Projects.

Contractors moving construction equipment to NDDOT highway construction projects are subject to the Road Restriction Policy with the following modifications:

- A. The contractor may purchase up to 10 single trip permits for each NDDOT highway construction project at a cost ranging from \$20 to \$70 each. These permits must be purchased from the Motor Carrier Division of the Highway Patrol at the central office of the NDDOT in Bismarck, North Dakota.
- B. The \$1 per mile fee will not be charged for Gross Vehicle Weights (GVW) exceeding 105,500 pounds, 105,500 pounds, and 105,000 pounds for highways Restricted by Legal Weights, 8 Ton, and 7 Ton highways respectively.
- C. The \$5 per ton per mile fee will be charged only for loads exceeding a GVW of 130,000 pounds, 120,000 pounds, 110,000 pounds and 80,000 pounds for highways Restricted by Legal Weights, 8 Ton, 7 Ton, and 6 Ton highways respectively.
- D. The maximum weights per axle for each of the class restrictions still apply. If it is shown that more axles cannot be added, movement may be authorized; however, a \$1 per ton per mile fee will be charged for all weight in excess of the restricted axle limits.
- E. These construction equipment single trip permits apply to State and US Highways only.
- F. The District Engineers and Highway Patrol will select the route of travel.
- G. Contractors moving equipment to other than NDDOT highway construction projects are subject to all fees as shown in the Road Restriction Permit Policy.
- H. Contractors must call the Highway Patrol prior to movement of all overweight loads on all State and US Highways.

ROAD RESTRICTION PERMITS

Permits shall be issued for the movement of non-divisible vehicles and loads on state highways which exceed the weight limits during spring road restrictions. The issuance of permits may be stopped or posted weights changed at any time based on the varying conditions of the roadways. Permits can be obtained from the Highway Patrol.

RESTRICTION CLASSIFICATIONS WITH ALLOWABLE AXLE WEIGHTS AND GROSS VEHICLE WEIGHTS	PERMIT AND TON/MILE FEES
<p>Highways Restricted by Legal Weight</p> <p>Single Axle -- 20,000 lbs. Tandem Axle -- 34,000 lbs. Triple Axle -- 48,000 lbs. 4 Axles or more -- 15,000 lbs. per axle</p> <p>Gross Vehicle Weight -- 105,500 lbs.</p> <p>Note: The above weights apply to state highways restricted by legal weights, other than interstate highways, in areas where road restrictions are in force. When the gross weight of an axle grouping exceeds 48,000 pounds, the \$1 per ton per mile shall apply to all weight in excess of 15,000 pounds per axle.</p>	<p>Permit Fee: \$20-\$70 per trip</p> <p>Ton Mile Fee:</p> <p>105,501 lbs. to 130,000 lbs. GVW -- \$1 per mile</p> <p>Over 130,000 lbs. GVW -- \$1 per mile plus \$5 per ton per mile for that weight exceeding 130,000 lbs. GVW</p> <p>Exceeding axle limits -- \$1 per ton per mile</p>
<p>8-Ton:</p> <p>Single Axle -- 16,000 lbs. Tandem Axle -- 32,000 lbs. 3 Axles or more -- 14,000 lbs. per axle</p> <p>Gross Vehicle Weight -- 105,500 lbs.</p>	<p>Permit Fee: \$20-\$70 per trip</p> <p>Ton Mile Fee:</p> <p>105,501 lbs. to 120,000 lbs. GVW -- \$1 per mile</p> <p>Over 120,000 lbs. GVW -- \$1 per mile plus \$5 per ton per mile for that weight exceeding 120,000 lbs. GVW</p> <p>Exceeding restricted axle limits -- \$1 per ton per mile</p>
<p>7-Ton:</p> <p>Single Axle -- 14,000 lbs. Tandem Axle -- 28,000 lbs. 3 Axles or more -- 12,000 lbs. per axle</p> <p>Gross Vehicle Weight -- 105,500 lbs.</p>	<p>Permit Fee: \$20-\$70 per trip</p> <p>Ton Mile Fee:</p> <p>105,500 lbs. to 110,000 lbs. GVW -- \$1 per mile</p> <p>Over 110,000 lbs. GVW -- \$1 per mile plus \$5 per ton per mile for that weight exceeding 110,000 lbs. GVW</p> <p>Exceeding restricted axle limits -- \$1 per ton per mile</p>
<p>6-Ton:</p> <p>Single Axle -- 12,000 lbs. Tandem Axle -- 24,000 lbs. 3 Axles or more -- 10,000 lbs. per axle</p> <p>Gross Vehicle Weight -- 80,000 lbs.</p>	<p>Permit Fee: \$20-\$70 per trip</p> <p>Ton Mile Fee:</p> <p>\$5 per ton per mile for all weight exceeding 80,000 lbs. GVW</p> <p>Exceeding restricted axle limits -- \$1 per ton per mile</p>
<p>5-Ton:</p> <p>Single Axle -- 10,000 lbs. Tandem Axle -- 20,000 lbs. 3 Axles or more -- 10,000 lbs. per axle</p> <p>Gross Vehicle Weight -- 80,000 lbs.</p>	<p>No overweight movement allowed</p>

SINGLE UNIT FIXED LOAD VEHICLES SUCH AS TRUCK CRANES AND WORKOVER RIGS

- A. Permit Fee and Ton Mile Fee for Self-Propelled Fixed Load Vehicles .
1. Permit Fee: \$25 per trip
 2. \$1 per ton per mile for all weight in excess of restricted axle limits or in excess of legal limits on state highways in areas where road restrictions are in force. When the gross weight of an axle grouping exceeds 48,000 pounds, the \$1 per ton per mile shall apply to all weight in excess of 15,000 pounds per axle (see weight classification chart in section C.)
 3. **\$5 per ton per mile** for all movements exceeding the following gross vehicle weight limits:
 - a. 105,500 lbs. GVW on unrestricted state highways, other than interstate highways, in areas where road restrictions are in force.
 - b. 105,500 lbs. GVW on 8-ton highways.
 - c. 105,500 lbs. GVW on 7-ton highways.
 - d. 80,000 lbs. GVW on 6-ton highways.
 - e. No overweight movement allowed on 5-ton highways
- B. Permit Fees for Work-Over Rigs and Special Mobile Equipment Exceeding 650 but not 670 Pounds Per Inch Width of Tire.
1. Permit Fee:
 - a. \$50 per trip on work-over rigs up to 650 pounds per inch width.
 - b. \$75 per trip on work -over rigs that exceed 650 but not 670 pounds per inch width of tire.
 2. The work-over rig shall be stripped to the most minimum weights.
 3. A minimal number of state highway miles shall be used.
 4. District engineer approval shall be obtained prior to movement when vehicle exceeds restricted axle weights by more than 5,000 pounds.
 5. A validation number ending in TM must be obtained from the Highway Patrol prior to using a self-issue single trip movement approval form.
 6. The ton mile shall be waived .

NOTICE

U.S. DEPARTMENT OF TRANSPORTATION

"HOT LINE"

As part of its continuing investigation into Highway Construction Contract Bid Rigging and abuses in the Disadvantaged Business Enterprise Program, the Inspector General for the Department of Transportation (DOT) has established a "HOT LINE" to receive information from contractors, suppliers, or anyone with knowledge of such activities.

The toll-free "HOT LINE" telephone number is 1-800-424-9071 and will be manned during normal working hours (8 a.m. to 5 p.m. EST). This operation is under the direction of DOT's Inspector General. All information will be treated confidentially and anonymity will be respected.

CALL

Inspector General's 'HOT LINE'
Toll Free 1-800-424-9071
Washington, DC Area:
202-366-1461
Fax: 202-366-7749

WRITE

Inspector General
Post Office Box 23178
Washington, DC 20026-0178

Email: hotline@oig.dot.gov

The field office address and telephone number for NORTH DAKOTA is:

CHICAGO REGIONAL OFFICE

Special Agent-in-Charge
Commercial: 312-353-0106
111 N. Canal St., Suite 677
Chicago, Illinois 60606

10/1/2014

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
PRICE SCHEDULE FOR MISCELLANEOUS ITEMS (PS-1)**

The Contractor agrees to accept the following unit prices for each listed item of work and or material when no project contract unit price exists for that item. Each price listed will be full compensation for the cost of labor, material and equipment necessary to provide the item of work and/or material, complete in place, including (but not limited to) royalty, disposal of unsuitable material, equipment rental, sales tax, use tax, overhead, profit, and incidentals.

Each listed item is referenced to the Standard Specifications by Section number and Section name.

SECTION NO.	SECTION NAME	ITEM NAME	PRICE PER ITEM
107.08	Haul Roads	Water	\$27 per M Gal
107.08	Haul Roads	Bitumen for Mix	Invoice Price ¹ + 10%
107.08	Haul Roads	Bituminous Mix	\$42 per Ton ²
107.08	Haul Roads	Aggregate Base	\$17 per Ton ²
203.01 B	Rock Excavation	Rock Excavation	\$11 per CY
203.01 C	Shale Excavation	Shale Excavation	Common Excavation Price + \$1.00 per CY
203.01 D	Muck Excavation	Muck Excavation	\$9 per CY
203.05 H.3	Embankment	Overhaul	\$1.40 per CY - Mile
260	Silt Fence	Mucking Silt Fence	\$3.90 per LF
260	Silt Fence	Removal of Silt Fence ³	\$4.25 per LF
261	Fiber Rolls	Mucking of Fiber Rolls	\$3.90 per LF
261	Fiber Rolls	Removal of Fiber Rolls ³	\$4.25 per LF
420.04 E	Bituminous Seal Coat	Blotter Sand	\$27 per Ton ²
430.04 G	Hot Mix Asphalt (Exc. Material Hauled to Disposal Area)	Bituminous Mixture	Machine Placed: Bid or Invoice Price + \$31 per ton Hand Placed: Bid or Invoice Price + \$48 per Ton
704	Temporary Traffic Control	Flagging	\$32 per MHR

¹Price paid for bituminous material will be invoice price plus freight costs.

²Price Includes haul up to 10 miles. Payment for haul exceeding 10 miles will be according to Section 109.03 E, "Force Account." The haul distance for aggregate base and bituminous mix will be based on the average haul. The haul distance for blotter sand will be from the point where the haul begins to the point where it enters the project.

³This is only for pre-existing items that were not installed under the Contract.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION SPECIAL PROVISION: DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM

PROJECT SU-8-984(165) (PCN-22292)

RACE/GENDER CONSCIOUS GOAL The DBE goal for this project is: **7.00%**

NDDOT Contact Information	
Contractor Sign In & Submit Advertisements at: https://apps.nd.gov/dot/cr/csi/login.htm	Amy Conklin, DBE Program Administrator 701-328-3116 - or - aconklin@nd.gov
Submit quotes and post bid documentation to: subquotes@nd.gov or Fax: 701-328-0343	Ramona Bernard, Civil Rights Division Director 701-328-2576 - or - rbernard@nd.gov
Search DBE Directory https://dotnd.diversitycompliance.com/	All times are stated in Central Time. The day of the bid opening is not counted as one of the business days.

PURPOSE

These provisions:

1. Provide an explanation of the federal law and outline the obligations to comply with the Federal DBE requirements applicable to this contract,
2. Explain the process NDDOT will follow to evaluate bidders' efforts to obtain DBE participation
3. Provide the standards NDDOT will use to measure compliance with the requirements
4. Identify sanctions for failing to comply with DBE program requirements.

This Special Provision is written per 49 CFR Part 26 and Appendix A – Guidance Concerning Good Faith Efforts.

Contract award will be made to the lowest responsive bidder whose proposal substantially complies with the requirements prescribed herein, has submitted all required documentation and who has met the goal for DBE participation, or has demonstrated, to the satisfaction of the Department, adequate good faith efforts to do so.

QUOTES:

All bidders and all subcontractors over \$500,000 (regardless of whether they are apparent low bidder or their quote was used on a project in this bid opening) should submit a completed [SFN 52013-List of Businesses Submitting Quotes](#) (Form B), or a spreadsheet containing all the information on Form B by 4:00 pm CST within 5 business days after the bid opening. **(Copies of quotes are no longer accepted)** This process is necessary in identifying "ready, willing, and able" contractors upon which to base the NDDOT Triennial DBE Goal. The number of contractors and the types of work they have bid/quoted will be used in the calculation of the DBE goal for each goal setting period.

All subcontractors, suppliers, manufacturers, regular dealers, vendors, and brokers should fax or email quotes to the Department no later than 9 PM the day before each bid opening.

All DBEs quoting on this project MUST submit all quotes and a list of contractors they quoted to NDDOT no later than 9 PM the day before each bid opening.

Prime contractors preparing to bid on NDDOT highway projects have requested that quotes be sent to them the day before the bid opening by:

- 2 PM Central - Suppliers (brokers/regular dealers), vendors, & manufacturers
- 5 PM Central - Subcontractors under \$500,000
- 8 PM Central - Subcontractors over \$500,000

REQUIREMENTS FOR ALL BIDDERS:

- ALL BIDDERS are strongly encouraged to submit all documentation at the time of bid opening.
- Must submit Form A with bid package at the time of bid opening.
- Completed [Form B](#), or a spreadsheet containing all the information on Form B, should be submitted by 4:00 pm CST within 5 business days after the bid opening.
- Prime contractors are strongly encouraged to submit their bid documentation in one electronic file. Forms incorrectly submitted could result in a technicality, forcing the Department to award to the next responsive bidder.

REQUIREMENTS FOR ALB WHEN THE PROJECT DBE GOAL IS MET AT THE TIME OF BID OPENING:

- Follow REQUIREMENTS FOR ALL BIDDERS above, and in addition, include:
- Must submit [SFN 52160 Notification of Intent to use \(Form C\)](#) for DBE's used in all tiers of subcontracting by 4:00 pm CST 2 business days after the bid opening.

REQUIREMENTS FOR ALB WHEN THE PROJECT DBE GOAL IS NOT MET AT THE TIME OF BID OPENING:

- Follow REQUIREMENTS FOR ALL BIDDERS above, and in addition, include:
- A cover letter, submitted with SFN 60829 explaining actions taken attempting to meet the project goal. See Page 3, questions # 1-8 to help explain your actions in the cover letter. Cover letter must be submitted by 4:00 pm CST 2 business days of the bid opening.
- SFN 60829, [Contractor Good Faith Efforts Documentation](#), (GFE) **and** supporting documentation must be submitted by 4:00 pm CST 2 business days of the bid opening. Failure to demonstrate GFE may cause the Department to "Not Award".
- If a non-DBE is used over a DBE, or a prime wants to self-perform, a bid differential table in [SFN 60829](#) should be completed, showing a comparison of like items, (apples to apples) along with the reason for not using the DBE. (Primes may need to supplement the DBE or Non-DBE quote to get an apples to apples comparison). Any Bid Differential (BD) that does not clearly address all items quoted by the DBE, the non-DBE, prime or combination of quotes, will not be considered.
- Must submit [Form C](#) for DBE's used in all tiers of subcontracting & non-DBE's used in a bid differential by 4:00 pm CST 2 business days after the bid opening.

GOOD FAITH EFFORTS

The bidder is responsible for taking actions toward achieving the project goal as required by 49 CFR Appendix A to Part 26 – Guidance Concerning Good Faith Efforts. Therefore, it is a bidder's responsibility to either achieve the project goal at the time of bid opening, or to follow a course of actions that would, by their scope, intensity, and appropriateness, reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

NDDOT will measure the bidder's efforts by actions demonstrated/taken prior to submitting their bid. The description and documentation of these efforts must adequately show NDDOT that the bidder took all necessary and reasonable steps to achieve the DBE goal.

The efforts employed by the bidder should be those that one could reasonably expect if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal.

The following questions are not intended to be a checklist or an exhaustive list of what is considered in evaluating GFE, but will help organize your explanation of your efforts to obtain DBE participation in your cover letter.

- 1) Did you use the DBE Directory to solicit DBEs who are certified to perform the work on the project?
- 2) Did you send timely written (fax, e-mail, etc.) solicitation notices to certified DBE's?
- 3) Did you maintain a follow-up log to track responses to your initial solicitations?
- 4) Did you provide DBEs with information about the plans, specifications, and requirements of the contract so they are able to respond to your solicitation in a timely manner?
- 5) Did you solicit DBE participation for work you could have self-performed?
 - a. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. The fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable.
- 6) Did you ask your firm's subcontractors to solicit DBE work for the subcontractors' portion of the project?
- 7) Did you receive and evaluate all quotes given? If not, what are your reasons?
 - a. The quotes **must be** converted to an acceptable format, whether the quotes are calculated by ton-mile, hour, acre or square mile.
- 8) **Did you advertise** using one or both of the following options? Submit a copy with your Good Faith Efforts documentation.

OPTION 1: Place an advertisement soliciting DBE participation using the electronic DBE Advertisement System.

- o Submit the required information online at <https://apps.nd.gov/dot/cr/csi/login.htm> no later than noon, 15 calendar days before the bid opening.

OPTION 2: Directly contact by email or fax, all DBEs certified in the specific work type (NAICS) required for the job.

- o Make contact with DBEs no later than 5 pm 7 calendar days before the bid opening.
- o Use the DBE Directory to determine the DBE firms certified in the work to be subcontracted.

Either method of advertisement must:

- o Provide the name, email address, telephone, and fax number of the company contact who will be available to discuss and/or receive quotes.
- o Offer assistance to DBEs in interpreting plans; quantities; expected overtime; project scheduling; pit and batch plan locations, length of haul, type of road; method of measurement (seeding by the mile or acre, hauling by hour or by ton-mile) or other issues that may affect a price quote.

Indicate your intention to bid and/or receive quotes on specific jobs by using the Department's Bid Opening Sign in System

- o The **Bid Opening Sign-In** web application located at <https://apps.nd.gov/dot/cr/csi/login.htm>.

Sign-In opens at 8 am 7 calendar days prior to the bid opening and closes at 11 AM the day before the bid opening.

- o Fill in the online form fields as required.
- o Log in to download the "Bid Opening Contact Report" at <https://apps.nd.gov/dot/cr/csi/public/listBidOpenings.htm>

EVALUATION OF GOOD FAITH EFFORTS

Proposals may be considered irregular and may be rejected by the Department if there is non-compliance with the DBE requirements, or submitted documentation is incorrect or received after 4:00 pm CST 2 business days after the bid opening. The Department reserves the right to waive minor irregularities and/or certain elements of this special provision.

Federal regulations require the Department to scrutinize a bidder's documented good faith efforts (see appropriate actions on pages 3-4).

If the Committee determines the ALB has adequately demonstrated GFE, the committee will recommend "Award".

If the Committee determines the ALB has not adequately demonstrated GFE, the committee may recommend "Not Award". Some of the factors considered are:

1. Whether the ALB fails to meet the contract goal, but others meet it
2. If the ALB fails to meet or exceed the average DBE participation of other bidders
3. If the ALB fails to submit adequate GFE documentation by 4:00 pm CST 2 business days after the bid opening
4. If the ALB submits no documentation of its good faith efforts (GFE)
5. If the ALB submits incorrect forms

Upon notification of a recommendation for a Not Award determination, the Director's designee(s) will consider the Committee's recommendation. If the Designee(s) agrees with the Committee's recommendation, the Designee(s) will contact the ALB to inform them of the determination, the reasons for it, and that administrative reconsideration is available.

Administrative Reconsideration 49 CFR § 26.53 (d)

- An in-person reconsideration meeting is available at the ALB's request.
- The Director's designee(s) will consider any information submitted prior to or presented at the hearing as to whether the ALB met the goal or made adequate efforts to do so.
- The NDDOT reconsideration decision will be made by the Director's designee(s), who will not have taken part in the original determination.
 - If the Director's designee(s) determines the ALB made adequate good faith efforts to meet the goal, the job will be recommended for award.
 - If the Director's designee(s) determines that the ALB has failed to sway the decision from "Not Award", the ALB will receive written notice of the decision.
- Director will make the final decision and may exercise such discretion as deemed appropriate.
- The decision is not subject to administrative appeal to the U.S. Department of Transportation (49 CFR § 26.53(d)(5)).

POST-AWARD REQUIREMENTS

FEDERAL AUTHORITY

The following paragraph must be included in all subcontracts of all tiers in accordance with 49 CFR § 26.13(b):

The contractor or all tiers of subcontractors shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR § 26.13 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as NDDOT deems appropriate which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible

It is the prime contractors' responsibility to ensure all tiers of subcontractors, brokers, manufacturers, suppliers, vendors, and regular dealers comply with the requirements of this special provision. In addition, the prime contractor has the responsibility to monitor DBE performance on the project, and to ensure that the DBE performs a commercially useful function (CUF).

PRIME CONTRACTOR’S MONITORING, RESPONSIBILITIES, REPORTING

For the life of the project, the prime contractor is responsible for the DBEs listed on [Form C](#) and for the specific spec/code items or products that the prime committed to during the award process.

The prime is responsible to:

- Report payments to DBEs used to meet the project goal. **Payments on the contract must be entered and stored in the CCS. Use of CCS on the project eliminates the requirement to submit SFN 60638 and SFN 14268.**
- Invite and encourage all subcontractors and all DBEs listed on [Form C](#) to the pre-construction conference.
- Provide minutes to any DBE not in attendance at the pre-construction conference.
- Ensure their firm as well as any subcontractors, manufacturers, and regular dealers/suppliers comply with the requirements of this special provision.
- Provide all subcontractors with Proposed Project Schedules and any necessary updates.
- Monitor DBE performance on the project.
 - [Submit SFN 60597, DBE Performance – Commercially Useful Function](#) (CUF) Certification to the project engineer with [SFN 5682- Prime Contractor’s Request to Sublet](#). Project engineers will not approve Requests to Sublet without the CUF Certification.
- Maintain project records and documentation of payments to DBEs for three years following acceptance of the final payment from NDDOT (per FHWA-1273, Section II Nondiscrimination #11).
 - This reporting requirement also applies to any certified DBE.
 - NDDOT may perform interim audits of contract payments to DBEs to ensure that the actual amount paid to DBEs equals or exceeds the dollar amount stated on [Form C](#).
 - Make these records available for inspection, upon request, by an authorized representative of the NDDOT or USDOT.

If SFN 60597, and reports of payment are not received in a timely manner, progress payments will be withheld from the prime until submitted.

If award of the contract is made based on the contractor’s good faith efforts, the goal will not be waived; the contractor must make good faith efforts throughout the duration of the project.

The prime contractor shall not terminate or replace a DBE subcontractor without the Department’s prior written consent. 49 CFR 26.53(f) (1) i.

The Department’s contract includes a provision stating:

- (A) That the contractor shall utilize the specific DBEs listed to perform the work and/or supply the materials unless the contractor obtains written consent; and
- (B) That, unless the Department’s consent is provided, the contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

SFN 60595 - Replacement Approval Request must be submitted and approved prior to replacement of each DBE firm(s), or Non-DBE/BD(s), or any work the prime originally intended to self-perform prior to the commencement of any replacement work. No payment will be made if work commences without written approval. The form may be accessed at the Department’s website: <http://www.dot.nd.gov/forms/sfn60595.pdf>

If the prime has not achieved the goal and additional work becomes available, the prime must follow the replacement approval request process using [SFN 60595](#).

EXCEPTION FOR REPLACEMENTS DUE TO PUBLIC NECESSITY

When replacement work is required as a matter of public necessity, (e.g., safety, storm water issues), the contractor must immediately notify the project engineer and the DBE or Non-DBE/BD intended at the time of award. If the DBE or Non-DBE/BD is unable to perform the work within the time specified by permit or administrative rule, the DBE or Non-DBE/BD must notify the prime immediately; and, within one business day, a written explanation must be submitted to the prime with a copy to the project engineer. The project engineer refers all replacement approval requests to the Assistant District Engineer (ADE). In a case of public necessity, the ADE has the authority to allow the contractor to self-perform the replacement work or to find another contractor to complete it.

TERMINATION FOR CAUSE

A DBE or Non-DBE/BD may not be terminated without the Department's prior written consent. (49 CFR 26.53(f)(1)(I))

The Department will provide such written consent if the Department agrees that the contractor or subcontractor has good cause to terminate the DBE firm or Non-DBE/BD.

Circumstances which may be considered good cause for termination include when the listed DBE or Non-DBE/BD:

- Fails or refuses to execute a written contract
- Fails or refuses to perform the work of its subcontract in a way consistent with the contract and/or with normal industry standards, provided, that good cause does not exist if the failure or refusal of the listed DBE or Non-DBE/BD to perform its work on the subcontract results from the bad faith or discriminatory action of the prime or subcontractor
- Fails or refuses to meet the prime contractor's reasonable nondiscriminatory bond requirements
- Becomes bankrupt, insolvent, or exhibits credit unworthiness
- Is ineligible to work on public works projects because of Federal Highway Administration suspension and debarment proceedings.
- Is ineligible to receive DBE credit for the type of work required
- Dies or becomes disabled with the result that the listed DBE or Non-DBE/BD is unable to complete its work on the contract
- Other documented good cause that the Department determines compels the termination of the listed DBE or Non-DBE/BD

Good cause does not exist if the prime contractor or subcontractor seeks to terminate a DBE or Non-DBE/BD which was relied upon to obtain the contract so that the contractor can self-perform the work for which the DBE or Non-DBE/BD was engaged or so that the contractor can substitute another DBE or Non-DBE contractor after contract award.

The contractor must immediately give written termination notice to DBE or the Non-DBE/BD. At the same time, SFN 60595 and its supporting documentation must be provided to the project engineer for review and analysis of the reasons for the intended termination.

The contractor must give the DBE or Non-DBE/BD 5 business days to respond to the termination notice. Within that time, the DBE or Non-DBE/BD should respond with a written explanation of their reasons and/or objections to the proposed termination and specifically address why the Department should deny the contractor's request. This explanation should be submitted in reply to the contractor with a copy to the project engineer.

The project engineer will send the contractor's SFN 60595, the DBE or Non-DBE/BD's written response(s) and any other accompanying documentation to the Civil Rights Division (CRD). If the CRD concurs that a termination is warranted, the contractor must seek a DBE to perform the work.

All DBEs currently certified in the specific area of work to be performed, must be contacted in writing or by phone, and quotes solicited. If available, a DBE will be selected to perform a dollar value of work, equal to the value of the commitment not achieved, unless the contractor can demonstrate the DBE quote is unreasonable, using the same comparison in section "Good Faith Efforts Documentation."

Upon receipt of appropriate written GFE documentation, and prior to commencement of any replacement work, CRD will consider the contractor's efforts and provide a final written decision to the project engineer.

In instances where trucking replacements are sought, DBEs and/or Non-DBEs as allowed by regulation must be selected to cover all the trucking required until sufficient participation is met.

UNFULFILLED OBLIGATIONS

The Department requires [SFN 60595](#) and its supporting documentation when a contractor, DBE, or Non-DBE/BD does not fulfill her or his obligations in any of the following situations:

- The prime contractor is unable to perform the full amount of work committed to be completed, by the prime's workforce and equipment, at the time of award, or
- The DBE or Non-DBE/BD to which the prime contractor committed using at the time of award, is unable to perform the full amount of work, or
- The DBE or Non-DBE/BD withdraws voluntarily from the project and provides to the prime written notice of its withdrawal.

[SFN 60595](#) and its supporting documentation must be provided to the project engineer for review and analysis. If the DBE or Non-DBE/BD is not able to perform, the prime contractor must provide written documentation from the DBE or Non-DBE/BD as to the reasons. The project engineer refers all replacement approval requests to the ADE. The Civil Rights Division will provide a written final determination to the project engineer.

If the Department concurs that a substitution is warranted, the prime contractor will seek a DBE to perform the work. All DBEs currently certified in the specific area of work to be performed, must be contacted in writing or by phone, and quotes solicited. If available, a DBE will be selected to perform a dollar value of work, equal to the value of the commitment not achieved, unless the contractor can demonstrate the DBE quote is unreasonable, using the same bid differential comparison in section "Good Faith Efforts Documentation."

In instances where trucking replacements are sought, DBEs and/or Non-DBEs as allowed by regulation must be selected to cover all the trucking required until sufficient participation is met.

The prime contractor is responsible for any additional costs incurred as a result of the prime contractor's failure or the subcontractor quoting over \$500,000 to fulfill the original commitment or the DBE or Non-DBE/BD's failure to perform.

NON-COMPLIANCE, FAILURE TO PERFORM, AND SANCTIONS

If the Department determines that a contractor should be sanctioned, the Department will provide written notice to the contractor informing them of the sanction for the following:

- Not submitting required documentation in a timely manner
- Not paying a DBE or non-DBE subcontractor in a timely manner
- Not having a DBE perform the specified dollar amount of work (subject to plan quantity changes) tasks or bid items
- For otherwise not fulfilling the requirements of this DBE special provision
- Repeated instances of failure to perform the contract requirements
- Repeated instances of late contract-related payments
- documented fraudulent practices

If the Department determines that a DBE should be sanctioned, the Department will provide written notice to the DBE informing them of the sanction for the following:

- Failure to perform work as specified in the contract
- Failure to pay contract-related bills in a timely manner
- Failure to perform a commercially useful function
- Failure to notify the prime contractor orally and in writing if they are unable to perform a commercially useful function
- Otherwise not fulfilling the requirements of this DBE special provision

If sanctions are applied, the contractor or the DBE may make a written request to the Department for reconsideration. The contractor or the DBE must provide a written statement defending their actions within 3 business days.

If the Department does not receive a written request for reconsideration, or if the contractor or DBE does not provide sufficient evidence that the provisions have been met, the Department may suspend the contractor or the DBE

bidding or quoting privileges and not allow the contractor or the DBE to participate in one or more scheduled bid openings after the date the sanction is imposed.

Further sanctions which may be imposed by the Department for failure on the part of the contractor may include, but are not limited to:

- Withhold the contractor's progress payment until the contractor complies with all DBE contract provisions
- Deduct, from the contractor's progress payments, the dollar amount of DBE participation committed to but not achieved by the contractor
- Find the contractor in default
- Liquidated damages
- Disqualifying the contractor from future bidding
- Take other corrective action determined by the Department to be appropriate
- Any combination of the above.

NDDOT MONITORING AND ENFORCEMENT MECHANISMS

The Department will bring any false, fraudulent, or dishonest conduct in connection with the DBE program to the attention of USDOT. USDOT may pursue action as provided in 49 CFR § 26.107. Actions include referral to the Department of Justice for criminal prosecution or referral to the USDOT Office of Inspector General for action under suspension and debarment, or Program Fraud and Civil Remedies rules. The Department will also consider similar action under its own legal authority, including responsibility determination in future contracts.

COMMERCIALLY USEFUL FUNCTION

DBEs are required to perform a commercially useful function (CUF). CUF refers to those services the DBE is certified to perform. Certified services for each DBE are listed in the online DBE Directory. It is a DBE's responsibility to immediately notify the prime contractor in writing if the DBE is unable to perform a CUF or the services indicated on [Form C](#).

The contractor must certify that DBEs working on the prime's contract are performing a commercially useful function. Submit [SFN 60597, DBE Performance – Commercially Useful Function](#) Certification to the project engineer with [SFN 5682 - Contractor's Request to Sublet](#). Project engineers will not approve the Requests to Sublet without the CUF Certification. A review of the certification must be performed by the project engineer to determine whether the contract dollar value of the DBE's work may be counted toward the project goal.

The Department counts participation to a DBE contractor toward DBE goals only if the DBE is performing a CUF on that contract.

- A. A DBE performs a CUF when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a CUF, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, installation and paying for the material itself. 49 CFR § 26.55(c)(1)
- B. A DBE does not perform a CUF if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. 49 CFR § 26.55(c)(2)
- C. If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, the Department must presume that it is not performing a CUF. 49 CFR § 26.55(c)(3)
- D. When a DBE is presumed not to be performing a CUF as provided in paragraph C (above), the DBE may present evidence to rebut this presumption. 49 CFR § 26.55(c)(4)
- E. The Department's decisions on CUF matters are subject to review by Federal Highway Administration, but are not administratively appealable to USDOT. 49 CFR § 26.55(c)(5)

COUNTING RACE/GENDER CONSCIOUS DBE PARTICIPATION - 49 CFR § 26.55

The Department does not count the participation of a DBE subcontractor toward a contractor's final compliance with its DBE obligations on a contract until the amount being counted has actually been paid to the DBE. 49 CFR § 26.55 (h)

The Department will count DBE participation toward our overall annual goal as provided in 49 CFR § 26.55 as noted below.

1. The Department will use the following factors in counting DBE trucking participation.
 - A. For purposes of this section, a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE. 49 CFR § 26.55(d)(7)
 - B. The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract. 49 CFR § 26.55(d)(1)
 - C. The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract and receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs. 49 CFR § 26.55(d)(2-3)
 - D. The DBE may lease trucks and drivers from another DBE firm and receives credit for the total value of the transportation services the lessee DBE provides. 49 CFR § 26.55(d)(4)
 - E. The DBE may also lease trucks with drivers and is entitled to credit for the total value of transportation services provided by non-DBE leased trucks equipped with drivers not to exceed the services under items 1C and 1D. Additional participation by non-DBE owned trucks equipped with drivers receives credit only for the fee or commission it receives as a result of the lease arrangement. 49 CFR § 26.55(d)(5)

Example to 1D: DBE Firm X uses two of its own trucks on a contract. It leases two trucks with drivers from DBE Firm Y and six trucks **with drivers** from non-DBE Firm Z. DBE credit would be awarded for the total value of transportation services provided by Firm X and Firm Y, and may also be awarded for the total value of transportation services provided by four of the six trucks provided by Firm Z. In all, full credit would be allowed for the participation of eight trucks. DBE credit could be awarded only for the fees or commissions pertaining to the remaining trucks Firm X receives as a result of the lease with Firm Z.
 - F. The DBE may lease trucks without drivers from a non-DBE truck leasing company and if the DBE uses its own employees as drivers, it is entitled to credit for the total value of these hauling services.

Example to paragraph 1F: DBE Firm X uses two of its own trucks and drivers on a contract. It leases two additional trucks and drivers from non-DBE Firm Z. Firm X uses its own employees to drive the trucks leased from Firm Z. DBE credit would be awarded for the total value of the transportation services provided by all four trucks. 49 CFR § 26.55(d)(6)
2. Only the value of the work actually performed by the DBE counts toward the project goal when a DBE participates in a contract provided the DBE is certified in this work.
 - A. The Department counts the entire amount of that portion of a construction contract, or other contract not covered by item 2. B, that is performed by the DBE's own forces. Included are the cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate). 49 CFR § 26.55 (a)(1)
 - B. The Department counts the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service for which they are certified, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a USDOT-assisted contract, toward DBE goals, if the Department determines the fee to be reasonable and not excessive. 49 CFR § 26.55 (a)(2)
 - C. When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the DBE's subcontractor is also a DBE. 49 CFR § 26.55 (a)(3)

3. The Department counts expenditures with DBEs for materials or supplies toward DBE goals as provided in the following:
 - A. If the materials or supplies are obtained from a DBE manufacturer, count 100% of the cost of the materials or supplies toward DBE goals. 49 CFR § 26.55 (e)(1)(i)
 - B. If the materials or supplies are purchased from a DBE regular dealer, count 60 percent of the cost of the materials or supplies toward DBE goals. 49 CFR § 26.55 (e)(2)(i)
 - C. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of 3B (above) 49 CFR § 26.55 (e) (2) (ii) (C)
 - D. With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, if the Department determines the fees to be reasonable and not excessive. Do not count any portion of the cost of the materials and supplies themselves toward DBE goals. 49 CFR § 26.55 (e) (3)
 - E. The Department determines the amount of credit awarded to a firm for the provisions of materials and supplies (e.g., whether a firm is acting as a regular dealer or a transaction expediter) on a contract-by-contract basis. 49 CFR § 26.55 (e)(4)
4. If a firm is not currently certified in ND at the time of the execution of the contract, the Department does not count the firm's participation toward any DBE goal. 49 CFR § 26.55 (f)
5. The Department does not count the dollar value of work performed under a contract with a firm after it has ceased to be certified toward the Department's overall annual goal. 49 CFR § 26.55 (g)

DEFINITIONS

The definitions specified below apply only to this Special Provision and may contain differences from NDDOT Standard Specifications.

Achievement means any DBE certified service dollar amount committed to at the time of award. Any achievement must be supported by a request to sublet and Monthly DBE Payment Records for each DBE.

Aggregate providers are considered subcontractors rather than regular dealers/suppliers, regardless of the amount of their quote.

Apparent low bidder (ALB) means the bidder whose bid is read as low bid at the bid opening.

Bid differential (BD) means written documentation provided by the low bidder comparing a Non-DBE quote to a DBE quote.

Bid Opening Sign-In System means the Department's online system to which all prime contractors and subcontractors must register to indicate their interest in quoting or bidding prior to each bid opening.

Bidder/prime contractor means bidders who are submitting proposals on this project, regardless of the size of the highway construction projects; a contractor intending to serve as the prime contractor.

Blanket quote means when a business provides the same quote, for all projects, at a bid opening, using the same price, at one rate, not project specific. Blanket quotes for the construction season are not allowed, i.e. trucking, striping, signing, construction supplies, etc.

Commercially Useful Function describes a DBE's responsibilities and involvement in a project, see section Commercially Useful Function of this SP.

Commitment means the dollar amount of work the DBE will complete according to the bidder's submitted proposal.

Contractor means all DBE and Non-DBE firms, including prime contractors, subcontractors (under/over \$500,000), brokers, vendors, regular dealers/suppliers, and manufacturers at any tier.

DBE Goal means a percentage of the total contract targeted for the hiring of DBE subcontractors to do specific bid items for which the DBE has been certified to perform. Project goals are set by assessing the project's bid items, location, whether DBEs are available to do the work.

DBE Participation means the percentage achieved when the dollar amount committed to the DBE is divided by the dollar amount of all contract items.

DBE Participation Review summarizes the prime's participation at the time of award. A replacement approval request must be submitted to substitute a firm for any DBEs reported as being used at the time of award.

Department means the project owner regardless of whether the owner is NDDOT, a city or a county project.

Disadvantaged business enterprise or DBE means a for-profit small business concern that is certified by the Department and listed in the DBE Directory available on the Department's web site. DBEs must first be certified in the work intended before any DBE achievement may be counted toward the project goal.

Equipment supplier is a firm which provides equipment for sale or lease, without operators, and whose primary business function is equipment sales or leasing.

Good Faith Efforts (GFE) means efforts made by the prime contractor to achieve a DBE goal. This includes but is not limited to providing assistance to DBEs in preparing their quotes, advertise, sign in, etc.

Manufacturer means a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications. 49 CFR § 26.55 (e) (1) (ii)

Materials means aggregate, steel, petroleum products, concrete, asphalt, and other construction supplies.

NAICS Codes means industry codes assigned by North American Industry Classification System. When certified, DBE businesses are assigned NAICS codes which are identified in the DBE Directory.

NDDOT Certification & Compliance System (CCS) refers to the online compliance reporting system whereby contractors report/submit job related payments, commitments, and Utilization Plan documentation.

Non-DBE means a contractor, subcontractor, supplier (broker or regular dealer), vendor, or manufacturer that has not been certified as a DBE by the NDDOT Uniform Certification Program.

Non-DBE used in bid differential (Non-DBE/BD) means a Non-DBE which, at the time of award, was approved for use due to a price comparison with a DBE. A [Form C](#) with the Non-DBE/BD must be included in the DBE Good Faith Efforts Review documentation. A replacement approval request must be submitted when the Non-DBE/BD is unable to complete the work.

Positive Contact means active and documented solicitation of DBE and other subcontractors. Advertising the prime's intention to bid or contacting individual DBEs is deemed a positive contact.

Project owner means any political subdivision such as a city or county which provides match to federal highway funds and uses NDDOT's electronic bidding system to let their projects to bid. The Department "owns" state projects.

Quoter means a DBE or a Non-DBE subcontractor (under/over \$500,000), brokers, vendors, regular dealers/suppliers, and manufacturers at any tier who submits quotes to another contractor.

Race/Gender Conscious (RGC) goals are those focused specifically on assisting DBEs.

Responsible Bid Proposal means a bidder's proposal in which the project goal has been achieved, or the bidder demonstrates Good Faith Efforts (GFE) as outlined in this Special Provision.

Subcontractor means any firm intending to perform work, or intending to perform work and supply the materials, which were intended for their work on the project. All subcontractors must attach a list of DBE subcontractors intended for use to their quote when submitting it to the prime contractor.

Subcontractor quoting over \$500,000 means a subcontractor whose quote is over \$500,000 on any project and who is not a supplier, broker, vendor, regular dealer, or manufacturer. All aggregate providers are considered subcontractors, regardless of the amount of their quote.

Supplier means a party providing goods, services, and supplies on the project.

Broker means an agent who, without having custody of the property, a) negotiates contracts of purchase, work, lease, or sale; b) buys and sells goods; or c) negotiates between buyers and sellers. See Counting DBE Participation section.

Regular Dealer means a DBE firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials supplies, articles, or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. See Counting DBE Participation section.

Tier means various levels of contractors on the job. For example a prime contractor's subcontractor (B) is referred to as the second tier. When B subcontracts with C, C becomes the third tier, etc.

Tied quote means the quote will be considered only if all of the bid items are included.

Untied quote means that any item or group of items quoted may be used for price noted on the quote whether one or all are used.

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
EEO AFFIRMATIVE ACTION REQUIREMENTS**

March 15, 2014

Bidders shall become familiar with the following requirements and be prepared to comply in good faith with all of them:

APPENDIX A

Notice or Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246).

1. The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:
 - a. Goals for Female Participation in Each Trade – Statewide6.9%
 - b. Goals for Minority Participation in Each Trade by County:
Barnes, Cass, Dickey, Eddy, Foster, Griggs, LaMoure, Logan,
McIntosh, Ransom, Richland, Sargent, Steele, Stutsman, Traill0.7%
 - Grand Forks1.2%
 - Benson, Cavalier, Nelson, Pembina, Ramsey, Towner, Walsh2.0%
 - Burleigh, Morton0.4%
 - Adams, Billings, Bowman, Dunn, Emmons, Golden Valley, Grant,
Hettinger, Kidder, Mercer, Oliver, Sheridan, Sioux, Slope, Stark, Wells . . .1.3%
 - Bottineau, Burke, Divide, McHenry, McKenzie, McLean, Mountrail,
Pierce, Renville, Rolette, Ward, Williams4.4%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR 60-4 shall be based on its implementation of the Equal Opportunity Clause specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a),

and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall notify the Office of Federal Contract Compliance Programs, in writing, within ten working days of award of any subcontract in excess of \$10,000. The notification shall include the name, address, and telephone number of the subcontractor and their employer identification number; dollar amount of the contract, estimated starting and completion dates of the contract; the contract number; and geographical area in which the contract is to be performed.

Notification should be sent to:

U.S. Department of Labor/ESA
OFCCP
Denver District Office
1244 Speer Boulevard
Denver, Colorado 80202
Phone: 720-264-3200
Fax: 720-264-3211

4. As used in this "Notice" and in the contract for this project, the "covered area" is the State of North Dakota.

APPENDIX B

Standard Federal Equal Employment Opportunity Construction Contract Specifications
(Executive Order 11246)

1. As used in these specifications:
 - a. "Covered area" means the geographical area described in the proposal from which this contract resulted.
 - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.
 - c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - d. "Minority" includes:

- (1) Black (all persons having origins in any of the Black African racial groups, not of Hispanic origin);
 - (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish Culture or origin, regardless of race);
 - (3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (4) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation of community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the proposal from which this contract resulted.
 3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
 4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft.
 5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
 6. In order for the nonworking training hours of apprentices and trainees to be counted

in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor. (Training programs approved by the North Dakota Department of Transportation are recognized by the U.S. Department of Labor.)

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all Foremen, Superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources; provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its union have employment opportunities available, and maintain a record of the organization's responses.
 - c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union, or if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
 - d. Provide immediate written notification to the Director when the union with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to

the sources compiled under 7b above.

- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the Company newspaper, annual report, etc., by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the Company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the Company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing it with the Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students, and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minorities and women, and where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of the Contractor's work force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring

- all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and Company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction Contractors and Suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.
 - p. Conduct a review, at least annually, of all Supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligation.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a Contractor association, joint Contractor- union, Contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
 9. Goals for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minorities, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
 10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
 11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
 12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termina-

tion, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the Company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form, however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
APPENDIX A OF THE TITLE VI ASSURANCES**

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the Contractor) agrees as follows:

1. Compliance with Regulations: The Contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, the Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. Non-discrimination: The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. Information and Reports: The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Recipient or the Federal Highway Administration as appropriate, and will set forth what efforts it has made to obtain the information.
5. Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the Contractor under the contract until the Contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. Incorporation of Provisions: The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
APPENDIX E OF THE TITLE VI ASSURANCES**

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the Contractor) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

CARGO PREFERENCE ACT (CPA)

DESCRIPTION

The Federal Highway Administration (FHWA) in partnership with the Federal Maritime Administration (MARAD) has mandated the implementation of 46 CFR 381 making the cargo preference requirements applicable to the Federal Aid Highway Program.

The requirements of this Special Provision apply to items transported by ocean vessel.

CONTRACT REQUIREMENTS

A. General

Utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. Gross tonnage is computed separately for dry bulk carriers, dry cargo liners, and tankers.

Furnish a legible, English language copy of a rated 'on-board' commercial ocean bill-of-lading for each shipment of cargo described in the previous paragraph. Furnish the bill-of-lading within 20 days following the date of loading for shipments originating in the United States and within 30 working days following the date of loading from shipments originating outside the United States.

Furnish bills-of-lading to the Engineer and to the following:

Division of National Cargo
Office of Market Development
Maritime Administration
Washington, DC 20590

B. Subcontracts

Include the language in Section "A, General" of this Special Provision in all subcontracts issued pursuant to this contract.

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

**CONTRACT SPECIAL PROVISION
MANDATORY USE OF
AUTOMATED CERTIFIED
PAYROLL**

All contractors on NDDOT federal-aid projects, including city/county projects, must file weekly Certified Payrolls, as required under Davis-Bacon and Related Acts (DBRA). **The NDDOT requires the use of LCPtracker, a paperless online system for entering and filing these certified payrolls. Certified payrolls in paper form will no longer be accepted, and all contractors must file their payroll electronically.**

After award, the Prime Contractor (Prime) must:

1. Designate an individual as Prime Approver for the project. The Prime Approver will oversee DBRA payroll for all subcontractors of all tiers on the project. A contractor may inform the NDDOT Civil Rights Division (CRD) that the same individual will be Prime Approver on all projects. CRD will set up the Prime Approver Account for the project. Thereafter, the Prime Approver will have the responsibility to use the Account to approve all payroll on the project. Until payroll is approved by the Prime Approver, it cannot be viewed by the NDDOT and it is not deemed submitted to the NDDOT.
2. The prime contractor has the responsibility to assign subcontractors within the LCPtracker system to the project and to ensure that all subcontractors are aware of the necessity to file payrolls electronically and are set up within the system. Any subcontractor not on Approved Subcontractor List or the Qualified Contractor List must register and be placed one of these lists before entry of the subcontractor into LCPtracker. These lists may be found at <https://www.dot.nd.gov/pacer/qualified.htm> and <https://www.dot.nd.gov/pacer/registered.htm>. Only Prime Approvers or the CRD may enter subcontractors into LCPtracker.
3. The prime contractor has the responsibility to see that all required payrolls are filed by subcontractors of all tiers. If payroll is rejected or project staff otherwise requests a correction of payroll by any subcontractor on the project, the prime contractor has a responsibility to see that corrected payroll is submitted.
4. For further information on certified payroll, go to the NDDOT Labor Compliance/LCPtracker page at <https://www.dot.nd.gov/divisions/civilrights/laborcompliance.htm>. On this page, contractors will find a Getting Started on LCPtracker Guide and a Prime Approver Guide. Recorded trainings are also available on this page for both contractors and prime approvers. Contractors can obtain an LCPtracker user name and password by calling the NDDOT Civil Rights Division at (701) 328-2605 or (701) 328-2576.

09/06/2017

**CONTRACT SPECIAL PROVISION
MANDATORY USE OF ONLINE
DBE PROJECT PAYMENT REPORTING**

Payments made to all tiers of subcontractors must be reported electronically using the B2GNow system. Paper forms (Monthly Record of DBE Project Payments – SFN 60638) will no longer be accepted.

After award, the Prime Contractor (Prime) must:

1. Create a new account if not already in the system. Create a user for each employee who will use the system. If there is no account already set up, you can email Customer Support directly from the Account Lookup page. Your email address will be your user ID. Customer Support will email you with the information you need to log in.
2. Once the project has been awarded and the Utilization Plan (UP) has been created in the system and assigned to the contractor it must be filled out and submitted. An automated email message will be sent to a designated individual within the company alerting them that a UP is pending. Log into the system using the link provided in the email. For each contract the Prime must add all DBE and non-DBE subs being used on the project. When all information has been provided submit the UP. Civil Rights will review the UP and if everything is in order it will be approved. If changes need to be made the UP will be returned to the contractor and they will have 7 days to make the necessary adjustments and resubmit. If DBE or non-DBE subcontractors are added after the initial UP is set up the Prime can submit a request for them to be added.
3. Once the UP is submitted the project is “locked in” after Financial Management has processed the project in their system. After a UP is locked in payments from NDDOT to the Prime are reported through the system. The Prime must start reporting DBE and non-DBE subcontractor payments through the system in accordance with prompt pay guidelines outlined in the contract.
4. A user manual for UP’s and recording project payments is available to the contractors within the system. After login they can go to View>>My Utilization Plans and they will find the guide on the top of the Utilization Plan screen. They do not have to have a current UP assigned to them to see this guide. The guide is also on the actual UP page when a UP is assigned to them.
5. For further information on the Certification and Compliance System, go to the NDDOT Civil Rights page at <https://www.dot.nd.gov/divisions/civilrights/civilrights.htm>. There is various training available on a regular basis, to sign up for training go to the main Certification and Compliance System page and click the “Training and Events” box. Contractors that need to obtain an account or need subcontractors set up within the system should call the NDDOT Civil Rights Division at (701) 328-3116 or email civilrights@nd.gov

10/3/2017

NOTICE:

Electrical work done outdoors on highway construction projects is covered by the Line Construction rates rather than Electrician rates. When electrical work is performed on or within a commercial building only, such as a rest area, the job classification Electrician is to be used. Any other electrical work on a federal-aid highway construction project in North Dakota is covered by the line construction rates. The minimum wage and fringe amount stated in the attached wage determination within this proposal is required for such classification.

Apprentices in Line Construction: Apprentices in Line Construction must be classified and paid as Apprentice Linemen with a percentage of journeyman's pay that reflects the apprentice's progress level of training. Additionally, they must be enrolled in a bona fide lineman Apprentice Program regardless if they are also enrolled in an indoor Electrical Apprentice Program.

Electrical work may not be done by any Laborer classification under the ND Century Code. The Group 2 Laborer, Conduit Layer may only handle low voltage data or telephone lines and may not install or handle electrical conduit.

For assistance or questions concerning Davis-Bacon Wages and Requirements, go to:

<https://www.dot.nd.gov/manuals/civilrights/davisbacon.pdf>

Or contact:

Civil Rights Division
North Dakota Department of Transportation
608 East Boulevard Avenue
Bismarck, ND 58505-0700
Phone: 701-328-2605 Email: civilrights.nd.gov

NDDOT's *Davis-Bacon Wage and Payroll Requirements Handbook* is available at:
www.dot.nd.gov/manuals/civilrights/davisbacon.pdf

U.S. DEPARTMENT OF LABOR

<small>STATE</small> NORTH DAKOTA	<small>COUNTY</small> STATEWIDE	20210054 Page 1 DATE OF DECISION 01-01-21 Revised 02/12/2021 (Mod No. 1)
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	Basic Hourly Rates	Fringe Benefits Payments
		H & W/Pensions
CARPENTERS	\$30.60	\$ 7.60
CEMENT MASONS/FINISHERS	30.60	7.60
LINE CONSTRUCTION:		
Lineman	46.38	7.30 + 29.5%
Cable Splicer	46.38	7.30 + 29.5%
Line Equipment Operator	39.37	7.30 + 29.5%
Groundman	26.25	7.30 + 19.5%
ELECTRICIANS:		
Electrician	46.38	7.30 + 29.5%
Cable Splicer	46.38	7.30 + 29.5%
(Adams, Billings, Bottineau, Bowman, Burke, Divide, Dunn, Emmons, Golden Valley, Grant, Hettinger, McHenry, McKenzie, Mclean, Mercer, Mountrail, Oliver, Pierce, Renville Rolette, Sheridan, Sioux, Slope, Ward and Williams Counties)		
Electrician	37.20	11.35 + 11.5%
Cable Splicer	38.82	11.35 + 11.5%
(Barnes, Benson, Cavalier, Dickey, Eddy, Foster, Grand Forks, Griggs, Kidder, La-Moure, Logan, McIntosh, Nelson, Pembina, Ramsey, Ransom, Richland, Sargent, Steele, Stutsman, Towner, Traill, Walsh, and Wells Counties)		
Electrician	46.38	7.30 + 29.5%
Cable Splicer	46.38	7.30 + 29.5%
(Burleigh, Morton and Stark Counties)		
Electrician	14.72	3.40
(Cass County)		
WELDERS:		
Receive rate prescribed for craft performing operation to which welding is incidental		

LABOR RATES

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Page 2

LABORERS:

Group 1

General Construction Laborers: Sack Shaker (cement and mineral filler), pipe handler, drill runner tender, salamander heater and blower tender, light truck, pickup driver, flaggers and pilot car drivers

Group 2

Semi Skilled Laborer: bulk cement handler, conduit layer, telephone or electrical, form setter (pavement), gas electric or pneumatic tool operator, chipping hammer, grinders and paving breakers (tamper-dirt), concrete vibrator operator, chain saw operator, concrete curing man (not water), bituminous worker (shoveler, dumper, raker and floated), kettleman, (bituminous or lead), concrete bucket signalman, power buggy operator, brick and mason tender, multi-plate pipelayer, culvert pipe layers, carpenters tenders

Group 3

Caisson Worker: Bottom Man (Sanitary sewer, storm sewer, water and gas liners); Concrete Mixer Operator (one bag capacity); Mortar Mixer

Group 4

Drill Runner (includes Wagon Chum or Air Track); Pipe Layers (sanitary sewer, storm sewer, water, and gas lines); Powderman, gunite and sandblast; Nozzleman; Rein forcing Steel Sellers/Tiers; Concrete Finisher Tender

POWER EQUIPMENT OPERATORS:

Group 1

All Cranes, 60 tons and over; Cranes doing piling, sheeting, dragline/clam work; Derrick (Guy and Stiff), Gentry Crane Operator; Helicopter Operator; Mole Operator or Tunnel Mucking Machine; Power Shovel; 3-1/2 CY. and over and Traveling Tower Crane.

Group 2

All Cranes 40 tons and up to 59 tons; Backhoe Operator 3 CY. and over; Creter Crane; Dredge Operator 12" and over; Equipment Dispatcher; Equipment Dispatcher, Finish Motor Grader; Front End Loader Operator 8 CY. and over;; Master Mechanic (when supervising 5 or more Mechanics), Mon-O-Rail Hoist Operator, Power Shovel up to and including 3 CY. and Tugboat

Basic Hourly Rates	Fringe Benefits Payments
	H & W/Pensions
\$22.65	\$ 3.15
22.90	3.15
23.05	3.15
23.80	3.15
31.05	18.00
29.65	18.00

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POWER EQUIP. OPERATORS: (CONT.)

Group 3

All Cranes 39 tons and under; Asphalt Paving Machine Operator; Asphalt Plant Operator; Automated Grade Trimmer; Backhoe Operator, 1 CY. up to and including 2-1/2 CY.; Boom Truck Hydraulic 8 tons and over; Cableway Operator; Concrete Batch Plant Operator (electronic or manual); Concrete Mixer Paving Machine Operator; Concrete Paver Bridge Decks; Concrete Pump; Concrete Spreader Operator and Belt Placer; Crushing Plant Operator; Dozer Operator; Dredge Operator or Engineer 11" and under; Drill Rigs, Heavy Duty Rotary or Churn or Cable Drill; Front End Loader Operator, 3-1/2 CY up to and including 7-1/2 CY; Gravel Washing and Screening Plant Operator; Locomotive, all types; Mechanic or Welder(Heavy Duty); Motor Grader Operator; Pavement Breaker (Non-Hydro Hammer Type, Pipeline Wrapping, Cleaning and Bending Machine Operator; Power Actuated Auger and Horizontal Boring Machine Operator, 6" and over; Refrigeration Plant Engineer; Rota Milling Machine (Surface Planer), 43" and over; Scraper Operator; Slip Form Concrete Paving Operator; Tandem Pushed Quad 9 or similar; Tractor with Boom Attachment; Trenching Machine Operator, 100 H.P. and over).

Group 4

Articulated/Off Road Hauler; Asphalt Dump Person; Asphalt Paving Screen Operator; Backhoe, up to and including 1/2 CY; Boring Machine Locator; Console Board Operator Curb Machine Operator; Distributor Operator (Bituminous), Forklift Operator; Front End Loader, 1-1/2 CY up to and including 3 CY; Grade Person; Gravel Screening Plant Operator (not Crushing or Washing); Greaser; Lazar Screed Operator; longitudinal Float and Spray Operator; Micro Surfacers Machine; Motor Grader Operator (Haul Roads); Paving Breaker Hydro Hammer Type; Pugmill Operator; Push Tractor; Roller, Steel and Rubber on Hot Mix Asphalt Paving; Rotomilling Machine (Surface Planer), up to and including 42"; Rumble Strip Machine; Sand and Chip Spreader, Self-Propelled Sheepsfoot Packer with or without Blade Attachment; Self Propelled Traveling Soil Stabilizer; Sheepsfoot Packer with Dozer Attachment 100 H.P. and over; Shouldering Machine; Slip Form, Curb and Gutter Operator, Slurry Seal Machine; Tamping Machine Operator; Tie Tamper and Ballast Machine; Trenching Machine Operator, 46 H.P. up to and including 99 H.P.; Truck Mechanic; Tub Grinder; Well Points; Fuel/ Lube Operator

Group 5

Boom Truck, A-Frame or Hydraulic 2 tons up to and including 7 tons; Broom Self-Propelled; Concrete Saw (power operated); Cure Bridge Operator; Front End Loader Operator, less than 1-1/2 CY; Mobile Cement Mixer; Power Actuated Auger and Horizontal Boring Machine Operator, up to and including 5"; Roller (on other than hot mix asphalt

Basic Hourly Rates	Fringe Benefits Payments
	H & W/Pensions
\$29.40	\$18.00
29.25	18.00

LABOR RATES

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POWER EQUIP. OPERATORS: (CONT.)

Group 5 (CONT.)

paving); Oilers; Vibrating Packer Operator (Pad Type) (Self Propelled); Water Spraying Equipment, Self Propelled; Skidsteer Operator with attachments

Group 6

Assistant/Apprentice Operator; Brakeman or Switchman; Dredge or Tugboat Deckhand; Drill Truck Gravel/Testing Operator; Form Trench Digger (Power); Guniting Operator; Gunall; Paint Machine Striping Operator; Pickup Sweeper, 1 CY and over Hopper Capacity; Scissor Jack {Self -Propelled) Platform Lift; Straw Mulcher, Blower and straw press; Stump Chipper Operator; Tillage Equipment Operator; Tractor Pulling Compaction or Aerating Equipment and no till drills; Trenching Machine Operator, up to and including 45 H.P.

TRUCK DRIVERS:

Single-Axle Truck

Tandem- and Tri-Axle Truck

Tandem- and Tri-Axle Semi, Lowboy

Off Road Heavy Duty End Dumps 20 Yards and Under

Euclid, Over 20 Yards

Basic Hourly Rates	Fringe Benefits Payments
	H & W/Pensions
\$28.40	\$18.00
27.10	18.00
29.12	14.95
29.24	14.95
29.55	14.95
29.55	14.95
31.07	14.95

Unlisted classifications needed for work not included within the scope of the classifications listed may be added alter award only as provided in the labor standards contract clauses [29 CFR, 5.5 (a) (1) (ii)].

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION (NDDOT)

2017 ON-THE-JOB TRAINING PROGRAM SPECIAL PROVISION

The bidder's signature on the proposal sheet indicates the bidder agrees to take part in the On-the-Job Training (OJT) Program and to follow the OJT Program Manual and Special Provision. Contractors that fail to do so will be subject to suspension of progress payments or sanctions up to and including revocation of bidding privileges.

OJT is training conducted in a highway construction work environment designed to enable minority, female, and economically disadvantaged individuals to learn a bona fide skill and qualify for a specific occupation through demonstration and practice.

After a training program and trainee candidate have been approved, the contractor begins training its regular employee according to the approved program. The goal of this training is to retain the trainee as a permanent employee. OJT involves individuals at the entry level. Training is designed to help participants reach their fullest potential and become self-sufficient in the job.

I. POLICY STATEMENT

The purpose of the OJT Program is to provide training in the highway construction industry for minority, female, and economically disadvantaged individuals, from this time known as the targeted group. Pursuant to 23 Code of Federal Regulations Part 230, Subpart A, Appendix B - Training Special Provisions, this program provides for on-the-job training aimed at developing journey-level workers in skilled trades.

The Contractor shall take all necessary and reasonable steps to ensure that minorities and women have the opportunity to compete for and participate as trainees or apprentices and to develop as journey-level workers employed in the skilled trades.

Contractors should select a training program(s) based on their company's employment/staffing needs as stated in the OJT Program Manual.

II. INTRODUCTION/PROGRAM BACKGROUND

The OJT Program was originally prepared through the cooperative efforts of the Associated General Contractors of North Dakota (AGC); the Federal Highway Administration (FHWA); the North Dakota Department of Transportation (Department); and, other program stakeholders.

Successful operation of the OJT Program requires contractors to follow uniform and basic training procedures, keep records of trainee progress, and report each trainee's completion or termination.

III. ASSIGNED OJT POSITIONS

A. Trainee positions are assigned contractors based only on federal highway dollars awarded from October 1 to September 30. Trainee assignments are not project specific; that means the contractor may train program participants on any project where training opportunities exist.

The number of trainee positions assigned will be determined by formula based on calculations involving particular project specification numbers on applicable projects. The types of projects NOT applicable in the calculation to assign trainee positions are:

- County-only or state-only funded projects
- Emergency relief, concrete pavement repair (CPR), electrical, rest area, signing, striping projects
- Projects subject to Tribal Employment Rights Ordinances (TERO)
- Projects not let through NDDOT bid openings

- B. Contractors will receive the number of positions assigned and links to resources necessary for completion of program requirements via email.
- C. The number of trainee positions assigned to each contractor will increase proportionately, as shown below, for any applicable federally funded projects awarded to them.

For all federal highway dollars awarded from October 1 to September 30:

6,000,000 to 15,000,000	1	trainee
15,000,001 to 23,000,000	2	trainees
22,000,001 to 31,000,000	3	trainees
31,000,001 and above	4	trainees

A maximum of four (4) trainee positions in a federal fiscal year will be assigned to any prime contractor regardless of dollar amount. Carryover positions from a prior construction season are not included in the four trainee maximum, e.g., a contractor with one carryover and four assigned positions may have a total five trainees.

Failure to follow this OJT Special Provision and the accompanying OJT Program Manual may result in suspension of progress payments or sanctions up to and including revocation of bidding privileges.

IV. FUNDING

The Department will establish an OJT fund annually from which contractors may bill the Department directly for eligible trainee hours. The funds for payment of trainee hours on federal-aid projects will be made available based on 23 USC 504(e) to a maximum of \$100,000. The funds for payment of trainee hours on state-aid only projects will be allocated to a maximum of \$10,000.

V. ONLINE RESOURCES

OJT Program Manual: Includes program requirements, wage rates, and curriculum:
<https://www.dot.nd.gov/divisions/civilrights/docs/ojtprogram.pdf>

SFN 60226 Request for On-the-Job Training Program and Trainee Approval:
<http://www.dot.nd.gov/forms/sfn60226.pdf>

SFN 51023 Voucher for On-the-Job Training Program Hourly Reimbursement:
<http://www.dot.nd.gov/forms/sfn51023.pdf>

Davis-Bacon and Related Acts (DBRA) Handbook: <https://www.dot.nd.gov/manuals/civilrights/davisbacon.pdf>

VI. APPROVALS REQUIRED

- A. Requests for Training Programs and Trainee Approvals must be submitted to Civil Rights Division (CRD). Contractors must request and receive program and trainee candidate approval in order to pay trainees less than the established Davis-Bacon wage for the job classification concerned. No training program hours will count toward the fulfillment of an assigned trainee position or be eligible for reimbursement without prior approval. No retroactive approval will be granted.
 - 1. Submit SFN 60226 *Request for On-the-Job Training Program and Trainee Approval* with each trainee's employment application. <http://www.dot.nd.gov/forms/sfn60226.pdf> and the pre-approved training curriculum for each trainee position assigned by April 1 or within fifteen (15) calendar days of notification of any additional position assignments.
 - 2. Submit SFN 7857 *Application for Eligibility, Job Service North Dakota (JSND)* approval of an economically disadvantaged individual for participation in the OJT Program.

- B. Pre-approved curriculum: NDDOT's OJT Program Manual contains pre-approved training curriculum for a number of skilled trade positions. Contractors should select a training program(s) based on their company's employment/staffing needs.
- C. Customized curriculum: To request a training curriculum not included in the pre-approved curriculum, submit a written request for approval by NDDOT and FHWA.

The request must include:

- A training curriculum, including the classification requested, minimum number of hours required, and type of training the individual will receive to achieve journey-level worker status.
- A minimum wage scale.

If approved, each new classification must comply with the provisions specified in the OJT Program Manual. No hours worked prior to approval will be credited toward completion of the customized training program. Training programs for classifications not covered by the Davis-Bacon and Related Acts (DBRA) will be considered on a limited basis.

The contractor may commence its "customized" training as of the date of the written approval.

- D. Union apprenticeship and on-the-job training programs registered with the Bureau of Apprenticeship and Training (BAT), U.S. Department of Labor, may be used for trainee positions assigned under the OJT Program, provided the trainees or apprentices are minority, female, or economically disadvantaged. Nonminority males not certified as economically disadvantaged may only be used when the contractor has requested and received approval, from the Department, for additional trainee positions. The apprenticeship indenture agreements serve as the trainee's job application and must be provided prior to any hours being credited toward OJT Program completion.
- E. Power Equipment Operators:

The contractor may train an individual on a combination of equipment if each piece of equipment falls within the same groups of power equipment operators identified in the training curricula (groups 1-3 and groups 4-6). These power equipment operator groups are referenced to the federal DBRA wage rates contained in the contract proposal. As an example, a "utility operator" may receive training on a broom, a front-end loader less than 1½ cubic yards, or other piece of equipment that is used around a paver if each piece falls within either groups 1-3 or groups 4-6. When multiple wage rates apply, the trainee's wage will be based on the equipment being operated at the time or on the highest of the applicable wage rates.

Use of the classification "pickup machine operator (asphalt dump-person)" as a group 4 power equipment operator is considered standard industry practice. The classification is defined as: "Operates the controls on the pickup machine that runs in front of the paver, trips the levers on the dump trucks, and balances the loads for the paver. The pickup machine operates on similar principles as a shouldering machine."

- F. Contractors not qualifying for the OJT Program, or contractors desiring to train more than the allotted number of trainees, may apply to the Department for additional trainee positions. Approval of additional positions will be at the sole discretion of the Department. The Department will take into consideration whether there is enough work for the trainee to successfully complete the curriculum and whether the contractor will be exceeding the allowable ratio of trainees to journey-workers (generally considered to be one trainee or apprentice to every three to five journey-workers).

The additional positions may be filled by individuals outside of the targeted groups. The contractor may pay the reduced training rates to additional trainees outside of the targeted groups, but will not receive hourly reimbursement for any individuals who are outside the targeted groups.

VII. NDDOT'S RESPONSIBILITIES

- A. The NDDOT OJT supportive services (OJTSS) consultant will monitor excerpts from the weekly certified payrolls submitted with the monthly vouchers for reimbursement. This includes weekly payrolls from

contractors working on state funded only projects. On contracts where certified payrolls are not required and not available for supporting documentation, contractors may enter trainee wages, hours in training, and the project control number(s) (PCN) in a spreadsheet to support their reimbursement vouchers. In this case, contractors should work with OJTSS to assure that all information required for payment is provided. The OJTSS consultant will assess when the trainees have completed the specified number of hours and their wages are increased accordingly. The OJTSS consultant will also assure that applicable fringe benefits are paid either directly to the trainees or for the trainee into approved plans, funds, or programs.

- B. The OJTSS consultant is charged with visiting trainees and monitoring their progress under the OJT Program. To facilitate the on-site visits, the OJTSS consultant will contact contractors for the location of the trainees weekly.

VIII. CONTRACTOR'S RESPONSIBILITIES

- A. Consistently demonstrate efforts to recruit, hire, and train candidates for the OJT Program.
- B. Assign each trainee to a particular person—either a supervisor or an employee proficient in the skills to be trained—who shall see that the trainee is given timely, instructional experience. This person must be familiar with the OJT Program, keep proper records, and ensure completion of the required training hours in accordance with the training curriculum.
- C. Appoint a company employee who will be available and responsive to weekly contacts by the OJTSS consultant. OJTSS monitors the status of assigned trainee positions (e.g., program and trainee approvals, trainees' progress, etc.). The OJTSS consultant will contact the individual listed on the company's approved SFN 60226 Request for OJT Trainee Approval. This person must reply to communications from the Department and the OJTSS consultant in a timely manner.
- D. Make trainees available to the OJTSS consultant for at least two on-site visits during the construction season.
- E. Make the trainer and project superintendent available to the OJTSS consultant for at least two on-site visits each construction season.
- F. Make trainees aware they are formally enrolled in the OJT program.
- G. Identify trainees on the payroll excerpts, for example: "grp. 4 roller operator trainee." This includes trainees in job classifications not covered by DBRA. Handwritten notes are appropriate for identification.
- H. Notify the Department when a trainee completes the number of hours required to graduate from the OJT Program. The Department will issue the trainee a certificate of completion and a wallet-sized card as proof of the graduate's successful training program completion.
- I. Notify the Department to "propose graduation" or discontinue the training period of a trainee who has completed 90% or more of their hours and thereafter advance the trainee to journey-worker status.
- J. Elect to upgrade proficient trainees from one power equipment operator group or truck driver group to another, with the approval of CRD. Fewer hours are required to complete the upgraded position.

Minimum number of hours required:

Power Equipment Operator Groups 4-6 to Groups 1-3 = 400 hrs.

Class C Truck Driver to Class B = 200 hrs.

Class B Truck Driver to Class A = 200 hrs.

Depending on the variety of experience the trainee has gained under the previous curriculum, the difference in the hours may be deducted from the actual operation of the piece of equipment or truck. The contractor will need to review the trainee's past performance in order to make this determination.

- K. May hire commercial driver's license (CDL) holders as truck driver trainees. Those having over-the-road driving experience, with little or no highway construction experience, may be considered to have completed

the Class C truck driver training curriculum and, therefore, are eligible to be upgraded to a Class B truck driver trainee, with the approval CRD.

- L. May transfer trainees from one project to another in order to complete the OJT Program. If transfers are made, CRD must be notified and provided with the name of the trainer. The training hours will count toward overall OJT Program completion.
- M. May train trainees on municipal, private, out-of-state projects or other non-highway work. These training hours must be paid at the OJT minimum wage scale to count toward their OJT Program completion; however, no program reimbursement will be made for those hours.
- N. May delegate or reassign trainee positions to subcontractors, with the acceptance of the subcontractors and the approval of CRD. The prime contractor must verify that the trainee will be able to accumulate enough hours to complete his or her training program. If approved, the subcontractor must obtain training program and trainee approval from CRD before the trainee begins work under the OJT program. Program reimbursement will be made directly to the prime contractor. The trainee position will remain the responsibility of the prime contractor.
- O. May use trainees on projects subject to TERO requirements as part of the core crew or as part of the skilled labor supplied by the contractor. The training hours will count toward overall OJT Program completion; however, no program reimbursement will be made for those hours unless it is a NDDOT let project.
- P. May not use one trainee to simultaneously fill multiple trainee positions
- Q. May use a trainee on a piece of equipment in groups 1-3 or groups 4-6 for one assigned trainee position, then once that trainee has completed the program, the trainee may be trained on a different piece of equipment in groups 1-3 or groups 4-6 to fulfill a second assigned trainee position. When a trainee is used for a second time within a group, the contractor must pay that trainee at the higher wage rate as described in paragraph B under Wage Rates (page 8).

IX. CLASSROOM TRAINING

- A. Classroom training may be used to train employees. Each classroom training curriculum must be pre-approved by CRD if the contractor wishes to count the classroom hours as training hours and be reimbursed.

Submit a proposed classroom training curriculum to CRD for approval. Define the type of training the individual will receive, classroom training curriculum, and the minimum number of hours required. The Department will determine the number of hours of credit each trainee will receive toward their training. No retroactive approval will be granted.
- B. Contractors will be reimbursed for classroom training hours after the trainee has completed 80 hours of work on highway construction projects.
- C. Reimbursement for classroom training will be limited to 60 hours per trainee per construction season. Reimbursement for classroom training required under the NDDOT Transportation Technician Qualification Program will be at the NDDOT discretion.
- D. The minimum wage scale to be used for classroom training will be that of the first federal-aid highway construction project on which the trainee will be employed. If the trainee is already employed on a federal-aid highway construction project, the trainee will be paid in accordance with the minimum wage scale applicable to that project. However, if the first project on which the trainee will be employed is a state funded only contract, the minimum wage scale to be used for the classroom training will be that of the appropriate DBRA wage in effect at the time of award of the state funded contract.

X. WAGE RATES

- A. When the contractor is submitting the trainee's hours toward training program, wages paid shall in no case

be less than that of those stated in the approved curriculum. A trainee working on a state funded only project, must be paid the DBRA wage rate in effect at the time of award for the type of work the trainee is performing as a trainee.

- B. The minimum wage rates shall not be less than 80% of the journey-worker rate for the first two quarters of training, 85% of the journey-worker rate for the third quarter, and 90% of the journey-worker rate for the fourth quarter.
- Under the power equipment operator training curricula only, once a trainee has completed a training curriculum in either groups 1-3 or groups 4-6, the contractor may enroll the trainee in another training curriculum on a different piece of equipment in either groups 1-3 or groups 4-6.
 - The minimum wage rate under the trainee's second program shall not be less than 85% of the journey-worker rate for the first two quarters of training, 90% of the journey-worker rate for the third quarter, and 95% of the journey-worker rate for the fourth quarter.
 - For the purpose of the OJT Program, a quarter is 25% of the hours the trainee works toward completion of their approved program. The first two quarters of a 550-hour training curriculum would end after 275 hours, the third quarter after 138 hours, and the fourth after 137 hours.
- C. At any time hours are being attributed toward the completion of the approved training program, trainees shall be paid full fringe benefit amounts, where applicable, in accordance to DBRA requirements.
- D. At the completion of the OJT Program, the trainee shall receive the wages of a skilled journey-worker.

XI. RECRUITMENT AND SELECTION

- A. Prerequisites:
Trainees must possess basic physical fitness for the work to be performed, dependability, willingness to learn, ability to follow instructions, and an aptitude to maintain a safe work environment.
- B. Licenses:
Truck driver trainees must possess appropriate driver permits or licenses for the operation of Class A, B, and C trucks. When an instructional permit is used in lieu of a license, the trainee must be accompanied by an operator who:
1. Holds a license corresponding to the vehicle being operated;
 2. Has had at least one year of driving experience; and
 3. Is occupying the seat next to the driver.
- C. Recruitment:
1. Place notices and posters setting forth the contractor's Equal Employment Opportunity (EEO) Policy and the availability of the OJT Program in areas readily accessible to employees, applicants for employment, and potential employees.
 2. Employ members of the targeted group (minority, female, or economically disadvantaged individuals) for all trainee positions assigned in accordance with the OJT Program. Additional positions requested by the contractor may be filled by individuals outside of the targeted groups.
 3. Conduct systematic and direct recruitment through public and private employee referral sources.
 4. Screen present employees for upgrading to higher skilled crafts. A present employee may qualify as a trainee; however, no work hours will be reimbursed or counted toward program completion prior to training program and trainee approval by CRD.
- D. Selection:
1. Hire and enroll OJT trainee candidates who qualify as an individual in the targeted group.

2. Select a training program(s) based on their company's employment/staffing needs.
3. Individuals in the targeted group having experience in the selected curriculum may be eligible to participate in the OJT Program providing they:
 - Are not or have not been journey-workers in the selected curriculum, and/or
 - Have not been previously trained in the selected curriculum.
4. Non-minority males who are economically disadvantaged must obtain written certification from Job Service North Dakota (JSND) to qualify for the OJT Program. Contractors wishing to hire and enroll economically disadvantaged candidates must provide JSND's certification along with SFN 60226 and the employment application when requesting trainee approval.
 - JSND is the only agency that may certify an individual as economically disadvantaged. If JSND refers the candidate to the contractor, written certification under this category will be provided to the contractor at the time of the interview.
 - Any person wishing to obtain this certification must apply to JSND and complete the Workforce Investment Act Program's Application for Eligibility (SFN 7857). A contractor recruiting a candidate who may qualify must contact the Workforce Investment Act Program Manager at JSND. JSND contacts are also online:
<http://www.dot.nd.gov/divisions/civilrights/docs/jobservice-workforce-invest-contacts.pdf>

XII. BASIS OF PAYMENT

- A. Contractors will be paid \$4.00 for each hour of training in accordance with the OJT Program Manual.
- B. Reimbursement will be made directly to the contractor. Complete SFN 51023 Voucher for On-the-Job Training Program Hourly Reimbursement for each trainee. Attach excerpts from the weekly certified payrolls showing the trainee's hours, rate of pay, and how applicable fringe benefits were paid. Excerpts from weekly payrolls are also required for state funded only projects. Vouchers without excerpts from payrolls will not be paid until the excerpts are provided. If the excerpts from the payrolls are not provided within one week, the voucher will not be paid and the trainee's hours will not be credited toward completion.
<http://www.dot.nd.gov/forms/sfn51023.pdf>
- C. On contracts where certified payrolls are not required and not available for supporting documentation, contractors may enter trainee wages, hours in training, and the project control number(s) (PCN) in a spreadsheet to support their reimbursement vouchers. In this case, contractors should work with OJTSS to assure that all information required for payment is provided.
- D. Submit completed vouchers to CRD for approval and processing by the fifteenth (15th) calendar day of every following month the trainee is employed under the OJT Program.

Regardless, all vouchers for trainee hours worked on state funded only projects from July 1 to June 30 must be received by CRD no later than July 15 in order to be reimbursed. All vouchers for trainee hours worked on federally funded projects from October 1 to September 30 must be received by CRD no later than October 15 in order to be reimbursed. This is due to state and federal end-of-the-year budget fiduciary requirements.

XIII. FAILURE TO PROVIDE THE TRAINING OR HIRE THE TRAINEE AS A JOURNEY-WORKER

- A. The contractor is required to consistently demonstrate efforts to recruit, hire, and train candidates for the OJT Program.
- B. If the contractor does not show in a timely manner good faith efforts to recruit, hire, and train candidates in the targeted group, the Department may withhold progress payments
- C. If payments have been made, the Department will deduct the amount paid from the contractor's progress

payment.

- D. No payment shall be made to a contractor for failure to provide the required training or failure to hire the trainee as a journey-worker when such failure is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirements of this OJT Program Special Provision.
- E. Hiring a trainee to begin training as soon as feasible after start of work is evidence of a contractor's good faith efforts to comply with the OJT Program requirements. Additional evidence supporting a contractor's good faith efforts would be to keep the trainee employed as long as training opportunities exist in the approved work classification or until the trainee has completed his or her training program.
- F. It is not required that all trainees be employed for the entire length of the construction season. A contractor will have fulfilled its responsibilities under this OJT Special Provision if it has provided acceptable training to the number of trainees assigned.

XIV. UNFILLED OR INCOMPLETE TRAINEE POSITIONS

- A. By October 1, provide written explanation of the firm's good faith efforts for unfilled or incomplete trainee assignments to CRD. CRD will decide, on a case-by-case basis, whether to carry the assigned positions over to the next construction season.
- B. Positions carried over from the previous construction season must be among the first positions filled at season startup. To notify CRD of the trainee's rehiring, submit *SFN 60226 Request for On-the-Job Trainee Approval*, marking 'Check if Carryover Trainee' in the Approved Training Program section of the form. There is no need for the training position or a returning trainee to be re-approved.
- C. Sanctions, up to and including revocation of bidding privileges, may be imposed on the contractor for failure to provide sufficient explanation and documentation for reasons assigned trainee positions when unfilled or incomplete.

XV. DEFINITIONS

Carryover Position: Incomplete trainee position carried forward from a prior program year.

Carryover Trainee: Trainee scheduled to continue training hours under prior year's approved program.

CRD: NDDOT's Civil Rights Division administers the NDDOT On-the-Job Training Program.

Good Faith Efforts: Documentation supporting a contractor's efforts to fulfill the program requirements, e.g., new hires list, advertising examples/locations, current employees reviewed for upgrades, etc.

Journey-worker: A worker employed in a trade or craft who has attained a level of skill, abilities, and competencies recognized within the industry.

OJT Supportive Services (OJTSS): Department contractor providing in-person oversight, support, and guidance to contractors and trainees to increase the effectiveness of approved training programs.

Trainee: A person who receives training through an apprenticeship program or other FHWA approved program.

Trainer/Supervisor: Contractor's employee assigned to train, supervise, and support a trainee.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

1. GENERAL

Install, maintain and remove appropriate Temporary Erosion and Sediment Control Measures (ESCMs).

Definitions:

A. Temporary Erosion and Sediment Control Measures are to be installed and maintained before and during the term of the land disturbance activity. These items are removed when permanent erosion and sediment ESCMs are installed.

B. Permanent Erosion and Sediment Control Measures are to be installed and maintained once the project is completed so that the applicable permits can be terminated.

In some instances, individual temporary and permanent erosion and sediment ESCMs for a site may consist of identical ESCMs. In these cases, the temporary erosion and sediment ESCMs may be used as the permanent erosion and sediment ESCMs if they meet the following criteria:

1. The ESCM was installed correctly,
2. Is in a functional condition,
3. Has had all accumulated sediment removed.

C. The Stormwater Pollution Prevention Plan (SWPPP) is the document that identifies potential sources of sediment or other pollution from construction activity and ensures practices are used to reduce the contribution of pollutants from construction site runoff.

D. Contractor Controlled Areas are project areas not included in the contract, but are obtained and solely controlled by the Contractor (e.g., concrete or asphalt batch plants, concrete washout areas, equipment staging yards, material storage areas, excavated material disposal areas, Contractor furnished borrow areas, etc.).

E. Maintenance is any action taken to keep an ESCM in working condition. These actions may consist of repairing failures of the ESCM itself.

F. Noncompliance is any action or inaction that violates the regulations imposed by the applicable permits or the requirements of this special provision and other contract documents. Failure of an ESCM does not necessarily constitute noncompliance as long as the ESCM is repaired, replaced or supplemented within the timelines established in the applicable permits and no sediment is discharged from the site or into a water of the state.

2. CONSTRUCTION REQUIREMENTS

Develop a SWPPP specific to the project. The creation of the SWPPP is a cooperative effort between the NDDOT who creates the project plan sheets and the Contractor who creates a complete SWPPP which incorporates the plan sheets and the Contractor's means and methods. The project plan sheets by themselves do not meet the requirements of a complete SWPPP and should not be considered as such. The Contractor has the flexibility to modify the design and implementation of the temporary erosion and sediment controls to match the Contractor's means and methods and/or field conditions. These changes must be documented in the SWPPP and meet all regulatory requirements.

Obtain appropriate permit coverage for the activities conducted in Contractor Controlled Areas. A permit will be required for these areas regardless of their size. The NDDOT will have no responsibility for these areas. Provide copies of the completed and signed Notice of Intent submitted for permit coverage to the Engineer before activities in these areas commence. Do not commence activities in these areas until after permit coverage has begun. Provide copies of Permit Coverage Letters for these areas to the Engineer within 7 days of receiving them from the regulating agency.

Install perimeter erosion and sediment ESCMs according to the plans/SWPPP prior to site disturbance.

Change the location of temporary erosion and sediment ESCMs to fit the field conditions.

Update the SWPPP as work progresses, or as directed by the Engineer. Update the SWPPP to show changes due to revisions in work schedules or sequence of construction. Update the site map to reflect erosion and sediment ESCMs that have been installed, changed, or removed.

Do not rely on perimeter ESCMs as the sole method of controlling erosion. As the project progresses, install temporary erosion and sediment ESCMs within the perimeter ESCMs to control erosion resulting from the construction of the project.

Use temporary erosion and sediment ESCMs to prevent contamination of adjacent streams or other watercourses, lakes, ponds or other areas of water impoundment.

Coordinate temporary erosion and sediment ESCMs with the construction of permanent erosion and sediment ESCMs to provide continuous erosion control. Do not install temporary erosion and sediment ESCMs when permanent erosion and sediment ESCMs are able to be installed. Once the permit is terminated or transferred to the Department, the maintenance of the permanent erosion and sediment ESCMs becomes the responsibility of the NDDOT.

Install stabilization ESCMs (mulch, seeding and mulch, etc.) in areas that have been disturbed where work has temporarily or permanently ceased following the timelines established in the applicable permits. If implementation of stabilization is precluded by snow cover, undertake such measures as soon as conditions allow.

Maintain the effectiveness of the temporary erosion and sediment ESCMs as long as required to contain sediment runoff. Inspect the temporary erosion and sediment ESCMs and complete the inspection and maintenance reports every 14 days and within 24 hours of a rainfall event of 0.25 inch or more. During prolonged rainfall (more than 1 day), conduct an inspection within 24 hours of the first day of the event and within 24 hours after the end of the event. Inspections are required only during normal business hours. Install a rain gauge to monitor rainfall amounts as required by the appropriate permit.

Correct any deficiencies in the ESCMs within the timelines established in the applicable permits. If conditions do not permit access to the ESCM, corrective actions can be taken by installing additional ESCMs. Correct the original deficiencies as soon as conditions allow access to their location without causing additional damage to the slopes. In the inspection logs, document the conditions that prohibit access.

Provide copies of all inspections, documentation, record keeping, maintenance, remedial actions, and repairs required by the applicable permits to the Engineer. Provide inspection and maintenance reports within 3 working days after an inspection has been conducted.

Provide, at the preconstruction conference, documentation of any Subcontractor hired for erosion control showing that the Subcontractor's on site supervisor is certified through the NDDOT Erosion & Sediment Control Construction Certification Training. This certification must be maintained by the Subcontractor's onsite supervisor through the term of the contract. The Engineer will provide a verification of their certification through the NDDOT Erosion & Sediment Control Construction Certification Training at the preconstruction conference and will maintain that certification through the term of the contract.

Provide immediate written notification to the Engineer of proposed changes to the erosion control plan or SWPPP. The Engineer will review the proposed changes and determine if they are adequate. Documentation of maintenance and inspections that does not affect the erosion control plan or SWPPP does not require approval by the Engineer.

Remove the temporary devices when directed by the Engineer or when permanent erosion and sediment controls are installed.

3. Erosion and Sediment Control Supervisor.

A. General. Designate an erosion and sediment control supervisor. Provide the name and contact information for the supervisor at the preconstruction meeting. If this erosion and sediment control supervisor becomes unavailable on the project, designate a replacement supervisor. Notify the Engineer if this supervisor changes and provide the contact information for the new supervisor.

B. Qualifications. The supervisor shall be:

1. An employee of the Prime Contractor;
2. Familiar with installation, maintenance and removal of ESCMs and the requirements of the erosion and sediment control plans, applicable permit requirements, specifications, plans and this provision; and
3. Competent to supervise personnel in erosion and sediment control operations.
4. Certified through the NDDOT Erosion & Sediment Control Construction Certification Training and maintain that training throughout the term of the contract.

C. Duties. The supervisor shall:

1. Provide erosion and sediment control as required by the SWPPP, Plans, and Specifications.
2. Be on the site to supervise the installation, operation, inspection, maintenance, and removal of the erosion and sediment ESCMs.
3. Update the SWPPP as work progresses to show changes due to revisions in work schedules or sequence of construction, or as directed by the Engineer. Update the site map to reflect erosion and sediment ESCMs that have been installed, changed, or removed.
4. Propose changes to improve erosion and sediment control.
5. Be accessible to the job site within 24-hours.
6. Provide the Engineer with documentation of all erosion and sediment control activities and inspections as required above.

4. PERFORMANCE

Correct all areas of noncompliance within 24 hours after notification of noncompliance. If corrective actions are not taken within 24 hours, the Engineer may:

1. Assess a contract price reduction of \$500 per day per instance;
2. Have deficiencies corrected by another Contractor and deduct the cost of the work from the monies due or to become due to the Contractor;
3. Suspend all work; or
4. Withhold payment on other contract items/pay estimates.

These actions will be applied until deficiencies have been corrected.

5. BASIS OF PAYMENT

ESCM installation will be paid for at the contract unit price for erosion and sediment control for the appropriate items and sections. The plans will detail the required ESCMs for temporary and permanent installations. The same bid items may be used for temporary and permanent ESCMs.

ESCM items will be measured as specified in the "Method of Measurement" portion of the appropriate section of the specifications.

ESCM item removal will be paid for at the contract unit price for "Remove _____" in the appropriate section of the specifications.

Include the costs for labor, materials, maintenance, equipment, disposal, adherence to the permit, and SWPPP modifications in the respective pay items.

When the Engineer directs the replacement of temporary erosion and sediment ESCMs that are no longer functional because of deterioration or functional incapacity and those items were installed as specified in the Contract or as directed by the Engineer, the Department will pay for replacement ESCMs

No payment will be made for replacing temporary erosion and sediment ESCMs that the Engineer determines are ineffective because of improper installation, lack of maintenance, or the Contractor's failure to pursue timely installation of permanent erosion and sediment ESCMs as required in the Contract.

No payment will be made for replacing temporary erosion and sediment ESCMs due to contractor operations. Include the cost to move Flotation Silt Curtain as work progresses in the price bid for "Flotation Silt Curtain".

Erosion and sediment controls for Contractor Controlled Areas are the responsibility of the Contractor and will not be paid for by the Department.

Removal of sediment from silt fence and fiber rolls will be paid for at the price listed in the "Price Schedule PS-1."

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
LOCAL AGENCY CONTRACTS

References to NDDOT, Department, Director, or Engineer in the Standard Specifications for Road and Bridge Construction and other portions of the Contract must be construed as referring to the Owner of the project.

If the Contractor intends to file a claim for additional compensation for work or material not covered by the Contract, the Contractor is required to prosecute the claim in accordance with the Standard Specifications for Road and Bridge Construction, Section 104.05, "Claims for Adjustment". The provisions of Section 104.05 D, "Conditions Precedent to Contractor's Demand for Arbitration", are not applicable to this Contract, nor are the provisions of North Dakota Century Code §24-02-26 et seq. regarding arbitration applicable, as the North Dakota Department of Transportation is not a party to the Contract.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

LIMITATIONS OF OPERATIONS

DESCRIPTION

Section 108.05, "Limitations of Operations" is no longer valid. Use this Special Provision in its place.

108.05 LIMITATION OF OPERATIONS

A. General.

Perform the work in a manner and sequence that minimizes interference to traffic, and with due regard to the location of detours and provisions for handling traffic. Do not begin work to the prejudice or detriment of work already started; the contract may require a section of roadway to be finished before starting additional sections if the opening of the section is essential to public convenience.

If the prosecution of the work is discontinued, provide the Engineer at least 24-hours notice before resuming operations.

B. Holidays.

Unless the contract allows work on holidays, perform work on holidays only with the Engineer's prior written approval. Submit a written request to the Engineer by noon 2 business days before the requested holiday.

C. Night-time Operations and Extended Hours.

1. General.

When performing work in low light conditions, implement proper safety precautions and provide adequate lighting for the performance and inspection of the work.

2. Nighttime Operations.

Unless the contract allows for nighttime operations, perform work at night only with the Engineer's prior written approval.

Submit a written request to the Engineer a minimum of 7 calendar days before anticipated nighttime operations. The Engineer may deny the request or delay approval if it would require additional staffing considerations. If nighttime operations requires the Engineer to hire additional forces, nighttime operations may not be allowed for up to 30 days from the receipt of the request.

When requesting to perform nighttime operations, include a plan to ensure the safety of all individuals on the project site, including the Contractor's and subcontractor's workers, Department representatives, and the traveling public.

The Department bears no liability for costs or delays resulting from the Engineer's approval, rejection, or delay for staffing purposes of a request to perform nighttime operations.

3. Extended Hours.

Extended hours are allowed before sunrise with verbal notice given to the Engineer the previous day. Extended hours are allowed after sunset with verbal notice given to the Engineer that same day.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

BITUMEN TESTING PRICE ADJUSTMENTS

DESCRIPTION

This Special Provision outlines the Contract Price Adjustment procedures for acceptance of PG Asphalt Binder Using the Multiple Stress Creep Recovery (MSCR) Test under AASHTO M 332.

MATERIAL ACCEPTANCE SPECIFICATION

A. Sampling.

Obtain one sample of asphalt binder for each 250 tons of binder material supplied to the project. Obtain the sample as prescribed in the NDDOT Field Sampling and Testing Manual, Procedure NDDOT 1. Each 250 tons of material will represent a subplot and 4 sublots will constitute a lot of material. Partial lots will consist of however many subplot samples were collected for that lot.

B. Original and Check Samples.

Each sample consists of two parts, an original and a check. The Engineer will perform tests using the original sample first.

If a test returns a value resulting in a pay factor of less than 1.00, the Engineer will perform that test on the check sample and the check sample results will be used to determine the pay factor for the material.

C. Testing Parameters.

The Engineer will randomly select one subplot for testing per lot.

If the check sample results in a pay factor of less than 1.00 the Engineer will perform the substandard tests on the remaining sublots within that lot.

D. Determination of Pay Factor.

The Engineer will apply the pay factors in the Basis of Payment section of this Special Provision to each individual subplot of material. If more than one test parameter in a subplot results in a pay factor of less than 1.00, the Engineer will apply the pay factor that results in the largest monetary deduction to that subplot.

BASIS OF PAYMENT

The pay factor determined by the Engineer will be applied to the "PG _____ Asphalt Cement" contract item. The pay factor will be multiplied by the unit cost of the item and the quantity of oil represented by the sample.

Table 1
Requirements on Original Binder

Specification	Test Result	Pay Factor (Percent)
Dynamic Shear AASHTO T 315 $G^*/\sin \delta$ Min. 1.00 kPa	≥ 1.00	1.00
	0.97 – 0.99	0.95
	0.94 – 0.96	0.90
	0.91 – 0.93	0.85
	< 0.91	0.70

Table 2
Requirements on Rolling Thin Film Oven (RTFO) Residue

Specification	Test Result	Pay Factor (Percent)	Specification	Test Result	Pay Factor (Percent)
Standard Traffic "S" AASHTO T 350 $J_{nr@3.2}$ Max. 4.5 kPa ⁻¹	≤ 4.5	1.00			
	4.6	0.95			
	4.7	0.90			
	4.8	0.85			
	> 4.8	0.70			
Heavy Traffic "H" AASHTO T 350 $J_{nr@3.2}$ Max. 2.0 kPa ⁻¹	≤ 2.0	1.00	Heavy Traffic "H" AASHTO R 92 Percent Recovery @ 3.2 kPa Min. 30%	> 30	1.00
	2.1	0.95		29	0.95
	2.2	0.90		28	0.90
	2.3	0.85		27	0.85
	> 2.3	0.70		< 27	0.70
Very Heavy Traffic "V" AASHTO T 350 $J_{nr@3.2}$ Max. 1.0 kPa ⁻¹	≤ 1.0	1.00	Very Heavy Traffic "V" AASHTO R 92 Percent Recovery @ 3.2 kPa Min. 55%	> 55	1.00
	1.1	0.95		54	0.95
	1.2	0.90		53	0.90
	1.3	0.85		52	0.85
	> 1.3	0.70		< 52	0.70
Extreme Traffic "E" AASHTO T 350 $J_{nr@3.2}$ Max. 0.5 kPa ⁻¹	≤ 0.5	1.00	Extreme Traffic "E" AASHTO R 92 Percent Recovery @ 3.2 kPa Min. 75%	> 75	1.00
	0.6	0.95		74	0.95
	0.7	0.90		73	0.90
	0.8	0.85		72	0.85
	> 0.8	0.70		< 72	0.70

Table 3
Requirements for Pressure Aging Vessel (PAV)
Residue

Specification	Test Result	Pay Factor (Percent)
Standard Traffic "S" AASHTO T 315 DSR, $G^*(\sin \delta)$ Max. 5000 kPa	≤ 5000	1.00
	5001 - 5200	0.95
	5201 - 5400	0.90
	5401 - 5600	0.85
	> 5600	0.70
Traffic "H", "V", "E" AASHTO T 315 DSR, $G^*(\sin \delta)$ Max. 6000 kPa	≤ 6000	1.00
	6001 - 6050	0.95
	6051 - 6100	0.90
	6101 - 6150	0.85
	> 6150	0.70
Creep Stiffness AASHTO T 313 Max. 300 mPa	≤ 300	1.00
	301 - 310	0.95
	311 - 320	0.90
	321 - 330	0.85
	> 330	0.70
m-value AASHTO T 313 Min. 0.300	≥ 0.300	1.00
	0.295 – 0.299	0.95
	0.290 – 0.294	0.90
	0.285 – 0.289	0.85
	< 0.285	0.70

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION

FEDERAL PROHIBITION ON CERTAIN TECHNOLOGICAL HARDWARE

DESCRIPTION

This Special Provision details technological items that are prohibited from use on Department contracts. The contents of this SP take precedent over requirements regarding affected equipment in all other contract documents.

CONTRACT REQUIREMENTS

A. Technological Equipment Prohibitions.

Equipment, services, and systems using telecommunications equipment or services are prohibited from containing equipment produced by:

- Huawei Technologies Company;
- ZTE Corporation; and
- Any subsidiary or affiliate of the named entities.

Video surveillance and telecommunications equipment are prohibited from containing equipment produced by:

- Hytera Communications Corporation;
- Hangzhou Hikvision Digital Technology Company;
- Dahua Technology Company; and
- Any subsidiary or affiliate of the named entities.

B. Contractor Certification.

The Prime Contractor must complete the information below, sign this Special Provision, and submit the signed document to the Engineer at the preconstruction conference. This signature affirms that no prohibited products will be used in the project.

Project Number(s): _____

PCN(s): _____

Company Name: _____

Signatory Name (printed): _____

Signature: _____

Date: _____

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION**SPECIAL PROVISION****HMA CORING, ACCEPTANCE, AND PAY FACTORS****DESCRIPTION**

This special provision modifies portions of Section 430 of the 2020 Standard Specifications for Road and Bridge Construction. It changes the requirements of shoulder construction, depending on the method of construction; updates coring requirements for the changes in subplot size; and to clarify how contract price adjustments are calculated.

CONSTRUCTION REQUIREMENTS

Replace Section 430.04 I, "Compaction" and Section 430.04 M, "Acceptance" with the following text.

I. Compaction.**1. General.**

Remove all surface irregularities before beginning compaction.

Sequence rolling operations and select the type and the number of rollers to match production and to attain the required density before the mat temperatures fall below 185°F.

In areas not accessible to rollers, compact the pavement mat with hand or mechanical tampers.

2. Calculated Density.**a. General.**

Use calculated density on mainline pavement, interstate crossroads, ramps, turn lanes, rest area approaches, and parking lots.

b. Coring.**(1) General.**

Obtain pavement cores at locations designated by the Engineer under the observation of the Engineer.

Use a machine that cuts a cylindrical core sample without disturbing the density of the sample. Complete coring on or before the working day following the placement of the lift. Obtain a core with a smooth outer surface, no distortion of the cylindrical shape, and no displacement of the aggregate particles. Obtain a core that is 4 to 6 inches in diameter and the full depth of the in place asphalt.

Fill core holes before placing the subsequent lift of pavement. If there is no subsequent lift of pavement, fill the core hole within 24 hours of obtaining the core. Remove free standing water before filling core holes. Fill core holes in 2

inch lifts using material from the same mix design used on the roadway. Compact each lift using a hand tamper.

(2) Pavement Density Cores.

Use a masonry saw to cut the core so that only the layer to be tested is removed.

Label each core, using a system approved by the Engineer, to identify the location from which the core was obtained.

(3) Pavement Thickness Determination Cores.

Obtain pavement thickness determination cores after the final lift of pavement has been placed. Label the cores. The Engineer will take possession of these cores immediately upon extraction. Do not cut these cores.

3. Ordinary Compaction.

a. General.

Use ordinary compaction on shoulders, driveways, section line approaches, bike paths, leveling courses, and patches.

Ordinary compaction consists of breakdown rolling, intermediate rolling, and finish rolling. Compact the bituminous material until the surface is tightly bound and shows no displacement under operation of the roller.

For patching, immediately after spreading perform initial rolling with pneumatic-tired rollers or combination rollers.

b. Breakdown Rolling.

Breakdown rolling consists of one or more complete coverage with a roller meeting the requirements of one of the following Sections:

- 151.01 A.3, “Self-Propelled Pneumatic-Tired Rollers”;
- 151.01 B.2, “Smooth-Faced Steel-Wheel Roller: Tandem – Type A”;
- 151.01 C, “Vibratory Rollers”; or
- 151.01 D, “Combination Rollers”.

c. Intermediate Rolling.

Follow breakdown rolling with intermediate rolling with a roller conforming to Section 151.01 A.3, “Self-Propelled Pneumatic-Tired Rollers”, or 151.01 D, “Combination Rollers” until the surface is tightly bound and shows no displacement under the roller.

If roller tires pick up the bituminous material or there are excessive roller marks in the mat, the Engineer may allow the removal of the intermediate rolling operation if it appears to the Engineer that compaction is being achieved.

d. Finish Rolling.

Perform the finish rolling with a roller conforming to Section 151.01 B.3, “Smooth-Faced Steel-Wheel Roller: Tandem – Type B”, or 151.01 C, “Vibratory Rollers” in the static mode, and continue until roller marks are eliminated.

M. Acceptance.

1. General.

The Engineer will accept bituminous mix based on the criteria in this section.

The Engineer will exclude material used in shoulder placement when calculating the total quantity of material affected by pay factors and will not designate core locations within shoulder areas.

2. Aggregate.

The Engineer will accept aggregate used in the mix based on QC tests that are verified by QA testing, and the control limits specified in Section 430.04 E.5, "Control Limits".

If the results for two consecutive aggregate gradation tests in a single day fall outside the single test target value control limits, the Engineer will apply a contract price adjustment as specified in Section 430.06 C, "Contract Price Adjustments".

3. Asphalt Content.

The Engineer will base the acceptance of the asphalt content of bituminous mix on the totalizer readings obtained as specified in Section 430.04 E, "QC Testing" and SFN 9988, "Mix Bitumen Cut-Off Report" and will apply a contract price adjustment as specified in Section 430.06 C, "Contract Price Adjustments".

If the average asphalt content, as determined by the Engineer according to SFN 9988, "Mix Bitumen Cut-off Report" deviates from the target value by 0.40 percentage points or more, the Engineer may reject the material. If the material is accepted, the Engineer will apply a contract price adjustment as specified in Section 430.06 C, "Contract Price Adjustments".

4. Field Density.

This section will apply when the pavement is constructed as specified in Section 430.04 I.2, "Calculated Density".

The Engineer will base acceptance of the density of hot mix asphalt on the average density of the pavement compared to the daily average maximum theoretical density. The comparison will be made using SFN 59132, "Density Pay Factor".

The Engineer will determine the density of pavement based on lots. A lot is equal to the amount of material, in tons, placed each production day.

A subplot is defined as a single lift, one paver width wide, and 1,000 feet long. If a partial subplot is less than 500 feet, it will be included in the previous subplot. A partial subplot 500 feet or greater will be considered a separate subplot.

The individual subplot densities will be averaged to determine the density of the pavement lot.

If the average density of the pavement compared to the daily average maximum theoretical density is above the values in Table 430-10, the Engineer will apply the adjustment factors specified in Section 430.06 C, "Contract Price Adjustments".

If the average density of the pavement compared to the daily average maximum theoretical density is at or below the values specified in Table 430-10, remove and replace the pavement.

Table 430-10

Superpave FAA 40, 41, 42, and 43	Superpave FAA 44 and 45
88.0%	89.0% ¹

¹ When the lift of pavement is placed on aggregate base, reclaimed material, or cold in place recycle material this number is reduced to 88.0%

BASIS OF PAYMENT

Replace Section 430.04 C.1, "General" with the following text.

C. Contract Price Adjustments.

1. General

The Engineer will calculate the Combined Adjustment Factor by multiplying the individual adjustment factors for:

- Aggregate gradation;
- Asphalt content; and
- Compaction.

1.0 will be subtracted from the Combined Adjustment Factor to determine the Contract Price Adjustment.

The contract price adjustment will be determined by multiplying the Contract Price Adjustment Factor by the total tons of hot mix asphalt placed during a single day and the contract unit price for "Superpave, FAA ___" or "RAP Superpave FAA ___".

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

UTILITY COORDINATION

SU-8-984(165) - PCN 22292

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.

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.

Appendix A – Utility Coordination Table

Utility Coordination Table Appendix A of SP 227(20)

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Sorted By Station

UE ID #	Utility Coordination Exhibits	Approx. Sta From	Approx. Sta To	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	After Notification - Time For Utility to Mobilize (D = Working Day, W = Week)	Estimated Time to Complete Relocation (D = Working Day, W = Week, H = Hours)	UTILITY ENCOUNTER TYPE (UE)	
															Protect in Place	Conflict
XCEENE-1	1	9+34	to 13+34	RT	N UNIVERSITY	400.0	LF	1	Level 1	Work Occurring: Pavement, Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Xcel Energy	Buried Natural Gas Line	-	-	X	
FARGO-1	1	9+35	to 12+73	RT	N UNIVERSITY	338.0	LF	1	Level 4	Work Occurring: Pavement, Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: To be removed as part of the project	City of Fargo	Underground Electrical Line	-	-		X
FARGO-2	1	9+53	to 9+53	LT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Sidewalk Installation Comments: To be removed as part of the project	City of Fargo	Traffic Signal Cabinet	-	-		X
DACANE-1	1-2	9+54	to 16+50	LT	N UNIVERSITY	696.0	LF	1	Level 1	Work Occurring: Pavement, Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Dakota Carrier Network	Underground Fiber Optic Line	-	-	X	
FARGO-3	1	9+70	to 9+70	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Traffic Signal Pole Comments: To be removed as part of the project	City of Fargo	Traffic Signal Pole	-	-		X
FARGO-4	1	9+71	to 9+71	LT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Traffic Signal Pole Comments: To be removed as part of the project	City of Fargo	Traffic Signal Pole	-	-		X
FARGO-5	1	9+71	to 9+71	LT	N UNIVERSITY	1.0	EA	0	Level 3	Work Occurring: Pavement & Curb & Gutter Comments: Utility will adjust to finished ground elevation	City of Fargo	Sanitary Manhole	-	-	X	
MIDCO-1	1	9+76	to 61+35	LT	N UNIVERSITY	5159.0	LF	0	Level 1	Work Occurring: Pavement, Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Mid-Continent Cable	Underground Fiber Optic Line	-	-	X	
XCEENE-2	1	9+76	to 10+36	LT	N UNIVERSITY	60.0	LF	0	Level 1	Work Occurring: Pavement, Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Xcel Energy	Underground Electrical Line	-	-	X	
FARGO-6	1	9+77	to 9+77	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Street Lighting System Comments: To be removed as part of the project	City of Fargo	Street Light	-	-		X
XCEENE-1.1	1	9+80	to 10+04	RT	N UNIVERSITY	-	LF	-		No Longer a Conflict - Utility Avoided	Xcel Energy	Underground Natural Gas Line	-	-		
XCEENE-3	1	10+23	to 10+35	RT	N UNIVERSITY	146.0	LF	-15	Level 1	Work Occurring: Pavement, Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Xcel Energy	Underground Electrical Line	-	-	X	
XCEENE-3.1	1	10+27	to 10+27	Crossing	N UNIVERSITY	24.0	LF	-15	Level 2	Work Occurring: Watermain Installation Comments: Utility will be exposed, pipes will be installed below	Xcel Energy	Underground Electrical Line	-	-	X	
XCEENE-4	1	10+27	to 10+27	Crossing	N UNIVERSITY	120.0	LF	0	Level 1	Work Occurring: Pavement, Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Overhead power will be relocated underground by utility company	Xcel Energy	Overhead Electrical Line	-	-	X	
XCEENE-4.1	1	10+27	to 10+27	LT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Sidewalk Construction Comments: Power pole will be removed after underground power is installed by utility company sometime after May 1st.	Xcel Energy	Overhead Electrical Pole	-	-		X
FARGO-9	1	10+32	to 10+32	LT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Traffic Signal Pole Comments: To be removed as part of the project	City of Fargo	Traffic Signal Pole	-	-		X
XCEENE-1.2	1	10+37	to 10+37	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Sidewalk Construction Comments: Utility will be impacted by sidewalk construction	Xcel Energy	Natural Gas Valve	-	-		X
CENLIN-1	1	10+41	to 10+41	Crossing	N UNIVERSITY	139.0	LF	1	Level 1	Work Occurring: Pavement, Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Century Link	Underground Fiber Optic Line	-	-	X	
CENLIN-1.1	1	10+41	to 10+41	RT	N UNIVERSITY	24.0	LF	-15	Level 2	Work Occurring: Watermain Installation Comments: Utility will be exposed, pipes will be installed below	Century Link	Underground Fiber Optic Line	-	-	X	
CENLIN-1.2	1	10+41	to 10+41	LT	N UNIVERSITY	1.0	EA	0	Level 1	Work Occurring: Pavement, Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Century Link	Fiber Optic Pedestal	-	-	X	
MIDCO-2	1	10+42	to 10+42	Crossing	N UNIVERSITY	125.0	LF	-1	Level 1	Work Occurring: Pavement, Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Mid-Continent Cable	Underground Fiber Optic Line	-	-	X	
MIDCO-2.1	1	10+42	to 10+42	RT	N UNIVERSITY	24.0	LF	-15	Level 2	Work Occurring: Watermain Installation Comments: Utility will be exposed, pipes will be installed below	Mid-Continent Cable	Underground Fiber Optic Line	-	-	X	
MIDCO-1.1	1	10+46	to 10+46	LT	N UNIVERSITY	1.0	EA	-1	Level 3	Work Occurring: Ditch/Boulevard Grading Comments: Vault to be lowered	Mid-Continent Cable	Fiber Optic Vault	-	-		X
FARGO-10	1	10+52	to 10+52	LT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Sidewalk Comments: To be removed as part of the project	City of Fargo	Traffic Signal Pole	-	-		X

Utility Company Information			
Utility Company	Contact Name	Phone Number	Email
City Utilities	Brenda Derrig	(701) 241-1545	bderrig@fargond.gov
	Brock Hosman	(701) 866-2687	Brock.Hosman@sparklight.biz
	Allan Friedt		Allan.Friedt@sparklight.biz
Century Link (Lumen)	Chuck Grummons	(701) 241-3141	charles.grummons@centurylink.com
	Ross Branstner	(701) 309-9734	rbranstner@dakotacarrier.com
Dakota Carrier Network	Eric Wald	(701) 355-8422	eric.wald@kijeng.com
	Michael Christen		michael.christen@kijeng.com
Consolidated Comm	Rob Thomas	(701) 356-6032	robert.thomas@consolidated.com
Midcontinent Comm	Corey Wixo	(701) 212-5682	corey.wixo@midco.com
Xcel Energy (Gas)	Chadrick Walsh	(701) 241-8647	chadrick.walsh@xcelenergy.com
Xcel Energy (Gas)	Roxanne Zurn	(701) 371-5208	Roxanne.A.Zurn@xcelenergy.com
Xcel Energy (Electric)	Travis Lill	(701) 241-8663	travis.r.lill@xcelenergy.com
Xcel Energy (Electric)	Josh Meissner		Josh.E.Meissner@xcelenergy.com

Utility Conflict Level Designations	
Level 1	Utility not exposed by proposed improvements, no impacts.
Level 2	Utility exposed by proposed improvements but no permanent impacts, contractor to protect in place and perform careful excavation.
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.

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Sorted By Station

UE ID #	Utility Coordination Exhibits	Approx. Sta From	Approx. Sta To	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	After Notification - Time For Utility to Mobilize (D = Working Day, W = Week)	Estimated Time to Complete Relocation (D = Working Day, W = Week, H = Hours)	UTILITY ENCOUNTER TYPE (UE)	
															Protect in Place	Conflict
FARGO-11	1	10+52	to 10+52	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Sidewalk Comments: To be removed as part of the project	City of Fargo	Traffic Signal Pole	-	-		X
FARGO-1.1	1	10+81	to 10+81	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading Comments: To be removed as part of the project	City of Fargo	Street Light	-	-		X
XCEENE-1.3	1	12+38	to 12+62	RT	N UNIVERSITY	24.0	LF	-12	Level 2	Work Occurring: Storm Sewer Installation & Ditch/Boulevard Grading Comments: Protect in place	Xcel Energy	Underground Natural Gas Line	-	-	X	
FARGO-1.2	1	12+73	to 12+73	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading Comments: To be removed as part of the project	City of Fargo	Street Light	-	-		X
DACANE-1.1	1-2	13+80	to 15+56	LT	N UNIVERSITY	176.0	LF	-21	Level 2	Work Occurring: Watermain & Storm Sewer Installation Comments: Utility will be exposed, watermain and storm sewer will be installed protecting utility in place	Dakota Carrier Network	Underground Fiber Optic Line	-	-	X	
MIDCO-1.2	1-2	13+80	to 15+56	LT	N UNIVERSITY	176.0	LF	-21	Level 2	Work Occurring: Watermain & Storm Sewer Installation Comments: Utility will be exposed, watermain and storm sewer will be installed protecting utility in place	Mid-Continent Cable	Underground Fiber Optic Line	-	-	X	
XCEENE-5	1-2	14+60	to 15+43	RT	N UNIVERSITY	83.0	LF	-10	Level 2	Work Occurring: Storm Sewer Installation Comments: Utility may be exposed, pipe will be installed at the same elevation as adjacent pipe and should clear utility	Xcel Energy	Underground Natural Gas Line	-	-	X	
XCEENE-6	2-8	16+41	to 59+30	RT	N UNIVERSITY	4289.0	LF	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Overhead Electrical Line	-	-		X
XCEENE-6.1	2	16+41	to 16+41	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
CABONE-1	2	17+19	to 17+26	Crossing	N UNIVERSITY	89.0	LF	-15	Level 2	Work Occurring: Pavement, Curb & Gutter, Sidewalk, Ditch/Boulevard Grading, Watermain, & Storm Sewer Comments: Utility will be exposed, watermain & storm sewer will be installed below utility	Cable One	Underground Fiber Optic Line	-	-	X	
XCEENE-6.2	2	18+50	to 18+50	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
CABONE-2	2	18+59	to 19+00	RT	N UNIVERSITY	41.0	LF	0	Level 1	Work Occurring: Pavement, Curb & Gutter, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Cable One	Underground Fiber Optic Line	-	-	X	
XCEENE-7	2	18+59	to 19+00	RT	N UNIVERSITY	41.0	LF	0	Level 1	Work Occurring: Pavement, Curb & Gutter & Ditch/Boulevard Grading Comments: Utility will not be exposed	Xcel Energy	Underground Natural Gas Line	-	-	X	
MIDCO-1.3	2	18+85	to 18+85	LT	N UNIVERSITY	1.0	EA	0	Level 1	Work Occurring: Ditch/Boulevard Grading Comments: Protect in place	Mid-Continent Cable	Fiber Optic Vault	-	-	X	
CABONE-3	2	19+65	to 20+36	RT	N UNIVERSITY	71.0	LF	0	Level 1	Work Occurring: Ditch/Boulevard Grading Comments: Utility will not be exposed	Cable One	Underground Fiber Optic Line	-	-	X	
XCEENE-6.3	2	21+10	to 21+10	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
XCEENE-6.4	3	23+67	to 23+67	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
CABONE-4	3	25+09	to 26+79	RT	N UNIVERSITY	170.0	LF	1	Level 1	Work Occurring: Pavement, Curb & Gutter, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Cable One	Underground Fiber Optic Line	-	-	X	
XCEENE-6.5	3	26+25	to 26+25	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
XCEENE-8	3	26+45	to 26+80	RT	N UNIVERSITY	35.0	LF	-1	Level 1	Work Occurring: Pavement, Curb & Gutter, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Xcel Energy	Underground Natural Gas Line	-	-	X	
MIDCO-1.4	3	27+40	to 28+30	LT	N UNIVERSITY	90.0	LF	-10	Level 4	Work Occurring: Storm Sewer & Ditch/Boulevard Grading Comments: Storm sewer inlets in conflict with utility	Mid-Continent Cable	Underground Fiber Optic Line	-	-		X
XCEENE-9	3-8	27+82	to 61+89	RT	N UNIVERSITY	3407.0	LF	-1	Level 1	Work Occurring: Ditch/Boulevard Grading Comments: Utility will not be exposed	Xcel Energy	Underground Natural Gas Line	-	-	X	
XCEENE-9.1	3	28+00	to 28+24	RT	N UNIVERSITY	24.0	LF	-5	Level 4	Work Occurring: Storm Sewer & Ditch/Boulevard Grading Comments: Storm sewer inlet in conflict with utility	Xcel Energy	Underground Natural Gas Line	-	-		X
XCEENE-6.6	3	28+69	to 28+69	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X

Utility Company Information			
Utility Company	Contact Name	Phone Number	Email
City Utilities	Brenda Derrig	(701) 241-1545	bderrig@fargond.gov
Cable One (Sparklight)	Brock Hosman	(701) 866-2687	Brock.Hosman@sparklight.biz
	Allan Friedt		Allan.Friedt@sparklight.biz
Century Link (Lumen)	Chuck Grummons	(701) 241-3141	charles.grummons@centurylink.com
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	Michael Christen		michael.christen@kijeng.com
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Midcontinent Comm	Corey Wixo	(701) 212-5682	corey.wixo@midco.com
Xcel Energy (Gas)	Chadrick Walsh	(701) 241-8647	chadrick.walsh@xcelenergy.com
Xcel Energy (Gas)	Roxanne Zurn	(701) 371-5208	Roxanne.A.Zurn@xcelenergy.com
Xcel Energy (Electric)	Travis Lill	(701) 241-8663	travis.r.lill@xcelenergy.com
Xcel Energy (Electric)	Josh Meissner		Josh.E.Meissner@xcelenergy.com

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															Protect in Place	Conflict
XCEENE-6.7	4	31+08	to 31+08	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
MIDCO-1.5	4	31+34	to 31+46	LT	N UNIVERSITY	12.0	LF	-7	Level 4	Work Occurring: Storm Sewer & Ditch/Boulevard Grading Comments: Storm sewer inlet in conflict with utility	Mid-Continent Cable	Underground Fiber Optic Line	-	-		X
XCEENE-9.2	4	33+19	to 33+43	RT	N UNIVERSITY	24.0	LF	-4	Level 2	Work Occurring: Street Lighting Conductor Comments: Protect in place	Xcel Energy	Street Light Conductor	-	-	X	
MIDCO-1.6	4	33+50	to 33+50	LT	N UNIVERSITY	1.0	EA	0	Level 1	Work Occurring: Ditch/Boulevard Grading Comments: Protect in place	Mid-Continent Cable	Fiber Optic Vault	-	-	X	
MIDCO-3	4	33+50	to 33+50	Crossing	N UNIVERSITY	91.0	LF	-20	Level 1	Work Occurring: Pavement, Curb & Gutter, Sidewalk, Ditch/Boulevard Grading, Watermain, & Storm Sewer Comments: Utility will be exposed, watermain & storm sewer will be installed below utility	Mid-Continent Cable	Underground Fiber Optic Line	-	-	X	
MIDCO-3.1	4	33+50	to 33+50	Crossing	N UNIVERSITY	47.0	LF	-20	Level 2	Work Occurring: Pavement, Curb & Gutter, Sidewalk, Ditch/Boulevard Grading, Watermain, & Storm Sewer Comments: Utility will be exposed, watermain & storm sewer will be installed below utility	Mid-Continent Cable	Underground Fiber Optic Line	-	-	X	
XCEENE-6.8	4	33+53	to 33+53	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
MIDCO-1.7	4-5	35+38	to 36+59	LT	N UNIVERSITY	121.0	LF	-7	Level 4	Work Occurring: Storm Sewer & Ditch/Boulevard Grading Comments: Storm sewer inlet in conflict with utility	Mid-Continent Cable	Underground Fiber Optic Line	-	-		X
XCEENE-6.9	5	36+09	to 36+09	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
XCEENE-6.10	5	38+67	to 38+67	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
MIDCO-1.8	5	40+36	to 40+60	LT	N UNIVERSITY	24.0	LF	-7	Level 2	Work Occurring: Storm Sewer & Ditch/Boulevard Grading Comments: Utility will be exposed protect in place	Mid-Continent Cable	Underground Fiber Optic Line	-	-	X	
XCEENE-6.11	5	41+22	to 41+22	RT	N UNIVERSITY	1.0	EA	-7	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
XCEENE-6.12	6	44+09	to 44+09	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
MIDCO-1.9	6	45+38	to 45+62	LT	N UNIVERSITY	24.0	LF	-8	Level 4	Work Occurring: Storm Sewer & Ditch/Boulevard Grading Comments: Storm sewer inlet in conflict with utility	Mid-Continent Cable	Underground Fiber Optic Line	-	-		X
XCEENE-6.13	6	46+39	to 46+39	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
MIDCO-1.10	6	48+41	to 48+41	LT	N UNIVERSITY	1.0	EA	0	Level 1	Work Occurring: Ditch/Boulevard Grading Comments: Protect in place	Mid-Continent Cable	Fiber Optic Vault	-	-	X	
XCEENE-6.14	6	48+98	to 48+98	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
MIDCO-1.11	7	50+38	to 50+62	LT	N UNIVERSITY	24.0	LF	-7	Level 4	Work Occurring: Storm Sewer & Ditch/Boulevard Grading Comments: Storm sewer inlet in conflict with utility	Mid-Continent Cable	Underground Fiber Optic Line	-	-		X
XCEENE-9.3	7	50+38	to 50+62	RT	N UNIVERSITY	24.0	LF	-6	Level 4	Work Occurring: Storm Sewer & Ditch/Boulevard Grading Comments: Storm sewer inlet in conflict with utility	Xcel Energy	Underground Natural Gas Line	-	-		X
XCEENE-6.15	7	51+54	to 51+54	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
XCEENE-6.16	7	54+14	to 54+14	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
MIDCO-1.12	7	54+93	to 55+17	LT	N UNIVERSITY	24.0	LF	-7	Level 4	Work Occurring: Storm Sewer & Ditch/Boulevard Grading Comments: Storm sewer inlet in conflict with utility	Mid-Continent Cable	Underground Fiber Optic Line	-	-		X
XCEENE-6.17	7	56+72	to 56+72	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
MIDCO-1.13	8	58+86	to 59+10	LT	N UNIVERSITY	24.0	LF	-7	Level 4	Work Occurring: Storm Sewer & Ditch/Boulevard Grading Comments: Storm sewer inlet in conflict with utility	Mid-Continent Cable	Underground Fiber Optic Line	-	-		X

Utility Company Information			
Utility Company	Contact Name	Phone Number	Email
City Utilities	Brenda Derrig	(701) 241-1545	bderrig@fargond.gov
Cable One (Sparklight)	Brock Hosman	(701) 866-2687	Brock.Hosman@sparklight.biz
	Allan Friedt		Allan.Friedt@sparklight.biz
Century Link (Lumen)	Chuck Grummons	(701) 241-3141	charles.grummons@centurylink.com
Dakota Carrier Network	Ross Branstner	(701) 309-9734	rbranstner@dakotacarrier.com
	Eric Wald	(701) 355-8422	eric.wald@kijeng.com
	Michael Christen		michael.christen@kijeng.com
Consolidated Comm	Rob Thomas	(701) 356-6032	robert.thomas@consolidated.com
Midcontinent Comm	Corey Wixo	(701) 212-5682	corey.wixo@midco.com
Xcel Energy (Gas)	Chadrick Walsh	(701) 241-8647	chadrick.walsh@xcelenergy.com
Xcel Energy (Gas)	Roxanne Zurn	(701) 371-5208	Roxanne.A.Zurn@xcelenergy.com
Xcel Energy (Electric)	Travis Lill	(701) 241-8663	travis_r.lill@xcelenergy.com
Xcel Energy (Electric)	Josh Meissner		Josh.E.Meissner@xcelenergy.com

Utility Conflict Level Designations	
Level 1	Utility not exposed by proposed improvements, no impacts.
Level 2	Utility exposed by proposed improvements but no permanent impacts, contractor to protect in place and perform careful excavation.
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.

Utility Coordination Table Appendix A of SP 227(20)

SU-8-984(165) PCN 22292

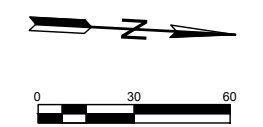
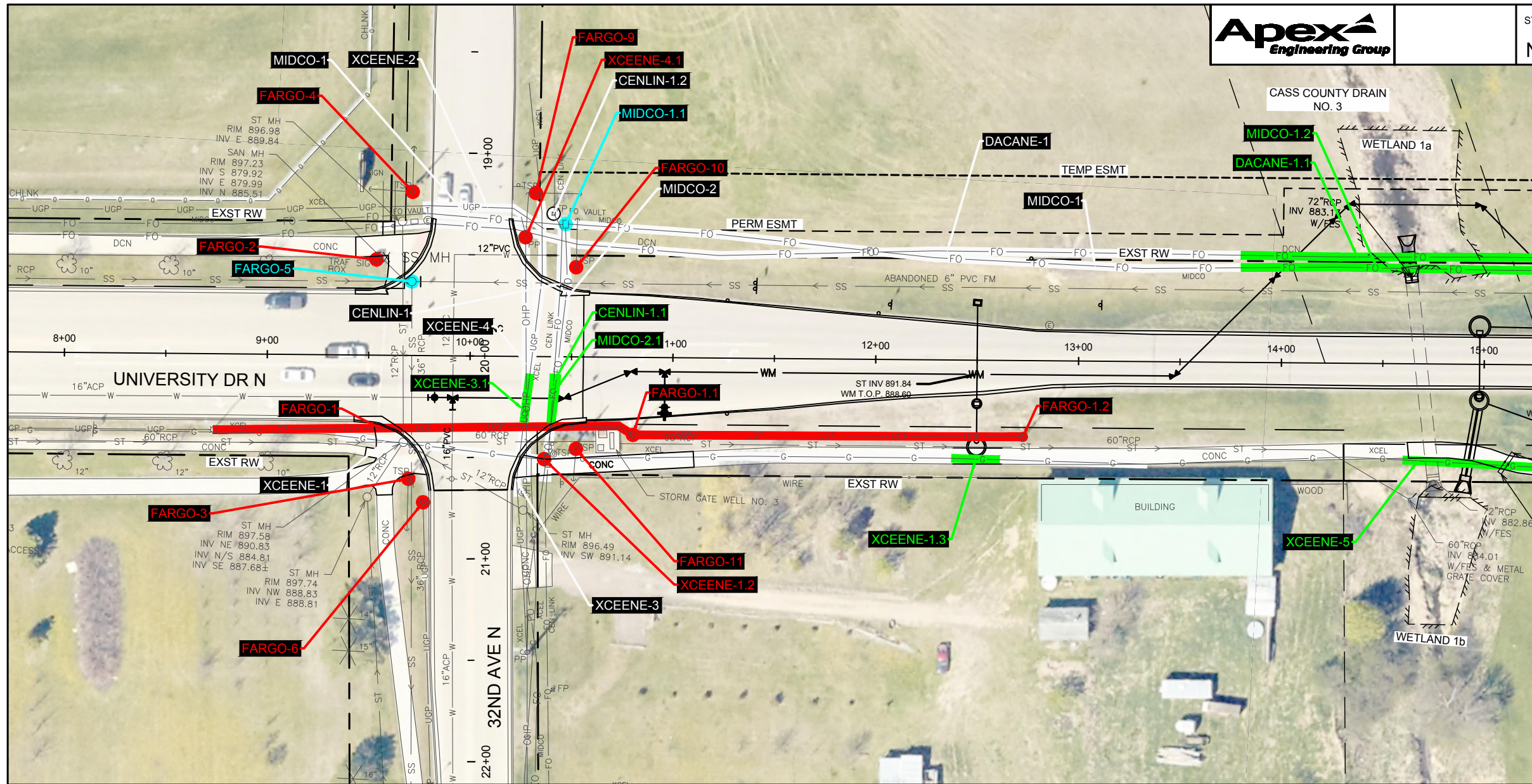
Sorted By Station

UE ID #	Utility Coordination Exhibits	Approx. Sta From	Approx. Sta To	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	After Notification - Time For Utility to Mobilize (D = Working Day, W = Week)	Estimated Time to Complete Relocation (D = Working Day, W = Week, H = Hours)	UTILITY ENCOUNTER TYPE (UE)	
															Protect in Place	Conflict
XCEENE-6.18	8	59+30	to 59+30	RT	N UNIVERSITY	1.0	EA	0	Level 4	Work Occurring: Ditch/Boulevard Grading & New Lighting System Comments: Private utility owns existing lighting system and will remove during construction	Xcel Energy	Light Pole	-	-		X
XCEENE-10	8	61+76	to 61+76	Crossing	N UNIVERSITY	122.0	LF	-1	Level 1	Work Occurring: Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Xcel Energy	Underground Electrical Line	-	-	X	
XCEENE-11	8	61+89	to 61+89	Crossing	N UNIVERSITY	95.0	LF	-1	Level 1	Work Occurring: Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Xcel Energy	Underground Natural Gas Line	-	-	X	
CABONE-5	8	61+97	to 61+97	Crossing	N UNIVERSITY	68.0	LF	-1	Level 1	Work Occurring: Curb & Gutter, Sidewalk, & Ditch/Boulevard Grading Comments: Utility will not be exposed	Cable One	Underground Fiber Optic Line	-	-	X	
MIDCO-4	8	62+16	to 62+34	LT	N UNIVERSITY	18.0	LF	-1	Level 1	Work Occurring: Curb & Gutter & Ditch/Boulevard Grading Comments: Utility will not be exposed	Mid-Continent Cable	Underground Fiber Optic Line	-	-	X	
CABONE-6	8	63+12	to 63+32	RT	N UNIVERSITY	20.0	LF	-1	Level 1	Work Occurring: Curb & Gutter & Ditch/Boulevard Grading Comments: Utility will not be exposed	Cable One	Underground Fiber Optic Line	-	-	X	
CENLIN-2	8	63+23	to 63+23	Crossing	N UNIVERSITY	13.0	LF	-1	Level 1	Work Occurring: Curb & Gutter & Ditch/Boulevard Grading Comments: Utility will not be exposed	Century Link	Underground Fiber Optic Line	-	-	X	
MIDCO-5	9	7+15	to 7+94	LT	36th Ave N	78.0	LF	-1	Level 1	Work Occurring: Sidewalk & Ditch/Boulevard Grading Comments: Utility will not be exposed	Mid-Continent Cable	Underground Fiber Optic Line	-	-	X	
MIDCO-5.1	9	7+94	to 7+94	LT	36th Ave N	1.0	EA	-1	Level 4	Work Occurring: Sidewalk & Ditch/Boulevard Grading Comments: Utility will not be exposed	Mid-Continent Cable	Fiber Optic Vault	-	-		X
Totals:															38	42

Utility Company Information			
Utility Company	Contact Name	Phone Number	Email
City Utilities	Brenda Derrig	(701) 241-1545	bderrig@targond.gov
Cable One (Sparklight)	Brock Hosman	(701) 866-2687	Brock.Hosman@sparklight.biz
	Allan Friedt		Allan.Friedt@sparklight.biz
Century Link (Lumen)	Chuck Grummons	(701) 241-3141	charles.grummons@centurylink.com
	Ross Branstner	(701) 309-9734	rbranstner@dakotacarrier.com
Dakota Carrier Network	Eric Wald	(701) 355-8422	eric.wald@kijeng.com
	Michael Christen		michael.christen@kijeng.com
Consolidated Comm	Rob Thomas	(701) 356-6032	robert.thomas@consolidated.com
Midcontinent Comm	Corey Wix	(701) 212-5682	corey.wix@midco.com
Xcel Energy (Gas)	Chadrick Walsh	(701) 241-8647	chadrick.walsh@xcelenergy.com
Xcel Energy (Gas)	Roxanne Zurn	(701) 371-5208	Roxanne.A.Zurn@xcelenergy.com
Xcel Energy (Electric)	Travis Lill	(701) 241-8663	travis.r.lill@xcelenergy.com
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Appendix B – Utility Exhibits



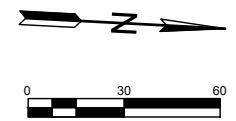
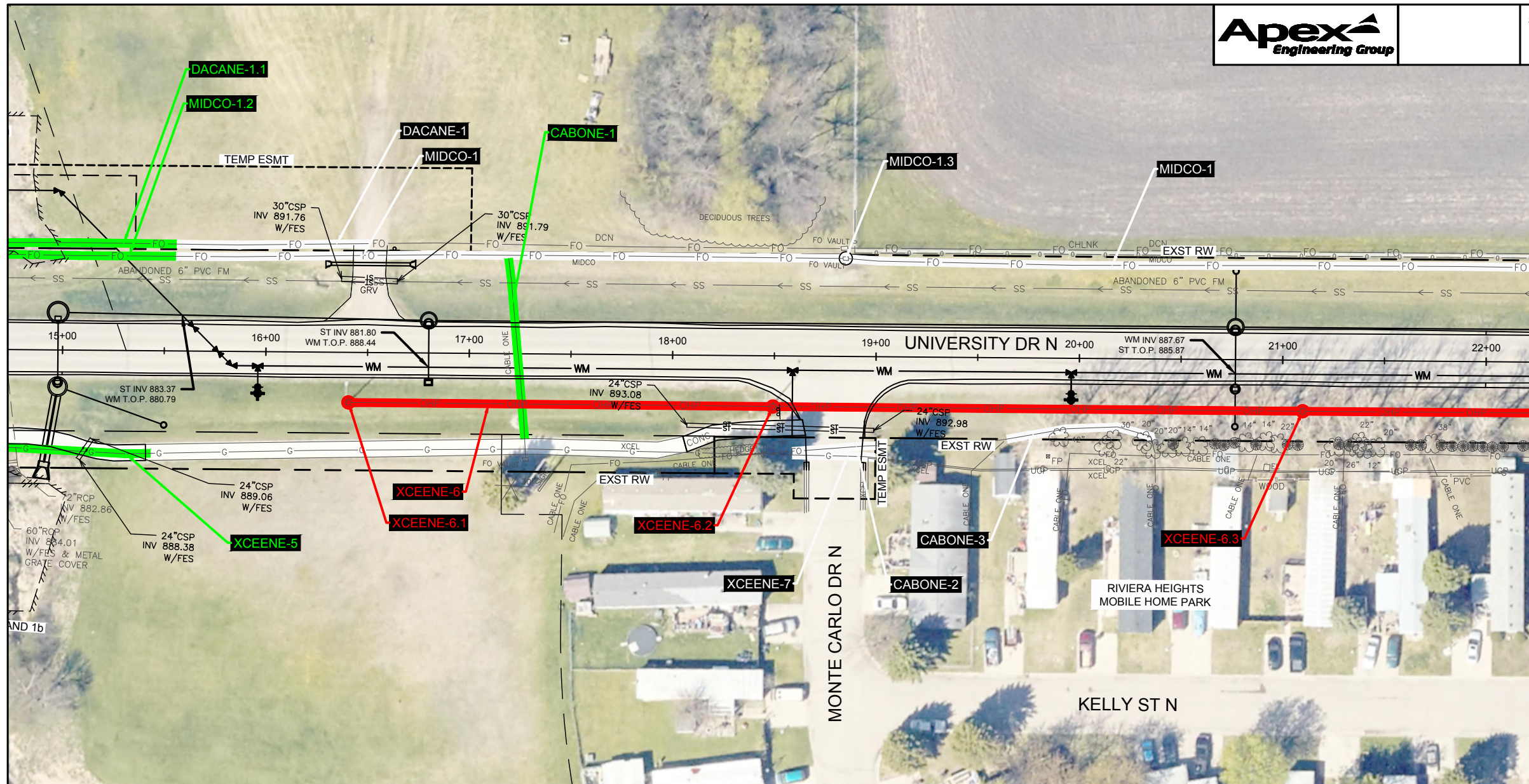
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UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N

UTILITY EXHIBIT

STA 8+00 - 15+00



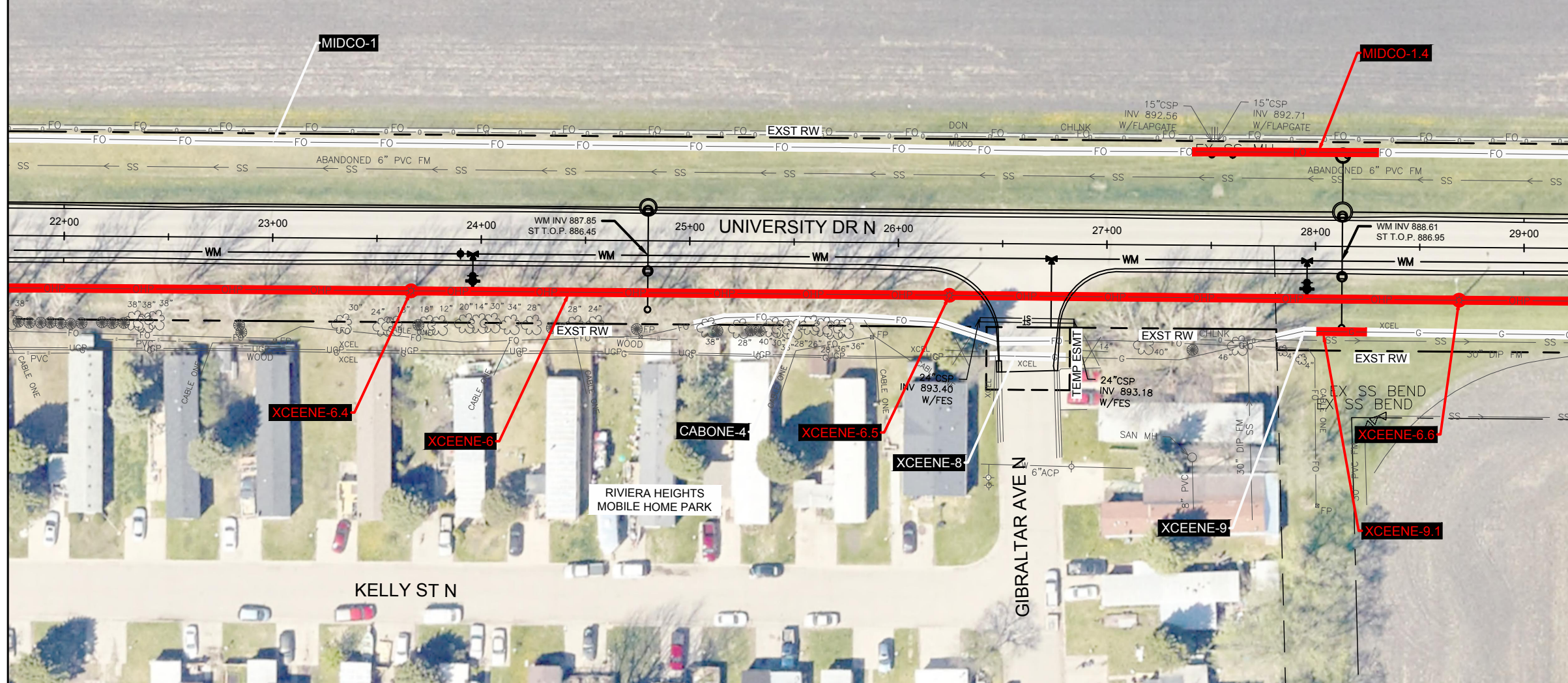
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UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N

UTILITY EXHIBIT

STA 15+00 - 22+00



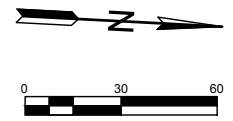
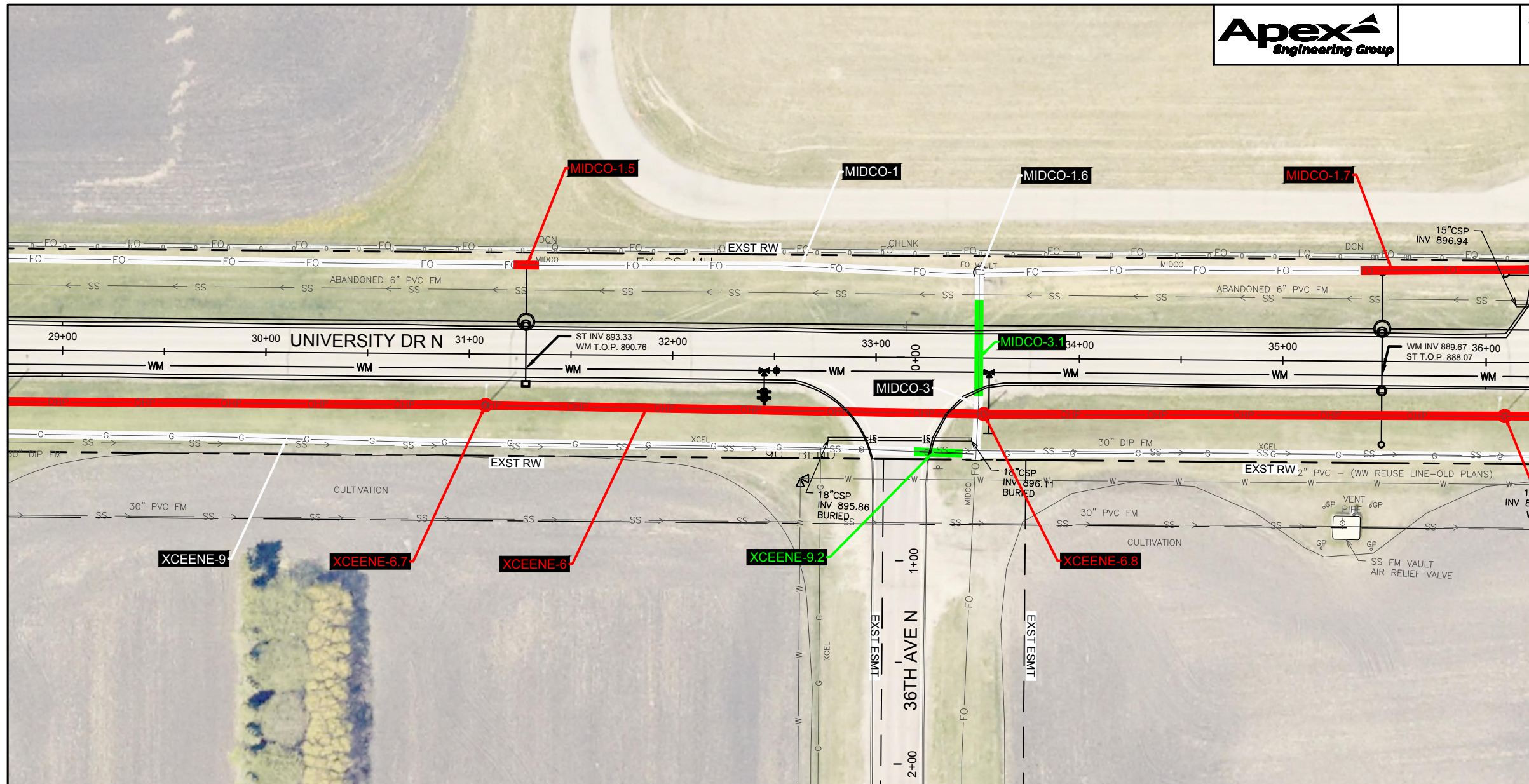
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UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N

UTILITY EXHIBIT

STA 22+00 - 29+00



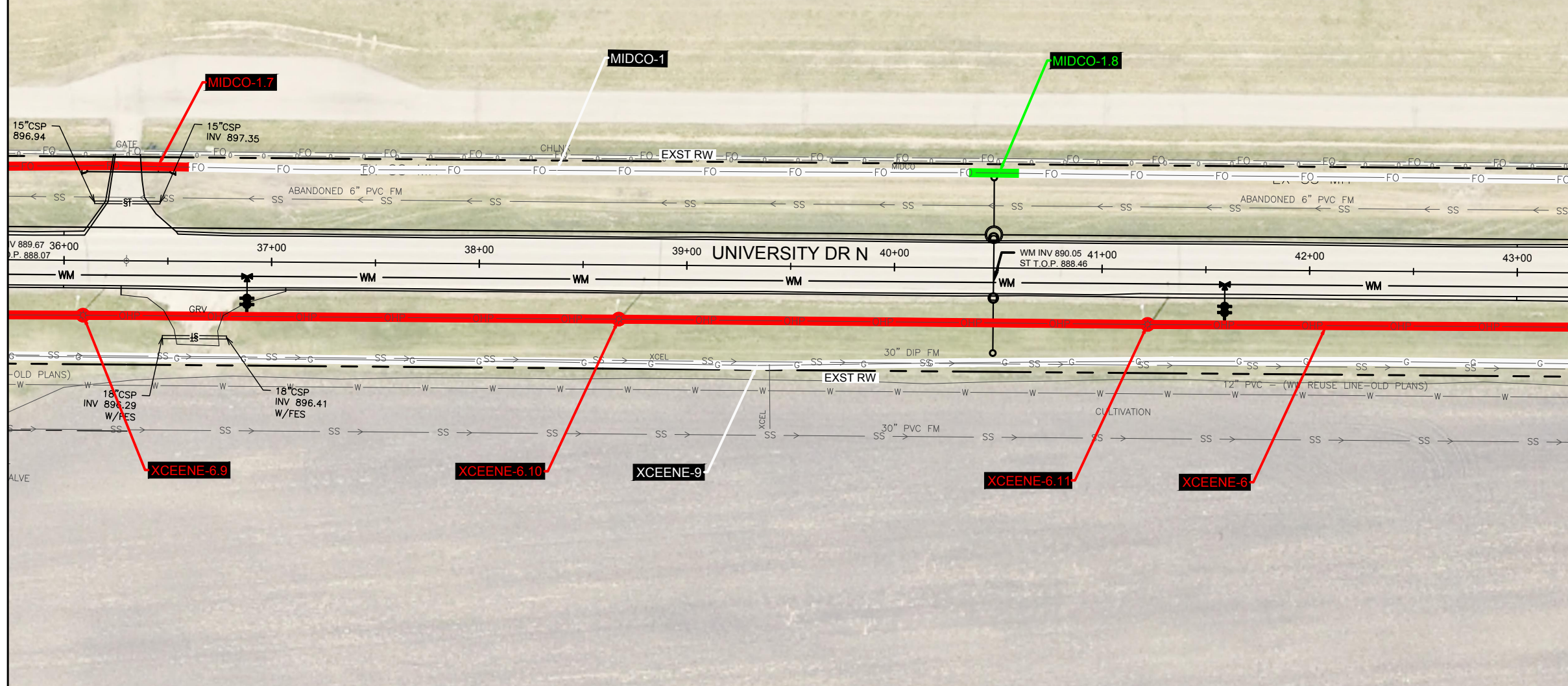
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UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N

UTILITY EXHIBIT

STA 29+00 - 36+00



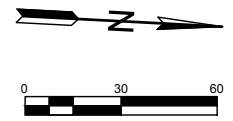
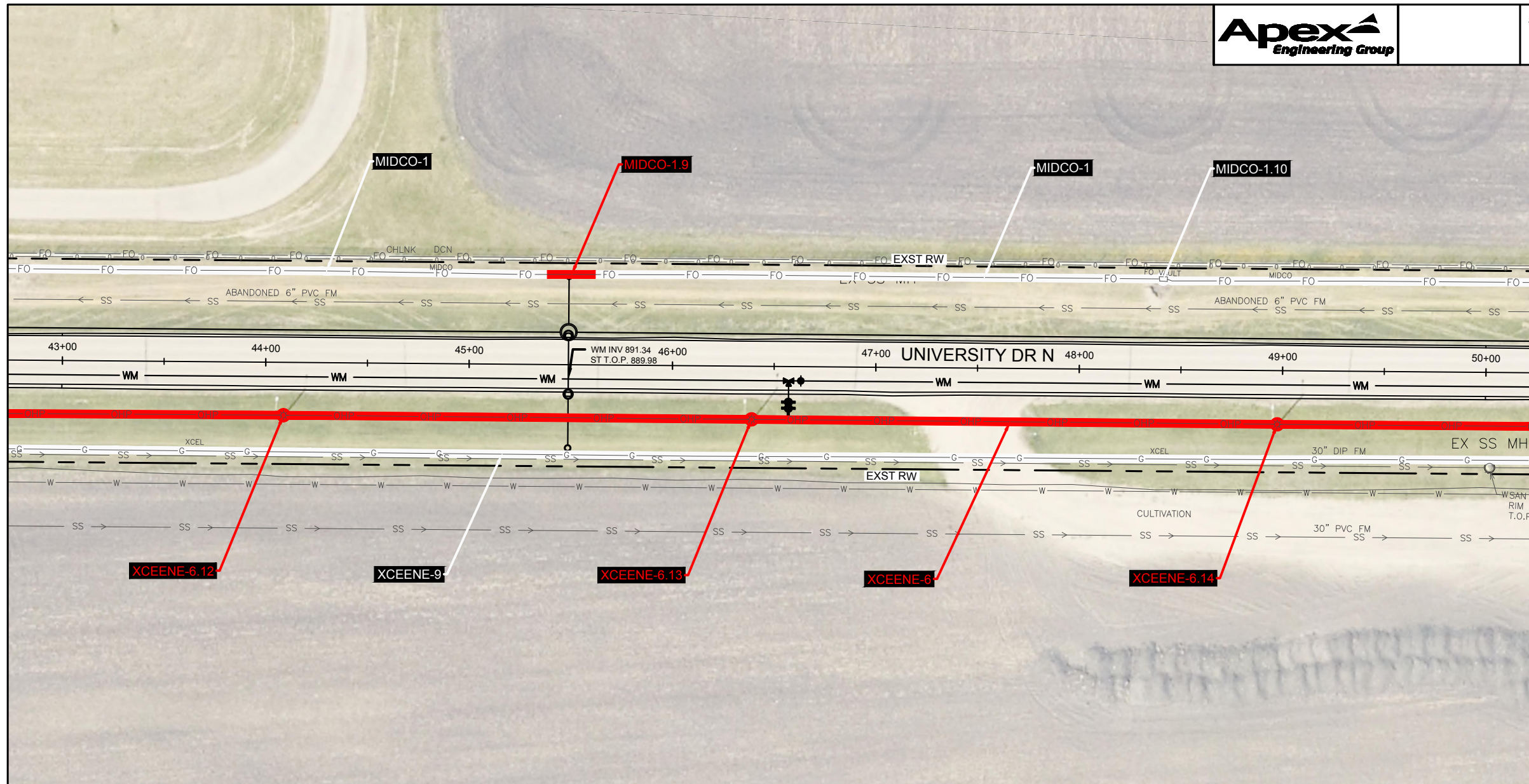
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UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N

UTILITY EXHIBIT

STA 36+00 - 43+00



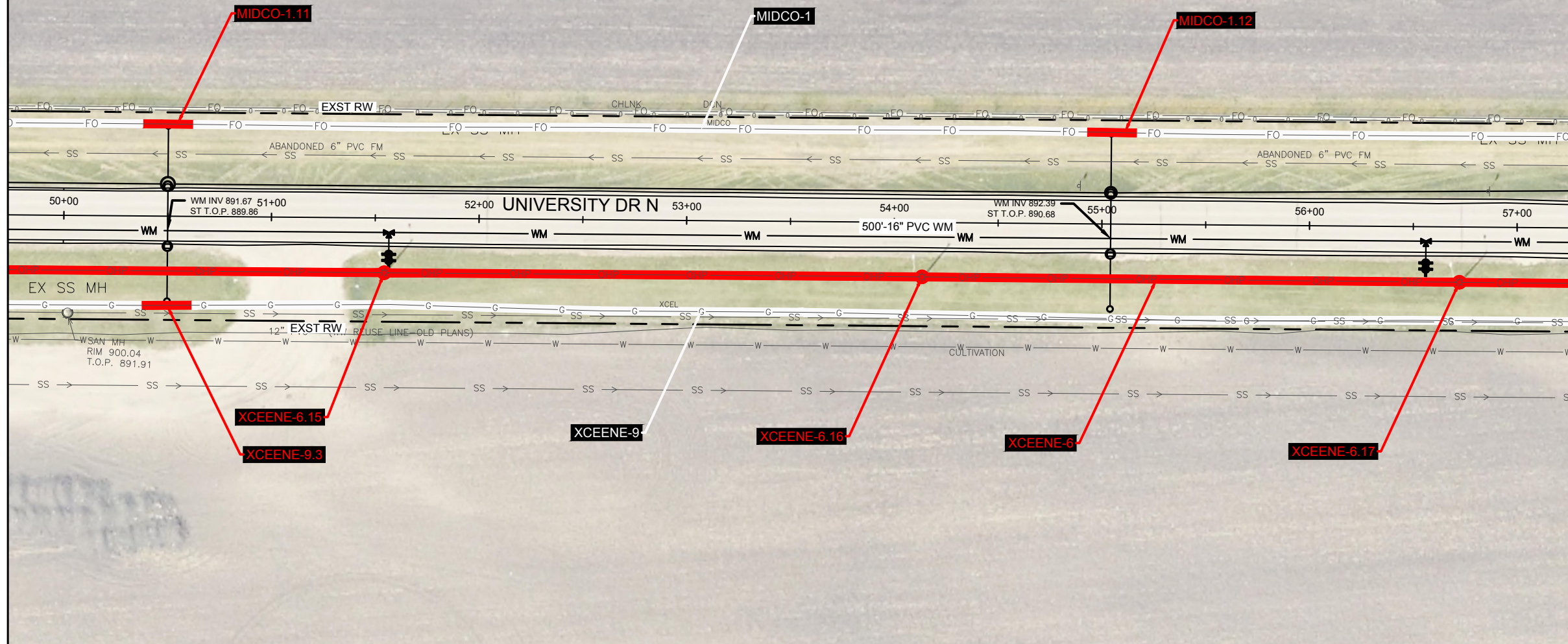
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UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N

UTILITY EXHIBIT

STA 43+00 - 50+00



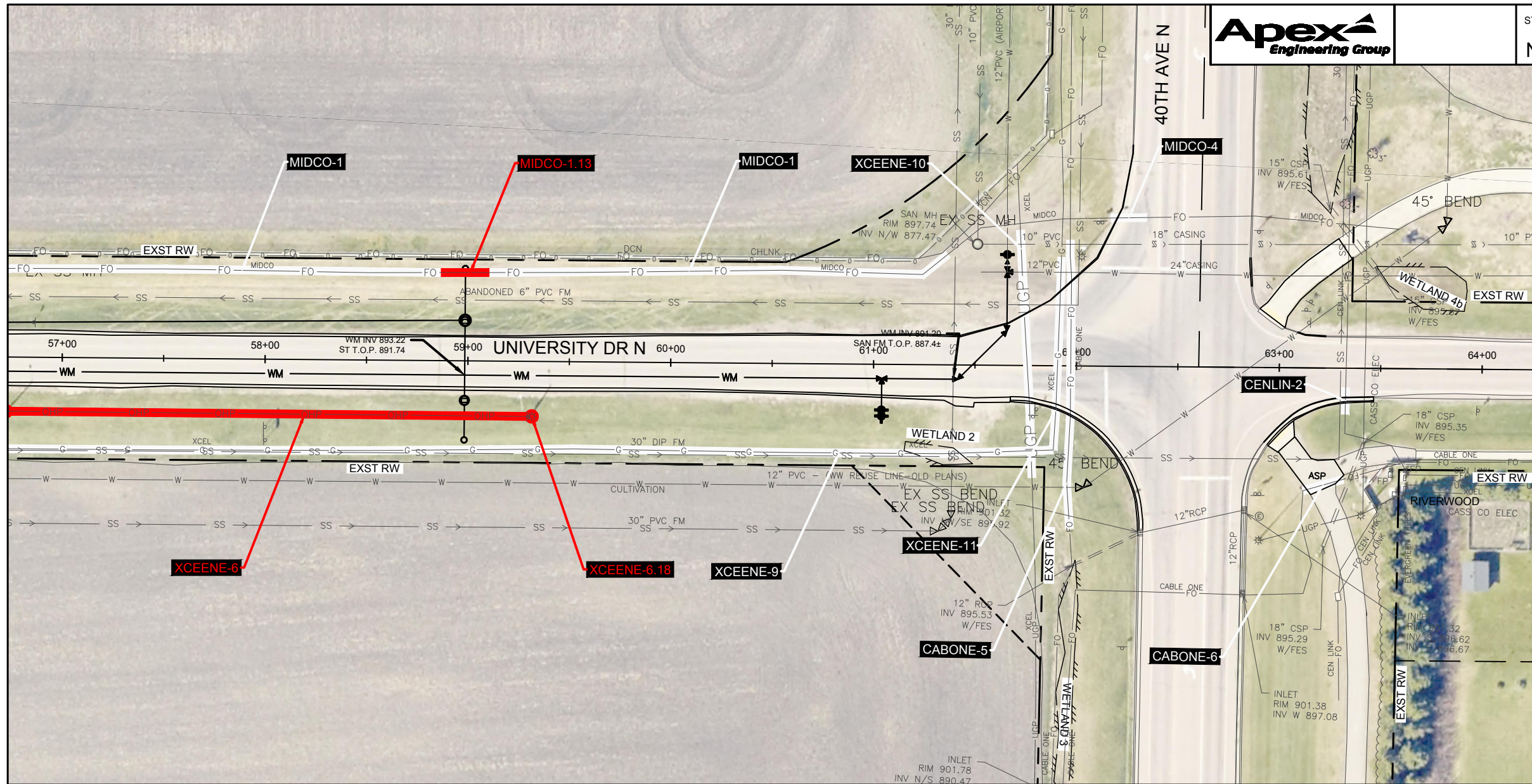
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UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N

UTILITY EXHIBIT

STA 36+00 - 43+00



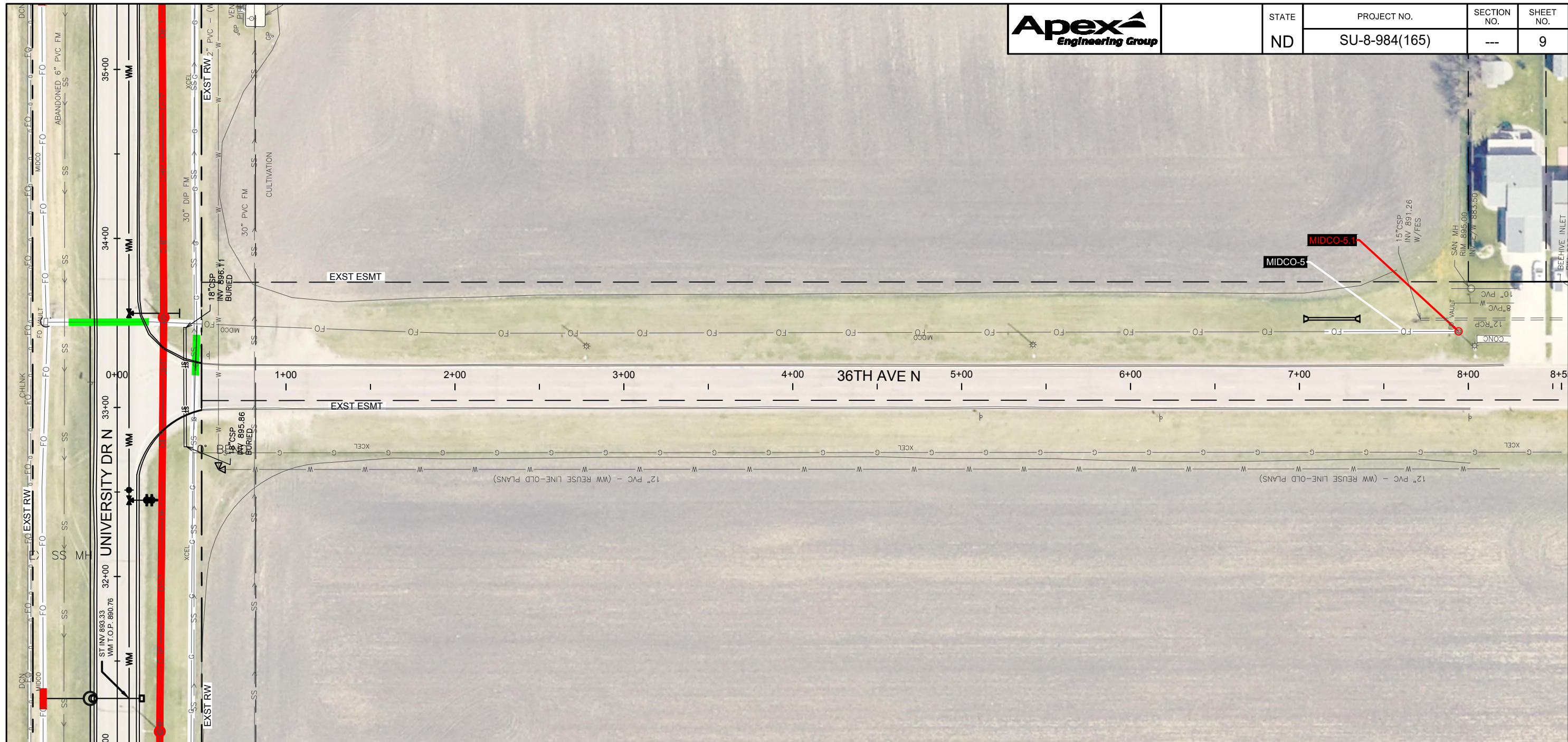
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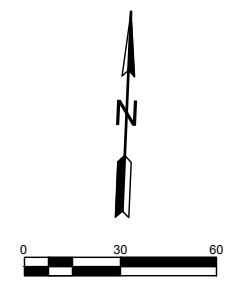
UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N

UTILITY EXHIBIT

STA 57+00 - 64+00



- LEVEL 1 UTILITY ENCOUNTER - UTILITY NOT EXPOSED BY PROPOSED IMPROVEMENTS, NO IMPACTS.
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UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N

UTILITY EXHIBIT
36TH AVE N
STA 0+00 - 8+00

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

AIRPORT COORDINATION

SU-8-984(165), PCN 22292

This Special Provision incorporates the Federal Aviation Administration (FAA) Requirements.

1. SUMMARY

- A. Hector International Airport (FAR) is located directly west of and adjacent to the University Dr N project area. FAA conducted an aeronautical study on 47 structures included in the University Dr N road construction project that were submitted for review:
- 34 structures were new light poles (all light poles on the project were included).
 - 4 structures were traffic signal poles with luminaires mounted on top of the pole.
 - 9 structures were temporary construction structures representing construction equipment that will be on the jobsite.

The FAA response letters for each of the 47 permanent and temporary structures can be found at the following link – reference Aeronautical Study Nos. (ASN) 2020-AGL-24757-OE thru 2020-AGL-24763-OE, 2020-AGL-24786-OE thru 2020-AGL-24794-OE, 2021-AGL-2368-OE thru 2021-AGL-2382-OE, 2021-AGL-1268-OE thru 2021-AGL-1276-OE and 2021-AGL-5766-OE thru 2021-AGL-5772-OE. See Appendix A for an exhibit showing the structure locations and Appendix B for a summary table.

<https://oeaaa.faa.gov/oeaaa/external/searchAction.jsp?action=showSearchArchivesForm>

2. PERMANENT STRUCTURES

- A. 29 of the 38 permanent structures received a “Determination of No Hazard to Air Navigation” (See structures labeled L___ in black text in Appendix A). It is required that for each individual structure, the Contractor e-file Form 7460-2, Notice of Actual Construction or Alteration, within five (5) days after construction of the structure reaches its greatest height. **Special marking or lighting will not be required on the light poles or luminaires for these 29 permanent structures.**
- B. 9 of the 38 permanent structures received a “Determination of No Hazard to Air Navigation” (See structures labeled L___ in red text in Appendix A). **As a condition of this determination, these 9 permanent structures shall be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, red lights-Chapters 4, 5(Red), & 15.** These red marking lights have been included in the design and plans for these 9 structures. It is required for each individual structure, the Contractor e-file 7460-2, Notice of Actual Construction or

Alteration. At least **ten (10) days** prior to start of construction (7460-2, Part 1), and within five (5) days after the construction reaches its greatest height (7460-2, Part 2). Any malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

3. TEMPORARY CONSTRUCTION STRUCTURES

- A. 3 of the 9 temporary construction structures received a “Determination of No Hazard to Air Navigation for Temporary Structure” (See structures labeled POINT___ in black text in Appendix A). **Special marking or lighting will not be required for temporary construction equipment or temporary construction structures between Sta 9+43 and Sta 31+89, and between Sta 46+00 and Sta 63+47.**
- B. 6 of the 9 temporary construction structures received a “Determination of No Hazard to Air Navigation for Temporary Structure” (See structures labeled POINT___ in red text in Appendix A). As a condition of this Determination, **temporary construction equipment or temporary construction structures between Sta 31+89 and Sta 46+00** shall be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, flags/red lights - Chapters 3(Marked), 4, 5(Red), 14(Temporary), & 15. **This requirement applies to all construction equipment on site at all times within the above station range.** As a condition to this determination, the temporary equipment or structure must be lowered to the ground when not in use and during the hours between sunset and sunrise.
- C. For the temporary construction structures it is required that the FAA, through a registered e-filing account, be notified 5 business days prior to the temporary structure being erected and again when the structure is removed from the site. It is also required that Shawn Dobberstein, executive director of FAR (Hector International Airport) be contacted at 701-241-1501 at least 5 business days prior to the temporary structure being erected and again when the structure is removed from the site. Any height exceeding 30 feet above ground level will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.
- D. Construction equipment height restrictions are shown in Appendix A. If the contractor desires to use equipment higher than what is shown in Appendix A, the contractor shall file a new Notice of Proposed Construction or Alternation Form 7460-1 (online at <http://oeaaa.faa.gov>), while referencing the existing airspace case number (Refer to Appendix B for ASN numbers). No equipment that exceeds the height restrictions shown in Appendix A and Appendix B shall be used until a new determination is given by the FAA.

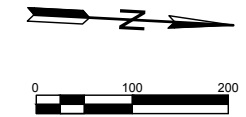
4. OTHER REQUIREMENTS

- A. Termination of previous aeronautical study 2004-AGL-3127-OE is required when structure L38 (2020-AGL-24794-OE) is being prepared to be installed. Form 7460-2 (PART 2) is to be submitted within 5 days after the existing structure is dismantled or destroyed.

- B. The contractor shall submit to the Engineer copies of issued NOTAMS prior to work starting. NOTAMS can be obtained from <https://pilotweb.nas.faa.gov/PilotWeb/> by entering: FAR in Locations tab and clicking Search.
- C. No work shall occur past the determination expiration dates listed on the FAA response letters, unless the contractor requests an extension in accordance with the procedures outlined in the FAA response letters.

APPENDIX A
AERONAUTICAL STUDY MAP EXHIBIT

HECTOR INTERNATIONAL AIRPORT
RUNWAY 9/27 PROTECTION ZONE (RPZ)



STA 9+43

STA 31+89

CONSTRUCTION EQUIPMENT
MAXIMUM 40' HEIGHT

CONSTRUCTION EQUIPMENT
LIGHTS/FLAGGING REQUIRED
MAXIMUM 30' HEIGHT

L3
2020-AGL-24759-OE

L4
2020-AGL-24760-OE

POINT 100
2021-AGL-1268-OE

L6
2020-AGL-24762-OE

L8
2021-AGL-5767-OE

L12
2021-AGL-5770-OE

L14
2021-AGL-5772-OE

L17b
2021-AGL-2370-OE

L18b
2021-AGL-2371-OE

L19b
2021-AGL-2372-OE

L10
2021-AGL-5768-OE

L13
2021-AGL-5771-OE

L5
2020-AGL-24761-OE

L7
2020-AGL-24763-OE

L9
2021-AGL-5766-OE

L11
2021-AGL-5769-OE

POINT 101
2021-AGL-1269-OE

POINT 103
2021-AGL-1271-OE

L21b
2021-AGL-2374-OE

L2
2020-AGL-24758-OE

L1
2020-AGL-24757-OE

POINT 102
2021-AGL-1270-OE

L20b
2021-AGL-2373-OE

POINT 104
2021-AGL-1272-OE

L15b
2021-AGL-2368-OE

L16b
2021-AGL-2369-OE

32ND AVE N

CASS COUNTY DRAIN NO.3

MONTE CARLO DR

RIVIERA HEIGHTS
MOBILE HOME PARK

GIBRALTOR AVE

DEPARTURE SURFACE - RUNWAY 9/27

APPROACH SURFACE - RUNWAY 9/27

36TH AVE N

KENO ST

LEGEND

POINT XXX
202X-AGL-XXX-OE

TEMPORARY
CONSTRUCTION
POINT

LXX
202X-AGL-XXX-OE

PERMANENT
LIGHT
STRUCTURE

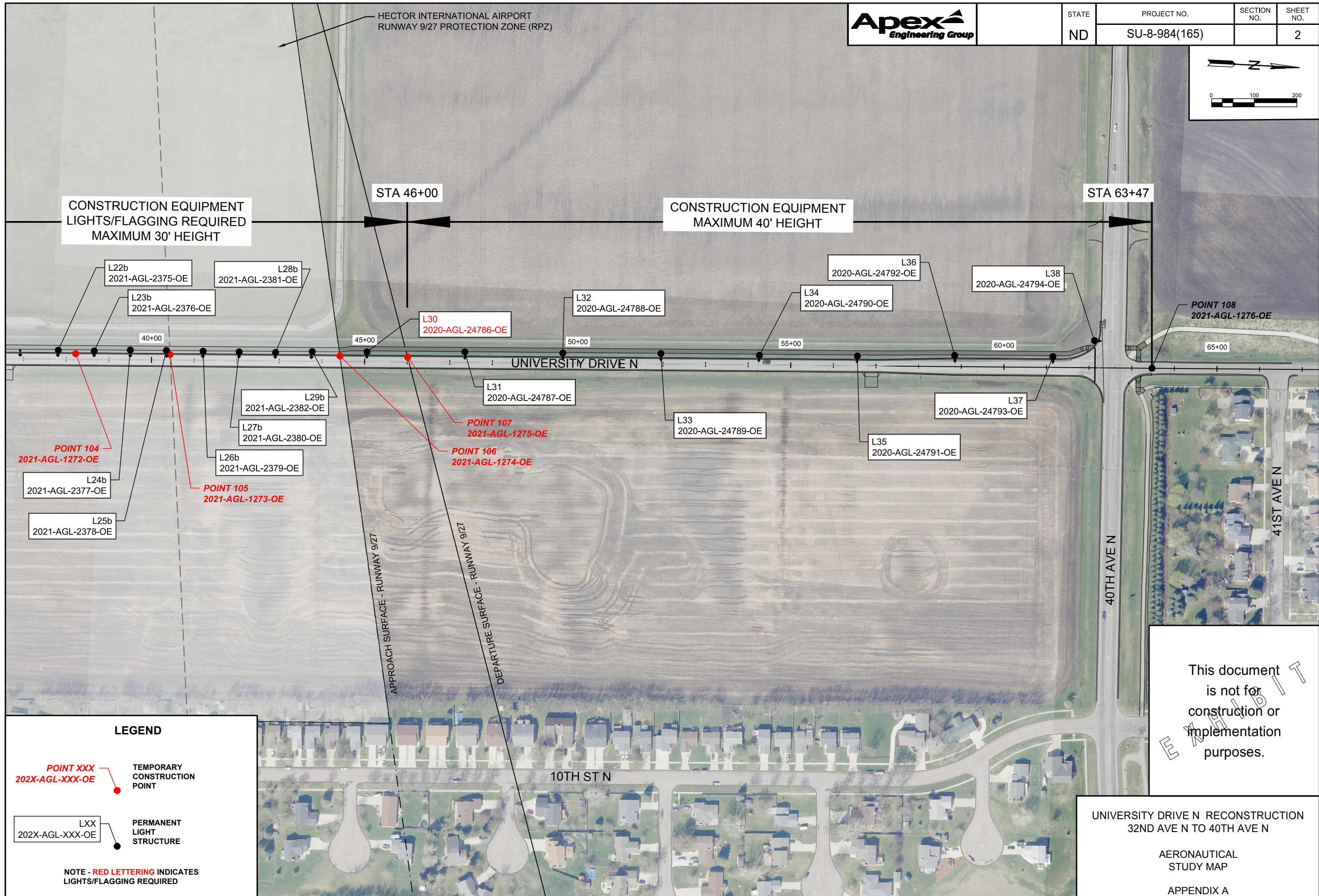
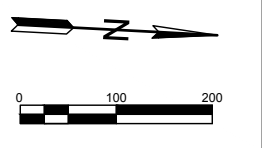
NOTE - RED LETTERING INDICATES
LIGHTS/FLAGGING REQUIRED

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UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N

AERONAUTICAL
STUDY MAP

APPENDIX A



LEGEND

POINT XXX
202X-AGL-XXX-OE

TEMPORARY CONSTRUCTION POINT

LXX
202X-AGL-XXX-OE

PERMANENT LIGHT STRUCTURE

NOTE - RED LETTERING INDICATES LIGHTS/FLAGGING REQUIRED

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UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N

AERONAUTICAL STUDY MAP

APPENDIX A

APPENDIX B

SUMMARY TABLE OF AERONAUTICAL STUDY DETERMINATIONS

APPENDIX B - SUMMARY OF AERONAUTICAL STUDY DETERMINATIONS

No. on Attached Maps	Aeronautical Study Number (ASN)	Station	Latitude	Longitude	Heights (feet)			Lighting/ Marking Required
					Site Elevation (SE)	Height Above Ground Level (AGL)	Height of Structure Above Mean Sea Level (AMSL)	
L1	2020-AGL-24757-OE	9+70-59.0' Rt	46°55'08.93"	-96°47'51.58"	897	40	937	X
L2	2020-AGL-24758-OE	10+59-33.0' Rt	46°55'09.81"	-96°47'51.98"	898	40	938	X
L3	2020-AGL-24759-OE	9+51-43.0' Lt	46°55'08.76"	-96°47'53.05"	898	40	938	X
L4	2020-AGL-24760-OE	10+33-60.0' Lt	46°55'09.56"	-96°47'53.29"	897	40	937	X
L5	2020-AGL-24761-OE	11+76-40.0' Lt	46°55'10.97"	-96°47'52.99"	897	40	937	X
L6	2020-AGL-24762-OE	13+45-28.0' Lt	46°55'12.64"	-96°47'52.82"	896	40	936	X
L7	2020-AGL-24763-OE	15+50-22.5' Lt	46°55'14.67"	-96°47'52.73"	895	40	935	X
L8	2021-AGL-5767-OE	17+80-22.5' Lt	46°55'16.94"	-96°47'52.72"	897	40	937	
L9	2021-AGL-5766-OE	20+10-22.5' Lt	46°55'19.21"	-96°47'52.71"	897	40	937	
L10	2021-AGL-5768-OE	22+40-22.5' Lt	46°55'21.48"	-96°47'52.70"	897	40	937	
L11	2021-AGL-5769-OE	24+70-22.5' Lt	46°55'23.75"	-96°47'52.69"	897	40	937	
L12	2021-AGL-5770-OE	27+00-22.5' Lt	46°55'26.02"	-96°47'52.68"	896	40	936	
L13	2021-AGL-5771-OE	29+30-22.5' Lt	46°55'28.29"	-96°47'52.67"	897	40	937	
L14	2021-AGL-5772-OE	31+60-22.5' Lt	46°55'30.56"	-96°47'52.66"	898	40	938	X
L15b	2021-AGL-2368-OE	32+65-19.5' Lt	46°55'31.60"	-96°47'52.61"	900	20	920	
L16b	2021-AGL-2369-OE	33+31-53.0' Rt	46°55'32.24"	-96°47'52.00"	899	20	919	
L17b	2021-AGL-2370-OE	33+50-19.5' Lt	46°55'32.43"	-96°47'52.61"	900	20	920	
L18b	2021-AGL-2371-OE	34+35-19.5' Lt	46°55'33.27"	-96°47'52.60"	900	20	920	
L19b	2021-AGL-2372-OE	35+20-19.5' Lt	46°55'34.11"	-96°47'52.60"	899	20	919	
L20b	2021-AGL-2373-OE	36+04-19.5' Lt	46°55'34.94"	-96°47'52.60"	900	20	920	
L21b	2021-AGL-2374-OE	36+92-19.5' Lt	46°55'35.81"	-96°47'52.59"	900	20	920	
L22b	2021-AGL-2375-OE	37+80-19.5' Lt	46°55'36.68"	-96°47'52.59"	900	20	920	
L23b	2021-AGL-2376-OE	38+65-19.5' Lt	46°55'37.52"	-96°47'52.59"	900	20	920	
L24b	2021-AGL-2377-OE	39+50-19.5' Lt	46°55'38.36"	-96°47'52.58"	900	20	920	
L25b	2021-AGL-2378-OE	40+35-19.5' Lt	46°55'39.20"	-96°47'52.58"	899	20	919	
L26b	2021-AGL-2379-OE	41+20-19.5' Lt	46°55'40.04"	-96°47'52.57"	900	20	920	
L27b	2021-AGL-2380-OE	42+05-19.5' Lt	46°55'40.88"	-96°47'52.57"	900	20	920	
L28b	2021-AGL-2381-OE	42+90-19.5' Lt	46°55'41.71"	-96°47'52.57"	901	20	921	
L29b	2021-AGL-2382-OE	43+75-19.5' Lt	46°55'42.55"	-96°47'52.56"	900	20	920	
L30	2020-AGL-24786-OE	45+05-22.5' Lt	46°55'43.84"	-96°47'52.60"	899	40	939	X
L31	2020-AGL-24787-OE	47+35-22.5' Lt	46°55'46.11"	-96°47'52.59"	900	40	940	
L32	2020-AGL-24788-OE	49+65-22.5' Lt	46°55'48.38"	-96°47'52.58"	900	40	940	
L33	2020-AGL-24789-OE	51+95-22.5' Lt	46°55'50.65"	-96°47'52.57"	900	40	940	
L34	2020-AGL-24790-OE	54+25-22.5' Lt	46°55'52.92"	-96°47'52.56"	899	40	939	
L35	2020-AGL-24791-OE	56+55-22.5' Lt	46°55'55.19"	-96°47'52.55"	900	40	940	
L36	2020-AGL-24792-OE	58+85-24.5' Lt	46°55'57.46"	-96°47'52.57"	899	40	939	
L37	2020-AGL-24793-OE	61+15-24.5' Lt	46°55'59.73"	-96°47'52.56"	900	40	940	
L38	2020-AGL-24794-OE	62+13-64.0' Lt	46°56'00.69"	-96°47'53.11"	900	40	940	
PT 100	2021-AGL-1268-OE	9+43	46°55'08.67"	-96°47'52.43"	898	30	928	
PT 101	2021-AGL-1269-OE	30+41	46°55'29.38"	-96°47'52.53"	898	30	928	
PT 102	2021-AGL-1270-OE	31+89	46°55'30.84"	-96°47'52.52"	899	30	929	X
PT 103	2021-AGL-1271-OE	35+95	46°55'34.85"	-96°47'52.50"	899	30	929	X
PT 104	2021-AGL-1272-OE	38+18	46°55'37.05"	-96°47'52.49"	901	30	931	X
PT 105	2021-AGL-1273-OE	40+43	46°55'39.28"	-96°47'52.48"	899	30	929	X
PT 106	2021-AGL-1274-OE	44+41	46°55'43.21"	-96°47'52.47"	900	30	930	X
PT 107	2021-AGL-1275-OE	46+00	46°55'44.78"	-96°47'52.46"	900	30	930	X
PT 108	2021-AGL-1276-OE	63+47	46°56'02.01"	-96°47'52.19"	901	30	931	

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
CITY PAVING, STORM SEWER, AND WATERMAIN SPECIFICATIONS

SU-8-984(165) - PCN 22292

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.

This document was originally issued and sealed by James R Mickelson Registration Number PE-27412 on 02/01/21 and the original document is stored at the City of Fargo

1. SUMMARY

- A. The City of Fargo has Standard Specifications to cover the concrete paving, storm sewer, and domestic water distribution portions of the project. Revisions to the Standard Specifications are provided within this Special Provision. The following City of Fargo Specifications are included:

<u>Section</u>	<u>Title</u>
1000	Excavation, Trenching, and Backfilling for Underground Work
1300	Water Mains
1500	Storm Sewers
2100	Concrete Paving and Curbs & Gutters
2300	Concrete Sidewalks and Driveways

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

B. Payment and measurement Concrete Paving, Curbs & Gutters, Sidewalk, Driveways, water & storm distribution items are in accordance with the City of Fargo Standard Specifications, except as noted, for the following items:

Spec	Code	NDDOT Pay Item Name	City of Fargo Specification Number & Detail		Section 20 – (In Plans)
302	9970	TYPE II PIPE BEDDING	1000	-	
550	0310	10IN NON REINF CONCRETE PVMT CL AE-DOWELED	2100	5.1,5.3,5.4, 5.5,5.6,5.7,5.8,5.9	
714	-	PIPE CONC REINF <SIZE>IN CL III-STORM DRAIN	1500	5.1, 5.2	
714	1500	PIPE CONC REINF 72IN CL II	1500	5.1, 5.2	
714	3050	END SECT-CONC REINF 54IN	1500	5.15, 5.2	8
714	4099	PIPE CONDUIT 18IN-APPROACH	1500	5.1, 5.2	
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	1500	5.15, 5.2	8, 9
714	9696	EDGEDRAIN NON PERMEABLE BASE	1500	5.12	
722	0120	MANHOLE 72IN	1500	5.4B1, 5.14	
722	0140	MANHOLE 96IN	1500	5.4B1, 5.14	
722	3315	6IN PVC SEWER PLUG	1300	-	
722	3499	INLET	1500	5.4B, 5.14C	
722	3510	INLET-TYPE 2	1500	5.9B	
722	3701	INLET SPECIAL-TYPE 2 48IN	1500	5.3B, 5.14C	
722	3761	INLET SPECIAL-TYPE 2 60IN	1500	5.4B, 5.14C	
722	3766	INLET SPECIAL-TYPE 2 72IN	1500	5.4B, 5.14C	
722	3768	INLET SPECIAL-TYPE 2 84IN	1500	5.4B, 5.14C	
722	3769	INLET SPECIAL-TYPE 2 96IN	1500	5.4B, 5.14C	
722	4005	INLET CATCH BASIN	1500	5.8B	
722	4108	INLET SPECIAL CATCH BASIN 48IN	1500	5.3B, 5.14	
722	6160	ADJUST INLET	2100	-	
722	6200	ADJUST MANHOLE	2100	-	
724	0210	FITTINGS-DUCTILE IRON	1300	5.3,5.4,5.5	
724	-	GATE VALVE & BOX <SIZE>IN	1300/2100	5.12	
724	0410	HYDRANT-INSTALL 5IN	1300	5.6,5.7	
724	-	PLUG <SIZE> IN WATERMAIN	1300	-	
724	-	WATERMAIN <SIZE> IN PVC	1300	-	
744	0050	INSULATION BOARD	1300	5.10	
748	0190	CURB & GUTTER-TYPE I 30IN	2100	5.12, 5.13	1
750	0030	PIGMENTED IMPRINTED CONCRETE	2300	-	1
750	0120	SIDEWALK CONCRETE 5IN REINF	2300	-	1-2
750	0140	SIDEWALK CONCRETE 6IN	2300	-	1-2
750	1000	DRIVEWAY CONCRETE	2300	-	3
750	2115	DETECTABLE WARNING PANELS	2300	-	2

3. REVISIONS TO THE CITY OF FARGO SPECIFICATIONS

SECTION 1000 EXCAVATION, TRENCHING AND BACKFILLING FOR UNDERGROUND WORK

Delete Section 2.5 Trench Foundation Material and Replace with the following:

Use Type II Pipe Bedding as directed by the Engineer to replace soft, spongy, or other unsuitable material encountered in the trench bottom when installing sanitary sewer, storm drain, or water main.

Use Type II Pipe Bedding for the last 10 feet of all future pipe stub connections for storm sewer and water mains.

Trench Foundation Material or references to “1 ¼” crushed rock” or “1 ¼” trench found rock” or “Type II Pipe Bedding” to meet the following gradation:

Sieve Size Percent Passing

1 ½ in (37.5 mm) 100

½ in (12.5 mm) 0 – 15

No. 4 (4.75 mm) 0 – 10

Delete Section 3.8.1 Rough Excavation and Replace with the following:

Rough excavation to be deep enough to provide at least three (3) inches of pipe embedment material as specified. Trenches to be of sufficient width to provide ample space for workmen to install the pipe. Minimum trench width of outside diameter of the bell plus 24 inches.

Delete Section 3.8.9 Maximum Trench Widths and Replace with the following:

It is the Contractor’s responsibility to ensure all trenches are constructed in a safe manner and in accordance with all legal requirements.

The trench width at the ground surface may vary with and depend upon depth, type of soils, and position of surface structures. The minimum clear width of the trench, sheeted or unsheeted, measured at the spring-line of the pipe shall be excavated to a width that will provide adequate working space to install the pipe and mechanically tamp embedment and encasement materials, but in no case less than the manufacturer’s recommendations or the outside diameter of the bell plus 24 inches. If the pipe is installed in a compacted embankment, compact pipe embedment to a point of at least 2.5 pipe diameters from the pipe on both sides of the pipe or to the trench walls, whichever is less.

Delete Section 4.2.3 Trench Foundation Material and Replace with the following:

Include all costs associated with dewatering, excavation, and disposal of unsuitable material in the price bid for “TYPE II PIPE BEDDING”. A quantity has been provided in the plans that represents 25% of the overall underground pipe length.

Delete Section 4.2.5 Gravel Backfill and Replace with the following:

All costs for installing and compacting Aggregate Base Course Class 3 (Modified) backfill shall be included with the price bid for "Pipe Conc Reinf <Size>IN CL III Storm Drain", "Pipe Conc Reinf 72IN CI II", "End Sect-Conc Reinf 52IN", "Pipe Conduit 18IN-Approach", and "Watermain <Size>IN PVC". Per 3.9.3 of Section 1000 specification, all pipes beneath pavements, driveways, parking areas, curbs, gutters, walks or other surface construction, road and highway shoulders, and all tunnel backfill shall be backfilled with compacted gravel the entirety of the trench. Storm sewer laterals, approach pipes, and watermain alignments not crossing a proposed concrete surface may be backfilled with excavated earth material.

Delete Section 3.9.1B, 3.9.4B, & 4.2.5C in entirety. "Water Settlement Backfill" will not be an acceptable backfill process.

SECTION 1300 WATER MAINS

Add the following to the end of Section 3.9 Disinfection:

Water samples will only be accepted at the City of Fargo Water Plant between the hours of 8 am and 4 pm, Monday through Thursday. In the event that the initial disinfecting fails to produce two consecutive sets of acceptable samples, the Contractor shall submit a plan for refushing, rechlorination, and resampling. This plan must be approved by the Engineer prior to the commencement of the work.

Add the following to the end of Section 3.5 Connections to Existing Watermains:

"6IN PVC Sewer Plug" & "Plug <Size>IN Watermain" bid item should include all the costs to perform the following:

Blow the pipe full of sand or pump the pipe full of controlled density backfill to prevent any future collapse or failure of the abandoned pipe.

SECTION 1500 STORM SEWERS

Delete parts of Section 2.1.2 Manufacture and Replace the following items.

Pipe Size Class
12" to 15" Class V, C Wall
18" Class V, B Wall

Add paragraph to the end of Section 2.1.3 Joints:

Pipe ties are required on a minimum of the last three (3) barrel joints before a flared end section and the flared end section.

Add paragraph to the end of Section 2.7 Inlets:

Inlets shall have a minimum 4.0 foot riser height. Fill the bottom of each drainage structure with concrete, up to the lowest invert elevation.

Add paragraph to the end of Section 4.2.3 Storm Sewer Manhole and Inlets:

Include the cost for the manhole risers with the price bid for "Manhole <Size>IN", "Inlet", "Inlet-Type 2", "Inlet Special-Type 2 <Size>IN", and "Inlet Special Catch Basin 48IN".

Delete Section 4.2.5 Flared-End Section (FES) and Replace with the following:

Install trash guard as shown in Section 1500 Drawing No. 5.16 on all end sections. Include all labor and materials necessary to install end sections and trash guards in the price bid for "End Sect-Conc Reinf 54IN", "Remove & Relay End Section-All Types & Sizes", and "Pipe Conduit 18IN-Approach".

SECTION 2100 CONCRETE PAVING AND CURBS & GUTTERS

Delete the last paragraph of Section 3.19 Casting to Grade (All) and replace with the following

All existing manholes and inlets that are adjusted to grade shall receive new adjusting rings from existing structure to casting. Include cleaning of construction debris or dirt from the manhole or inlet bottom and install a wiped mortar finish around the inside circumference of the precast concrete adjustment rings. All costs associated with the "Casting to Grade" item shall be included in the price bid for "Manhole <Size>IN", "Inlet", "Inlet-Type 2", "Inlet Special-Type 2 <Size>IN", "Inlet Catch Basin", "Inlet Special Catch Basin 48IN", "Adjust Inlet", and "Adjust Manhole".

Delete Section 4.2.7 Casting to Grade and replace with the following:

Adjust the casting with up to 4 rings (12Inches), including all sealant, wrap, or chimney seals specified herein. All costs associated with the adjustments to inlets and manholes shall be included in the price bid for "Manhole <Size>IN", "Inlet", "Inlet-Type 2", "Inlet Special-Type 2 <Size>IN", "Inlet Catch Basin", "Inlet Special Catch Basin 48IN", "Adjust Inlet", and "Adjust Manhole".

Delete Section 4.2.8 Valve Boxes to Grade and replace with the following:

All costs associated with adjustments to gate valve boxes located in the pave or boulevard should included in the price bid for "Gate Valve & Box <Size>IN".

SECTION 2300 CONCRETE SIDEWALKS AND DRIVEWAYS

Delete Section 2.11.1 Cast Iron Panels and replace with the following:

Install unpainted, cast iron plates manufactured by EJ Iron Works, Neenah Foundry, or approved equal. Tufile is not an approved equal for radial domes

Delete 2300 2.5 Concrete Proportions and replace with the following:

Concrete proportions and properties shall conform to the requirements of Section 2100.

Delete Section 3.7A Sidewalk and Impressed Concrete and Replace with the following:

Use a #4 deformed reinforcing bar placed 24" o.c. both ways on all sidewalks. The bar shall be six (6) inches shorter than the width of the slab and placed accurately at one-half depth of the slab. Use plastic chairs. Use four (4) #4 bars 10' long, centered over new utility trenches.

Delete Section 3.11 Expansion Joints and replace with the following:

All expansion material shall be ½ inch in thickness and be placed at intervals no larger than 150'. The "free" end of the smooth dowel shall be coated with an approved lubricant and covered with an approved metal or plastic dowel cap or sleeve.

Delete Section 3.10 Contraction Joints and replace with the following:

Saw contraction joints in a timely manner and construct per details in Section 20 of the plans. Saw longitudinal and transverse joints. Saw a centerline longitudinal joint on sidewalk 8' or wider per details in Section 20 of the plans. Match the existing elevation for newly placed concrete within +/- 1/8" of all adjoining concrete.

If uncontrolled cracking occurs, the concrete shall be completely removed to the nearest planned longitudinal and transverse joints. The removal and replacement method shall be approved by Engineer and at the Contractor's expense.

Newly placed concrete shall match the existing elevation (+/-1/8") of all adjoining concrete. Any placed concrete not properly matching elevations as deemed by the Engineer shall be removed and replaced at the contractor's expense. Include all items listed above in the price bid for "Sidewalk Concrete 5IN Reinf" and "Sidewalk Concrete 6IN".

Delete Section 3.13 ADA Curb Ramps and replace with the following:

Construct concrete landings as shown in Section 80 separately and prior to adjacent ADA ramps or sidewalk. Allow a minimum of 24 hour of cure time on the landings prior to placing adjacent concrete.

The boundary locations of proposed ADA ramps and the bottom of the curb transitions will be marked in the field by the Engineer. It shall be the responsibly of the Contractor to layout and construct all proposed ADA ramps in accordance with the details in Section 20 of the plans, Section 2300 of the City of Fargo Standard Specifications, and current Federal ADA Standards.

The Contractor shall use competent personnel and suitable equipment for the layout work required. The Contractors ADA ramp layout shall include the placement of the following:

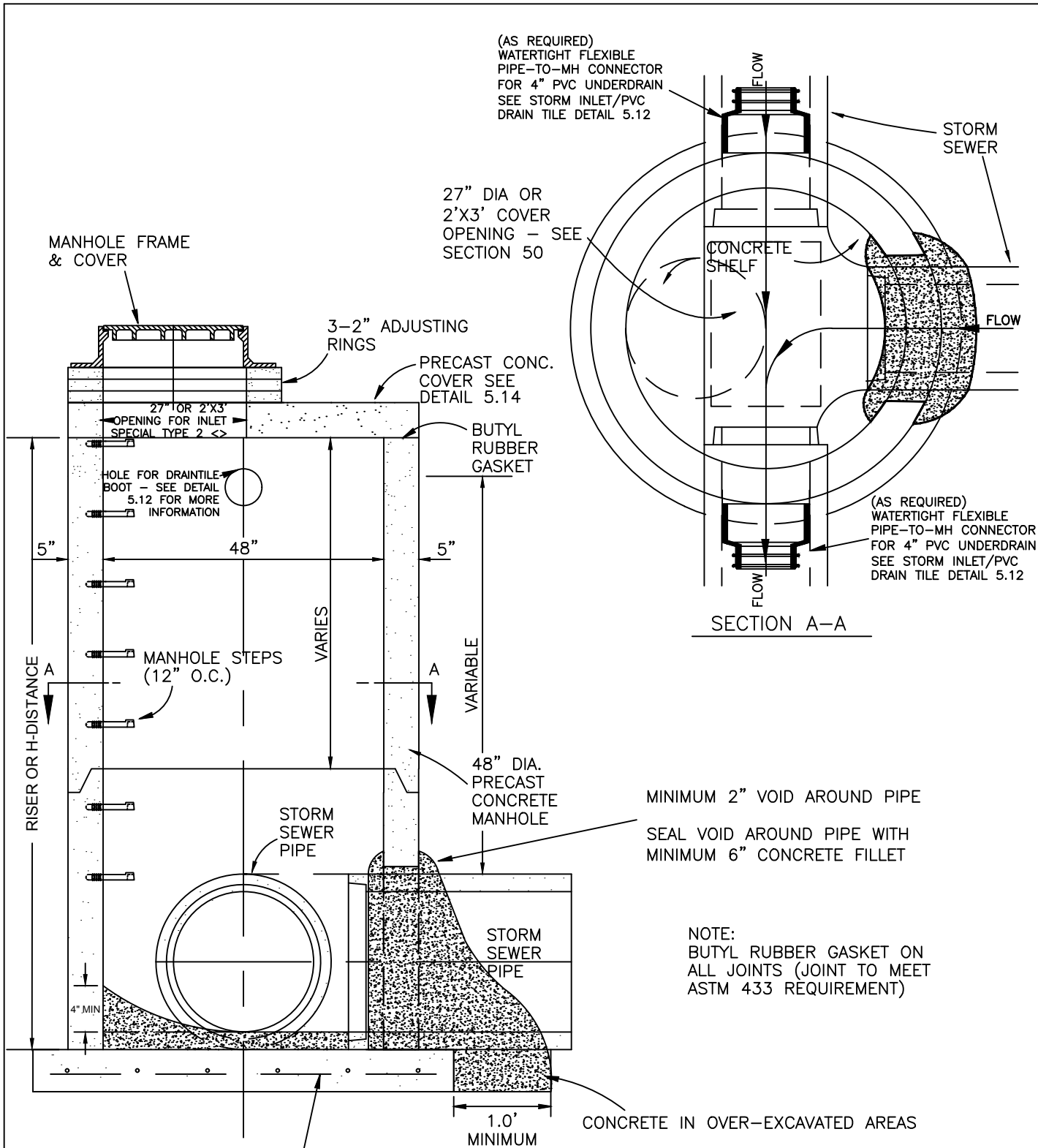
- A. Curb transitions
- B. Ramp flares
- C. Grade breaks
- D. Detectable warning panels
- E. Landing and ramp limits

If the Contractor constructs any ADA ramps that do not comply with ADA requirements or do not follow the agreed upon resolution with the Engineer, the Contractor shall be responsible for correcting the deficient ramp at Contractors expense. This layout work shall be incidental to sidewalk bid items.

REVISIONS TO THE CITY OF FARGO DETAILS (Not in Section 20 of the Plans)

Section 1500

- Drawing No. 5.3B Modified detail labeling Riser/H Distance. Removed cone section. Added 2'x3' opening to 48" manhole/inlet cover. Added drain tile boot detail to plan view section and 2'x3' opening to Section A-A for inlet.
- Drawing No. 5.4B Modified detail labeling Riser/H Distance. Removed cone section. Added drain tile hole to cross sectional view. Added 2'x3' opening label for 48" riser section. Added Type E, 108" inside diameter manhole to table.
- Drawing No. 5.4B1 Modified detail labeling Riser/H Distance. Removed riser section for "Manhole <Size>IN" bid items.
- Drawing No. 5.8B Modified detail labeling Riser/H Distance. Removed drain tile boot and opening. Specified Neenah R-4342 or EJ 6489 or approved equal for casting.
- Drawing No. 5.9B Modified detail labeling Riser/H Distance.
- Drawing No. 5.14C Centered cover opening for 48" riser section of "Inlet Special Type II <Size>IN".



(AS REQUIRED)
WATERTIGHT FLEXIBLE
PIPE-TO-MH CONNECTOR
FOR 4" PVC UNDERDRAIN
SEE STORM INLET/PVC
DRAIN TILE DETAIL 5.12

27" DIA OR
2'X3' COVER
OPENING - SEE
SECTION 50

MANHOLE FRAME
& COVER

3-2" ADJUSTING
RINGS

PRECAST CONC.
COVER SEE
DETAIL 5.14

27" FOR 2'X3'
OPENING FOR INLET
SPECIAL TYPE 2 <>

HOLE FOR DRAINTILE-
BOOT - SEE DETAIL
5.12 FOR MORE
INFORMATION

BUTYL
RUBBER
GASKET

5"

48"

5"

RISER OR H-DISTANCE

A

MANHOLE STEPS
(12" O.C.)

VARIES

A

VARIABLE

48" DIA.
PRECAST
CONCRETE
MANHOLE

MINIMUM 2" VOID AROUND PIPE

SEAL VOID AROUND PIPE WITH
MINIMUM 6" CONCRETE FILLET

NOTE:
BUTYL RUBBER GASKET ON
ALL JOINTS (JOINT TO MEET
ASTM 433 REQUIREMENT)

4" MIN

STORM
SEWER
PIPE

1.0'
MINIMUM

CONCRETE IN OVER-EXCAVATED AREAS

5'4" DIA.x 6" REINFORCED CONC.
BASE SLAB (NO. 4 BARS 12" O.C.)

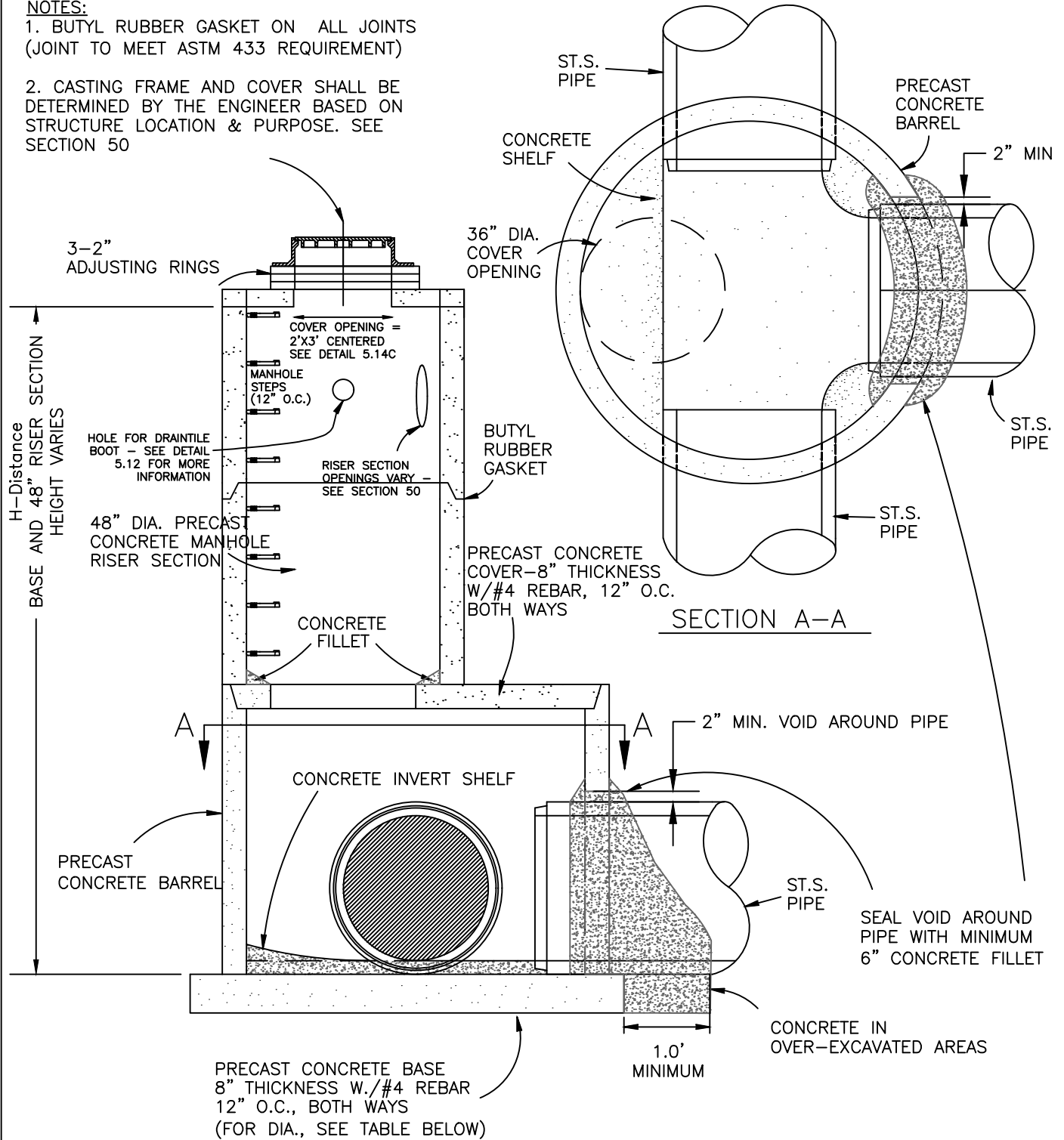
NOTES:

1. CASTING FRAME AND COVER SHALL BE DETERMINED BY THE ENGINEER. SEE SECTION 50.
2. MAXIMUM RCP DIA.-27" STRAIGHT THRU. MAXIMUM RCP DIA-18" AT RIGHT ANGLES.
3. ALL JOINTS AND LIFTING HOLES SHALL BE MORTARED.

SECTION NO.	1500	DRAWING NO.	5.3B
REV.D.	2020		
STORM SEWER STANDARD MANHOLE NDDOT MANHOLE 48IN & INLET SPECIAL 48IN			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED		DATE	

NOTES:

1. BUTYL RUBBER GASKET ON ALL JOINTS (JOINT TO MEET ASTM 433 REQUIREMENT)
2. CASTING FRAME AND COVER SHALL BE DETERMINED BY THE ENGINEER BASED ON STRUCTURE LOCATION & PURPOSE. SEE SECTION 50

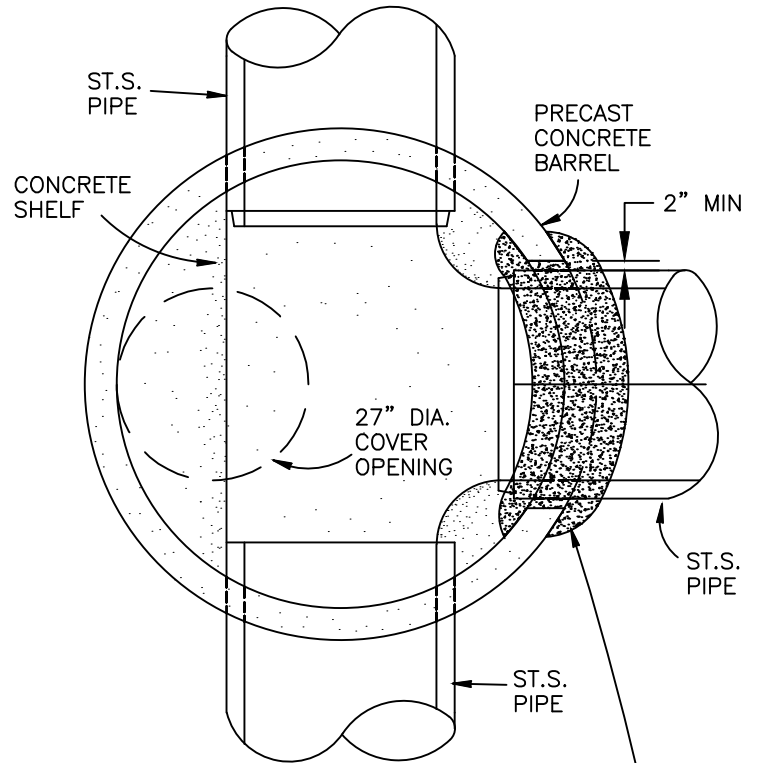


MANHOLE TYPE	(A) MANHOLE INSIDE DIA.	(B) MANHOLE OUTSIDE DIA.	MAXIMUM PIPE SIZES		
			0° ↘	90° ↘	135° ↘
A	60"	7'-0"	36"	24"	36"
B	72"	8'-0"	42"	33"	42"
C	84"	9'-4"	48"	36"	48"
D	96"	10'-6"	60"	42"	60"
E	108"	11'-8"	60"	42"	60"

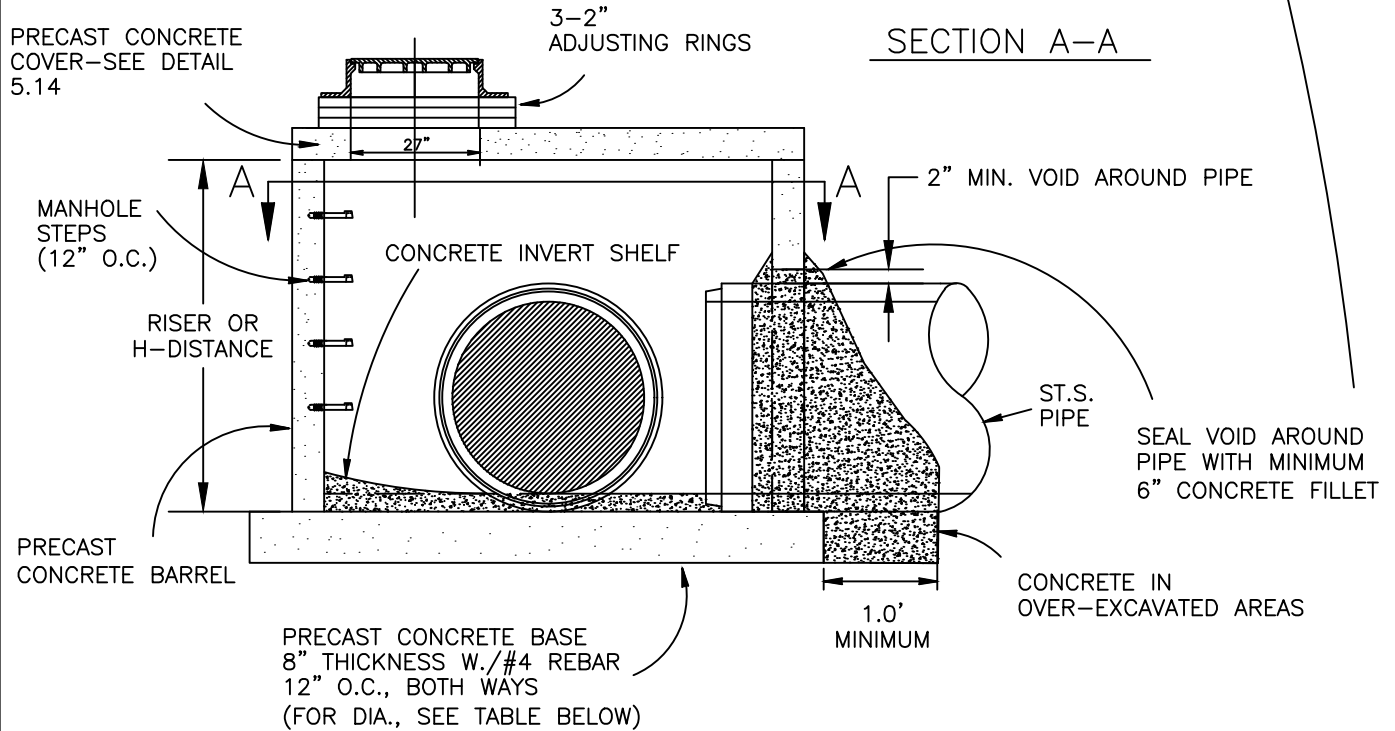
SECTION NO.	1500	DRAWING NO.	5.4B
REV.D.	2020		
NDDOT INLET SPECIAL TYPE "A-E" (60" TO 108")			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED	DATE		

NOTES:

1. BUTYL RUBBER GASKET ON ALL JOINTS (JOINT TO MEET ASTM 433 REQUIREMENT)
2. CASTING FRAME AND COVER SHALL BE DETERMINED BY THE ENGINEER BASED ON STRUCTURE LOCATION & PURPOSE.

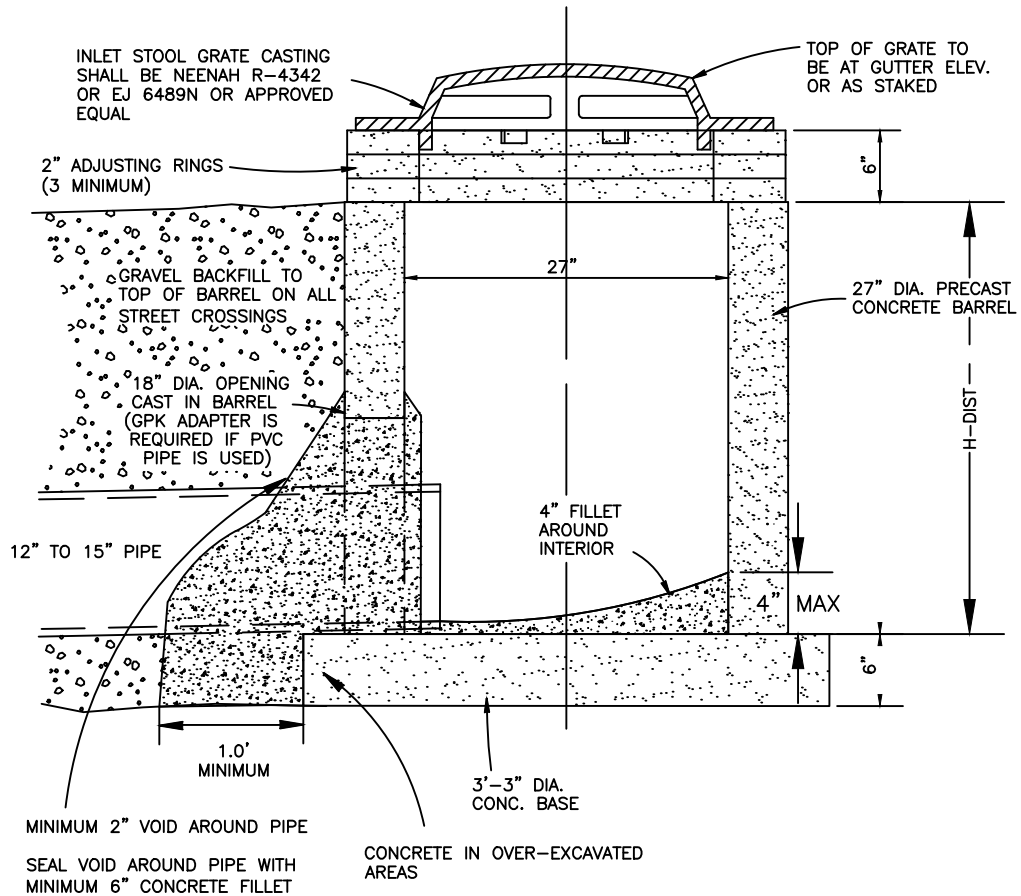
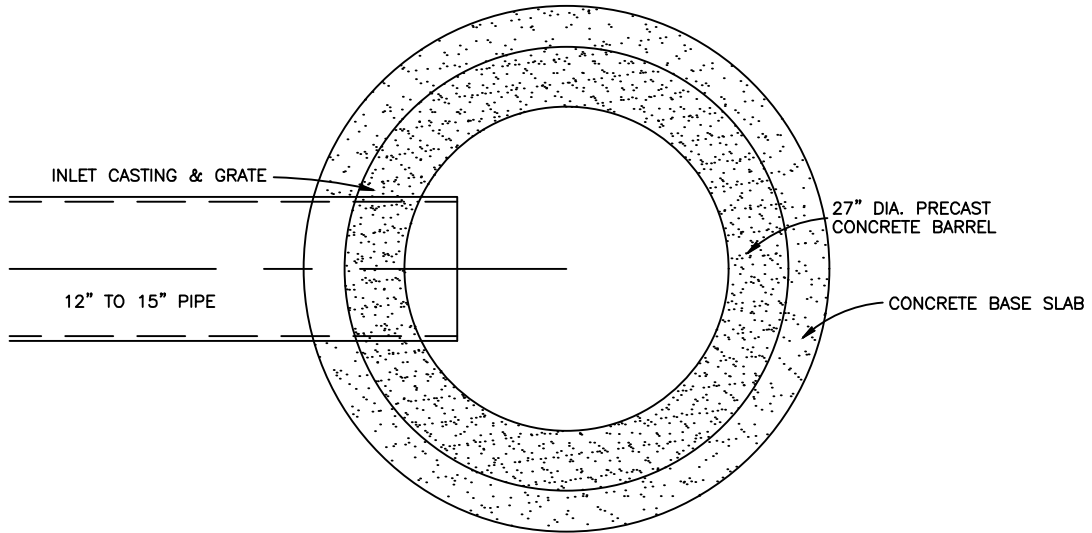


SECTION A-A



MANHOLE TYPE	(A) MANHOLE INSIDE DIA.	(B) MANHOLE OUTSIDE DIA.	MAXIMUM PIPE SIZES		
			0° ∅	90° ∅	135° ∅
A	60"	7'-0"	36"	24"	36"
B	72"	8'-0"	42"	33"	42"
C	84"	9'-4"	48"	36"	48"
D	96"	10'-6"	60"	42"	60"

SECTION NO.	1500	DRAWING NO.	5.4B1
REV.D.	2020		
STORM SEWER MANHOLE TYPE "A - D" NDDOT MANHOLE 60IN - 108IN			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED			DATE



SECTION NO. 1500 DRAWING NO. 5.8B

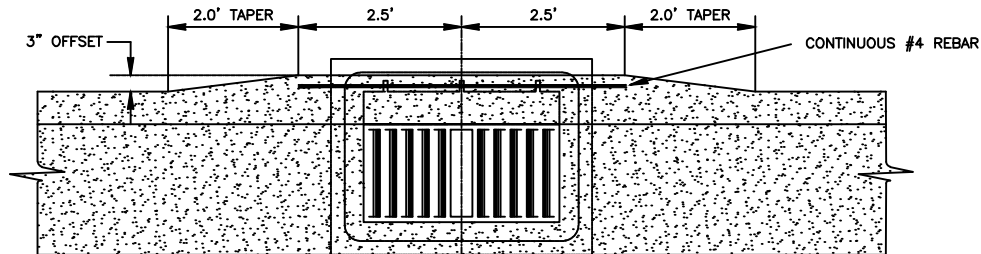
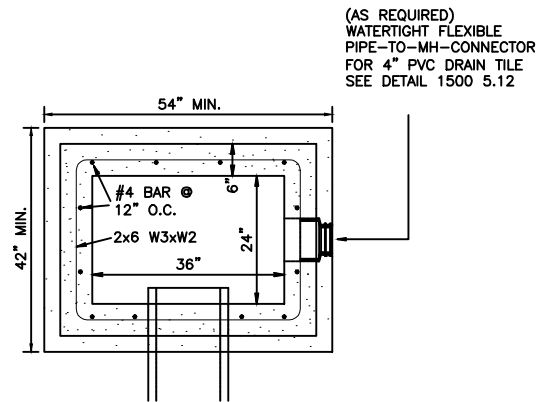
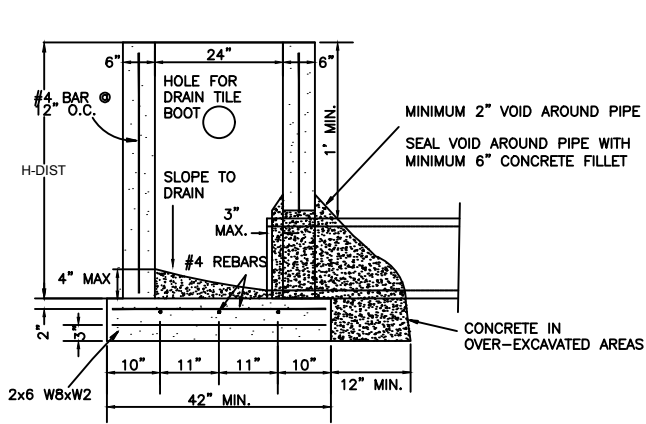
REV.D. 2020

**STORM SEWER
ROUND INLET (RDI)**

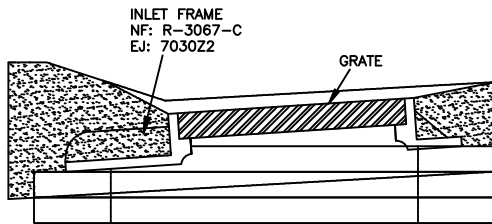
**CITY OF FARGO
ENGINEERING DEPARTMENT**

APPROVED

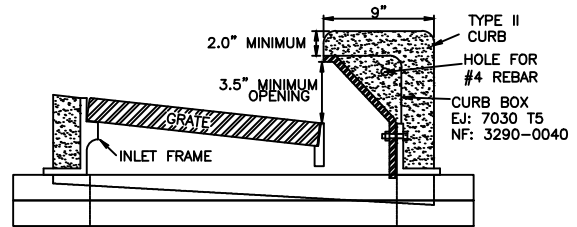
DATE



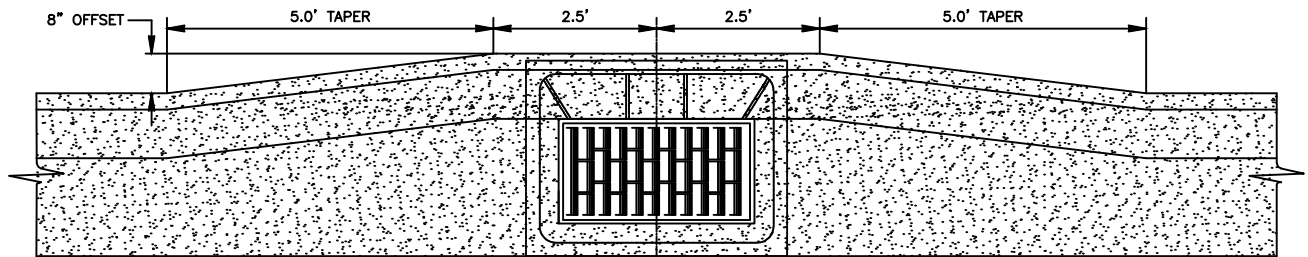
TYPE II CURB - PLAN VIEW



TYPE I CURB



TYPE II CURB



TYPE I CURB - PLAN VIEW

NOTES:

1. VERIFY FRAME, GRATE, & CURB BOX WITH INLET CASTINGS CHART IN SECTION 1500.
2. METAL USED IN THE MANUFACTURE OF CASTINGS SHALL CONFORM TO AASHTO M-105, CLASS 35B.
3. THE CONTRACTOR SHALL HAVE THE OPTION OF USING PRECAST OR POURED IN PLACE BASES. CLASS OF CONCRETE SHALL BE AE. THE AGGREGATE SIZE SHALL BE APPROVED BY THE ENGINEER IN THE FIELD.
4. PRECAST RISERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199.
5. ON PROJECTS WITH P.C.C. PAVEMENT ALL INLET RISERS OR BARRELS SHALL BE CONSTRUCTED 4 TO 5 INCHES BELOW FINAL ELEVATION AND ADJUSTED TO FINAL GRADE AFTER THE PAVING. ADJUSTMENT MAY BE DONE WITH ADJUSTMENT RINGS, MASONRY OR CAST-IN-PLACE. ALL COSTS FOR THIS ADJUSTMENT SHALL BE INCLUDED IN THE BID PRICE FOR THE INLET.

CURB BOX
STANDARD CURB - NEENAH 3290-0040 or EAST JORDAN T5

SECTION NO. 1500 DRAWING NO. 5.9B

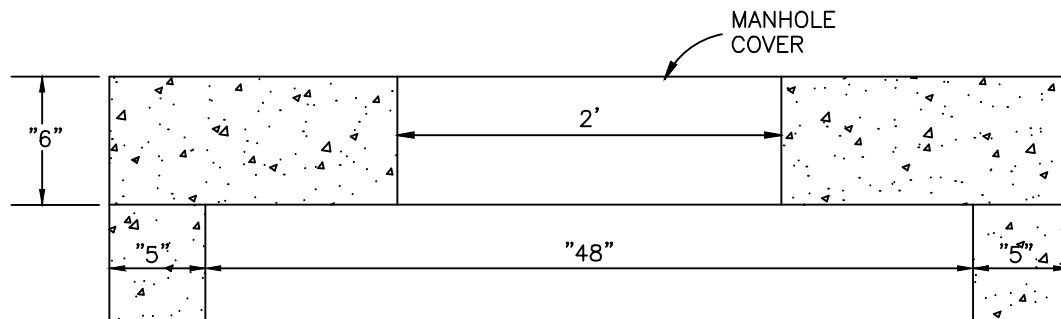
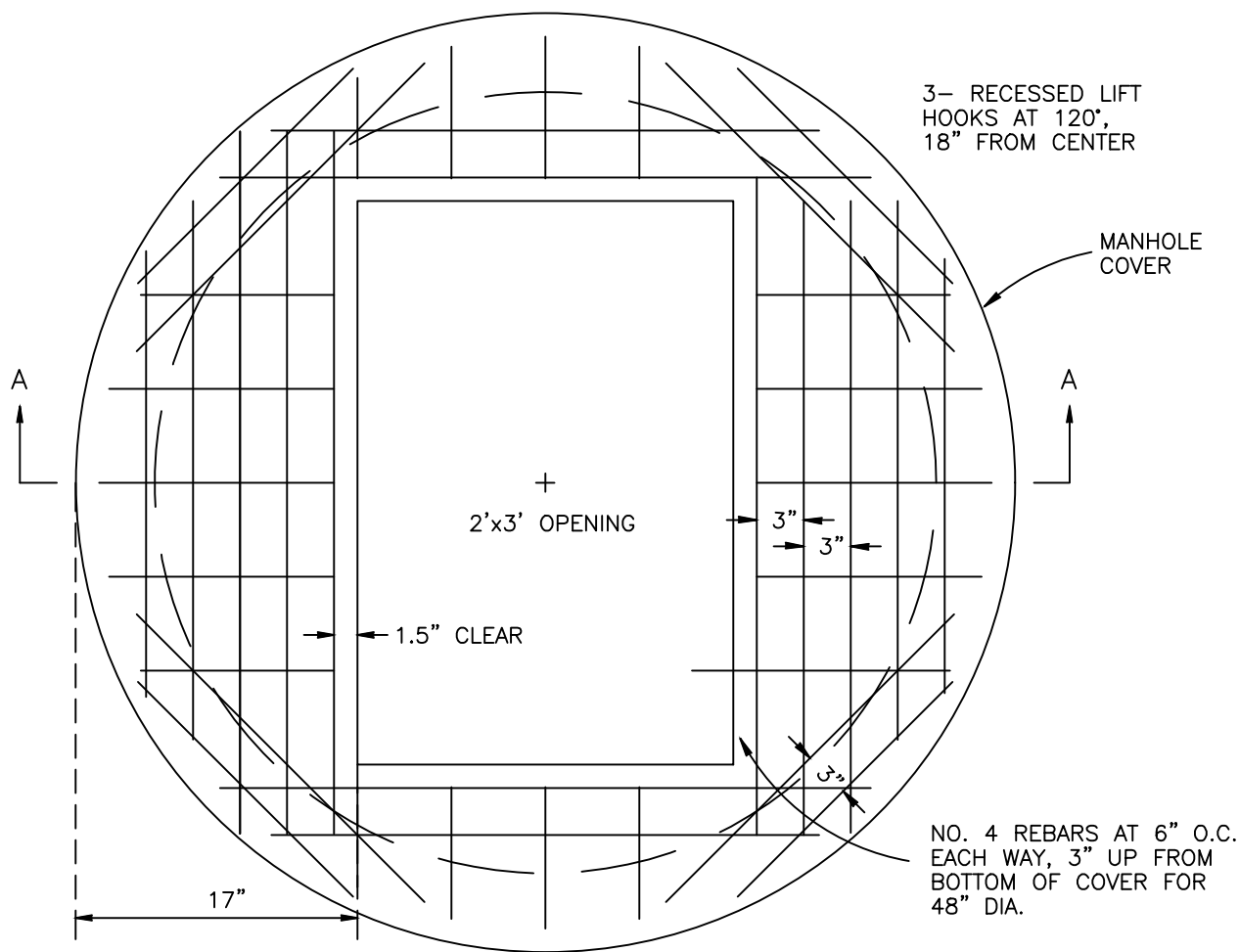
REV.D. 2020

**SINGLE BOX INLET
(SBI) DETAIL**

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED

DATE



SECTION A-A

TO BE USED WHEN
STRUCTURE IS LOCATED
IN GUTTER LINE

SECTION NO. 1500	DRAWING NO. 5.14C
REV.D. 2020	
48" MANHOLE COVER DETAIL (GUTTER)	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED	DATE

**CITY OF FARGO SPECIFICATIONS
EXCAVATION, TRENCHING, AND BACKFILLING
FOR UNDERGROUND WORK**

**PART 1
DESCRIPTION OF WORK**

The terms “Excavation” and “Trenching”, either individually or collectively, as used in these Specifications and other contract documents shall refer to and shall mean all material excavated or otherwise removed, in the performance of the specified work and all subsequent handling, backfilling, and/or disposing of such material. Excavation and trenching shall include site clearing and preparation where required, subgrade preparation, boring, tunneling, bell holes, all sheeting, shoring, and dewatering of trenches and excavations, protection of adjacent property, backfilling, pipe encasement, specified backfill compaction and consolidation, surfacing, final grading and dressing of the sites to the grades and elevations shown on the drawings or specified to be done, and other work necessary or required.

PART 2
MATERIAL

2.1. CLASSIFICATION OF EXCAVATED MATERIAL

No classification of excavated material will be made. Excavation and trenching work shall include all the removal and subsequent handling of all material encountered in the excavation limits.

2.2. SURFACE RESTORATION

Unless stated specifically to the contrary in the Special Instructions, the Contractor shall replace all surface material and shall restore paving, curbing, sidewalks, gutters, fences, sod, topsoil, and other items disturbed, to a condition equal to that before the work began; furnishing all labor, material, and equipment necessary to do this work. Traveled streets shall be kept open and maintained by the Contractor after the backfilling and before surfacing or final inspection. The cost of all such work shall be absorbed in the contract unit price for size of pipe being installed unless otherwise specified in the special instructions.

2.3. BARRICADES AND LIGHTS

When streets or public thoroughfares are impacted by construction activity, the public shall be protected by placement of adequate warning devices. All open trenches and other excavations shall be provided with suitable barrier signs and lights, to the extent that adequate protection is provided to the public against accident by reason of such open construction. Obstructions such as equipment and material piles shall be provided with similar warning signs and lights.

All barricades and warning devices shall be in accordance with Section 4100 of these Specifications.

2.4. PAVING REMOVAL AND REPLACEMENT

Whenever paving or sidewalk is encountered on the line of the pipe, it shall be cut through at such places and in such a manner as the Engineer may direct. Removals shall be in accordance with Section 1050 of these Specifications.

The Contractor shall maintain all paving cuts until paving is done. Temporary patching may be done with concrete, asphalt, stabilized gravel or any other method approved by the Engineer, except for temporary patches left over the winter, which shall be concrete. Permanent patches shall be subject to the warranty period specified in the contract.

A. ASPHALT PAVING

Asphalt paving that is removed shall be replaced in kind in accordance with Section 2400 of these Specifications.

B. CONCRETE PAVEMENT REPLACEMENT

Concrete pavement and concrete base pavement that is removed shall be replaced in kind in accordance with Section 2100 of these Specifications.

C. SIDEWALK REPLACEMENT

Concrete sidewalks removed on the line of the pipe shall be replaced in kind with new sidewalk. Sidewalk replacement shall be done in accordance with Section 2300 of these Specifications.

2.5. TRENCH FOUNDATION MATERIAL

Material used for stabilizing trench bottoms shall be 100% crushed rock and shall be sized 1-1/4" minus or as specified on the plans or bid sheet.

PART 3
CONSTRUCTION

3.1. LOCATION AND PROTECTION OF EXISTING UTILITIES

The location of the public or private utilities may be shown on the plans, as reported by the various utility companies and the City, but this does not relieve the Contractor of the responsibility of determining the accuracy or completeness of said locations. North Dakota law requires the Contractor to contact ND One-Call at 800-795-0555 prior to any underground interference. The Contractor shall protect all trees, shrubs, manholes, water shut-off, survey monuments, or any other existing utilities from damage. Any utilities that are damaged during the course of the work shall be repaired or replaced to the satisfaction of the Engineer at the Contractor's expense.

3.2. CONTRACTOR TO MAINTAIN TRAFFIC AND DRAINAGE

A. *TRAFFIC*

The Contractor shall conduct the work in such a manner as to interfere as little as possible with the use of the street for public travel, whether vehicular or pedestrian. When it is necessary to cross or interfere with roads, driveways, and walks, whether public or private, the Contractor shall at his own expense provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of travel, and shall give reasonable notice to owners of private drives before interfering with them; provided however, that such maintenance of traffic will not be required at any point where the Contractor has obtained permission from the owner and tenant of the private property, or from the authority having jurisdiction over public property involved to obstruct traffic at any designated point thereon and for the duration of whatever period of time as may be agreed on.

B. *DRAINAGE*

The trenches shall be smoothed to conform to the elevations and contours of the existing ground and all sod removed or damaged shall be replaced at the Contractor's expense. The backfilling of the trench shall be done in such manner as to prevent water from accumulating in unfilled or partially filled trenches. All ditches or other watercourses crossed by the line of the trench shall be restored to their original condition immediately

after backfilling in order that surface drainage will be obstructed no longer than necessary.

3.3. CLEARING, GRUBBING, AND TREE REMOVAL

Sites that are to be occupied by permanent construction or which are to be excavated and graded shall be cleared and grubbed of all stumps, trees, logs, brush and other vegetation and debris as may be required for the proper conduct and execution of the work.

Clearing, grubbing, and tree removal shall be in accordance with Section 1050 of these Specifications.

3.4. TOPSOIL

3.4.1. STRIPPING AND STOCKPILING

The Contractor shall remove and stockpile all topsoil in areas of excavation as delineated in the field by the Engineer in accordance with Section 1050 of these Specifications.

3.4.2. TOPSOIL SPREADING AND IMPORT

All topsoil shall meet the requirements specified in Section 2000 of these Specifications.

3.5. DISPOSAL OF EXCESS MATERIAL

All excess excavated material shall become the property of the Contractor and shall be disposed of away from the work site at such locations and in such a manner as the Engineer may direct. The Contractor shall furnish a dump person at no expense to the City. Broken concrete, asphalt, and other similar materials shall be separated from the earth fill and hauled to the City of Fargo landfill.

Stockpiling: On projects where the City retains ownership of the excess material at a site designated on the plans or special instructions, the Contractor shall stockpile the material. The costs to haul and shape the material to a drainable, mowable stockpile shall be included in the cost of other bid items.

3.6. EXCAVATION FOR STRUCTURES

Except where special construction on unstable soil is authorized, all structures shall be founded on and be in direct contact with undisturbed original subsoil; all unauthorized excavation below the specified structure subgrade shall be replaced by and at the expense of the Contractor, with concrete monolithic with that of the structure, slab or foundation above.

All excavations shall be kept dry to the extent that no pipe or reinforcing steel is installed in water and that no water will be allowed to rise over the reinforcing steel prior to the concrete being placed. No water shall be allowed to come in contact with any concrete within 12 hours after placing. Such lowering of the water level shall be maintained from subgrade preparation until after the concrete has been placed and hardened. In the case of trenches, the dewatering shall be done by means of well points or other acceptable means until the pipe has been laid and backfill has been completed to a stage where danger from flotation is eliminated.

The Contractor is responsible for the condition of any sewer, drain or other conduit which may be for drainage purposes and all such pipes or conduits shall be clean and free of all sediment before acceptance thereof by the Engineer.

Concrete forms shall be required above extended footings and excavations shall provide adequate clearance for their installation and removal. In no case shall excavation faces be undercut to provide for extended footings. Not less than 6 inches clearance shall be provided between excavation faces and brick or block masonry exterior wall surfaces that are to be plastered.

Subgrade soil for all concrete structures shall be firm, dense, and thoroughly consolidated and compacted; shall be free of mud and muck; and shall be sufficiently stable to remain firm and intact under the feet of the workmen. Where necessary, a layer of concrete of sufficient strength and thickness to withstand subsequent construction activity shall be installed below the specified subgrade elevation and the structure concrete placed thereon. Coarse gravel or crushed stone may be used for subsoil reinforcement if satisfactory results can be obtained thereby. Such material shall be applied in thin layers, each layer being entirely embedded in the subsoil by thorough tamping. All excess soil shall be removed to compensate for the displacement of the gravel or crushed stone and the finished elevation of any subsoil reinforced in this manner shall not be above the specified subgrade.

3.7. STRUCTURE BACKFILL

Backfilling around and outside of structures shall be adequately compacted, to the extent necessary to prevent future settlement, by tamping or by other means approved by the Engineer. Settlement by inundation with water will be permitted only where no damage could result to the structure from hydrostatic pressure or uplift. All backfill shall be earth only, with no vegetation or debris being placed in the backfill.

Mechanically compacted backfill shall not be deposited or compacted in water and shall consist of loose, damp earth having a moisture content such that maximum density of the compacted soil will be obtained. Moisture content shall be uniform throughout and where added, it shall be made in sufficient time in advance to ensure uniform distribution throughout the backfill.

3.8. TRENCH EXCAVATION

No more than 300 feet of trench shall be open at any one time in advance of the complete construction of the pipe installation. Ordinary excavation shall be open-cut from surface, however when depth of trench and soil conditions permit, tunneling may be required beneath crosswalks, driveways, curbs and gutters, pavement and other surface structures; for such tunneling no additional compensation will be allowed over the price for open-cut excavation.

All material excavated shall be deposited alongside the trench in a manner that will cause the least inconvenience to the public and be consistent with the rapid and economical handling of the work. Sidewalks, streets, driveways, and alleys shall be kept open to traffic and all trees shall be protected from injury.

3.8.1. ROUGH EXCAVATION

Rough excavation shall be deep enough to provide at least three (3) inches of pipe embedment material as specified. Trenches shall be of sufficient width to provide ample space for workmen to install the pipe and in no case shall the trench be less than 24 inches.

3.8.2. *HAND EXCAVATION*

Hand excavating tools and methods shall be used in locations where the use of mechanical equipment would cause damage to trees, buildings, culverts, utilities, or other structures above or below ground.

3.8.3. *TUNNEL EXCAVATION*

Tunnel sections shall provide adequate clearance for the proper installation of the pipe. All bracing, shoring, or sheeting necessary for the construction of the tunnel and the proper protection of the workmen therein shall be furnished and installed by the Contractor and, where and as required by the Engineer, shall be left in place. All tunnel backfill shall be of proper moisture content and condition to readily compact, and shall be thoroughly tamped and rammed into the annular space around the pipe.

3.8.4. *ALIGNMENT, GRADE, AND MINIMUM COVER*

The alignment, grade and elevation shall be fixed and determined by means of offset stakes located by the Engineer. The minimum cover over water lines and the minimum separation from sewer lines shall be in accordance with Section 1300 of these Specifications. Care should be taken to maintain depth of cover under ditches, vertical curves, gutters and on service lines. Cover over sewers and sewage force mains shall be as shown on the plans and as staked by the Engineer.

3.8.5. *REPLACEMENT OF UNSUITABLE PIPE FOUNDATION MATERIAL*

When, in the sole opinion of the Engineer, the trench bottom is not suitable to provide a uniform base for the pipe, the trench shall be undercut to sufficient depth to build an acceptable base.

3.8.6. *ARTIFICIAL TRENCH FOUNDATIONS*

Whenever so ordered by the Engineer, the Contractor shall excavate to such depth below grade as the Engineer may direct and the trench bottom shall be brought to grade with such artificial material(s) as the Engineer may order installed. All timber, concrete foundations, wooden invert, pipes, posts, stringers, and/or saddles made necessary by quicksand or other treacherous soil, shall be installed as directed by the Engineer.

3.8.7. DEWATERING OF TRENCHES

Pipe trenches shall be kept free from water during excavation, grading, pipe laying and embedment in an acceptable manner. When the trench bottom is unstable due to ground water, and in all cases where the static ground water level is above the bottom of the trench or bell hole excavation, such ground water shall be lowered by means of well points and pumps or by other means acceptable to the Engineer, to the extent necessary to keep the trench free from water and the trench bottom stable at all times the work is in progress. The disposal of the wastewater from trench dewatering operations shall be piped/routed to existing drainage ditches, channels or drains, subject to the approval of the Engineer. Surface water shall be diverted to prevent it from entering trenches to the greatest extent possible without damage to adjacent property from dikes, ditches, or impounded water. The ND Storm Water Permit shall govern dewatering methods.

3.8.8. FINISH GRADING OF TRENCH BOTTOM

Trench bottoms shall conform to the grade and elevation to which the pipe is to be laid and the gravel bedding shall be accurately compacted, graded, and shaped to provide uniform bearing and support for each pipe along its length between bell holes before the pipe is laid in the trench.

In the event that after placing the pipe in the trench it is found that the prepared trench bottom is not at the proper elevation, the pipe shall be removed and the grade corrected. In no case shall the pipe be raised from and dropped in the trench bottom for the purpose of lowering a subgrade that is too high.

A. BELL HOLES

Bell holes in the trench bottom shall be dug after the trench has been graded. Each bell hole shall be dug immediately prior to placing the pipe in the trench. Regardless of the type of joint, all bell holes shall be of sufficient depth and size that the joints can be properly made with no part of the pipe bell in contact with the trench bottom.

A.1. SANITARY AND STORM SEWERS

Bell holes shall not be longer than 1/4 of the pipe laying length nor exceed 18 inches.

A.2. WATER LINES

Bell holes shall be large enough to properly make the joint, and no part of the pipe bell is in contact with the pipe bottom.

B. EXCAVATION FOR CONCRETE ENCASEMENT OR EMBEDMENT OF THE PIPE

Where concrete encasement or embedment is required, trench subgrade elevation will be determined by the thickness of the required concrete section. The horizontal dimension shall be at least the minimum trench width permitted for the pipe being laid and shall extend the full width of the trench as excavated and shall be poured against vertical trench walls. In the case of a sheeted trench, the concrete shall be poured against sheeting that has been left in the trench.

3.8.9. MAXIMUM TRENCH WIDTHS

Trenches shall be excavated to a width that will provide adequate working space to install and embed the pipe. However, in order to protect the pipe from loading in excess of design conditions, the width of the lower portion of the trench to a point 6 inches above the pipe shall not exceed 24" plus the outside diameter of the bell.

3.8.10. UNAUTHORIZED TRENCH WIDTHS

Where, for any reason, the width of the lower portion of the trench exceeds the maximum permitted, pipe of adequate design, special pipe embedment, rock encasement, or arch concrete encasement as required by loading conditions and as determined by the Engineer shall be furnished and installed by the Contractor at his sole expense. The determination of necessary pipe, special embedment or arch concrete encasement shall be based on pipe strength equal to the minimum three-edge bearing ultimate strength stipulated in the governing pipe specification for the size and type of pipe involved. Trench loading will be based on saturated backfill weighing 120 pounds per cubic foot with suitable allowances for trench or other live loads where required.

3.8.11. TRENCH BRACING AND SHEETING

Sheeting, bracing, or pulling a trench box or shield shall be used and maintained where necessary to comply with City, County, State and Federal regulations to protect personnel & property on the job. The cost of such sheeting, unless a special price is called for in the contract, shall be included in the bid price per foot of pipe. In order to meet trench width provisions, it is not possible for the trench box or shield to be on grade at the bottom of the pipe. The box shall be made to rest on a ledge cut along each side of the top of the pipe, and a narrower and deeper trench shall be cut inside the box to accommodate the bedding material, pipe, and backfill material up to the top of the pipe. This installation is necessary to maintain the strength of the flexible pipe and pipe envelope and to prevent excessive deflection when the box is moved forward and the pipe trench is backfilled.

In the event it is necessary to extend sheeting or bracing to the bottom of the trench, all materials used therein, except cross braces that interfere with the pipe installation, shall be left in place. Where sheeting is left in place, it shall not be braced against the pipe, but shall be supported by stakes driven into the trench bottom on each side of the pipe and with tops of the stakes supported by cross braces above the top of the pipe or by other means, approved by the Engineer, which will not result in the application of concentrated loads or horizontal thrust on the pipe. These cross braces may be removed after the specified pipe encasement has been completed beyond the point of cross brace removal.

3.8.12. SHEETING LEFT IN TRENCH

The Contractor may make written request to the Engineer for permission to leave timber in a trench and receive payment for the same. Such request must state location, the amount of timber, and the reason for leaving it in the trench. When such request is made and granted, payment shall be made only for the timber left in the trench at current prices in the City of Fargo. No timber shall be left in the trench without written order of the Engineer.

3.8.13. DISPOSAL OF EXCESS EXCAVATED MATERIAL

All excess material removed from trenches shall be disposed of at such location and in such manner as the Engineer may direct. Any material loaded, hauled, and dumped within a two (2) mile radius of the project shall be done by and at the expense of the Contractor. The Contractor shall level the dumpsite to the satisfaction of the Engineer.

3.9. HAUNCHING, ENCASEMENT, AND TRENCH BACKFILL

The bedding material shall be placed so that after the pipe is laid, the bedding will extend up the sides of the pipe a distance of 1/2 the pipe diameter, where the material shall then be shovel-sliced and tamped with mechanical tamping equipment to provide uniform bearing along the entire length of pipe.

Generally, most of the trenches backfilled in the City of Fargo will be backfilled with the excavated material, however in certain cases, special types of backfill will be used. No trench backfill containing rock or detritus from rock excavation shall be placed in the upper 12 inches of the trench nor shall any rock, stone, concrete or boulder larger than 8 inches be placed within 6 inches of any portion of installed pipe. Large stones or concrete pieces may be placed in the remainder of the trench backfill only if well separated and so arranged that no interference with backfill settlement will result.

3.9.1. TYPES OF BACKFILL AND ENCASEMENT MATERIAL

A. COMPACTED EARTH BACKFILL

Compacted earth backfill shall be free from sticks, large roots, or other organic material coarser than grass roots, stones, hard lumps, and clods and shall have a moisture content such that optimum compaction is obtained when PROPERLY TAMPED OR ROLLED.

B. UNCOMPACTED OR WATER SETTLED EARTH

All earth backfill not required to be tamped or rolled, including all earth backfill settled with water, shall be free of brush, roots more than 2 inches in diameter, or other organic material that would interfere with proper settlement and consolidation.

C. GRAVEL OR SAND BACKFILL

Gravel for backfill shall meet the requirements for ND Class 3 with the Number 200 sieve requirement modified to be 3-15% passing. When the aggregate does not meet the gradation specified for all required samples, a reduction in the contract unit price will be made for such material in accordance with the acceptance requirements for Aggregate Base outlined in the current version of the NDDOT Standard Specifications for Road and Bridge Construction.

D. PIPE ENCASEMENT

All gravel for pipe encasement shall meet the requirements specified above.

E. CONCRETE ENCASEMENT

All concrete for encasement shall be 3000 psi Portland Cement Concrete.

3.9.2. PIPE ENCASEMENT METHODS

A. GRAVEL ENCASEMENT AND HAUNCHING

The pipe shall be bedded and encased in gravel encasement as specified. After the pipe has been graded, aligned and joined, sufficient gravel encasement material shall be deposited and compacted under and around each pipe in 6" lifts with mechanical tamping equipment to firmly support and hold the pipe in position during subsequent pipe laying activity. Gravel encasement material shall be deposited in such a manner that it is scattered along the pipe and not dropped in a compact mass.

All pipe and bells shall be covered with a minimum of 3 inches of gravel above the pipe. The gravel shall not be "humped" over the pipe but shall be level from one side of the trench to the other.

For concrete storm sewers, gravel encasement shall only be required to 1/2 way up on the pipe. PVC and PP storm sewer shall be covered with a minimum of 3" of gravel above the pipe.

B. CONCRETE ENCASEMENT

The pipe shall be encased in concrete when called out on the plans or as determined by the Engineer. Materials shall be as specified and constructed as directed by the Engineer.

Loose material shall be removed from the trench and the concrete placed with continuous contact with undisturbed soil on the sides and bottom of the trench. A base course of concrete shall be screeded to a level that ensures the pipe to be at the specified grade. Each length of pipe shall be held in rigid alignment and braced to prevent flotation. The pipe joints shall be carefully sealed to prevent entrance of concrete mortar and water into the joints. The cementing or sealing of the joints shall be done at least one hour before the encasement is poured.

3.9.3. BACKFILLING ABOVE PIPE ENCASEMENTS

Normal backfill above pipe encasement shall be done with excavated earth backfill and compacted. Compacted gravel backfill above encasement for the entire depth of the trench will be required beneath pavements, driveways, parking areas, curbs, gutters, walks or other surface construction; road and highway shoulders; and all tunnel backfill, except where a clay capped trench is required (see standard details).

The locations of compaction tests will be determined by the Engineer in the field. The Contractor shall assist with, and make all necessary accommodations for compaction and material testing at no additional compensation.

3.9.4. COMPACTION METHODS

A. STANDARD COMPACTION OF BACKFILL

The backfill shall be compacted to 90% of Standard Proctor Density for areas outside the street right-of-way and 95% of Standard Proctor Density for all trenches located in street right-of-ways unless otherwise noted on the plans or special instructions. Moisture content shall be between optimum and +6% of optimum for earth backfill and between 4% of dry weight and optimum for gravel backfill. Where excessive ground moisture is encountered, the Engineer

may relax the earth backfill moisture requirements, in which case the Contractor shall provide compactive effort satisfactory to the Engineer to achieve compaction as close to zero-air voids as possible.

Before any compaction is begun, two (2) feet of backfill shall be placed over the encasement to prevent damage to the installed pipe. Backfill shall be compacted in successive 12-inch layers. If pneumatic hand tampers are used, the backfill shall be installed in 6-inch layers. Pneumatic tampers are to be used only in areas that are not accessible to heavier duty or motorized compaction equipment. The Contractor shall take special care to uniformly compact all portions of the trench, particularly the valve boxes and manholes, as he is responsible for damage caused by future settlement due to improper compaction.

B. WATER SETTLEMENT OF BACKFILL

Earth, gravel and sand backfill may be compacted by the water settlement or “flushing” method where permitted by the special instructions or by the Engineer and where water and fire hydrants are available. Water shall be applied in a manner that will use a minimum of water yet provide effective settlement of the backfill. In no case shall the trench be allowed to overflow or water to be wasted. Generally, the water shall be introduced into the bottom of the trench as quickly as possible by forcing the hose vertically downward in the trench and regulating the flow to promote consolidation.

3.10. FINAL INSPECTION

After the Contractor has completed the installation of the public facility and any clean-up items, he shall make a written request to the Engineer for a final inspection. Upon receipt of this request, the Engineer will set a date and time for the final inspection. The final inspection request form can be found on the City’s website.

PART 4
GUARANTEE, MEASUREMENT & PAYMENT

4.1. GUARANTEE

The guarantee shall be per the contract, and shall include trench settlement. When settlement occurs during the guarantee period, the Contractor shall fill the settled area with imported topsoil and reseed, or repair settled curb, pavement, etc. as applicable, at no additional cost to the City.

4.2. MEASUREMENT AND PAYMENT

4.2.1. EXCAVATION AND BACKFILL FOR STRUCTURES

All costs for excavating and backfilling of structures shall be included in the cost of the structure unless indicated as a separate bid item on the bid sheet. Where gravel is indicated as a separate bid item on the bid sheet, it will be measured and paid for on a cubic yard basis.

4.2.2. TRENCHING

The cost of trenching and subsequent handling of the material regardless of character or condition shall be included in the contract unit price for the pipe per linear foot in place.

4.2.3. TRENCH FOUNDATION MATERIAL

The contract unit price for "Trench Found" for the size of pipe being installed shall include all costs for removal of unsuitable material and replacement with material meeting the specifications for Foundation Material.

Where no bid item exists, the Contractor will be paid the actual cost of the delivered foundation material plus 15%, with no allowance for excavation nor the installation of the material.

4.2.4. ARTIFICIAL TRENCH FOUNDATIONS

Where not otherwise provided for in the special instructions or on the bid sheet, compensation for extra excavation and artificial trench foundations shall be made in accordance with Section 9000 of these Specifications.

4.2.5. BACKFILL

Backfilling of trenches will be paid as follows:

- A. STANDARD COMPACTION OF BACKFILL: All costs for standard compaction of backfill shall be included in the contract unit price for the size of pipe being installed.

- B. GRAVEL BACKFILL: All costs for installing and compacting gravel backfill shall be included in the “w/Gravel Backfill” contract unit price for the size of pipe being installed. The contract unit price shall include the cost of loading, hauling, and dumping of the excavated material.

In the event no “w/Gravel Backfill” bid item is provided on the bid sheet for the size of pipe being installed with gravel backfill, gravel backfill will be paid for by the cubic yard as an extra to the contract. The Contractor will be paid the actual cost of the gravel backfill material plus 15% with no allowance for the installation. The cubic yards of gravel will be calculated by multiplying the length of the trench by the height as measured from the top of the pipe encasement to the bottom of the existing pavement (or top of gravel if not under hard surfacing). This product will then be multiplied times the average width; however the width shall not exceed the outside diameter of the pipe bell plus 24 inches at the bottom of the trench and 48 inches plus the outside diameter of the pipe at the top.

- C. WATER SETTLED BACKFILL: All costs for this type of backfilling shall be included in the contract unit price for the size of pipe being installed.

4.2.6. GRAVEL ENCASEMENT

All costs of furnishing and placing the gravel encasement shall be included in the contract unit price for the size of pipe being installed.

4.2.7. CONCRETE ENCASEMENT OF PIPE

If concrete encasement is shown on the plans and not included as a separate item on the bid sheet, its cost shall be included in the contract unit price for the size of pipe being installed. In cases where unforeseen conditions warrant the use of concrete encasement and such has not been included on the plans or bid sheet, it will be paid for in accordance with Section 9000 of these Specifications.

4.2.8. PAVEMENT AND SIDEWALK REMOVAL AND REPLACEMENT

If pavement or sidewalk removal is shown on the plans and not included as a separate item on the bid sheet, its cost shall be included in the contract unit price for the size of pipe being installed. In cases where a separate bid item exists for pavement or sidewalk removal and replacement, the maximum width of concrete or asphalt pavement that will be paid for is 48 inches plus the outside diameter of the pipe bell. Any removal in excess of these limits will be at the expense of the Contractor unless the Engineer designates additional removal.

4.2.9. TREE REMOVAL

Tree removal shall be in accordance with Section 1050 of these Specifications.

4.2.10. CLEARING AND GRUBBING

Clearing and Grubbing shall be in accordance with Section 1050 of these Specifications.

4.2.11. *TOPSOIL*

Topsoil will be paid as follows:

A. TOPSOIL STRIPPING:

Topsoil stripping shall be in accordance with Section 1050 of these Specifications.

B. TOPSOIL SPREADING:

Topsoil spreading shall be in accordance with Section 2000 of these Specifications.

C. TOPSOIL IMPORT:

Topsoil import shall be in accordance with Section 2000 of these Specifications.

**CITY OF FARGO SPECIFICATIONS
WATER MAINS**

**PART 1
DESCRIPTION OF WORK**

The work to be done under this section of the Specifications and the accompanying plans consists of the furnishing of all labor, material, accessories and equipment necessary to construct water mains in the City of Fargo. The work includes excavation, furnishing, laying and jointing pipe; making connections to existing water mains as necessary; installing new valves, valve boxes, or valve manholes; installing hydrants; protecting existing utilities and public and private property; backfilling trenches and other work as may be necessary to in order that the work may be completed in accordance with these Specifications and the plans accompanying them.

PART 2
MATERIALS

All products (treatment chemicals and material) that may come into contact with water intended for use in a public water system shall 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.

2.1. POLYVINYLCHLORIDE (PVC) PRESSURE PIPE

2.1.1. MATERIAL

The PVC material shall conform to the requirements of ASTM D-1784, Class 12454-B.

2.1.2. PIPE MANUFACTURE

The pipe shall be marked to indicate compliance with NSF 61, Factory Mutual (FM) and be either marked or tagged with the Underwriter Laboratory (UL) approval. All PVC pressure pipe shall be manufactured in accordance with the latest revision of AWWA Standard C900. The pipe shall be DR 18.

2.1.3. PIPE JOINTS

PVC pipe joints shall be rubber gasketed conforming to the requirements of ASTM D-3139-98 or the latest revision.

2.2. DUCTILE IRON PIPE

2.2.1. MATERIAL

Ductile iron pipe shall conform to AWWA C-151 Standards.

2.2.2. PIPE MANUFACTURE

Ductile iron pipe shall be American made and conform to a Class 53 standard thickness class unless otherwise specified.

2.2.3. PIPE JOINTS

Ductile iron pipe joints shall be slip joints with rubber gaskets and meet AWWA C-111 Standards.

2.2.4. LINING

The ductile iron pipe shall be lined with cement mortar in accordance with AWWA C104. Cement for mortar shall be Portland Cement conforming to current ASTM specifications. The thickness of the lining shall not be less than the following:

1/16" for 3 to 12 inch pipe

3/32" for 14 to 24 inch pipe

1/8" for pipe larger than 30 inches

2.2.5. PIPE COATINGS

Ductile iron pipe shall be coated with a 1 mil asphaltic coating.

2.2.6. POLYETHYLENE WRAP

All ductile pipe shall be wrapped with polyethylene plastic film having a minimum thickness of 8 mils or with a cross woven polyethylene plastic film having a minimum thickness of 4 mils. All water service taps on ductile iron main shall be wrapped for a minimum distance of 3 feet from the water main.

2.3. FITTINGS

All fittings shall be PVC or Ductile Iron, and shall be “push-on” or “slip-joint” unless specified otherwise in the plans or special instructions to bidders. Cast iron fittings will be used only when approved by the Engineer.

2.3.1. PVC FITTINGS

PVC fittings shall be injection molded conforming to the requirements of AWWA C-907 and carry a working pressure of at least 150 psi. Molded fittings shall be made of PVC compound with a minimum hydrostatic design basis of 4,000 psi.

2.3.2. DUCTILE IRON FITTINGS

Ductile Iron fittings shall conform to AWWA C153, and shall be cement mortar lined on the interior and bituminous coated on the exterior. Cement lining shall conform to AWWA C104, and joints shall conform to AWWA C111. All ductile iron fittings shall be wrapped with polyethylene plastic film as specified for the ductile iron pipe, which must be securely fastened to the pipe on each side of the fitting. Mechanical joint fittings, where allowed by the Engineer, shall be bid complete with gaskets, glands, and stainless steel bolts.

2.3.3. COUPLINGS

All pipe couplings up to and including 12” in diameter shall be epoxy coated ductile iron meeting or exceeding the requirements of ASTM A 536, grade 65-45-12. Couplings shall meet the requirements of AWWA Standard C219. The coupling shall carry a minimum working pressure of 300 psi, having end rings that are segmented and joined with a pinless hinge, gaskets formed from virgin Nitrile Butadiene Rubber (NBR) compounded for water and sewer service in accordance with ASTM D2000, and 304 stainless steel armor. Fasteners shall be 304 stainless steel.

Couplings up to and including 12” in diameter shall be Romac Macro HP, Hymax DI High Pressure, or approved equal. Couplings larger than 12” shall be mechanical-joint long body sleeves meeting the requirements of AWWA C153.

2.4. GATE VALVES

2.4.1. GENERAL

Cast iron resilient-seated gate valves and tapping valves shall conform to the latest requirements of AWWA C509. Ductile iron resilient-seated gate valves and tapping valves shall conform to the latest requirements of AWWA C515. The valve seats shall be able to withstand 200 psi and the body shall withstand 400 psi.

2.4.2. CONSTRUCTION

Size:	4" to 36"
Joints:	Joints shall be provided with AWWA standard bell ends, flanged ends or mechanical joint bell ends as required for the type of pipe being used.
Gaskets:	Rubber.
Operation:	Open left (counter clockwise) w/ 2 inch operating nut.
Bolting:	All body bolts shall be stainless steel.
Stem & seals:	The stem shall be made of bronze and shall have two "O" rings to provide sealing.
Coating:	All valves shall be coated inside and out in accordance with the latest revision of AWWA C-550.

Acceptable manufacturers are American Flow, Clow, Mueller, U.S. Pipe or Waterous.

16" and larger valves shall be installed horizontally with bevel gear actuators.

*2.5. VALVE BOXES**2.5.1. GENERAL*

Valve boxes are required on all valves. All valve boxes shall be heavy-duty cast or ductile iron in accordance with ASTM A 48 30B material specification with a minimum tensile strength of 30,000 psi, have screw type adjustment, 5 1/4" shaft, and be furnished with heavy-duty cast or ductile iron bases and covers. Covers shall be made in the USA and cast with "WATER" on them. Valve boxes shall be three-piece type, adjustable from 62 to 82 inches in height, except that they shall in all cases be supplied and installed with a sufficient quantity of additional intermediate section(s) to allow the top of the installed box to be set at finished grade at mid-height of adjustment.

2.5.2. VALVE BOX ADAPTOR

Rubber valve box adaptors shall be installed for all valve boxes on all gate valves and butterfly valves. The adaptor shall be the Valve Box Adaptor II as manufactured by Adaptor, Inc. or as approved by the Engineer.

2.6. TAPPING SLEEVES AND VALVES

Valves shall be in accordance with the latest revision of AWWA C-509. The sleeves shall be mechanical joint with stainless steel bolts or stainless steel tapping sleeves with a stainless steel flange.

*2.7. HYDRANTS**2.7.1. GENERAL*

Hydrants shall be non-jacket types meeting the latest revision of AWWA C-502. All hydrants shall be equipped with a break-off traffic flange and shall be capable of being extended in 6" increments.

2.7.2. CONSTRUCTION

Main valve opening: 5" minimum.

Hydrant barrel: 7 3/8" minimum inside diameter.

Type of shut-off: Compression.

Inlet connection: 6" size- bell or mechanical joint type.

Nozzles: 2-2 1/2" hose nozzles; 1-4 1/2" pumper nozzle.

Nozzle threads: National Standard threads.

Bury depth: 8 feet 6 inches.

Operating & cap nuts: City of Fargo Standard (NST).

Direction to open: To the left (counter-clockwise).

Paint: City of Fargo Standard Red above ground line.

Bolts: All bolts below ground shall be stainless steel.

Hydrants shall be wrapped with polyethylene plastic film as per section 2.2.6.

POLYETHYLENE WRAP.

Acceptable manufacturers are Waterous WB67 Pacer and American Darling B62B-1.

2.8. HYDRANT MARKERS*2.8.1. GENERAL*

Hydrant markers shall be mounted on both sides of the post to face traffic (perpendicular to the curb) and shall be installed with each hydrant.

POST: Green U-channel- 2 lb. per foot & 9 feet long with 2 foot bury.

SIGN: 4" by 7" by 0.063" aluminum covered with Engineer Grade reflective sheeting, Red hydrant symbol on white background.

2.9. SERVICE CONNECTIONS

All service connections to PVC pipe shall be stainless steel, double bolt (minimum) service saddles. Service saddles shall have stainless steel washers between the nut and the plastic washer to equalize tightening stress. Rubber tapered gaskets shall be required to resist circumferential and longitudinal forces along with O-ring or flat gaskets for hydraulic seal. Saddle bolts shall be tightened to the manufacturers recommended tightness and verified with a torque wrench. Bolt tightness shall be rechecked with a torque wrench after the pipe tap is complete.

Approved saddle types:

Romac style 306

Ford style FS 300

Powerseal 3412AS

Cascade CSC2

2.10. YARD HYDRANTS*2.10.1. GENERAL*

Yard hydrants, where allowed by the Engineer, shall be brass ¾" frost proof type equipped with a brass vacuum breaker. The valve stem and plunger assembly shall be removable for inspection and repair without the need for digging up of the hydrant.

2.10.2. CONSTRUCTION

Hydrant barrel: 1" brass.

Inlet connection: ¾" NPT in brass casting.

Nozzle: heavy duty ¾" brass hose thread.

Bury depth: 7 feet.

Paint: Standard Red above ground line.

Acceptable manufacturers are Merrill Any Flow Brass Frost Proof or equal.

2.11. TRACER WIRE AND TRACER WIRE ACCESSORIES

2.11.1. GENERAL

All tracer wire and tracer wire accessories (connectors, splices, access points, and magnesium ground rods) shall be domestically manufactured in the USA. Tracer wire shall be installed along all water mains, water services, and sanitary sewer force mains unless otherwise noted in these plans. All system components, including tracer wire and tracer wire accessories must be compatible. Tracer wire and tracer wire accessories shall be considered incidental to other items.

2.11.2 TRACER WIRE

All tracer wire shall meet the following criteria:

- All tracer wire shall have HDPE insulation and color coded per APWA standards for specific utility being marked
- Must carry a radio signal to aid in locating buried underground utilities
- Certified to meet ASTM B170 specification for oxygen-free electrolytic copper
- Certified to meet ASTM B869 specification for 21% conductivity, hard drawn, copper-clad steel wire
- Certified to meet ASTM D1238 specification for polyethylene plastics extrusion materials
- The wire shall be identified by surface marking indicating manufacturer's identification, conductor size, and other appropriate information.

Tracer wire to be used for direct bury shall meet the following criteria:

- 12 AWG copper clad carbon steel core with HDPE coating (30 mil thickness) and minimum 450 lb. break load

Tracer wire to be used for directional drilling and boring shall meet the following criteria:

- 12 AWG copper clad carbon steel core with HDPE coating (45 mil thickness) and minimum 1,150 lb. break load

Tracer wire to be used for pipe bursting and slip lining shall meet the following criteria:

- 7 x 7 stranded copper clad steel with HDPE coating (50 mil thickness) and minimum 4,700 lb. break load

2.11.3 *TRACER WIRE CONNECTORS*

Tracer wire connectors shall be used to interconnect tracer wire at the intersection of mains and laterals. Non-locking, friction fit, twist on wire nuts, or taped connectors are prohibited.

Tracer wire connectors to be used for direct bury, directional drilling, and boring shall meet the following criteria:

- Pre-filled with dielectric silicon that never hardens.
- Waterproof and corrosion proof.
- Manufactured for the wire gauge being installed.
- Designed for direct bury and low voltage up to 50V.

Connectors used for direct bury, directional drilling, and boring shall be “DryConn Direct Bury Lug Aqua”, “Copperhead Mainline to Service Connector”, or approved equal.

Tracer wire connectors to be used for pipe bursting and slip lining shall meet the following criteria:

- ¼”- 20 slotted stainless steel set screw with 30 volt maximum and shall be protected from corrosion with a wax pad or other approved anti-corrosive methods.

Connectors used for pipe bursting and slip lining shall be “SnakeBite Pipe Burst Connector” or approved equal.

2.11.4 *TRACER WIRE SPLICES*

Tracer wire splices shall be used to join tracer wires at the end of a spool or when required to repair damaged tracer wire. End of spool tracer wire splices shall occur no more than once per 500 feet.

Tracer wire splices to be used for direct bury, directional drilling, and boring shall be “DryConn Direct Bury Lug Aqua”, “Copperhead Mainline to Service Connector”, “Copperhead SnakeBite Locking Connector”, or approved equal.

Tracer wire connectors to be used for pipe bursting and slip lining shall meet the following criteria:

- In-line splices for the 7x7 copper clad steel core tracer wire shall be made with a 30 volt maximum solid brass lug with a set screw locking mechanism. The brass lug shall be protected with a fast cure heat shrink that creates a weather resistant connection.

2.11.5 ACCESS POINTS

Tracer wire access points shall be “Copperhead Cobra Access Point”, “Rhino TriView Test Station”, or approved equal.

Tracer wire access points installed at hydrant locations shall meet the following criteria:

- Made of polypropylene material
- Direct connection point for utility locator transmitter
- Minimum of 2 terminal exterior connection points with a jumper
- Tracer wire protection conduit connection opening at the bottom with 1” MTP thread
- Blue in color

Tracer wire access points installed at hydrant locations shall be “Copperhead Cobra Access Point” or approved equal.

The mounting bracket for connecting tracer wire access points to a hydrant shall be either a ¾” HDPE flange or a stainless steel flange. To protect tracer wire from weed whips, mowers, etc., tracer wire shall be run through a tracer wire protection conduit. The tracer wire protection conduit shall be a minimum 2-foot long piece of 1” HDPE heavy-wall innerduct with MTP thread on the connection end and an angle-cut buried end.

Tracer wire access points installed at locations other than hydrants or curb stops shall meet the following criteria:

- Temperature stable from -40 degrees Fahrenheit to +150 degrees Fahrenheit
- Color coded per APWA standards for specific utility being marked

- Shall be 54” in length
- Shall have tracer wire terminal post
- Must have a minimum of 2 external terminals ¼” brass shall include a bolt, nut, washers and ring terminal
- TS-SHUNT/ Jumper between the two adjacent terminals shall be rust free
- Mounted to a “T” post or “U” Channel

Tracer wire access points installed at locations other than hydrants shall be “Rhino TriView Test Station” or approved equal.

2.11.6 MAGNESIUM GROUND ROD

Magnesium ground rods shall meet the following criteria:

- Shall be a 1.5 lb. drive-in magnesium ground rod
- HDPE cap mounted to top of rod
- Minimum of 12 foot factory installed 12 AWG copper clad carbon steel core tracer wire
- Magnesium ground rod tracer wire shall be 12 AWG copper clad carbon steel core with HDPE coating (30 mil thickness) and minimum 450 lb. break load
- Magnesium ground rod tracer wire coating shall be red in color

2.12. INSULATION

Insulation shall be in accordance with Section 1200 of these Specifications.

PART 3
CONSTRUCTION

3.1. GENERAL

Excavation, trenching, and backfill shall be done in accordance with Section 1000. Pipe and fittings shall be handled and laid in accordance with the latest revision of AWWA Standard C600. Pipe and fittings shall be laid in the location shown on the plans, the exact location being designated by the Engineer during construction. Before laying any pipe, it shall be cleaned of all foreign matter and kept clean thereafter. Open ends shall be protected at all times to prevent the entrance of dirt, trench water, animals or foreign material into the pipe. The bell and spigot shall be wiped clean and sufficient lubrication placed on the gasket and spigot before the pipe is pushed fully into the bell. Field cut spigot ends of push-on joints shall be beveled prior to being pushed into the bell. Every part of the pipe shall be bedded uniformly throughout its length. All handling, field cuts, polyethylene wrapping, and jointing shall be done as per the manufacturer's recommendation.

3.2. ALIGNMENT

The Engineering Department will provide line and grade for all water main. All water mains shall have a minimum cover of 7.5'. Grade shall be maintained by the Contractor using methods approved by the Engineer. Water mains installed parallel to sanitary sewer shall be laid 10 feet apart, distance shall be measured edge to edge. Where a water main crosses a sanitary sewer line, a minimum vertical distance of 18 inches shall be maintained between the outside of the water main and the outside of the sewer. Deflections from a straight line or grade, where permitted by the Engineer, shall not exceed the pipe manufacturer's recommendation.

3.3. THRUST BLOCKS

All fittings shall be braced by means of poured concrete or concrete thrust blocks. No wood thrust blocks will be allowed. Poured concrete shall be 3000 psi concrete poured against undisturbed earth. Care shall be taken not to cover up joints, bolts, flanges, and the fittings with concrete.

Thrust restraint at the joints may be used in lieu of concrete thrust blocking with the permission of the Engineer. Restraint devices for PVC pipe shall meet or exceed the requirements of ASTM F 1674-96 or the latest revision, Standard Test Method for Joint Restraint Products for Use with PVC Pipe.

3.4. SETTING HYDRANTS

All hydrants shall be vertically plumb and shall have their pumper nozzle facing and at right angles to the street. Each hydrant shall be set on a concrete block and blocked behind with concrete block(s) of sufficient size to prevent settling and horizontal movement. Hydrant bases shall be backfilled with at least 1/3 cubic yard of 1 1/4" crushed rock to facilitate drainage and covered with polyethylene plastic film. The 1 1/4" crushed rock shall extend to 6" above the weep hole. After backfilling the hydrant markers shall be installed 18 inches behind the hydrant.

3.5. CONNECTIONS TO EXISTING WATER MAINS

Connections between new and existing pipes shall use proper specials and fittings to suit the actual conditions encountered. Suitable facilities shall be provided for proper de-watering, drainage, and disposal of all water removed from the excavation or pipe without damage to adjacent property. Prior to the closure of existing water mains, the Contractor shall notify all affected water users.

3.6. WATER MAIN SHUTDOWNS

The Contractor shall coordinate water main shutdowns with the Engineer and the Mains and Hydrants Department. The Contractor is responsible for gate valve locations and property notification. The Mains and Hydrants Department will assist with cleaning and operating the valves if required.

Shutdowns in residential areas may not occur prior to 9:00 AM. Residential water users shall be notified of the outage by 7:00 PM the night before the planned shutdown.

The Contractor shall schedule outages to non-residential water users in such a manner as to minimize the impact of the outage to the user. Outage notifications to non-residential water users shall be per the direction of the Engineer, but in no case shall be given less than 2 working days prior to the shutdown.

Notifications shall be in writing and shall indicate the estimated duration of the shutdown. A sample shutoff notification form can be found on the City's website. If actual shutdown varies from the stated time by more than one hour, a second verbal notification is required.

The Contractor shall turn on all valves after the necessary water main connections have been made.

3.7. TEMPORARY WATER SERVICES

If the water to a property is to be out for more than 12 hours, the Contractor will be responsible for providing a temporary water service to the affected water users. All piping shall be rated for potable water use. Minimum pipe size shall be 1" diameter for up to 3 service connections, 2" diameter for 4 or more connections. The Contractor shall use larger pipes where necessary to provide adequate domestic service throughout the duration of the temporary connection. Valves shall be provided on temporary piping at intervals not to exceed 500 feet. The method of providing the temporary water service (which hydrant to use, direction to feed, etc.) shall be an option of the Contractor subject to the approval of the Engineer.

All temporary water mains and services shall be disinfected in accordance with section 1300.3.9. One water sample per block at the end of a service connection will be taken after the temporary water line is flushed. The sample shall show the absence of bacteria before connections are allowed. All mains and services shall be flushed prior to being put into service. No additional contract time will be allowed for failure to pass bacteria test.

3.8. SETTING VALVES

Valves will be installed where shown on the plans or as directed by the Engineer. Before installing the valve, care should be taken to ensure that all foreign material has been removed. The stuffing boxes shall be tightened and the valve opened and closed to see that all parts are in first class working order. Valves shall be set on block as shown in the details. The body of the valve shall be wrapped with polyethylene wrap, securely fastened to the pipe on both sides of the valve, as per ANSI/AWWA C105/A21.5. Valve and valve boxes must be plumb. The valve box adapter shall be installed on the valve and the valve box shall be placed directly over the operating nut, and the top of the box being brought flush with finish grade. The Valve box shall be wrapped with polyethylene plastic film as per section 2.2.6. *POLYETHYLENE WRAP*. The box shall be backfilled and thoroughly tamped around the box. After backfilling a wrench shall be dropped on the valve to ensure that it is operable. Prior to acceptance, the City Water Department will verify that each valve is easily operable.

3.9. DISINFECTION

All water mains shall be chlorinated as set forth by the latest revision of AWWA Standard C651. Sufficient chlorine tablets or powder shall be placed in each pipe to furnish a resultant solution of

50 to 100 parts per million of available chlorine. Generally required dosage to meet this standard is as follows:

<u>WATER MAIN SIZE</u>	<u>REQUIRED DOSAGE</u>
2"	1 LB. PER 10,000 FEET
4"	1 LB. PER 2,500 FEET
6"	1 LB. PER 1,100 FEET
8"	1 LB. PER 700 FEET
10"	1 LB. PER 350 FEET
12"	1 LB. PER 280 FEET
16"	1 LB. PER 160 FEET

The chlorinated water shall remain in the pipe line for at least 24 hours and shall have a residual chlorine content of at least 5 parts per million at that time. A bacteriological sample will be taken after the main is flushed and shall show the absence of bacteria before connections are allowed to the water main. Chlorine disinfection shall be included in the unit bid price for the pipe.

3.10. PRESSURE AND LEAKAGE TESTING

All water main and services shall be subjected to pressure and leakage testing. All services shall be pressure tested with the main. The Contractor shall furnish all pumping equipment, labor and gauges required for these tests and if any section of pipe does not meet these tests, the Contractor shall at his own expense locate and repair the defects and retest the line until it meets the requirements. The pipe shall be subjected to a hydrostatic test of 150 psi for a period of two hours. Each pressure test shall be limited to a maximum of 1,500 linear feet of water main. The pressure shall be held within 2 psi of this test pressure for the entire time and leakage shall not exceed the rate established by the following formula:

$$Q = (LD\sqrt{P})/148,000$$

In which:

Q= maximum permissible leakage rate in gallons per hour for the length of line being tested.

L= length of the line being tested in feet.

D= internal diameter of the pipe in inches.

P= average test pressure in psig.

In the event that the line contains more than one size of pipe, the allowable leakage for each size shall be calculated separately and then added to obtain the total allowable leakage allowed for the

lines being tested. Repairs shall be made by replacing the defective pipe or dismantling the faulty joint, cleaning, realigning the gland or gasket and reassembling the joint as per the original specification. Repair sleeves may only be used if approved by the Engineer and shall have all stainless steel parts. All cost of locating and repairing the leaks shall be borne by the Contractor.

3.11. BACTERIOLOGICAL TESTING

Bacteriological testing is required on all new and replaced water main before the water main is placed in service. The tests ensure that the water being introduced into the system has been properly disinfected and is free of contamination. Only the City inspector may do the testing procedure. Records are kept of the litmus test, the bacteriological tests, and the chain of custody during the sample submittal process.

All water samples for bacteriological testing shall be collected from a newly installed water service. If a project does not include newly installed water services, the Contractor shall supply all labor and materials necessary to collect the sample. The materials, location, and method for abandonment/removal of necessary materials shall be approved by the Engineer. Water samples may not be collected from a fire hydrant.

After final flushing and before the new water main is connected to the distribution system, two consecutive sets of acceptable samples, taken at least 24 hours apart, shall be collected from the new main. At least one set of samples shall be collected from every 1,200 feet of new water main. All samples shall be tested for bacteriological quality in accordance with *Standard Methods for the Examination of Water and Wastewater*, and show the absence of coliform organisms and the presence of a chlorine residual.

The basic procedure is as follows:

1. Insert litmus paper test strip in the discharge stream of the hydrant while it is being flushed. The color change will indicate that there is residual chlorine content.
2. Before the valves are opened, obtain a sterile sample of the disinfected main. This water sample will be taken after the completion of the pressure test. 100-ml samples will be taken with a chlorine neutralizer tablet in the container. The sample must be taken to the water plant immediately for testing. If this is not possible, the sample must be kept in a refrigerated container, however, the test must begin within 24 hours. Results will be available approximately 24 hours from the time the test is admitted.

3. A second sample is obtained from the same location at least 24 hours after the first sample. This sample indicates that the residual chlorine content is such that verification is obtained that the pipe, newly introduced water, and any debris are disinfected. As such, the sample must be obtained from water that has remained in the new pipe for at least 24 hours. Both samples must pass the test before the new water main may be opened and put in use in the distribution system.
4. When flushing the mains, care must be taken to ensure that flow is away from the existing mains. This may involve flushing ½ block in one direction until the water is clear, and then closing that valve and flushing from the other end of the block for a mid-block hydrant.

If the initial disinfecting fails to produce satisfactory results, the main shall be reflushed and re-sampled. If check samples also fail, the main shall be rechlorinated by the continuous feed or slug method until satisfactory results are obtained.

The Contractor should note that the testing tank may require sterilization in order to avoid contamination of the mains during the testing process. The pipe installation crews will need to ensure that the pipes are free of dirt, debris and other matter. It must be remembered that the final water quality test is not the primary means for certifying the sanitary condition of the main. The sanitary handling of materials, the construction practices, and the continual inspection of the work are the primary means for ensuring the sanitary condition of the water main.

The Contractor shall assist the inspector as necessary to obtain the samples. All costs for the disinfection and testing of water mains shall be incidental to the bid price for the water main.

3.12. TRACER WIRE SYSTEM

3.12.1. GENERAL

Tracer wire shall be installed below the spring line of pipes and fittings. Tracer wire shall be securely fastened to the water main pipe with tape or plastic ties at every pipe bell or at 20 foot intervals, whichever is less. In addition, tracer wire shall be secured within 1 foot of all underground utility appurtenances. The maximum mainline spacing for a tracer wire access point shall be no greater than 600 linear feet. End of spool tracer wire splices shall occur no more than once per 500 feet. All lateral tracer wires shall be a single wire, connected to the mainline tracer wire using an approved tracer wire connector. Looping or coiling of wire is not allowed.

Minimum requirements for the number of tracer wire lines are as follows:

- One wire shall be used for direct bury installations
- Two wires shall be used for directional drilling/ boring installations
- One 7x7 extreme strength copper clad steel core tracer wire shall be used for pipe bursting/ slip lining installations.

Any damage occurring during installation of the trace wire must be immediately repaired by removing the damaged wire and installing a new section of wire with approved connectors and/or splicing kits. Taping and/or spray coating is not allowed. Mainline trace wire shall not be connected to existing conductive pipes.

All costs associated with the installation and testing of the tracer wire shall be considered incidental to other items.

3.12.2. TRACER WIRE CONNECTORS

Tracer wire connectors shall be used to interconnect tracer wire at the intersection of mains and laterals. Tracer wire connectors shall be installed in accordance with the manufacturer's installation instructions. The mainline tracer wire shall not be cut.

3.12.3. TRACER WIRE SPLICES

Tracer wire splices shall be used to join tracer wire at the end of a spool or when required to repair damaged tracer wire. End of spool tracer wire splices shall occur no more than once per 500 feet.

3.12.4. TRACER WIRE ACCESS POINT

At each hydrant, the tracer wire and the magnesium ground rod tracer wire shall be routed up the side of the hydrant, through the tracer wire protection conduit, and connected to the access point. The Contractor shall leave 2 feet of tracer wire and magnesium ground tracer wire slack in the tracer wire protection conduit.

At locations other than hydrants or curb stops, tracer wire and the magnesium ground rod tracer wire shall be ran into a "Rhino TriView Test Station" or approved equal access point. The access point shall be mounted to a "U" channel post. The Contractor shall leave 2 feet of tracer wire and magnesium ground tracer wire slack in the "Rhino TriView Test Station" or approved equal access point.

Tracer wire shall not be mounted to the lid of gate valves or other devices that are located within the pavement section.

3.12.5. TRACER WIRE MAGNESIUM GROUND RODS

Tracer wire must be properly grounded at all hydrants. Grounding of trace wire shall be achieved by use of a drive-in magnesium ground rod specifically manufactured for this purpose and shall be driven into virgin ground below the pipe bedding. The lateral tracer wire and the magnesium ground rod tracer wire shall be ran up the hydrant through the tracer wire protection conduit and connected to the access point. The Contractor shall leave 2 feet of tracer wire and magnesium ground rod tracer wire slack in the tracer wire protection conduit.

3.12.6. TRACER WIRE ELECTRICAL CONDUCTIVITY TEST

All new tracer wire installations shall be located using typical low frequency (512Hz) line tracing equipment furnished by the Contractor and witnessed by the Contractor and Engineer prior to acceptance of ownership.

This verification shall be performed upon completion of rough grading and again prior to final acceptance of the project.

Continuity testing in lieu of actual line tracing shall not be accepted. All areas failing the location test shall be corrected at the Contractor's expense. The wire shall be tested in accordance with the requirements of ASTM B-1, B-3, B-8 and D-1248.

3.12.7. ELECTRICAL CONDUCTIVITY TEST FOR DUCTILE IRON

The Contractor shall perform a conductivity test one week after completion of pressure testing of the water main on all ductile iron pipe water main. This shall be performed in a timely manner to ensure acceptable conductivity prior to further construction.

On water main reconstruction projects, the Contractor shall perform the conductivity test prior to service line reconnections to ensure main line isolation from house services.

The Engineer and Owner may require a Contractor to test the first section of pipe installed to demonstrate the Contractor's ability to install the pipe in an acceptable manner. When the connection to the existing system is not made with a valve, the Contractor shall test the existing section to the first available valve(s) to determine the condition of the existing system, or the Contractor may make provisions to test his work separately, prior to connection to the existing system, in a manner acceptable to the Engineer.

The system (pipeline, valves, fittings and hydrants) shall be tested for electrical continuity and current capacity. The electrical test shall be made after the hydrostatic test and while the line is at normal operating pressure. Backfilling shall have been completed. The line may be tested in sections of convenient length as approved by Engineer.

Direct current of 350 amperes plus or minus 10%, shall be passed through the pipeline for 5 minutes. Current flow through the pipe shall be measured continuously on a suitable ammeter and shall remain steady without interruption or fluctuation throughout the 5-minute test period.

Insufficient current or intermittent current or arcing, indicated by large fluctuation of the ammeter needle, shall be evidence of defective contact in the pipeline. The cause shall be isolated and corrected. Thereafter, the section in which the defective test occurred shall be retested as a unit and shall meet the requirements.

Sources of D.C. for these tests may be motor generators, arc welding machines, or other approved sources. All such equipment shall be furnished by the Contractor.

Cables from the power source to the section of system under test should be a sufficient size to carry the test current without overheating or excessive voltage drop.

After the test, the hydrant shall be shut off and cap loosened to allow hydrant drainage. Tighten cap after drainage.

3.13. FINAL INSPECTION

The Contractor and the City of Fargo representative will operate all main valves and inspect all stop boxes for access. This procedure will be accomplished after all clean up, etc. has been completed. This inspection will be made prior to the final payment for work performed. Any defects shall be promptly repaired by the Contractor at his cost.

PART 4
GUARANTEE, MEASUREMENT & PAYMENT

4.1. GUARANTEE

The guarantee shall be per the contract.

4.2. MEASUREMENT AND PAYMENT

4.2.1. GENERAL

The cost of excavation, trenching, and backfill shall be included as part of this specification.

4.2.2. WATER MAIN PIPE

Pipe will be measured by customary and conventional methods and paid for on a unit price basis for the actual length installed.

Measurement will be from the center of the fitting or valve to the center of the next fitting or valve. The unit price shall include the cost of the pipe, jointing material, tracer wire and tracer wire accessories, concrete thrust blocking or joint restraint and all other appurtenance costs except valves, hydrants, and fittings, completely installed in accordance with the Specifications.

4.2.3. FITTINGS

Unless otherwise noted on the plans, water main fittings will be measured by the pound without joint accessories or cement lining. The weight for fittings not listed in the tables below shall be in accordance with AWWA C153. The weight for fittings not listed in the tables below or in AWWA C153 shall be the actual weight of the fitting(s) furnished and installed based on acceptable documentation provided by the Contractor. The standard weight of water main fittings, for payment purposes, shall be as follows:

Bends, Caps, and Plugs							
Size	Fitting Weights, lbs. (AWWA C153)						
	Bends (degrees)				Caps	Plugs	Sleeves
	90	45	22.5	11.25			
4	25	22	18	16	9	10	20
6	39	32	31	30	15	16	29
8	57	46	46	42	22	26	45
10	89	70	64	58	32	36	61
12	108	86	80	67	42	46	76
14	210	160	136	93	66	75	128
16	264	202	172	148	92	95	159
20	400	305	310	245	125	135	236
24	565	405	412	315	166	175	306

Tees, Crosses, and Reducers									
Run	Branch	Fitting Weights, lbs. (AWWA C153)			Run	Branch	Fitting Weights, lbs. (AWWA C153)		
		Tee	Cross	Reducer			Tee	Cross	Reducer
Large	Small				Large	Small			
4	4	32	40		16	6	228	240	124
6	4	46	57	24	16	8	248	260	124
6	6	56	75		16	10	264	317	124
8	4	60	68	32	16	12	280	306	112
8	6	72	74	36	16	14	316		140
8	8	86	105		16	16	322	385	
10	4	78	112	46	20	6	315		
10	6	90	119	47	20	8	345	379	
10	8	105	124	50	20	10	370		220
10	10	120	145		20	12	395	413	205
12	4	94	119	58	20	14	440		200
12	6	110	126	58	20	16	465		200
12	8	125	149	57	20	20	535		
12	10	140	179	61	24	6	415		
12	12	160	213		24	8	445	481	
14	4	172			24	10	470		
14	6	182	200	100	24	12	500	529	305
14	8	206	228	100	24	14	550		306
14	10	228		100	24	16	580	576	320
14	12	234		100	24	20	660	1589	300
14	14	280	299		24	24	720		

4.2.4. VALVES

Valves will be paid for under the unit price bid per each complete in place. The unit price will include the valve, jointing material, valve box, valve box adaptor, concrete blocking, necessary extensions, and all other work necessary for a complete and workable valve installation.

4.2.5. HYDRANTS AND YARD HYDRANTS

Hydrants will be paid for under the unit price bid per each complete in place. The unit price will include the hydrant with hydrant marker, rock bedding, blocking, excess excavation and all other work necessary for a complete and workable hydrant installation.

4.2.6. POLYETHYLENE WRAP

Polyethylene wrap shall be included in the unit bid price for ductile iron pipe, fittings, hydrants, and valves. All material, labor, equipment and incidental costs necessary to install the plastic wrap shall be included.

4.2.7. DISINFECTION AND TESTING WATER MAINS

Disinfection and testing of water mains shall be incidental to the bid price for the water main. Payment will not be made for water main until such time as it has been successfully tested.

4.2.8. TAPPING SLEEVES AND VALVES

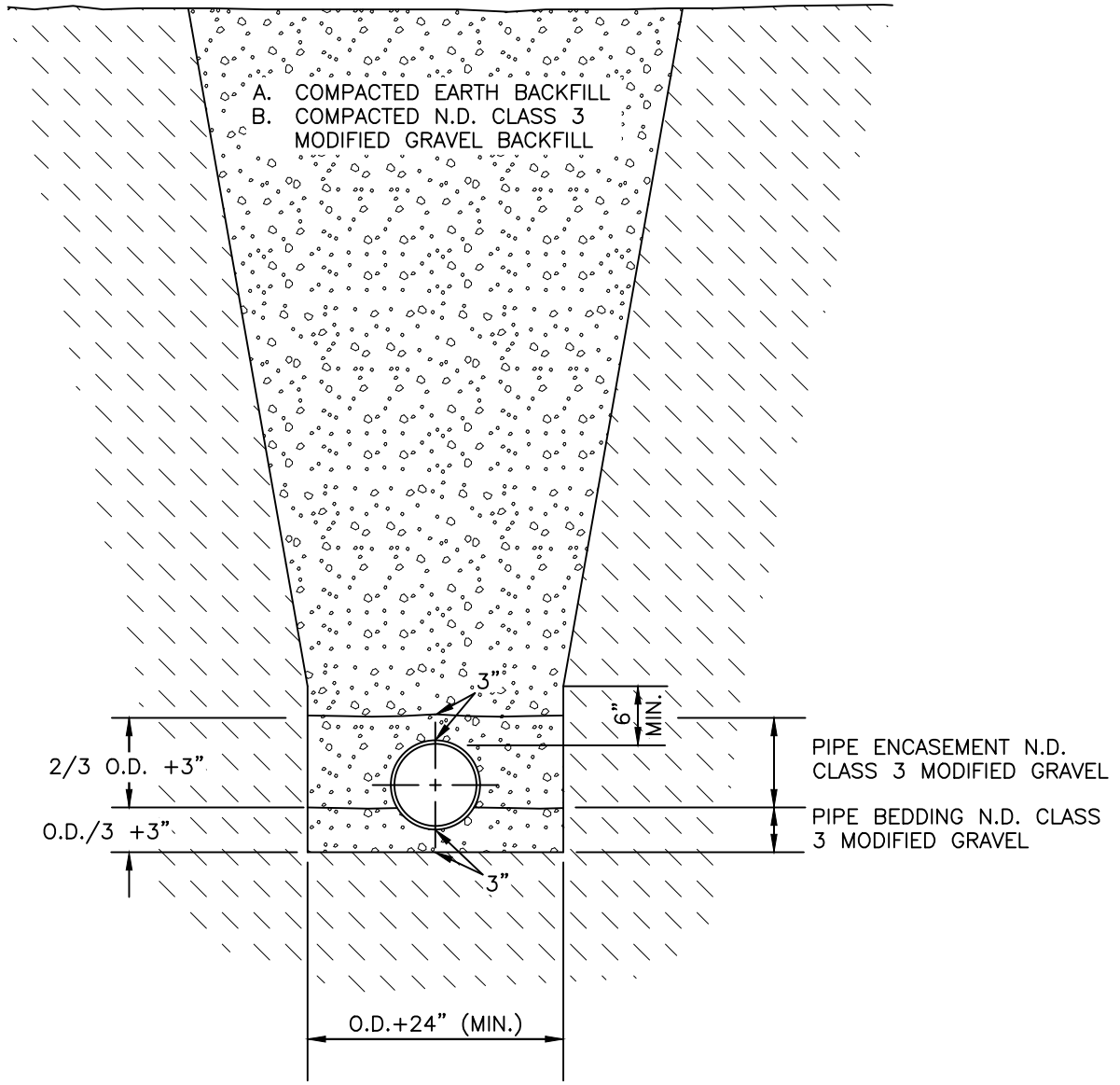
The unit bid price shall include the cost of furnishing and installing the tapping sleeve and valve. The City of Fargo Water Department will make the tap for 12" and smaller taps. On taps larger than 12", the Contractor shall make arrangements with other entities to make the tap. For connections made to the water main that are not made under city contract the Contractor will be billed for the connection by the City Water Department.

4.2.9. TRACER WIRE

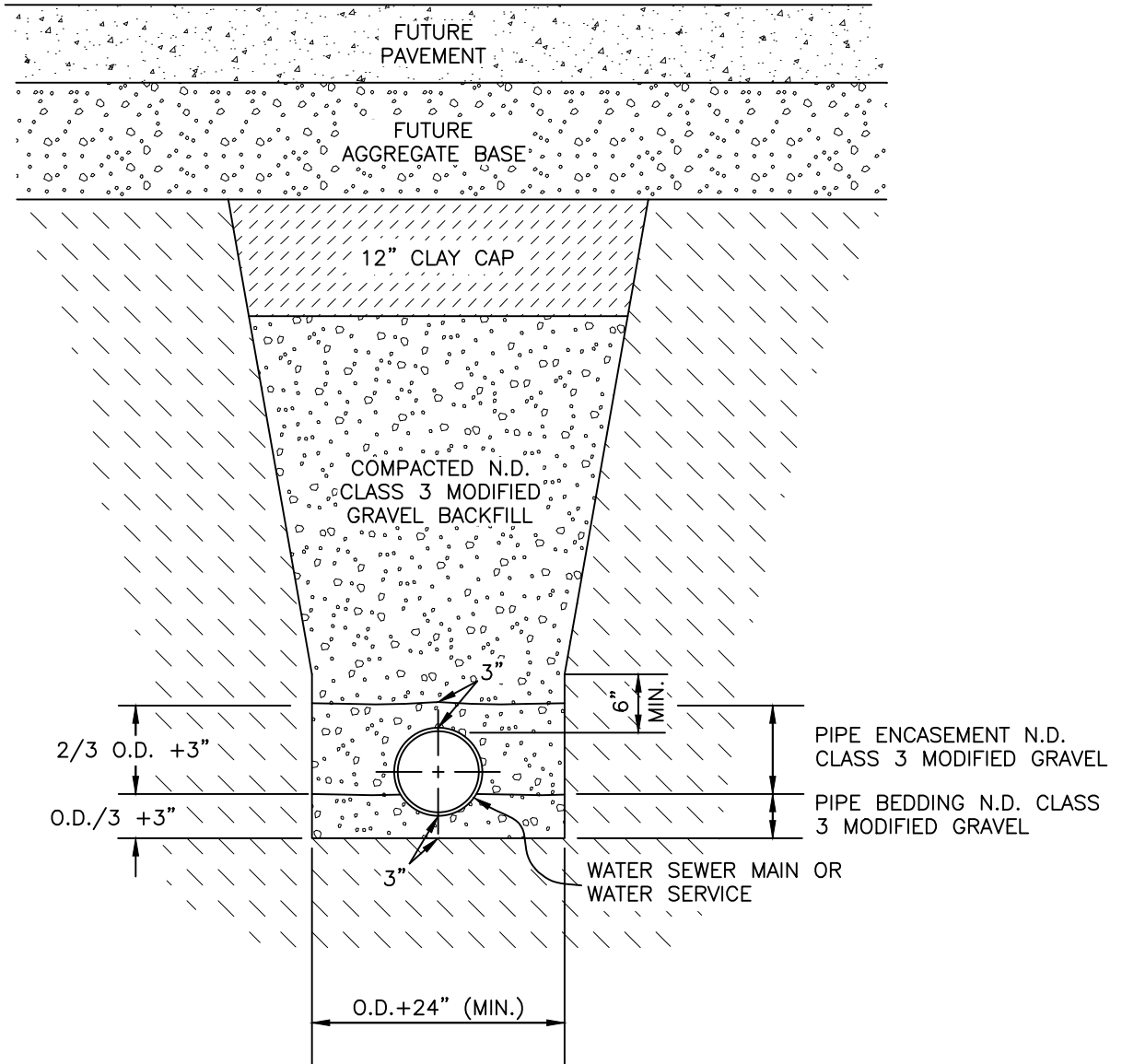
The tracer wire system and electrical conductivity testing shall be considered incidental to water main construction.

4.2.10. OTHER COSTS

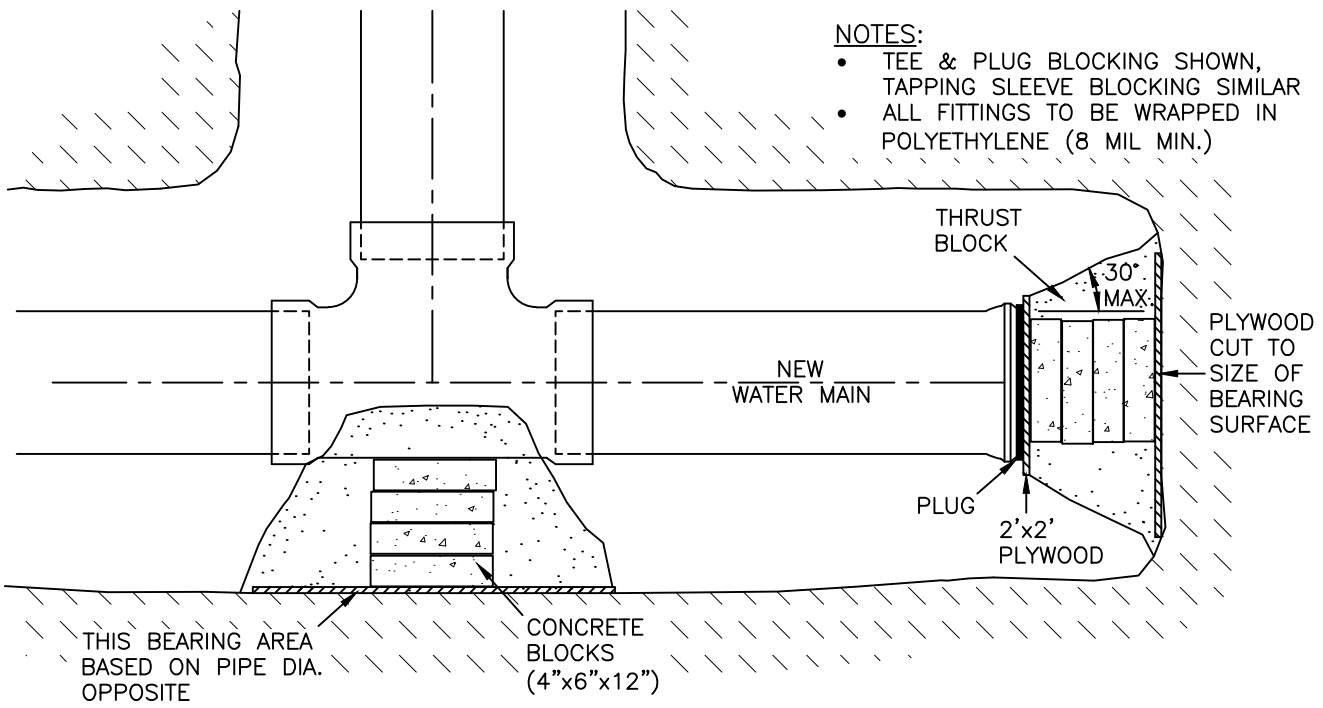
All other costs for work necessary to properly complete the work specified herein shall not be bid items; the costs shall be charged to other items unless a bid item is specifically included on the bid sheet.



SECTION: 1300	DRAWING: 5.1
REVISION: 2019	
WATER MAIN TRENCH BACKFILL	
APPROVED:	DATE:



NOTE:
 THIS DETAIL APPLIES WHERE WATER MAIN IS INSTALLED UNDER FUTURE PAVING WITH EDGE DRAIN.



NOTES:

- TEE & PLUG BLOCKING SHOWN, TAPPING SLEEVE BLOCKING SIMILAR
- ALL FITTINGS TO BE WRAPPED IN POLYETHYLENE (8 MIL MIN.)

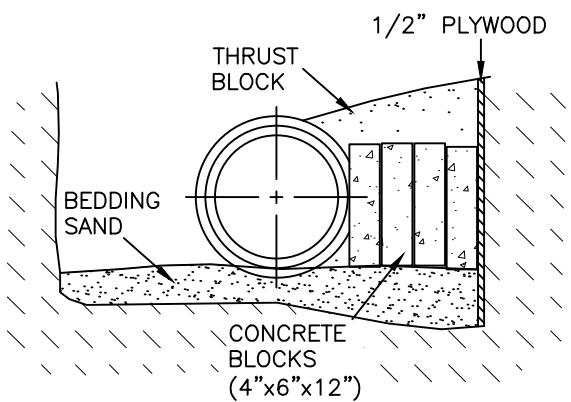
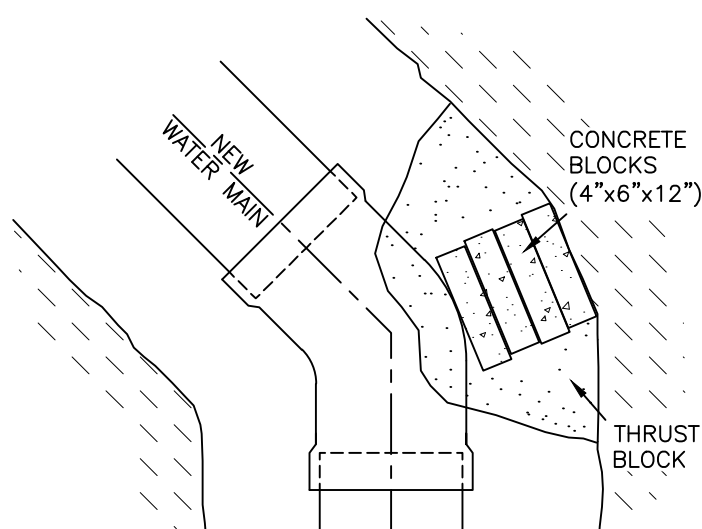


TABLE OF REQUIRED BEARING AREAS

PIPE SIZE	BEND ANGLE				TEE
	90°	45°	22-1/2°	11-1/4°	
4"	2' SQ.	2' SQ.	2' SQ.	2' SQ.	2' SQ.
6"	3' SQ.	2' SQ.	2' SQ.	2' SQ.	3' SQ.
8"	5' SQ.	3' SQ.	2' SQ.	2' SQ.	4' SQ.
10"	8' SQ.	4' SQ.	3' SQ.	2' SQ.	6' SQ.
12"	11' SQ.	6' SQ.	3' SQ.	2' SQ.	8' SQ.
16"	20' SQ.	11' SQ.	6' SQ.	4' SQ.	15' SQ.
18"	25' SQ.	14' SQ.	7' SQ.	4' SQ.	18' SQ.

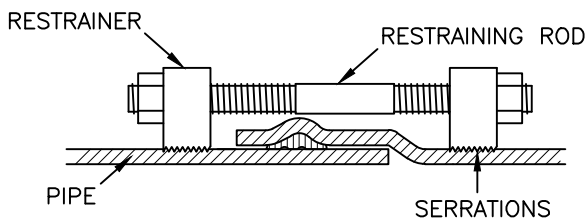


NOTES:

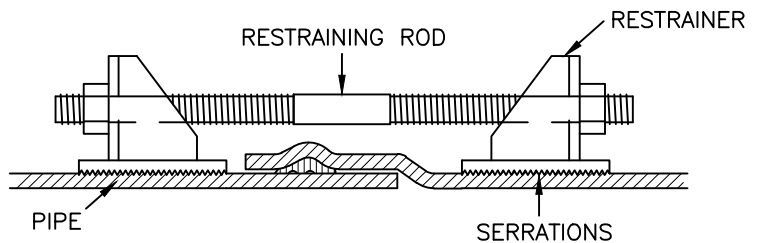
- CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH. BELLS AND BOLTS TO BE KEPT FREE OF CONCRETE. CONCRETE IN PLACE TO BE INCLUDED IN PRICE BID FOR WATER MAIN.
- IF APPROVED BY THE ENGINEER, SOLID CONCRETE BLOCKS MAY BE USED FOR BLOCKING ON 8" DIA PIPE AND BELOW. 10" DIA. PIPE AND ABOVE WILL CONFORM TO CONCRETE POURED IN PLACE AREAS SHOWN ABOVE.



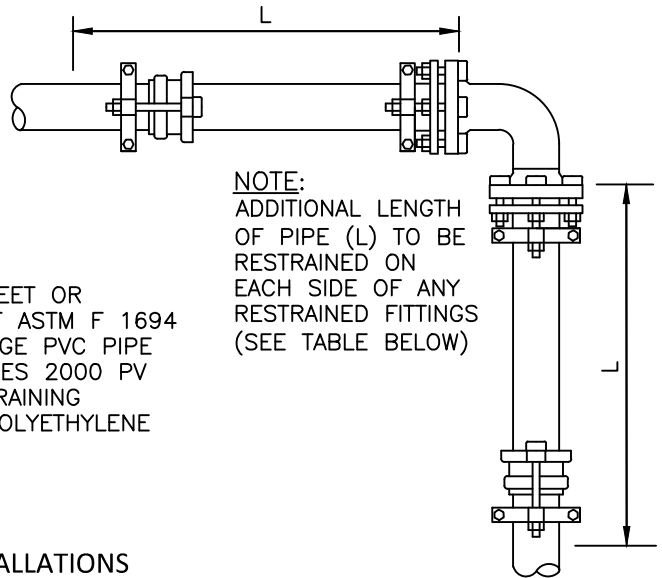
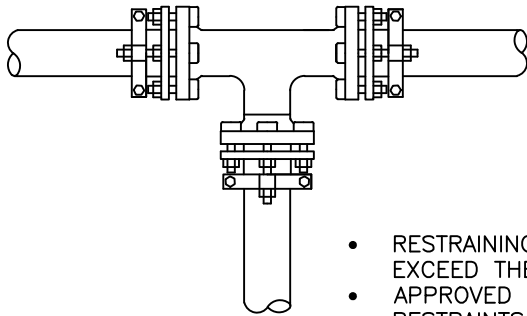
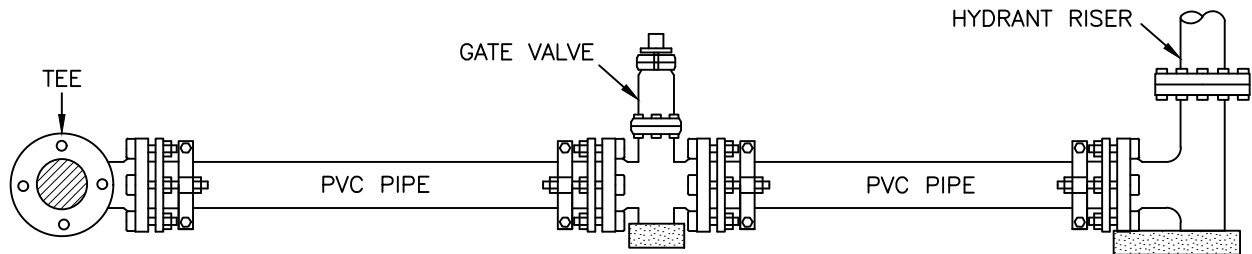
SECTION: 1300	DRAWING: 5.3
REVISION: 1999	
WATER MAIN THRUST BLOCKING	
APPROVED:	DATE:



2" TO 12" DIA.



14" TO 36" DIA.



- RESTRAINING DEVICES SHALL MEET OR EXCEED THE REQUIREMENTS OF ASTM F 1694
- APPROVED TYPES ARE UNIFLANGE PVC PIPE RESTRAINTS & EEBA IRON SERIES 2000 PV
- ALL METAL FITTINGS AND RESTRAINING DEVICES TO BE WRAPPED IN POLYETHYLENE PLASTIC (8 MIL MIN.)

TYPICAL INSTALLATIONS

NOM. PIPE SIZE	90° BEND (L)	45° BEND (L)	22.5° BEND (L)	11.25° BEND (L)	SIZE ON SIZE TEE (L)*	VALVE/ DEAD-END (L)
6"	19'	8'	4'	2'	2'	35'
8"	25'	11'	5'	3'	13'	45'
10"	31'	13'	6'	3'	23'	55'
12"	36'	15'	8'	4'	33'	65'
16"	47'	20'	10'	5'	52'	84'

SIZE	45° VERT. OFFSET* (L)	22.5° VERT. OFFSET* (L)
6"	15'/8"	7'/4"
8"	19'/11"	9'/5"
10"	23'/13"	11'/6"
12"	27'/15"	13'/8"
16"	35'/20"	17'/10"

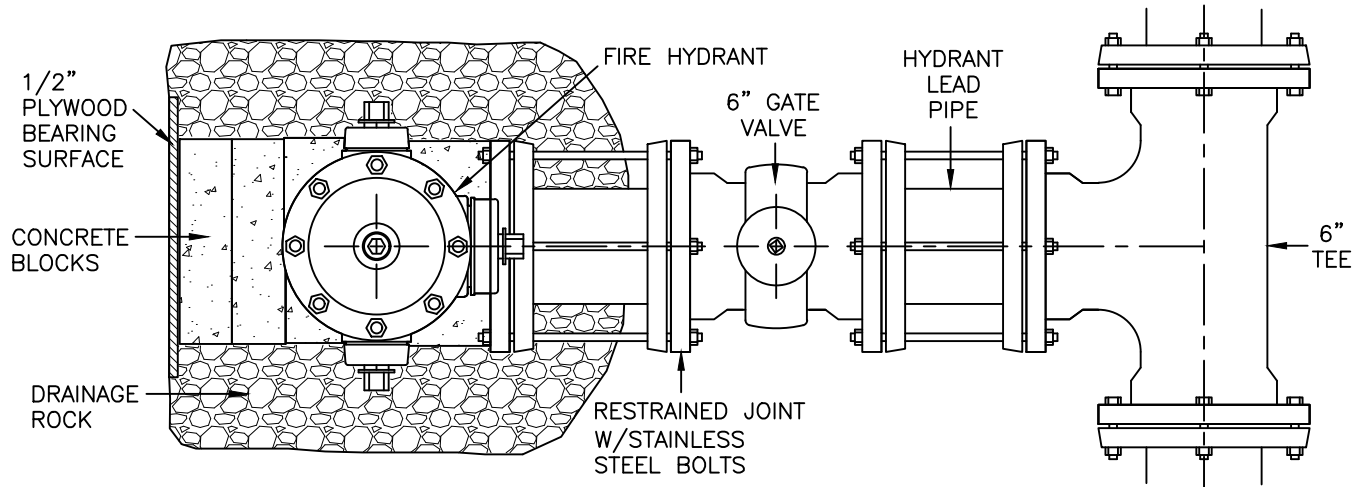
* RECOMMENDED RESTRAINED LENGTHS FOR TEES ARE FOR THE BRANCH OUTLET AND ASSUME A MINIMUM 10 FT. SECTION OF PIPE ATTACHED TO EACH SIDE OF THE RUN. RESTRAINT DEVICES ARE ALSO REQUIRED ON BOTH RUN JOINTS OF THE TEE ITSELF.

* FIRST NUMBER IS THE RECOMMENDED RESTRAINED LENGTH ON EACH SIDE OF THE DOWN BEND, THE SECOND NUMBER IS THE LENGTH FOR EACH SIDE OF THE UP BEND.

RESTRAINED LENGTHS OF PVC PIPE

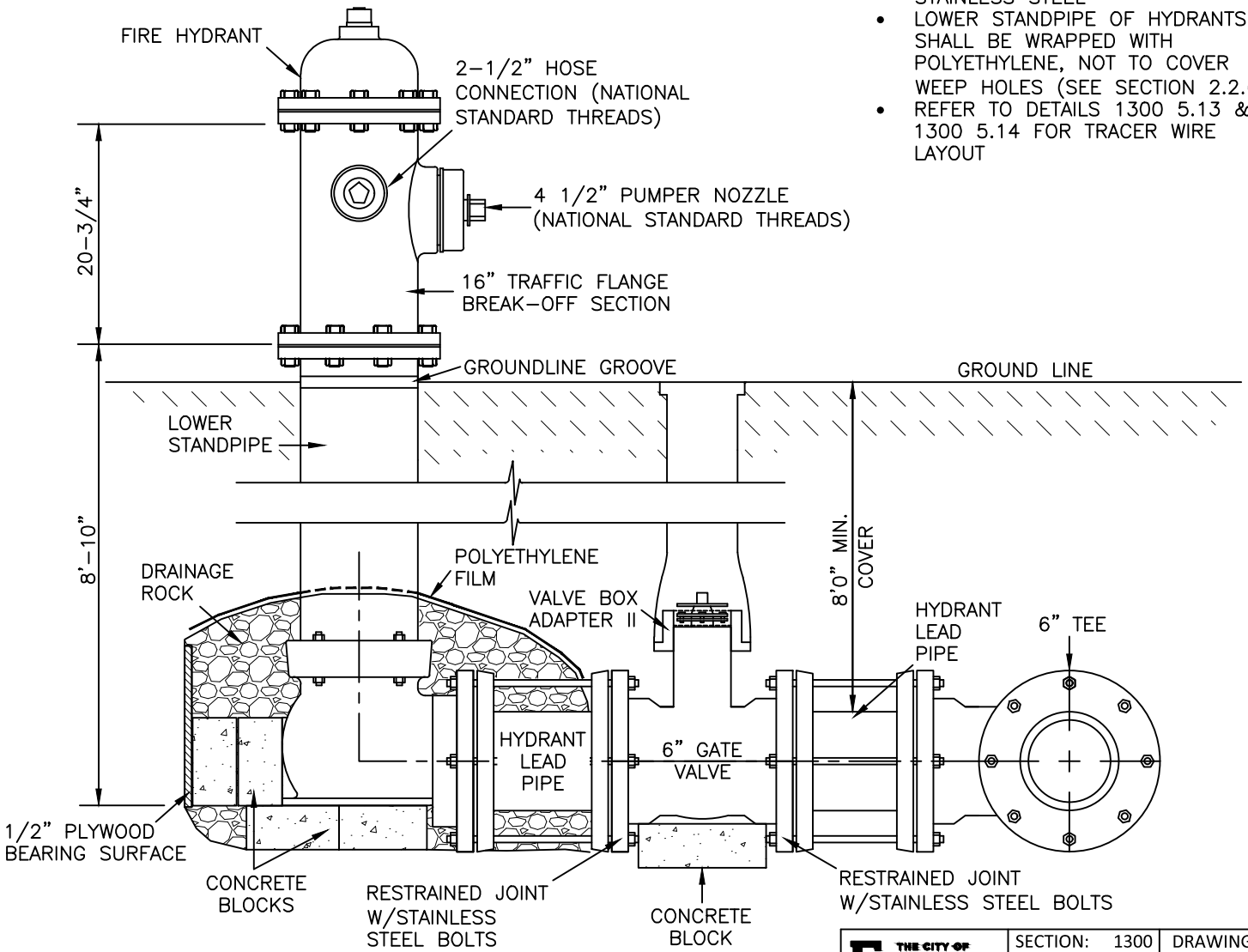


SECTION: 1300	DRAWING: 5.4
REVISION: 1999	
RESTRAINT DEVICE FOR PVC PIPE BELL JOINTS	
APPROVED:	DATE:

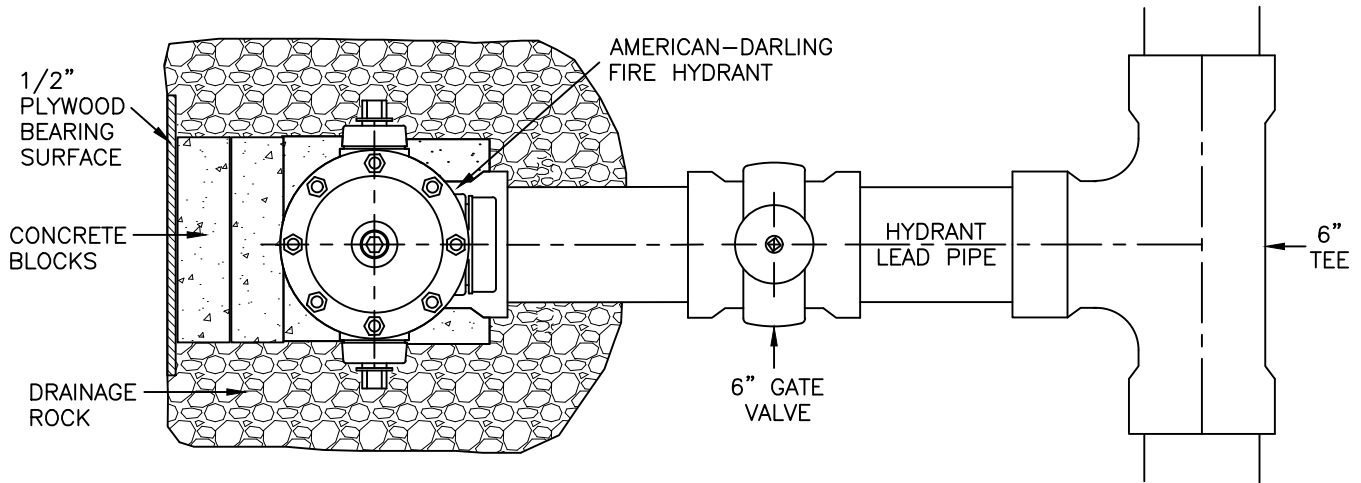


NOTES:

- OPERATING & CAP NUTS: CITY OF FARGO STANDARDS
- BOLTS BELOW GROUND SHALL BE STAINLESS STEEL
- LOWER STANDPIPE OF HYDRANTS SHALL BE WRAPPED WITH POLYETHYLENE, NOT TO COVER WEEP HOLES (SEE SECTION 2.2.6)
- REFER TO DETAILS 1300 5.13 & 1300 5.14 FOR TRACER WIRE LAYOUT

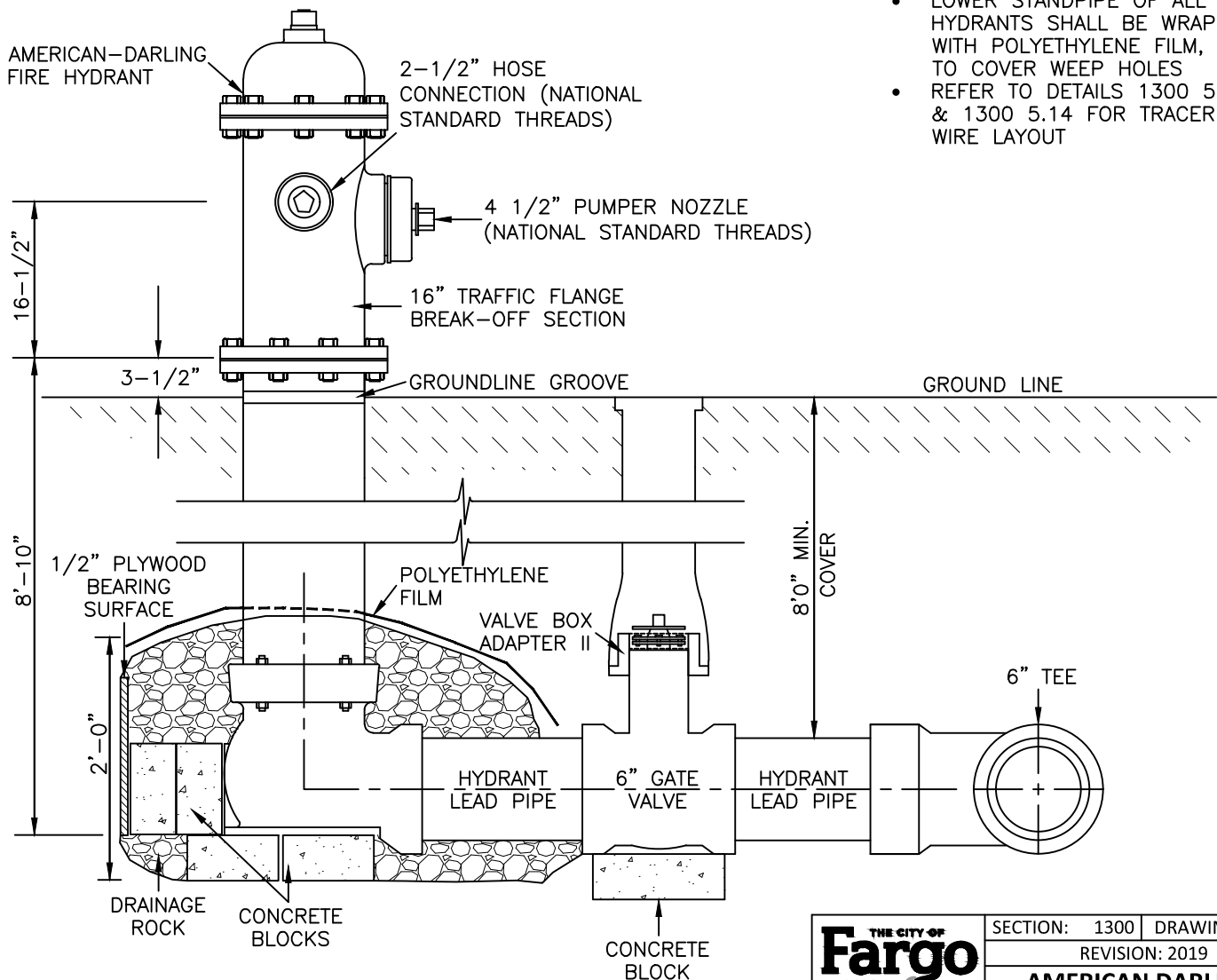


SECTION: 1300	DRAWING: 5.5
REVISION: 2019	
RESTRAINED MECHANICAL JOINT	
APPROVED:	DATE:

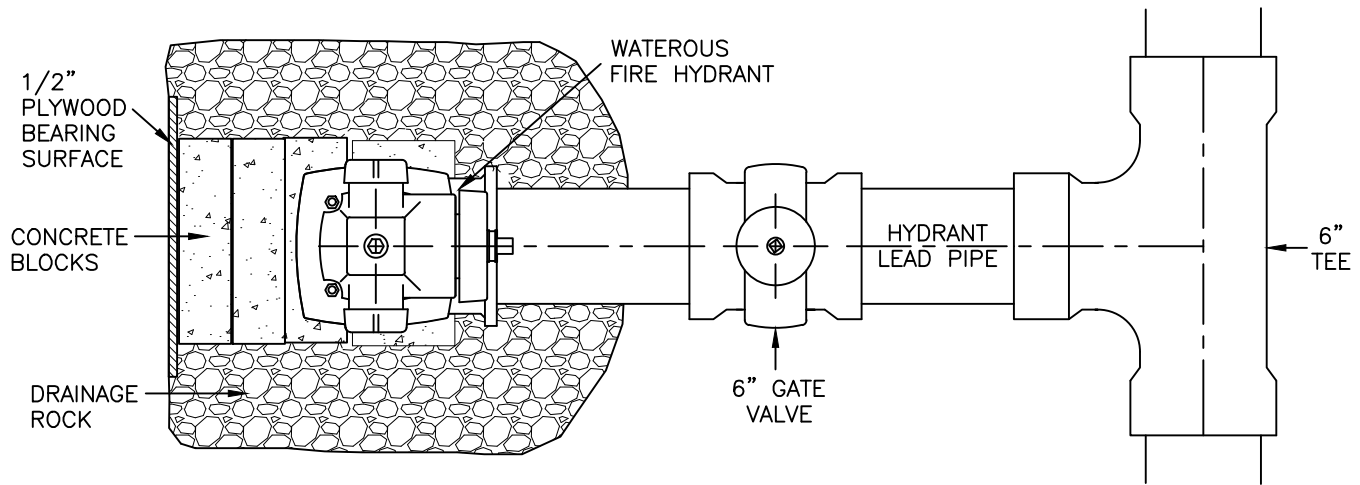


NOTES:

- OPERATING & CAP NUTS: CITY OF FARGO STANDARDS
- BOLTS BELOW GROUND SHALL BE STAINLESS STEEL
- LOWER STANDPIPE OF ALL HYDRANTS SHALL BE WRAPPED WITH POLYETHYLENE FILM, NOT TO COVER WEEP HOLES
- REFER TO DETAILS 1300 5.13 & 1300 5.14 FOR TRACER WIRE LAYOUT

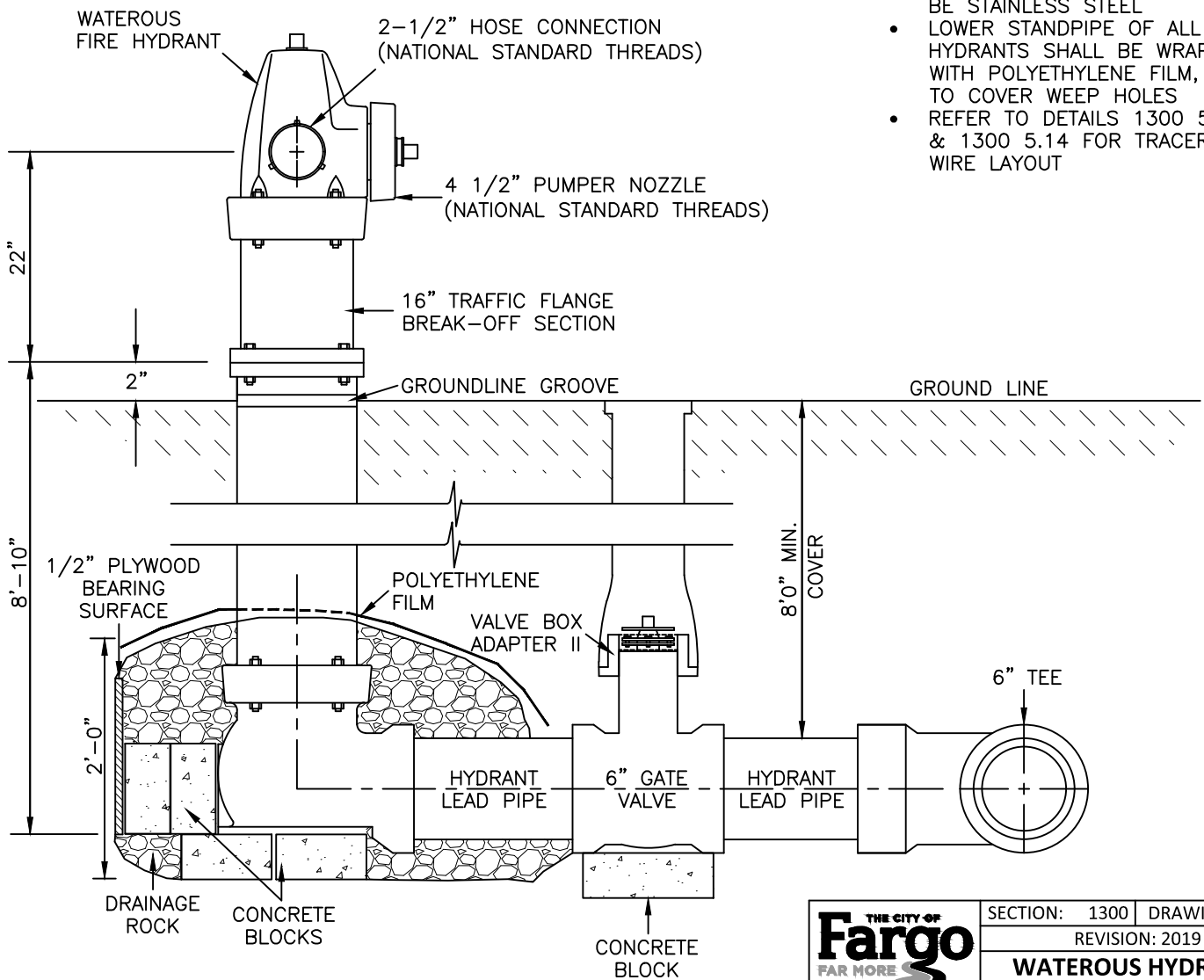


SECTION: 1300	DRAWING: 5.6
REVISION: 2019	
AMERICAN DARLING HYDRANT CONNECTIONS	
APPROVED:	DATE:

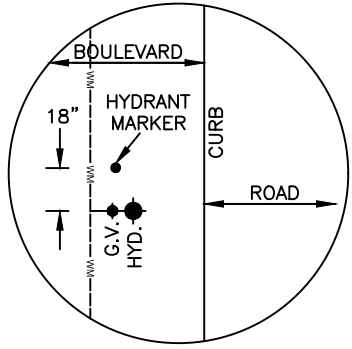


NOTES:

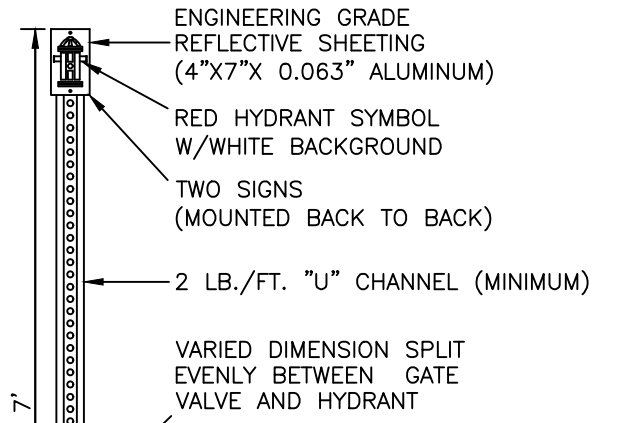
- OPERATING & CAP NUTS: CITY OF FARGO STANDARDS
- BOLTS BELOW GROUND SHALL BE STAINLESS STEEL
- LOWER STANDPIPE OF ALL HYDRANTS SHALL BE WRAPPED WITH POLYETHYLENE FILM, NOT TO COVER WEEP HOLES
- REFER TO DETAILS 1300 5.13 & 1300 5.14 FOR TRACER WIRE LAYOUT



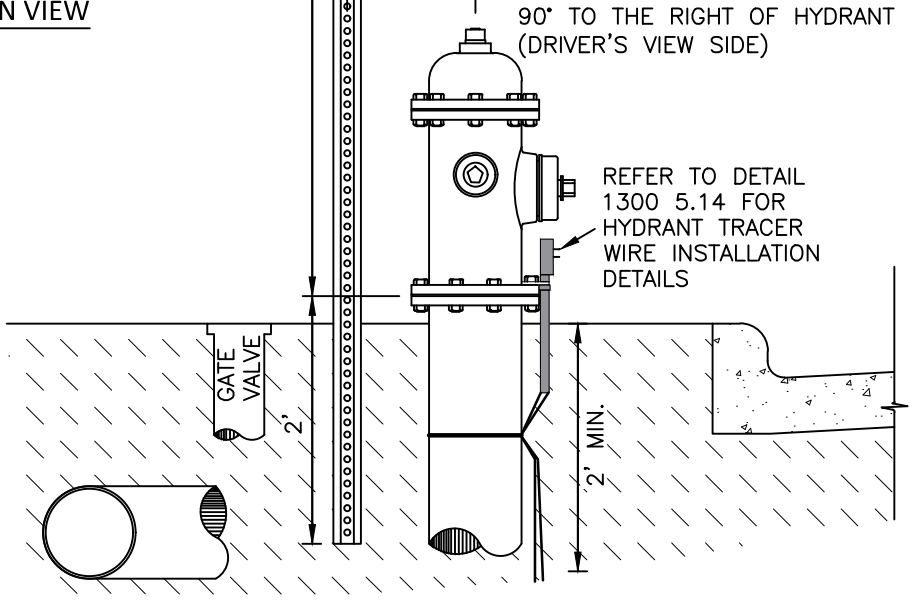
SECTION: 1300	DRAWING: 5.7
REVISION: 2019	
WATEROUS HYDRANT CONNECTIONS	
APPROVED:	DATE:



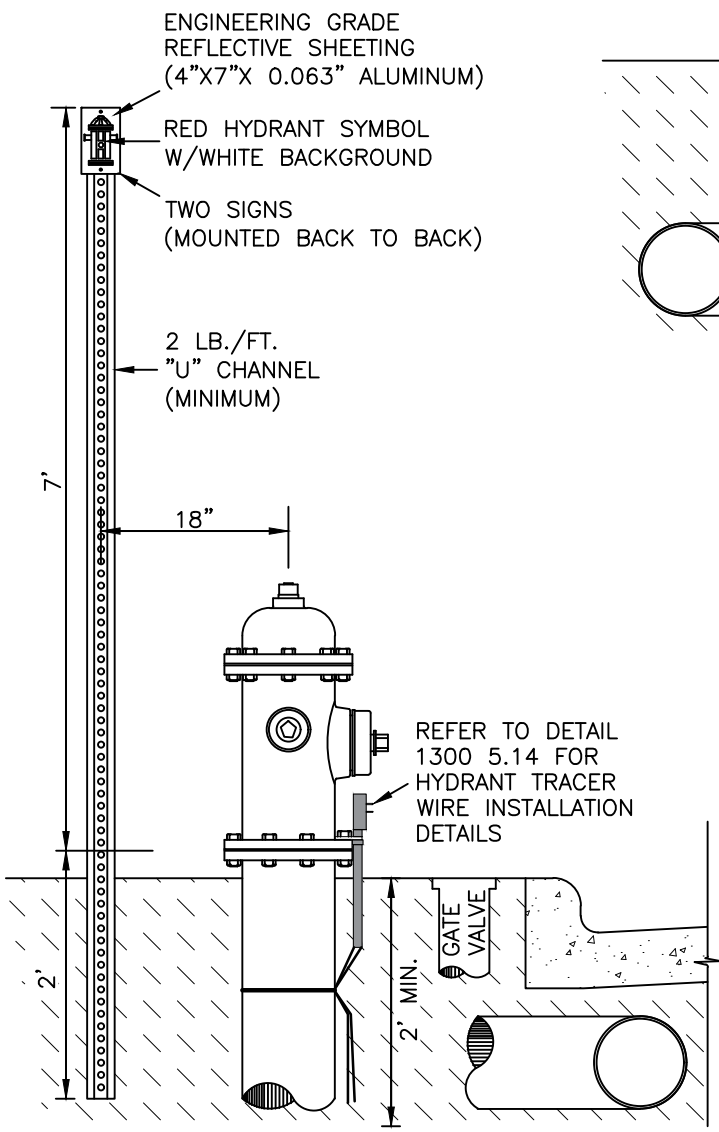
PLAN VIEW



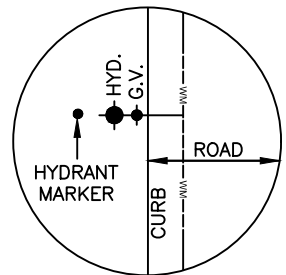
REFER TO DETAIL 1300 5.14 FOR HYDRANT TRACER WIRE INSTALLATION DETAILS



WATERMAIN IN BOULEVARD



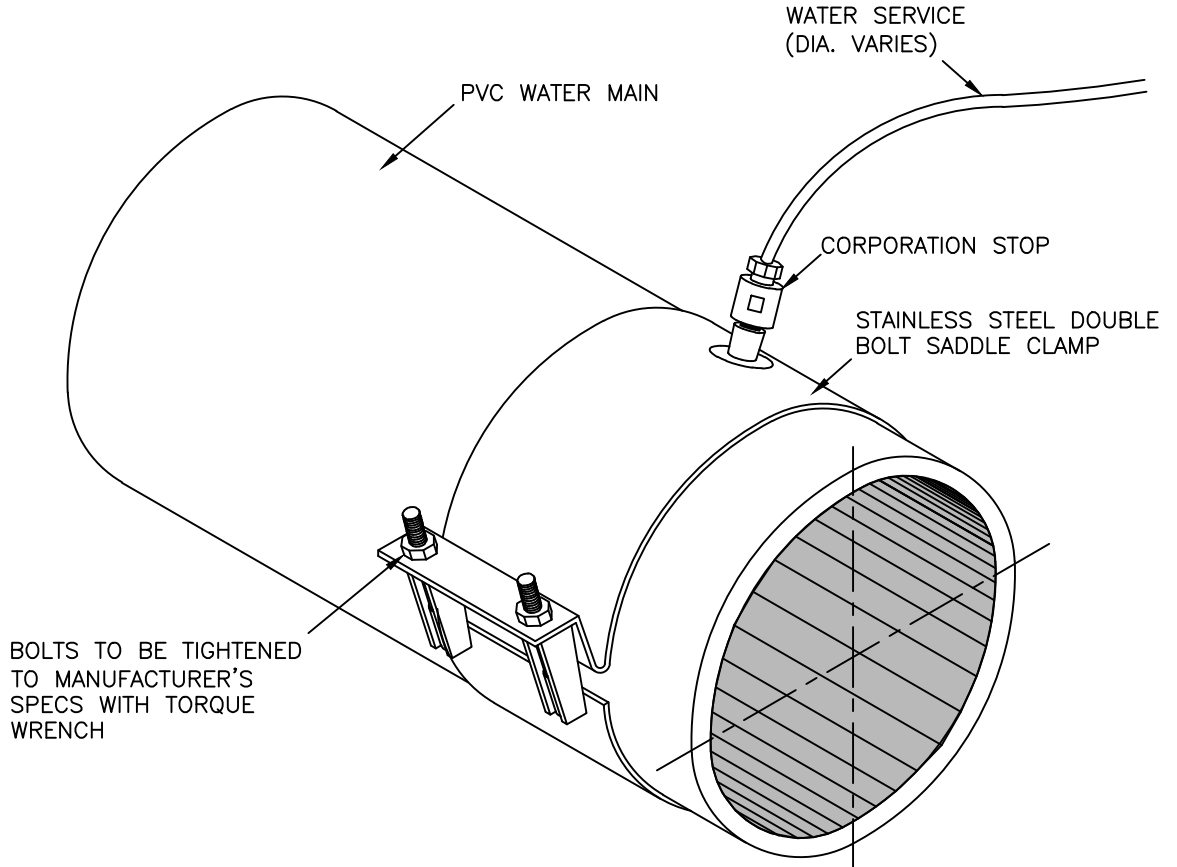
WATERMAIN UNDER ROADWAY



PLAN VIEW

THE CITY OF
Fargo
FAR MORE
ENGINEERING
DEPARTMENT

SECTION: 1300	DRAWING: 5.8
REVISION: 2019	
HYDRANT MARKER DETAIL	
APPROVED:	DATE:



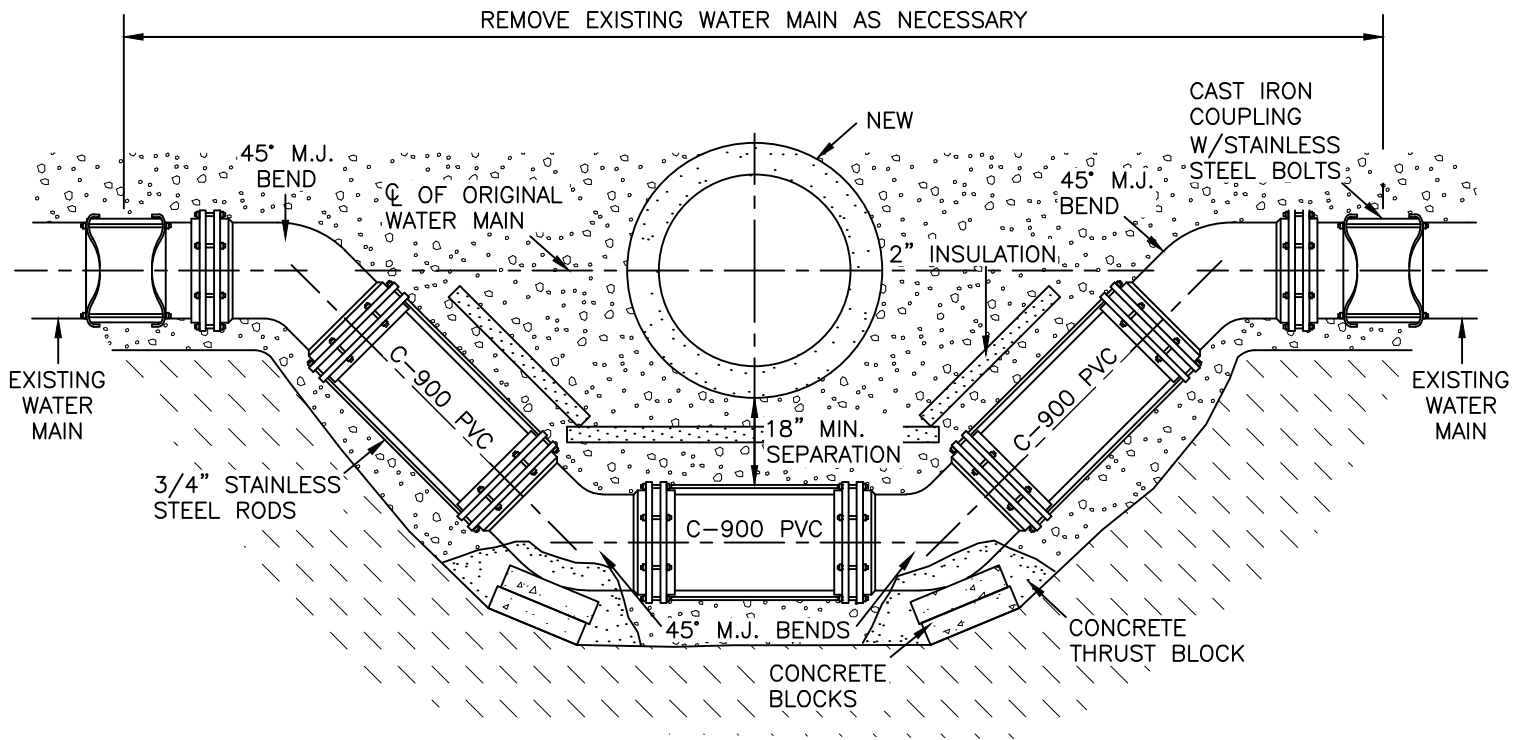
BOLTS TO BE TIGHTENED TO MANUFACTURER'S SPECS WITH TORQUE WRENCH

NOTES:

- THE CONTRACTOR WILL BE REQUIRED TO USE ALL STAINLESS STEEL SADDLE SERVICES. DIRECT TAPS WILL NOT BE PERMITTED.
- REFER TO DETAILS 1300 5.13 & 1300 5.14 FOR TRACER WIRE LAYOUT.



SECTION: 1300	DRAWING: 5.9
REVISION: 2019	
WATER MAIN TAPPING SADDLE	
APPROVED:	DATE:

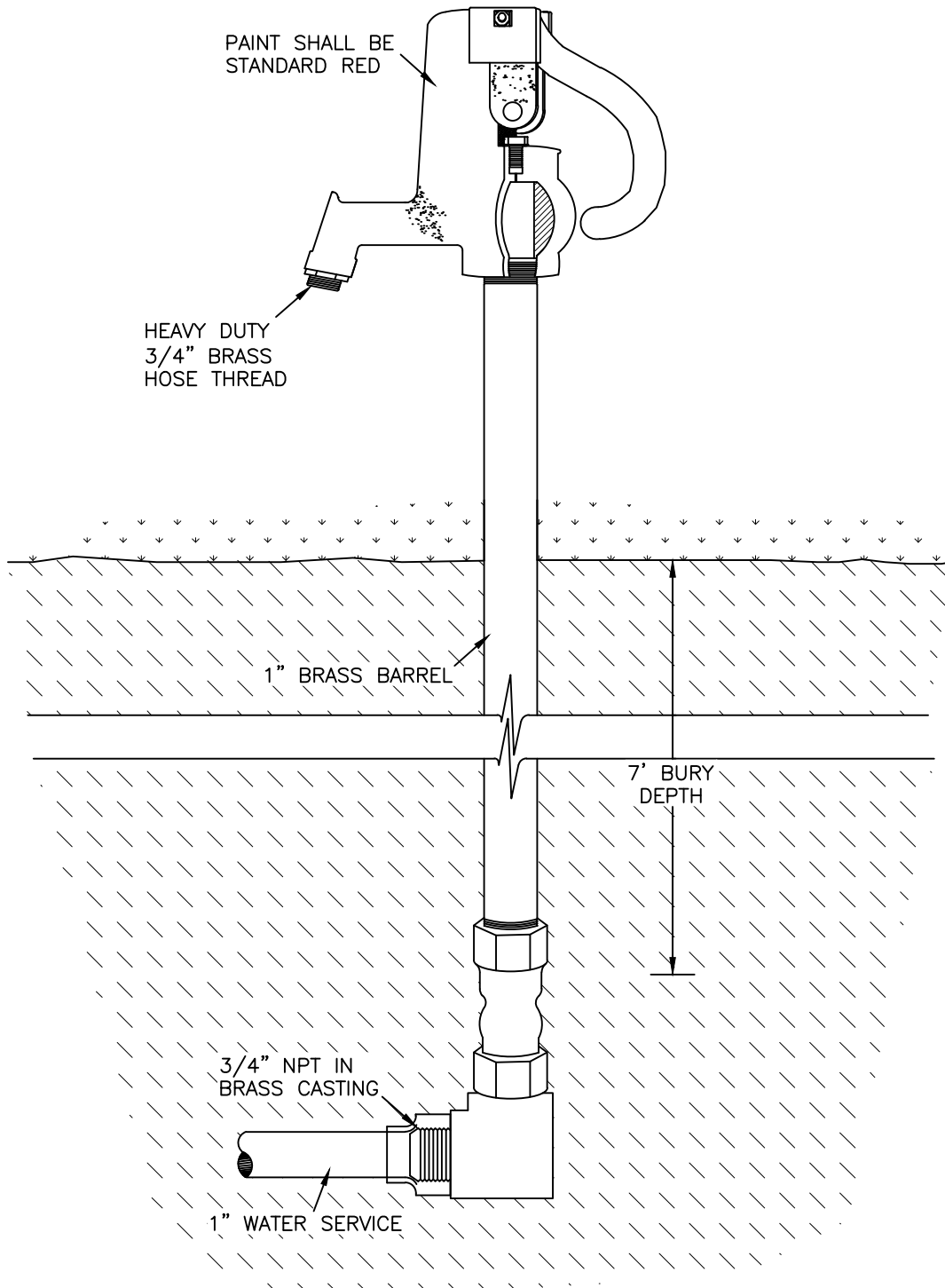


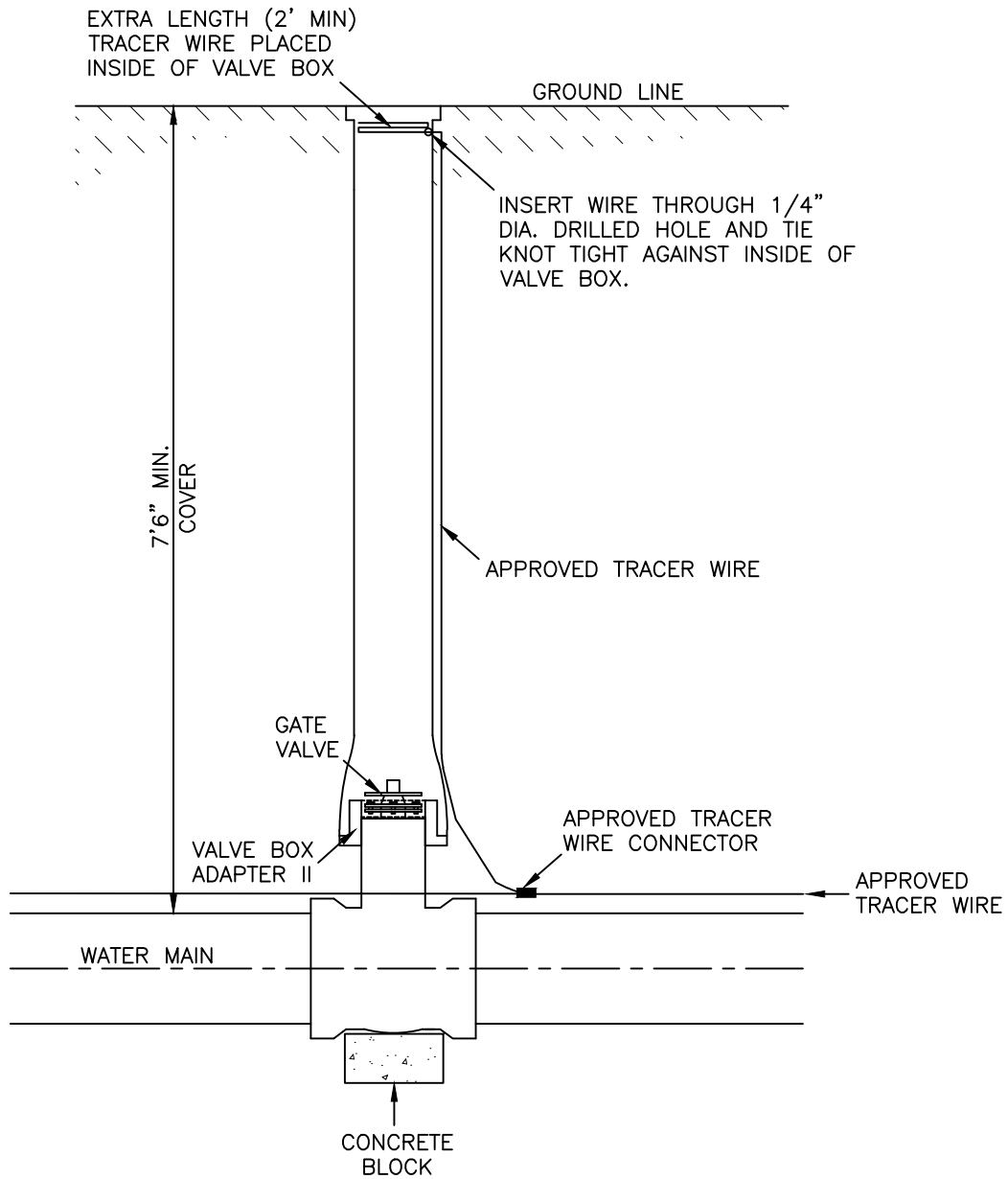
NOTES:

- ALL FITTINGS TO BE WRAPPED IN POLYETHYLENE PLASTIC (8 MIL MIN.)
- BELLS AND BOLTS TO BE KEPT FREE OF CONCRETE.
- ALL JOINTS TO HAVE RESTRAINING GLANDS WITH $\frac{3}{4}$ " STAINLESS RODS.



SECTION: 1300	DRAWING: 5.10
REVISION: 2019	
WATER MAIN RELOCATION DETAIL	
APPROVED:	DATE:

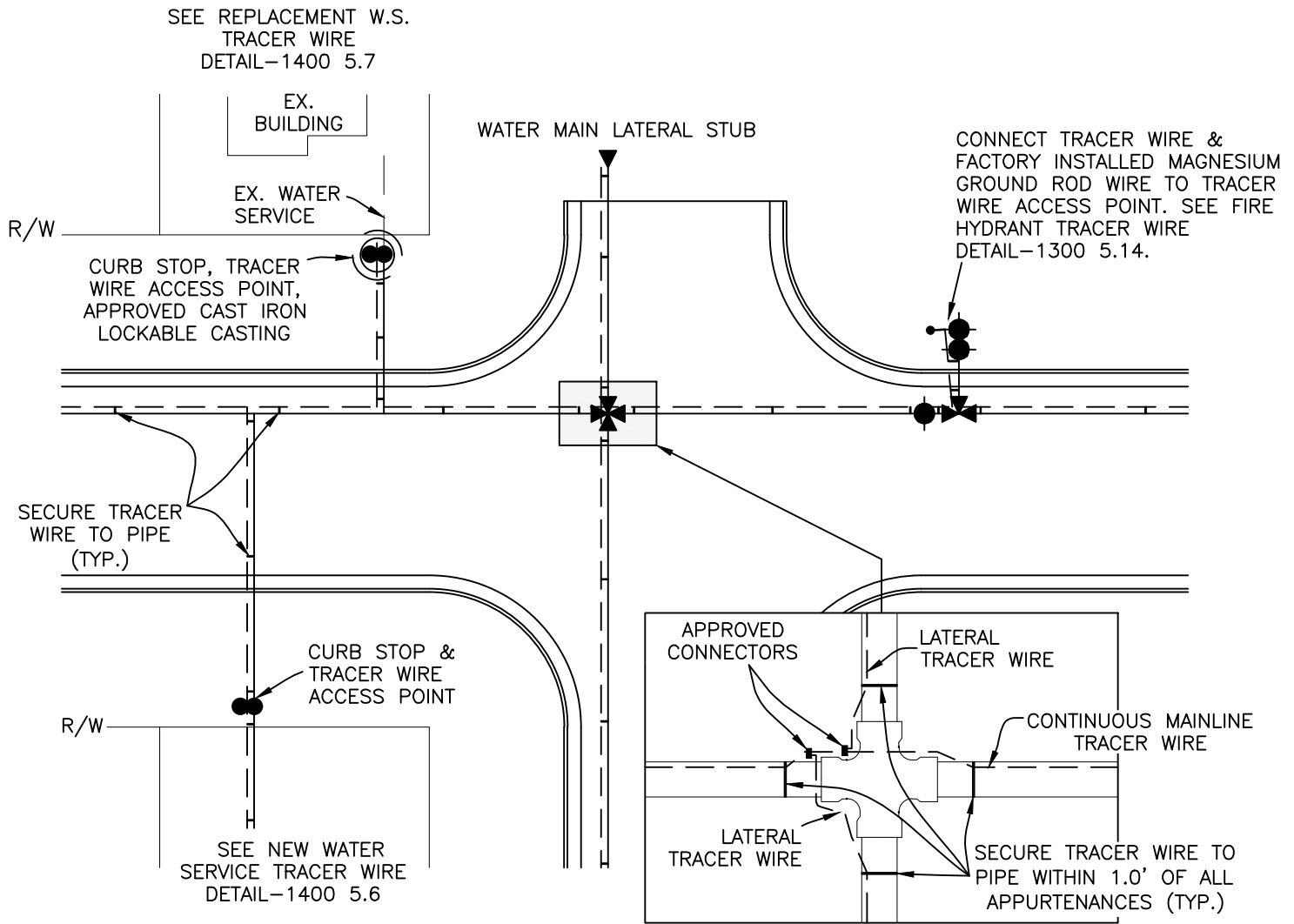




NOTE:
 TRACER WIRE WILL NOT NORMALLY BE INSTALLED VERTICALLY UP VALVE BOXES AS SHOWN. THIS DETAIL APPLIES ONLY WHERE SPECIFICALLY CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER.



SECTION: 1300	DRAWING: 5.12
REVISION: 2019	
VALVE TRACER WIRE DETAIL	
APPROVED:	DATE:

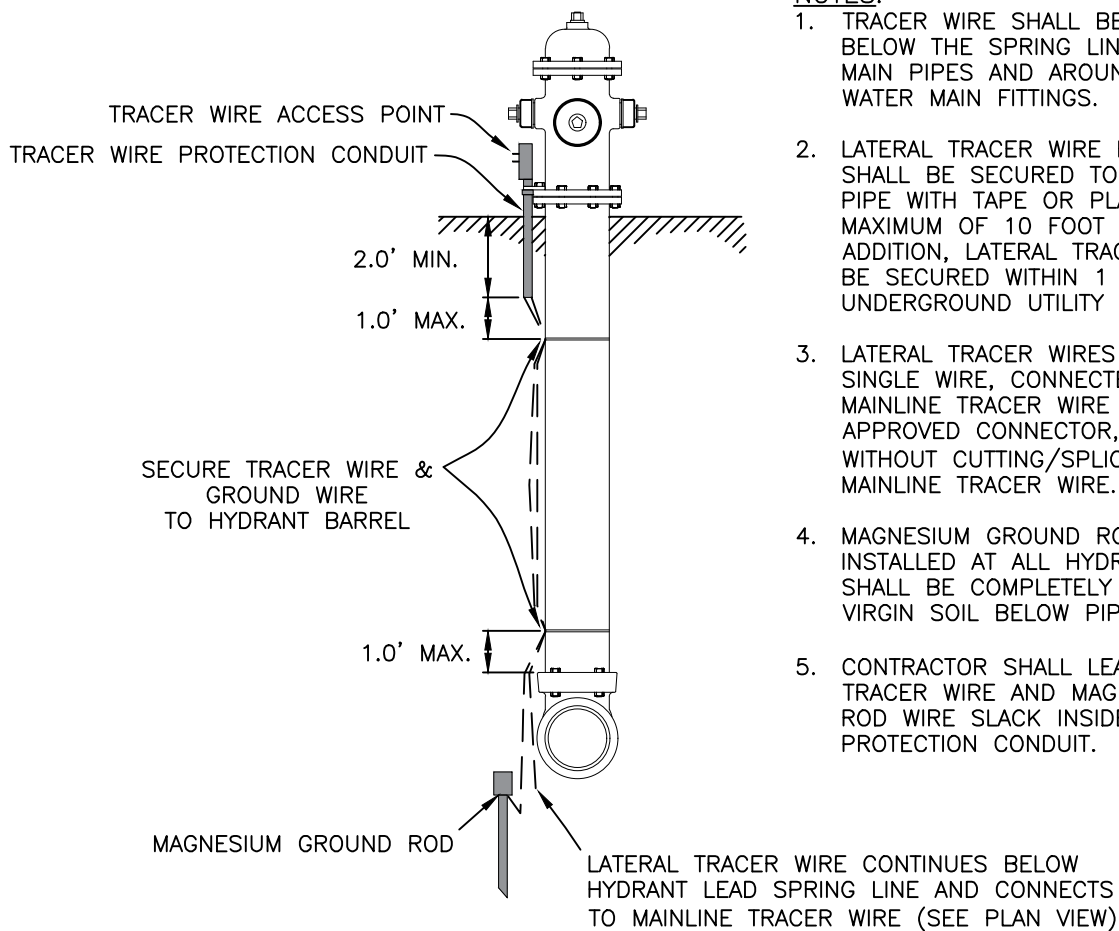


NOTES:

1. TRACER WIRE SHOWN AWAY FROM PIPE FOR CLARITY.
2. TRACER WIRE SHALL BE INSTALLED BELOW THE SPRING LINE OF WATER MAIN PIPES AND AROUND THE SIDE OF WATER MAIN FITTINGS.
3. MAINLINE TRACER WIRE SHALL BE SECURED TO THE MAINLINE PIPE WITH TAPE OR PLASTIC TIES AT EVERY PIPE BELL OR AT 20 FOOT INTERVALS, WHICHEVER IS LESS. IN ADDITION, MAINLINE TRACER WIRE SHALL BE SECURED WITHIN 1 FOOT OF ALL UNDERGROUND UTILITY APPURTENANCES.
4. LATERAL TRACER WIRE FOR WATER SERVICES SHALL BE SECURED TO THE WATER SERVICE PIPE WITH TAPE OR PLASTIC TIES AT A MAXIMUM OF 10 FOOT INTERVALS. IN ADDITION, LATERAL TRACER WIRE SHALL BE SECURED WITHIN 1 FOOT OF ALL UNDERGROUND UTILITY APPURTENANCES.
5. MAINLINE TRACER WIRE SHALL BE INSTALLED AS A SINGLE CONTINUOUS WIRE. SPLICES SHALL NOT OCCUR MORE FREQUENTLY THAN ONE PER 500 FEET.
6. LATERAL TRACER WIRES SHALL BE A SINGLE WIRE, CONNECTED TO THE MAINLINE TRACER WIRE USING AN APPROVED CONNECTOR, INSTALLED WITHOUT CUTTING/SPLICING THE MAINLINE TRACER WIRE.
7. MAGNESIUM GROUND RODS SHALL BE INSTALLED AT ALL HYDRANTS AND SHALL BE COMPLETELY DRIVEN INTO VIRGIN SOIL BELOW PIPE BEDDING.
8. ALL NEW CONSTRUCTION WATER SERVICES SHALL INCLUDE AN APPROVED TRACER WIRE ACCESS POINT.
9. WHEN CURB STOP BOX AND/OR TRACER WIRE ACCESS POINT ARE LOCATED IN A HARD SURFACED AREA THEY SHALL BE PLACED INSIDE AN APPROVED CAST IRON LOCKABLE CASTING.



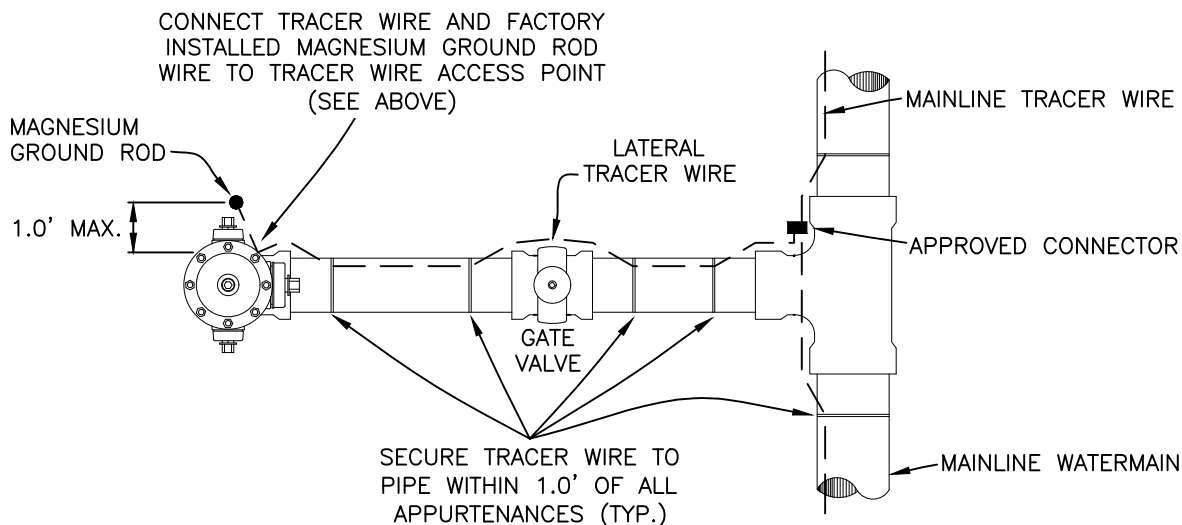
SECTION: 1300	DRAWING: 5.13
REVISION: 2019	
MAINLINE TRACER WIRE DETAIL	
APPROVED:	DATE:



HYDRANT - PROFILE VIEW
NOT TO SCALE

NOTES:

1. TRACER WIRE SHALL BE INSTALLED BELOW THE SPRING LINE OF WATER MAIN PIPES AND AROUND THE SIDE OF WATER MAIN FITTINGS.
2. LATERAL TRACER WIRE FOR HYDRANTS SHALL BE SECURED TO THE WATER PIPE WITH TAPE OR PLASTIC TIES AT A MAXIMUM OF 10 FOOT INTERVALS. IN ADDITION, LATERAL TRACER WIRE SHALL BE SECURED WITHIN 1 FOOT OF ALL UNDERGROUND UTILITY APPURTENANCES.
3. LATERAL TRACER WIRES SHALL BE A SINGLE WIRE, CONNECTED TO THE MAINLINE TRACER WIRE USING AN APPROVED CONNECTOR, INSTALLED WITHOUT CUTTING/SPLICING THE MAINLINE TRACER WIRE.
4. MAGNESIUM GROUND RODS SHALL BE INSTALLED AT ALL HYDRANTS AND SHALL BE COMPLETELY DRIVEN INTO VIRGIN SOIL BELOW PIPE BEDDING.
5. CONTRACTOR SHALL LEAVE 24" OF TRACER WIRE AND MAGNESIUM GROUND ROD WIRE SLACK INSIDE TRACER WIRE PROTECTION CONDUIT.



HYDRANT - PLAN VIEW
NOT TO SCALE



SECTION: 1300	DRAWING: 5.14
REVISION: 2019	
FIRE HYDRANT TRACER WIRE DETAIL	
APPROVED:	DATE:

**CITY OF FARGO SPECIFICATIONS
STORM SEWERS**

**PART 1
DESCRIPTION OF WORK**

The work to be done under this section of the Specifications and the accompanying plans consists of the furnishing of all labor, material, accessories and equipment necessary to construct storm sewers in the City of Fargo. The work includes excavation, removal and replacement of paving where encountered; furnishing, laying and jointing pipe; making connections to existing storm sewers and manholes and inlets as necessary; constructing new manholes and inlets; protecting existing utilities and public and private property; backfilling trenches and other work as may be necessary in order that the work may be completed in accordance with these Specifications and the plans accompanying them.

PART 2
MATERIAL

2.1. REINFORCED CONCRETE PIPE (RCP)

2.1.1. MATERIAL

Material, manufacture and testing of RCP shall comply with ASTM C76 latest edition. RCP joints shall have rubber gaskets conforming to ASTM C 443.

2.1.2. MANUFACTURE

Pipe shall be furnished in four to eight foot lengths. Unless otherwise stated in the plans or special instructions, pipe 12" to 18" in diameter shall be Class V, 21" to 36" in diameter shall be Class III, 42" and larger diameter shall be Class II. All pipes shall be marked with the date of manufacture and class of pipe, and no pipe shall be laid before it is at least five days old. Special coatings or lining, if required, shall be as specified in the Special Instructions on the particular project.

2.1.3. JOINTS

Joints shall be of the tongue and groove type and shall be designed to be self-centering. Joints shall be furnished with an all weather butyl rubber gasket in flexible rope form meeting or exceeding the requirements of Federal Specification SS-S-210 A and AASHTO M-198. Where conditions warrant, an approved primer shall be used to obtain a sufficient seal, as directed by the Engineer. All lift holes shall be plugged with a nonshrink concrete plug and a mortar mix or asphaltic sealer to fill voids.

2.2. SOLID WALL POLYVINYLCHLORIDE (PVC) SEWER PIPE

2.2.1. MATERIAL

The material shall conform to "Standard Specifications for Rigid Polyvinyl chloride Compounds", ASTM D-1784, Class 12454-B or 12454-C or 12364-C. The pipe shall be produced using a continuous extrusion process employing a prime grade of unplasticized polyvinyl chloride.

2.2.2. PIPE MANUFACTURE

The PVC sewer pipe and fittings 15 inches in diameter or smaller shall meet the requirements of ASTM D 3034 SDR 35 minimum; pipe and fittings larger than 15 inches in diameter shall meet the requirements of ASTM F 679, wall thickness T-1, pipe stiffness of 46 psi.

2.2.3. JOINTING

The joint system shall be an integral bell gasketed joint, which forms a watertight seal.

2.3. POLY VINYL CHLORIDE (PVC) RIBBED SEWER PIPE

2.3.1. MATERIAL

The material shall conform to “Standard Specifications for Rigid Polyvinyl chloride Compounds”, ASTM D-1784, Class 12454-B or 12454-C or 12364-C. The pipe shall be produced using a continuous extrusion process employing a prime grade of unplasticized polyvinyl chloride.

2.3.2. PIPE MANUFACTURE

The PVC ribbed sewer pipe and fittings 30 inches in diameter or smaller shall be seamless profile wall and meet the requirements of ASTM F794 Standard Specification for PVC Ribbed Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter. The pipe interior shall be smooth walled and shall have a minimum pipe stiffness of 60 psi for pipe diameters 12 inches or less and a minimum pipe stiffness of 46 psi for 15-30” diameter pipe. Pipe shall meet requirements of ASTM D2444 for impact resistance. Exterior ribs shall be perpendicular to the axis of the pipe to allow placement of sealing gaskets without additional cutting or machining.

2.3.3. JOINTING

The joint system shall be an integral bell gasketed joint, which forms a watertight seal and meets the requirements of ASTM D3212 and F477.

2.3.4. MARKING

Each length of pipe shall be marked with the following information: Size, Company name or logo, PVC Sewer Pipe, ASTM F794 Manufacturers code, Cell Classification.

2.3.5. APPROVED MANUFACTURER

PWEAGLE ULTRA-RIB is an approved product.

2.4. CLOSED PROFILE POLYVINYL CHLORIDE (PVC) SEWER PIPE

2.4.1. MATERIAL

The pipe and fittings be made of PVC plastic meeting the requirements of ASTM D-1784 having a minimum cell classification of 12364 -A.

2.4.2. MANUFACTURE

The PVC profile wall pipe and fittings shall meet the requirements of ASTM F 794 latest edition and have a minimum pipe stiffness of 46 psi. Closed cell PVC pipe will only be allowed in 21-inch diameter or larger.

2.4.3. JOINTING

The joint system shall be of the bell and spigot type with a gasket that meets the requirement of ASTM D3212 & F477 to form a watertight seal. Gaskets shall be factory installed and chemically bonded to the bell end of the pipe. Field cuts and field installed gaskets shall be done in accordance with the manufacturer's instructions and his recommended equipment and materials.

2.4.4. APPROVED MANUFACTURERS

Vylon High Capacity and Diamond Plastics Pro-21 closed profile PVC pipe are approved products.

2.5. POLYPROPYLENE (PP) PIPE

2.5.1. MATERIAL

Polypropylene compound for pipe and fittings production shall be impact modified copolymer meeting the material requirements of ASTM F2736, Section 4, ASTM F2881, Section 5 and AASHTO MP-21-11, Section 6.1 for the respective diameters. Pipes shall have a min. stiffness of 46 psi – ASTM D2412.

2.5.2. MANUFACTURE

Under 30 inch diameter pipe shall be dual-wall pipe, and shall have a smooth interior and annular exterior corrugations and meet or exceed ASTM F2736 and AASHTO MP-21-11.

30 to 60 inch diameter pipe shall be triple-wall pipe and shall have a smooth interior and exterior walls and meet or exceed ASTM F2881 and AASHTO MP-21-11.

2.5.3. JOINTING

Pipe shall be joined with a gasketed integral bell & spigot joint meeting the requirements of ASTM F2736 & F2881, for the respective diameters.

All pipe joints shall be watertight according to the requirements of ASTM D3212. Spigots shall have gaskets meeting the requirements of ASTM F477. Gasket shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint lubricant, available from the manufacturer, shall be used on the gasket and bell during assembly.

Pipes shall have a reinforced bell with a polymer composite band installed by the manufacturer.

2.6. MANHOLES

2.6.1. MATERIAL

Precast manholes shall meet the requirements of ASTM C478. Precast segmental blocks shall be manufactured in accordance with ASTM C-139. The blocks shall form an 8" wall thickness. Brick shall be clay or concrete, uniform in size and texture and meeting ASTM Specifications for sewer brick. Brick manholes shall have prior approval from the Engineer.

Either monolithic manhole style boot connectors factory installed at the proper elevation and direction or concrete to PVC pipe adapters shall be used to connect PVC pipe to the manhole. PVC manhole adapter shall be GPK Products or approved equal.

2.6.2. MANUFACTURE

The manholes shall be constructed in accordance with ASTM C478 and the detail drawings included as part of this section of the Specifications. The main sewer shall be carried through manholes by split pipe whenever practicable. The concrete manhole shelves shall slope from the top edges of the invert at a rate of 2" per foot. When split pipe is not possible due to breaks in grade or elevation, the sewer invert shall be made of concrete. The shape of the invert shall conform exactly to the lower 1/2 of the pipe it connects and be left smooth and clean. Side branch inverts shall be constructed with as large radius of curvature as possible.

Mortar for concrete block manholes shall be mixed in the proportions of one part by volume of Portland Cement and two parts by volume of sand. Cement and sand shall be thoroughly mixed dry and only enough water added to form a mortar of proper consistency for block laying. All mortar shall be used within 40 minutes of mixing, and all mortar that has begun to take on its initial set shall be discarded and shall not be mixed with additional cement or new mortar. When connecting pipe to manholes, regular concrete (not grout) shall be used to mortar around the pipes on both the inside and outside of the manhole or inlet.

2.6.3. JOINTS

Joints shall be of the tongue and groove type and shall be designed to be self-centering. Joints shall meet the requirements of ASTM C990 unless otherwise specified in the Special Instructions. Joints shall be an all weather butyl rubber gasket in flexible rope form, meeting or exceeding the requirements of federal specification 55.5-210A and AASHTO M-198. Where conditions warrant, an approved primer shall be used to obtain a sufficient seal as directed by the Engineer.

2.6.4. MANHOLE AND INLET ADJUSTING RINGS

Manhole and inlet adjusting rings shall be composed of engineered polymer; either injection molded High Density Polyethylene (HDPE) as manufactured by Ladtech, Inc., or IPEX, Inc, or Expanded Polypropylene (EPP) as manufactured by JSP, or approved equal. Fine adjustments shall be made with thin and/or tapered adjustment rings (no steel shims allowed). All rings shall meet or exceed AASHTO HS-20 loading and be properly installed and sealed in accordance with the manufacturer's recommendations. HDPE materials shall conform to ASTM D-4976 using 100% recycled material.

Precast reinforced concrete adjusting rings will only be allowed upon the Division Engineer's approval where the size required is not manufactured in engineered polymer.

2.6.5. LIFT HOLES

Lift holes shall be manufactured to provide a watertight seal.

2.7. INLETS

The inlets shall be constructed in accordance with the detailed drawings included as part of these Specifications. Concrete and reinforcing used in the construction of these inlets shall also meet the requirements of ASTM C-478.

Concrete to PVC pipe adapters shall be used to connect PVC pipe to the inlet. PVC manhole adapter shall be GPK Products or approved equal.

All gutter-line inlets shall be installed complete with holes, either precast or core-drilled, and boots for watertight edge drain connections. Boots shall be flexible synthetic rubber, certified to ASTM C-923, with no plastic parts, welds, nor rivets. Any/all fastening components shall be stainless steel.

2.8. CASTINGS

2.8.1. MANHOLE CASTINGS

Manhole casting shall be Neenah R-1733, EJ1205Z, or approved equal with a vented lid with the word "STORM" (or the words "STORM SEWER") cast into the center of the lid in letters at least 1 inch high.

2.8.2. *INLET CASTINGS*

RDI - Round Inlet

DBI - Double Box Inlet

MHI - Manhole Inlet

SPI - Special Inlet

SBI - Single Box Inlet

CHART 1 - INLET CASTINGS, GRATES, ETC.

Curb Type	Inlet Location	Inlet Type	Frame Type		Grate Type		Curb Box		Fargo Designation
			Neenah Foundry	EJ	Neenah Foundry	EJ	Neenah Foundry	EJ	
Standard (Type 2)	Low Point	DBI	R-3295-2	7031	V	M4	3290-0040	T5	DBI-V2
	Low Point	SBI	R-3067-VB	7030	VB	M11	3290-0040	T5	SBI-VB2
	Not LPT	SBI	R-3067-V	7030	V	M4	3290-0040	T5	SBI-V2
	Any	RDI or SPI	R-3404	5113	L	M1	none	none	RDI-L2 or SPI-L2
Mountable (Type 1)	Any	SBI	R-3067-C	7030Z2	L	M6	none	none	SBI-L1
	Any	RDI or SPI	R-3404	5113	L	M1	none	none	RDI-L1 or SPI-L1
Flat	ADA Ramp	SBI	R-3067-C	7030Z2	Q	M10	none	none	SBI-Q
none	Non-Street	RDI, SPI, or MHI	none		R-4342	6489	N/A		RDI, SPI, or MHI

Note: Gutter line MHI frame, grate, and curb box designations shall be as shown on the plans.

2.8.3. *BEEHIVE CASTING (WHERE SPECIFIED)*

Beehive casting (6" high) shall be Neenah R-2561-A, EJ 1205Z/M2 or approved equal.

2.8.4. *FLOATING CASTINGS (WHERE REQUIRED)*

Floating casting shall be per section 2100 of these Specifications.

PART 3
CONSTRUCTION

3.1. GENERAL

Excavation, trenching and backfilling shall be done in accordance with Section 1000 of these Specifications. Pipe shall be handled and laid in accordance with the Manufacturer's or Industry standards, ASTM C1479. Pipe and manholes shall be laid in the location shown on the plans, the exact location being designated by the Engineer. With PVC and/or PP pipe, both ends shall be wiped clean and sufficient lubrication placed on the gasket and spigot end before the pipe is fully pushed into the bell. Field cut spigot ends shall be beveled prior to being pushed into the bell. With RCP, both ends shall be cleaned and the asphaltic joint sealer applied in sufficient quantity to be extruded from the joint as the pipe is pushed home. If butyl rubber gaskets are used, they shall be installed as per the manufacturer's recommendations. Every part of the pipe shall be bedded uniformly throughout its length. Pipe shall be laid upgrade with the spigot end pointing in the direction of flow. All sewers must be kept thoroughly clean. When the trench is left at night or the pipe laying stopped, the upper end of the pipe must be closed with an end board or cap to prevent dirt and sand from entering the pipe.

Pipe shall not be trimmed except for closures, and pipe not making a good fit shall be plainly marked and removed from the site. Permissible defects (minor chips or broken sockets with a depth of fracture less than 1" deep as measured from the end of the socket (RCP only)) shall be placed in the top of the line.

PVC and/or PP pipe used as storm sewer will only be allowed on backyard inlet lead runs where the pipe is located outside the future street section unless approved by the Engineer. Material change can only be made at a structure.

All 60" or larger RCP shall be laid on a bed of 6-inches of 1 1/4" crushed rock. The six inches of crushed rock shall be incidental to the pipe bid price. Additional rock shall be used as directed by the Engineer to backfill unstable bedding areas. The cost of excavating and placing the additional (more than 6-inches) shall be paid for per cubic yard of 1 1/4" crushed rock.

3.2. ALIGNMENT

The Engineer will provide line and grade for all storm sewer pipes. Grade and alignment shall be maintained by the use of a line parallel to the grade and line of the sewer, this line to be supported above the ground on batter boards spaced 50 feet or less apart and rigidly anchored to and supported by steel post driven into the ground.

Not less than 3 batter boards shall be maintained at all times. The Engineer shall be immediately notified of any misalignment of the batter boards set in accordance with the grade and alignment of the tacked offset stakes provided.

Electronic grade control is allowed, however the Contractor will be required to periodically check the alignment and grade from the offset stakes provided. In no instance will the Contractor be allowed to change the alignment or grade without the permission of the Engineer.

3.3. MANHOLES/INLETS

The manhole/inlet bases shall be set at the proper grade and alignment to provide a smooth transition from the incoming pipe(s) to the outgoing pipe. Manhole/inlet bases shall be set on four inches of bedding sand in a dry trench condition. In wet or unstable trench conditions the manhole/inlet base shall be bedded in 6" of 1 1/4" crushed rock. The area that is over-excavated adjacent to the manhole/inlet base and under the pipe shall be filled with concrete to prevent settlement and provide for support for the pipe from the manhole/inlet edge to the regular trench excavation. Care shall be taken that the connection between the manhole/inlet and the pipe is watertight and the invert is smooth and continuous as it enters and exits the manhole/inlet. Mortar around the pipe connection shall be regular concrete (not grout) conforming to the requirements for sidewalks outlined in Section 2300. The concrete shall be placed on both the inside and outside of the manhole/inlet concurrently. The concrete below the spring line of the pipe at both the exterior and interior of the manhole/inlet shall be vibrated. The interior shall have a wood trowel finish. When non-RCP is used, a manhole connection adapter will be required to be installed to achieve a watertight condition - installation shall be per the pipe manufacturer recommendations. Contractor shall protect manhole/inlet from washouts by plugging holes for edge drain. If edge drain is not part of the contract, plugs shall remain in place at completion of project.

3.4. CASTING TO GRADE (BOULEVARD)

This item applies to inlets located outside the paving section and for manholes/inlets that will not be adjusted with a planned future project, and shall include all labor, materials and equipment necessary to

adjust the various manhole/inlet castings to the proper line and grade. Changes in grade shall be made as follows:

All adjustments, including fine adjustments, shall be made with engineered polymer adjustment rings as specified herein (no steel shims allowed). All adjustment rings shall be properly sealed or wrapped with nonwoven geotextile fabric in accordance with the manufacturer's recommendations.

Where casting adjustment requirements cannot be met by the use of engineered polymer adjustment rings and upon the Division Engineer's approval, the Contractor shall provide precast reinforced concrete adjusting rings. For fine adjustments of less than two (2) inches, steel shims shall be used to temporarily support the casting. The castings and rings shall be laid in a full bed of mortar. The rings and structure section shall be cleaned to assure a flat seating surface and the rings shall be installed in alignment with no noticeable offsets. After smoothing the protruding grout around the interior and exterior of the rings, nonwoven geotextile fabric shall be placed and secured around the outside of the rings from three (3) inches below the top of the manhole/inlet structure to the top of the rings, overlapping the frame casting.

Care shall be taken to adjust the casting to the elevation determined by the Engineer. Any castings not satisfying these requirements shall be redone to the satisfaction of the Engineer.

3.5. TELEVISIONING

All gravity sewers shall be televised by the City of Fargo Street Department. Any abnormalities such as, but not limited to, deviations of grade, misaligned joints, cracked/defected pipe, rolled gaskets shall be repaired by the Contractor at his expense. Sections requiring repair shall be re-televised to verify conditions of repair. It is the Contractor's responsibility to provide drivable access to each manhole for the City of Fargo camera truck. Televising requires a 7-day advance notice and shall be scheduled through the inspectors on site, and will be completed during normal City of Fargo Street Department hours. If the camera operator deems the pipe unsuitable for televising, the Contractor shall clean the sewer by means of jetting. All costs to accommodate televising shall be included in other bid items.

3.6. DEFLECTION TESTING

All flexible conduit pipe used in urban storm sewers shall be tested for deflection in accordance with Section 1200 of these Specifications.

PART 4
GUARANTEE, MEASUREMENT & PAYMENT

4.1. GUARANTEE

The guarantee shall be per the contract.

4.2. MEASUREMENT AND PAYMENT

4.2.1. GENERAL

The cost of excavating and trenching shall be included as part of this specification.

4.2.2. STORM SEWER PIPE

Pipe will be measured by customary and conventional methods and paid for on a unit price basis for the actual length installed. Measurement will be from center of manhole to center of manhole or from end of existing pipe to center of manhole or end of pipe stubout. No additional payment will be made for the manhole connections or cutting of pipe for closures. Where bid items are provided, plugs will be paid on a per each basis, otherwise they shall be incidental to the work.

4.2.3. STORM SEWER MANHOLES & INLETS

The cost of furnishing and installing the manholes and inlets will be paid for on a lump sum bid per each manhole or inlet installed. Costs shall include all excavation, bedding, backfilling, constructing, furnishing and installing the casting in place, connections to the sewer, installing inverts and sealing the manhole or inlet connections, joints, and lift holes, and plugging the holes for edge drain.

4.2.4. CASTING TO GRADE (BOULEVARD)

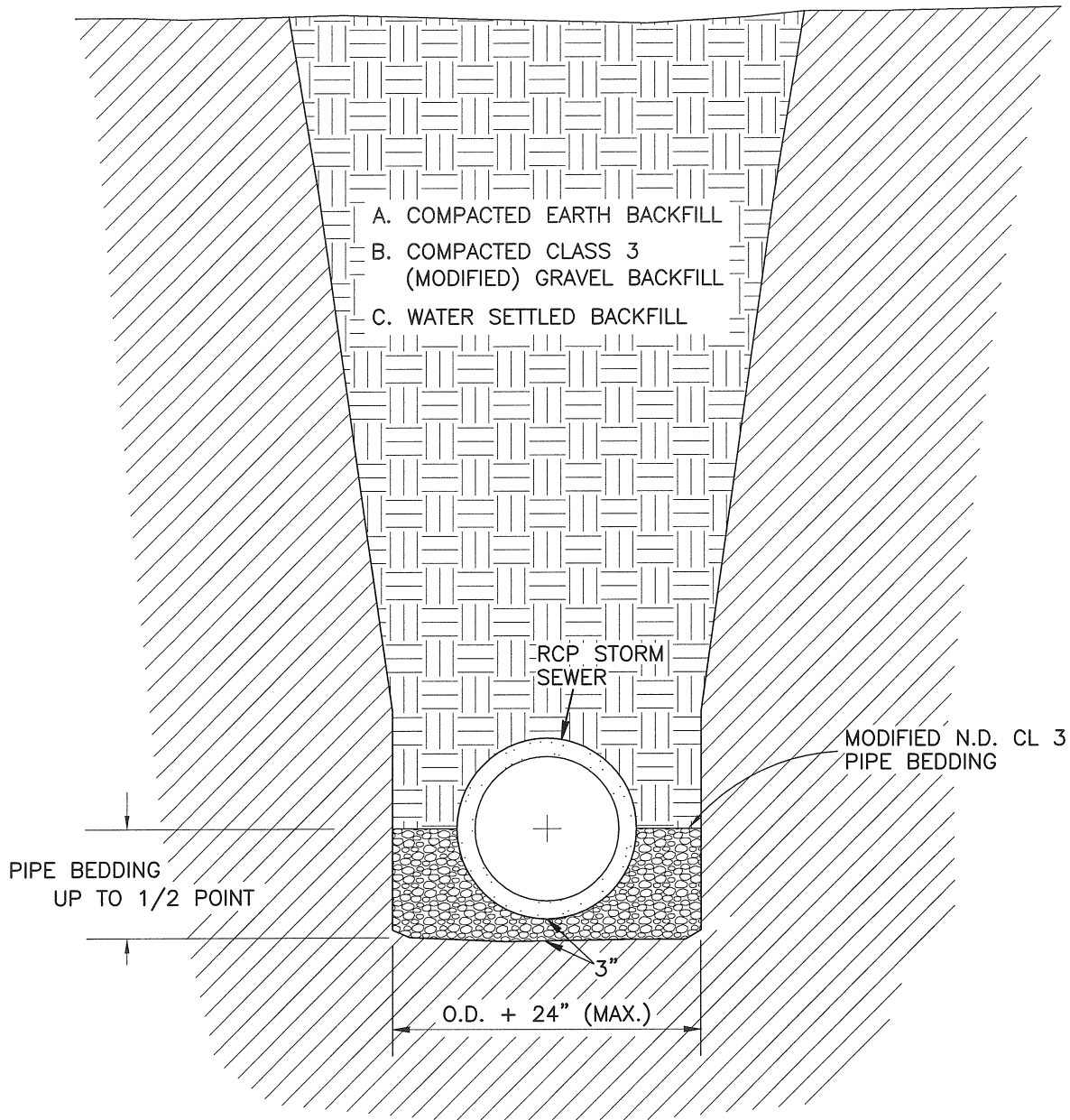
This bid item shall be paid for at the contract unit price per each, and shall include adjusting the castings with up to 4 adjusting rings, including all sealant, wrap, or chimney seals as specified herein.

4.2.5. FLARED-END SECTION (FES)

The length of a Flared End Section (FES) shall not be included in the measurement of the associated storm sewer size. A FES shall be paid on a per each basis. Trash racks shall be incidental to the FES bid item.

4.2.6. OTHER COSTS

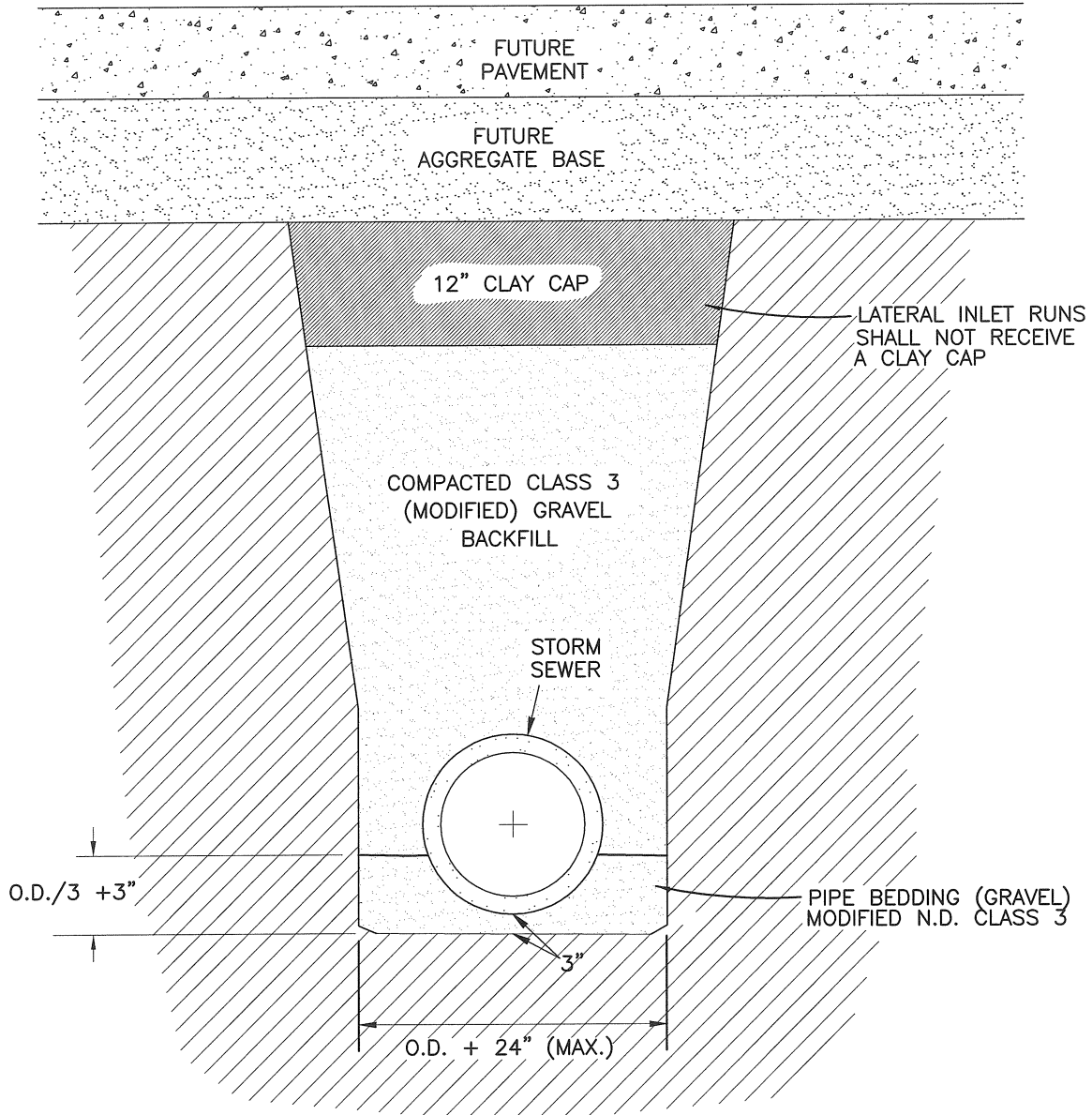
All other costs for work necessary to properly complete the work specified herein shall not be bid items; the costs shall be charged to other items unless a bid item is specifically included on the bid sheet.



NOTES:

1. MAXIMUM TRENCH WIDTH FOR 60", 66" & 72" RCP NOT TO EXCEED OUTSIDE DIAMETER OF PIPE + 12" FROM BOTTOM OF TRENCH TO A POINT 2' ABOVE PIPE.
2. ALL LIFTING HOLES TO BE PLUGGED & MORTARED.
3. PVC PIPE – GRAVEL BEDDING/ENCASEMENT REQUIRED TO 3" ABOVE PIPE.
4. OTHER PIPE – GRAVEL BEDDING/ENCASEMENT PER DIRECTION OF ENGINEER.

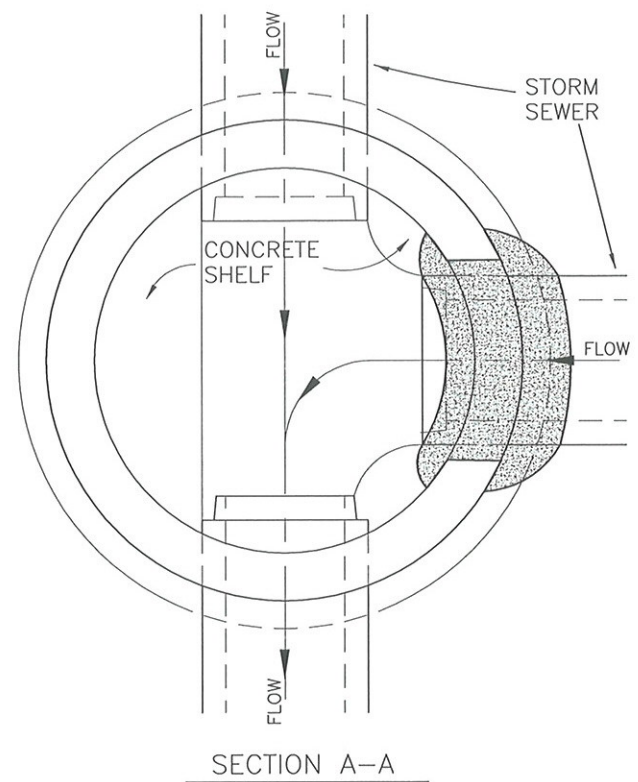
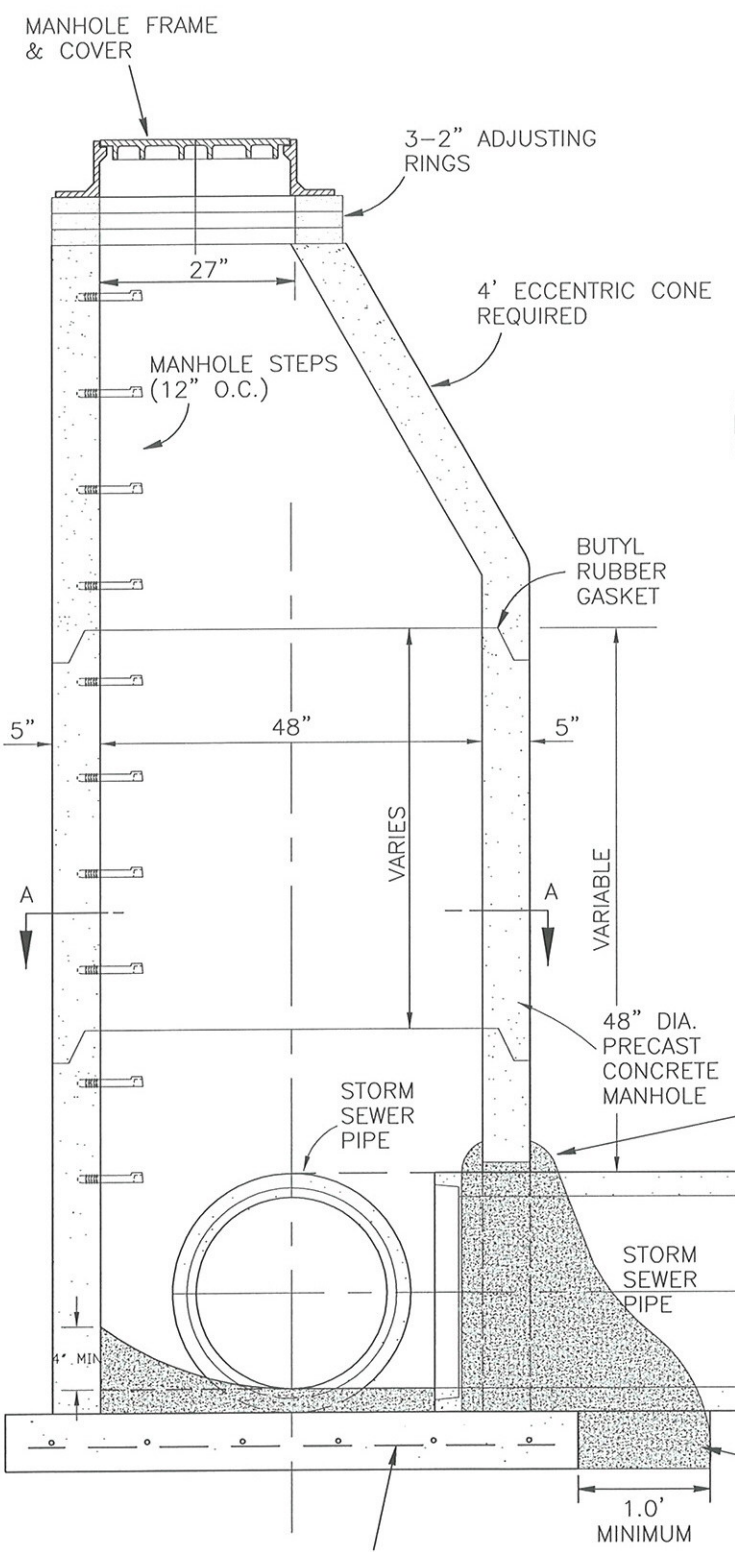
SECTION NO. 1500	DRAWING NO. 5.1
REV.D. 2012	
STORM SEWER TRENCH BACKFILL	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>BEO</i>	DATE <i>2-21-2012</i>



NOTES:

1. MAXIMUM TRENCH WIDTH FOR 60", 66" & 72" RCP NOT TO EXCEED OUTSIDE DIAMETER OF PIPE + 12" FROM BOTTOM OF TRENCH TO A POINT 2' ABOVE PIPE.
2. ALL LIFTING HOLES SHALL BE PLUGGED & MORTARED.
3. THIS DETAIL APPLIES WHERE STORM SEWER IS INSTALLED UNDER FUTURE PAVING WITH EDGE DRAIN.

SECTION NO.	1500	DRAWING NO.	5.2
REV.D.			
STORM SEWER TRENCH UNDER NEW PAVEMENT			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED	BED	DATE	2-21-2012



MINIMUM 2" VOID AROUND PIPE
 SEAL VOID AROUND PIPE WITH
 MINIMUM 6" CONCRETE FILLET

NOTE:
 BUTYL RUBBER GASKET ON
 ALL JOINTS (JOINT TO MEET
 ASTM 433 REQUIREMENT)

5'4" DIA.x 6" REINFORCED CONC.
 BASE SLAB (NO. 4 BARS 12" O.C.)

CONCRETE IN OVER-EXCAVATED AREAS

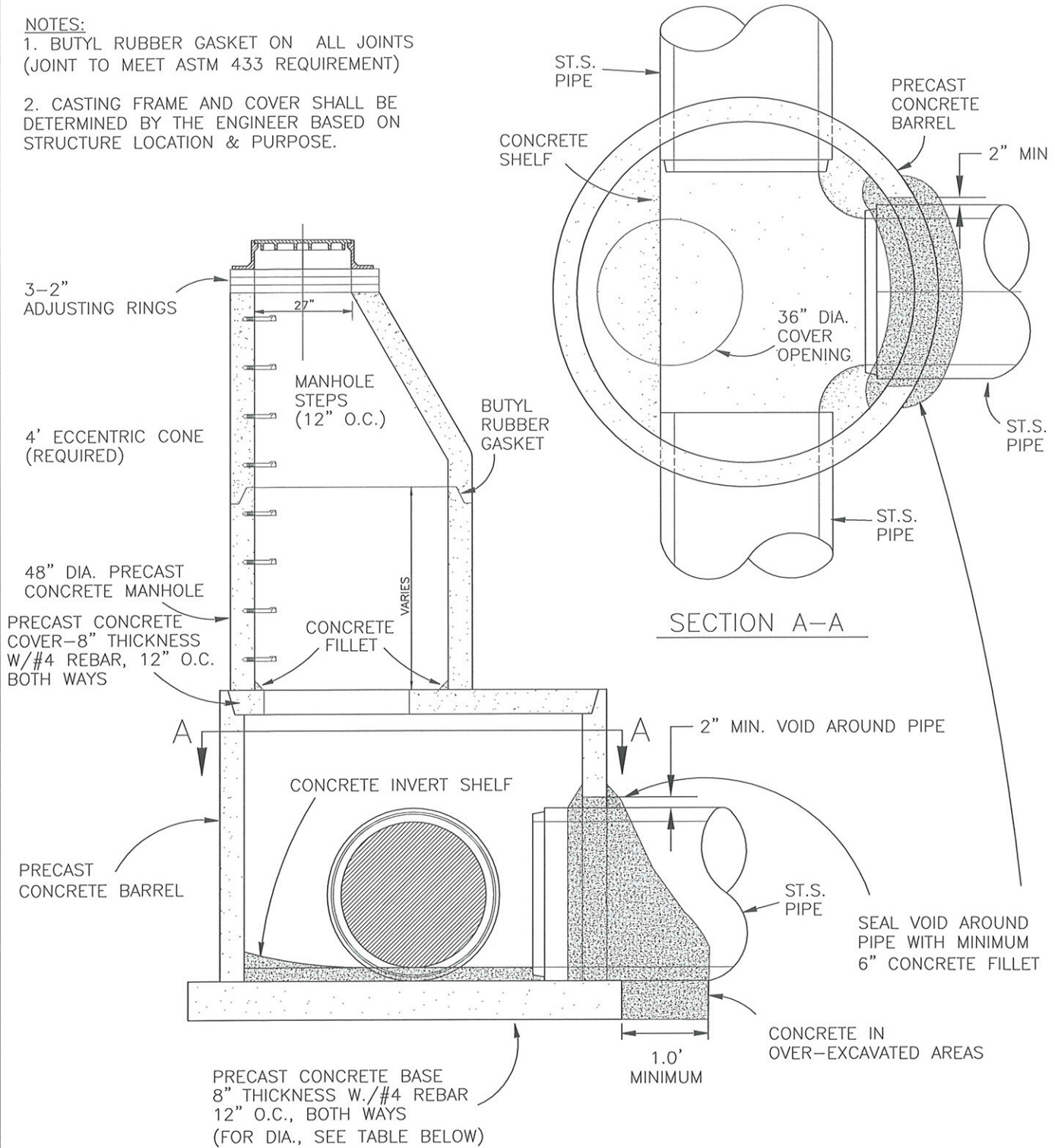
- NOTES:
1. CASTING FRAME AND COVER SHALL BE DETERMINED BY THE ENGINEER.
 2. MAXIMUM RCP DIA.-27" STRAIGHT THRU. MAXIMUM RCP DIA-18" AT RIGHT ANGLES.
 3. ALL JOINTS AND LIFTING HOLES SHALL BE MORTARED.

SECTION NO. 1500	DRAWING NO. 5.3
REV.D. 2013	
STORM SEWER STANDARD MANHOLE	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>JME</i>	DATE 1-2-13

NOTES:

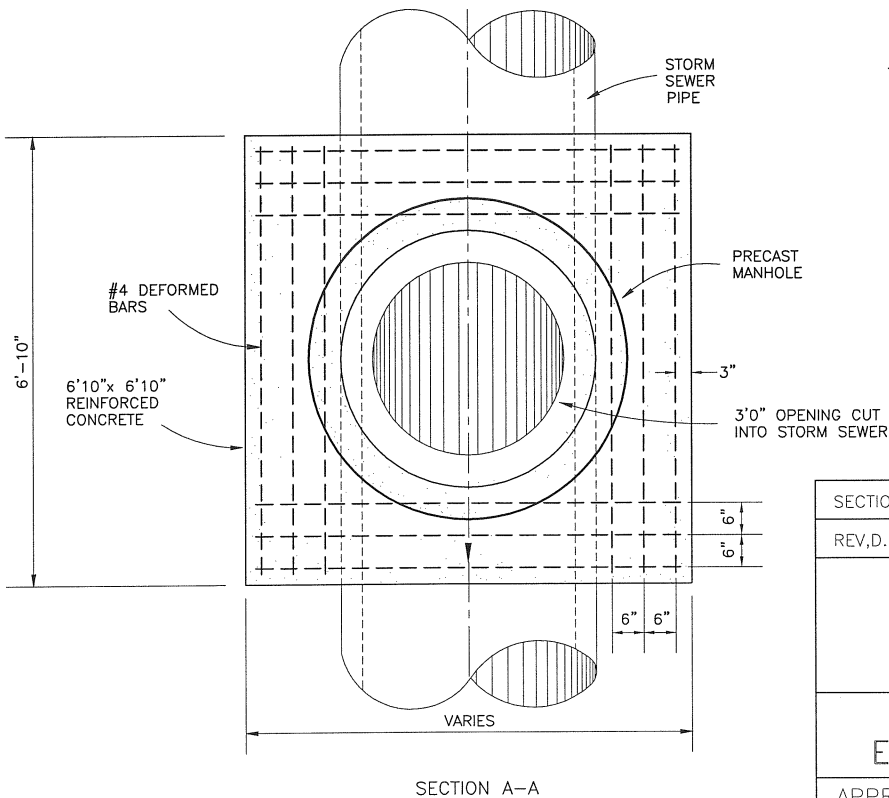
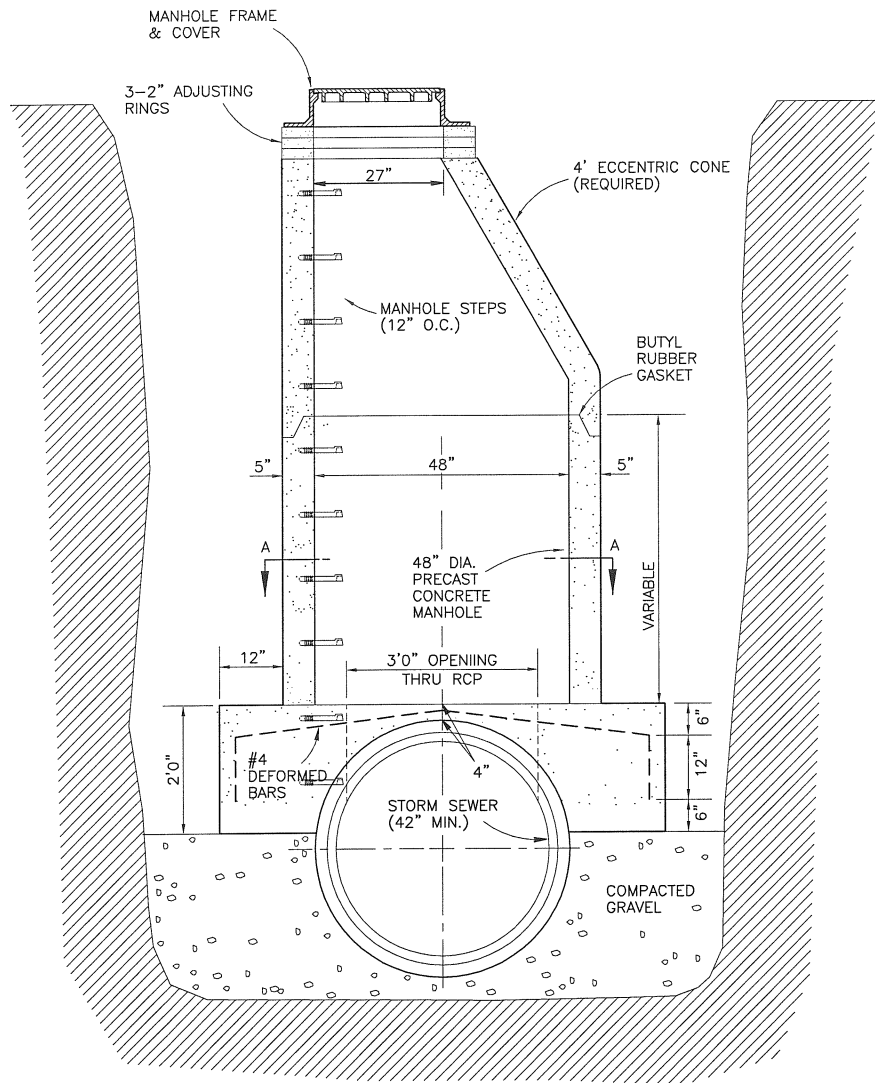
1. BUTYL RUBBER GASKET ON ALL JOINTS (JOINT TO MEET ASTM 433 REQUIREMENT)

2. CASTING FRAME AND COVER SHALL BE DETERMINED BY THE ENGINEER BASED ON STRUCTURE LOCATION & PURPOSE.



MANHOLE TYPE	(A) MANHOLE INSIDE DIA.	(B) MANHOLE OUTSIDE DIA.	MAXIMUM PIPE SIZES		
			0° ↘	90° ↘	135° ↘
A	60"	7'-0"	36"	24"	36"
B	72"	8'-0"	42"	33"	42"
C	84"	9'-4"	48"	36"	48"
D	96"	10'-6"	60"	42"	60"

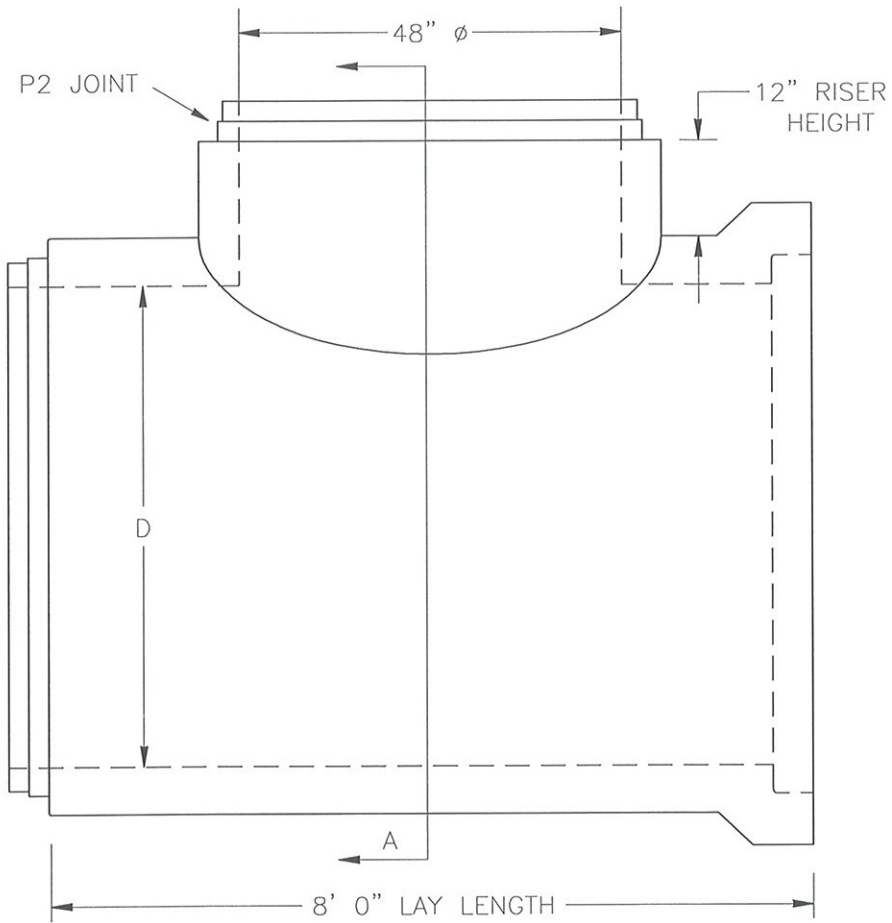
SECTION NO. 1500	DRAWING NO. 5.4
REV.D. 2013	
STORM SEWER MANHOLE TYPE "A - D"	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>CME</i>	DATE 1-2-13



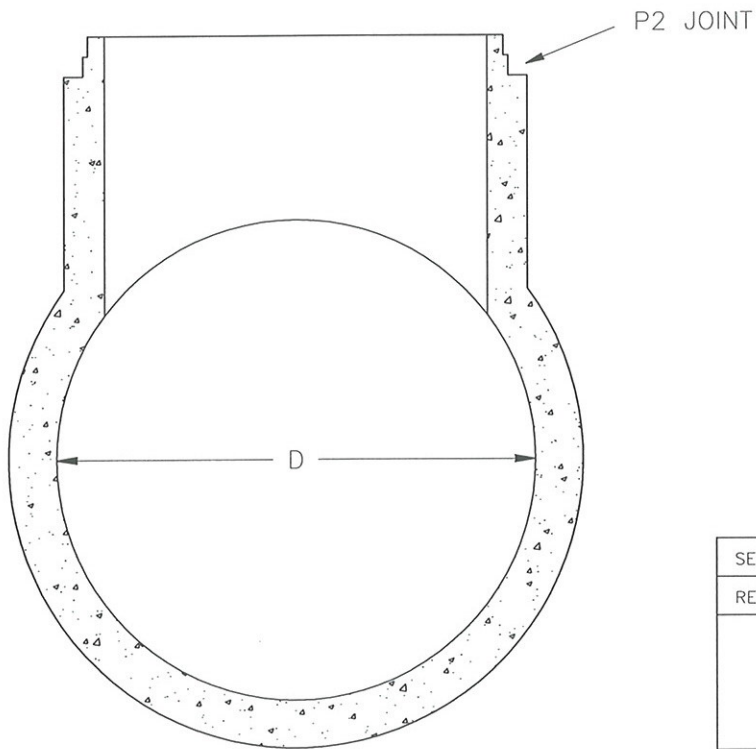
NOTES:

1. BUTYL RUBBER GASKET ON ALL JOINTS (JOINTS TO MEET ASTM 433 REQUIREMENT).
2. 3'0" OPENING THRU TOP OF R.C.P. SHALL BE GIVEN A SMOOTH MORTAR FINISH TO PERMIT ENTRY INTO STORM SEWER.
3. CASTING FRAME AND COVER SHALL DETERMINED BY THE ENGINEER BASED ON STRUCTURE LOCATION AND PURPOSE.
4. ALL JOINTS AND LIFTING HOLES SHALL BE MORTARED.

SECTION NO.	1500	DRAWING NO.	5.6
REV.D.	2012		
STORM SEWER SADDLE MANHOLE			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED	<i>BED</i>	DATE	<i>2-21-2012</i>



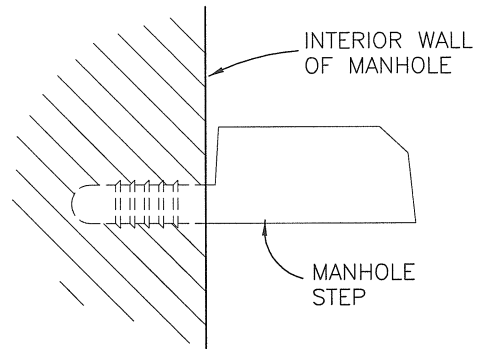
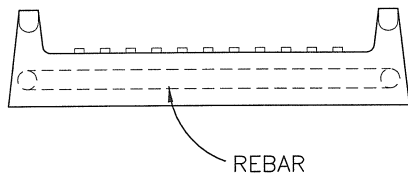
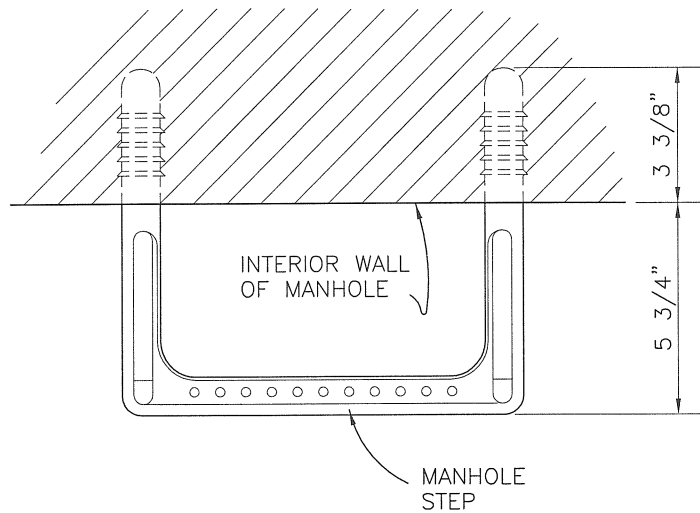
SIDE VIEW



SECTION A-A

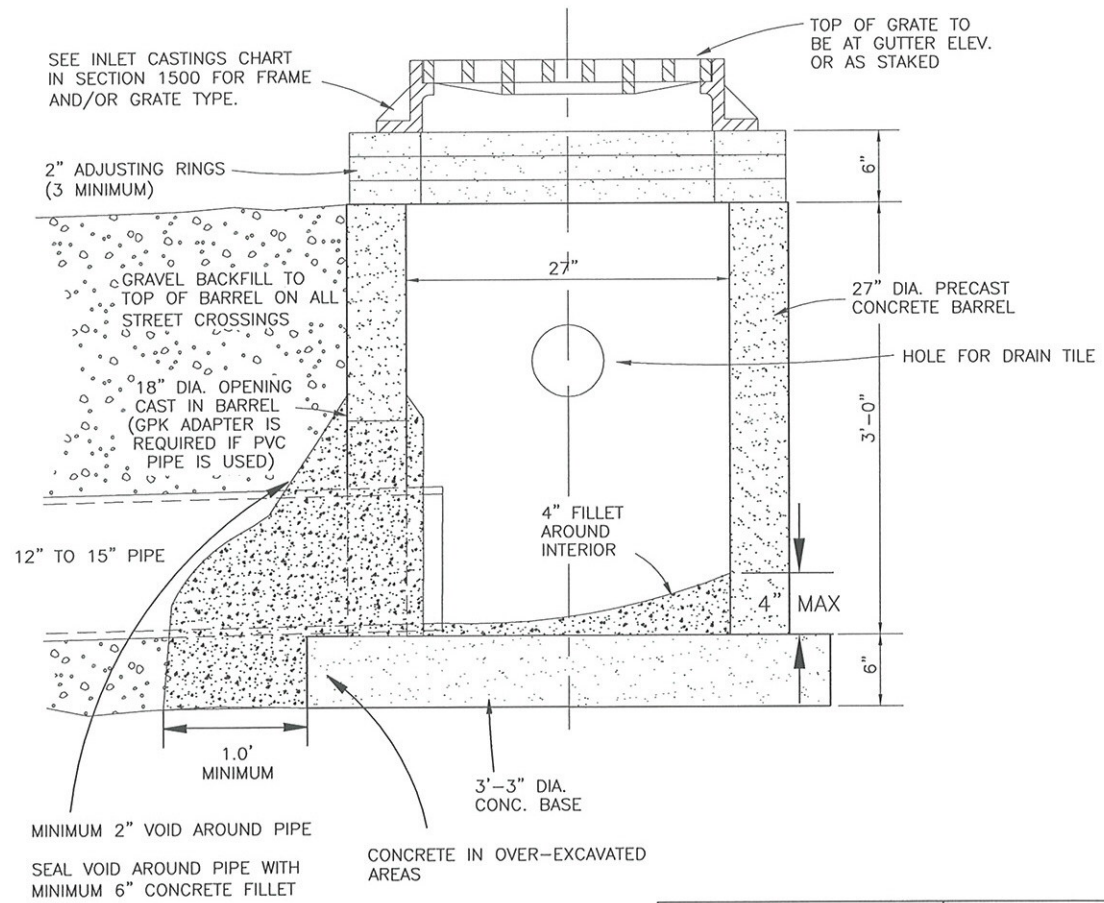
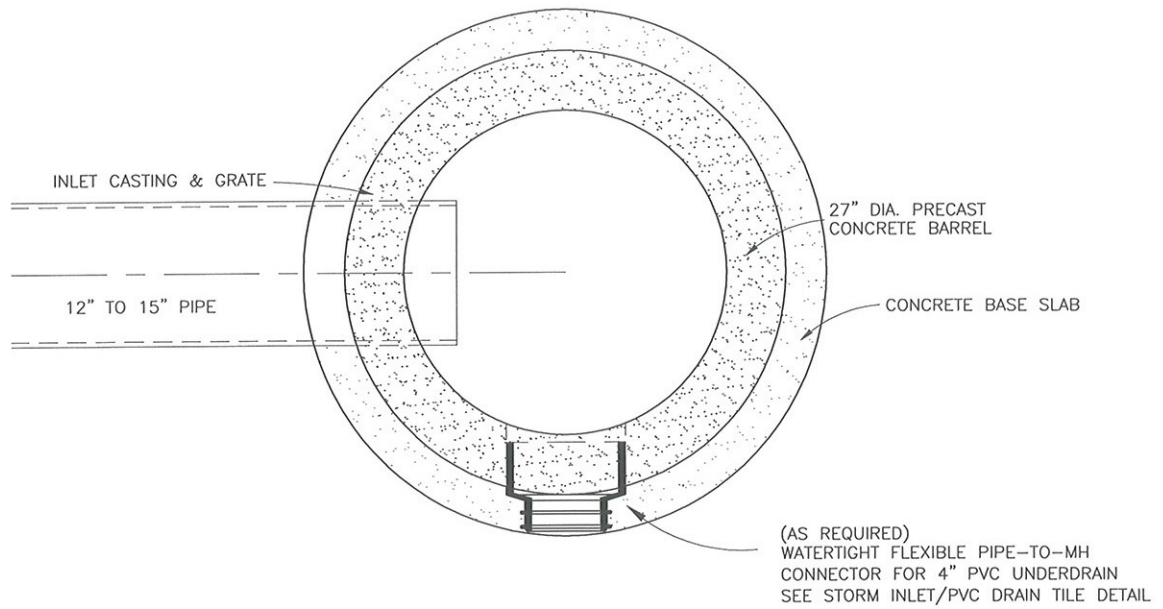
D
PIPE DIAMETER
48"
54"
60"
66"
72"
78"
84"
96"
102"
108"
120"

SECTION NO. 1500	DRAWING NO. 5.6B
REV.D.	
<i>INLINE TEE MANHOLE</i>	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>JME</i>	DATE <i>1-2-13</i>

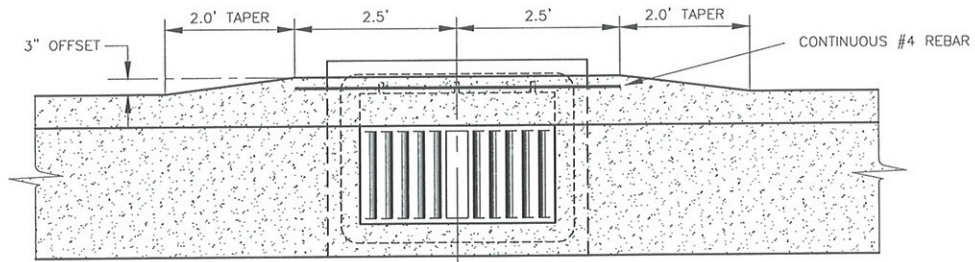
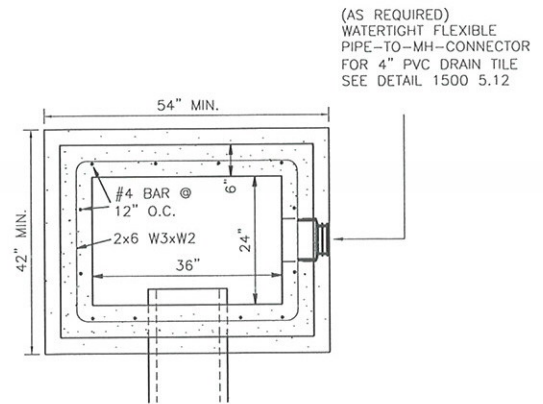
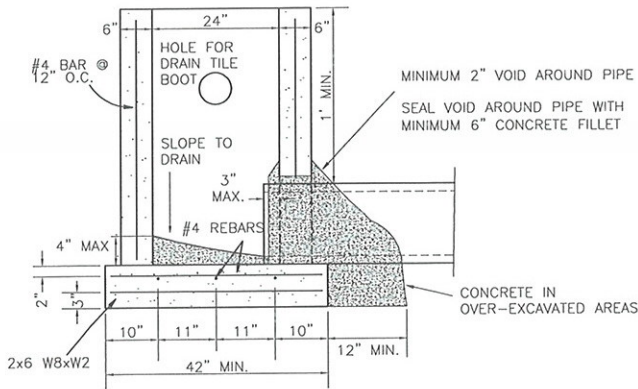


NOTE:
 STEP SHALL BE CONSTRUCTED OF 1/2" REINFORCING ROD AND COMPLETELY ENCASED IN A CORROSION RESISTANT RUBBER OR POLYPROPYLENE PLASTIC, WHICH WILL RESIST DETERIORATION FROM HYDROGEN SULFIDE OR OTHER CHEMICALS AND GASES ENCOUNTERED IN MANHOLE APPLICATION.
 ALSO, STEP SHALL HAVE A VERTICAL RESISTANCE OF 400 LBS., AND A PULLOUT RESISTANCE OF 1000 LBS. SUCH AS: THE WEDG-LOC STEP BY DELTA PIPE PRODUCTS OR APPROVED EQUAL.

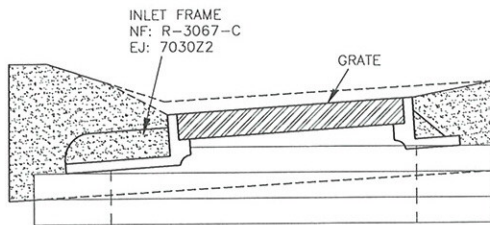
SECTION NO.	1500	DRAWING NO.	5.7
REV.D.	March, 2000		
MANHOLE STEP DETAIL			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED	<i>BEO</i>	DATE	<i>2-21-2012</i>



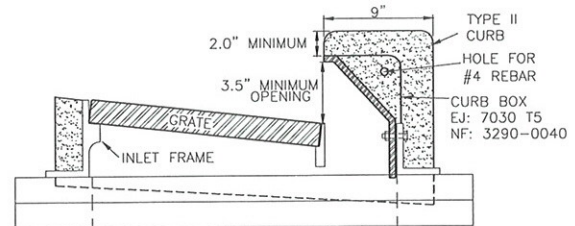
SECTION NO.	1500	DRAWING NO.	5.8
REV.D.	2013		
STORM SEWER ROUND INLET (RDI)			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED	<i>AME</i>	DATE	1-2-13



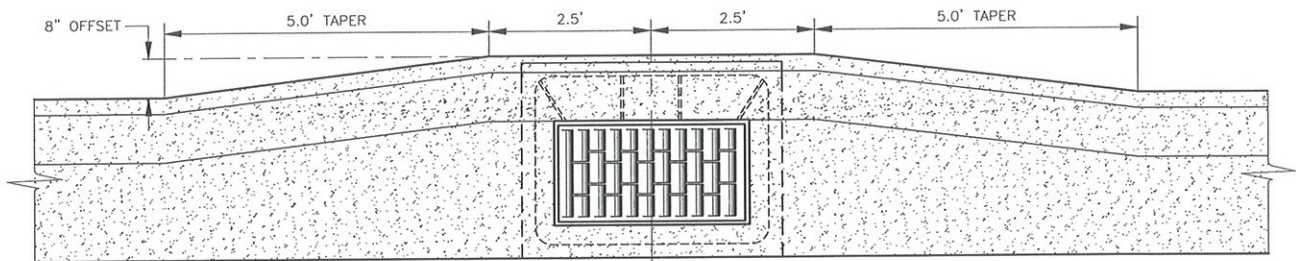
TYPE II CURB - PLAN VIEW



TYPE I CURB



TYPE II CURB



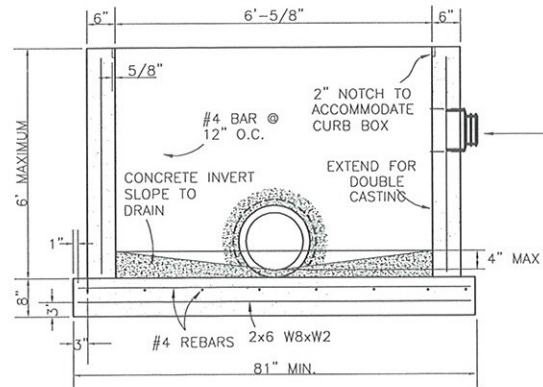
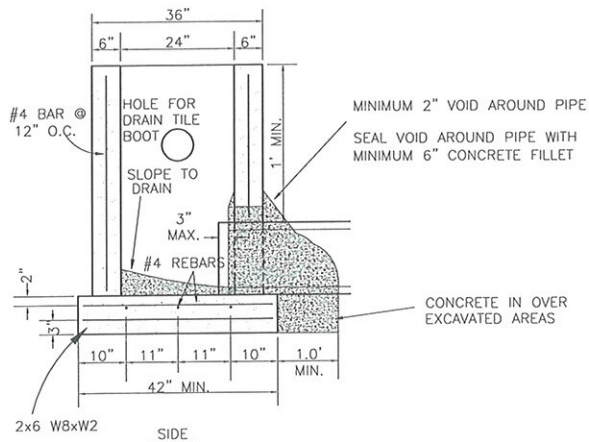
TYPE I CURB - PLAN VIEW

NOTES:

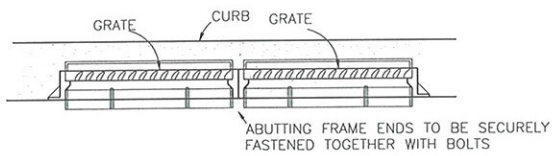
1. VERIFY FRAME, GRATE, & CURB BOX WITH INLET CASTINGS CHART IN SECTION 1500.
2. METAL USED IN THE MANUFACTURE OF CASTINGS SHALL CONFORM TO AASHTO M-105, CLASS 35B.
3. THE CONTRACTOR SHALL HAVE THE OPTION OF USING PRECAST OR POURED IN PLACE BASES. CLASS OF CONCRETE SHALL BE AE. THE AGGREGATE SIZE SHALL BE APPROVED BY THE ENGINEER IN THE FIELD.
4. PRECAST RISERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199.
5. ON PROJECTS WITH P.C.C. PAVEMENT ALL INLET RISERS OR BARRELS SHALL BE CONSTRUCTED 4 TO 5 INCHES BELOW FINAL ELEVATION AND ADJUSTED TO FINAL GRADE AFTER THE PAVING. ADJUSTMENT MAY BE DONE WITH ADJUSTMENT RINGS, MASONRY OR CAST-IN-PLACE. ALL COSTS FOR THIS ADJUSTMENT SHALL BE INCLUDED IN THE BID PRICE FOR THE INLET.

CURB BOX
STANDARD CURB - NEENAH 3290-0040 or EAST JORDAN T5

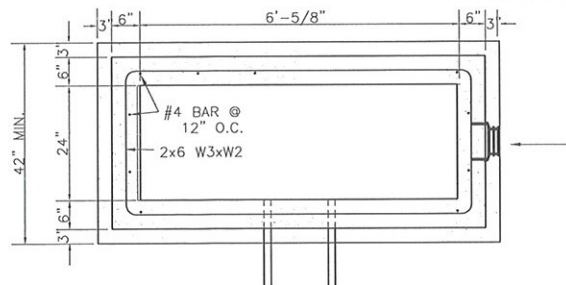
SECTION NO. 1500	DRAWING NO. 5.9
REV.D. 2013	
SINGLE BOX INLET (SBI) DETAIL	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>CME</i>	DATE 1-2-13



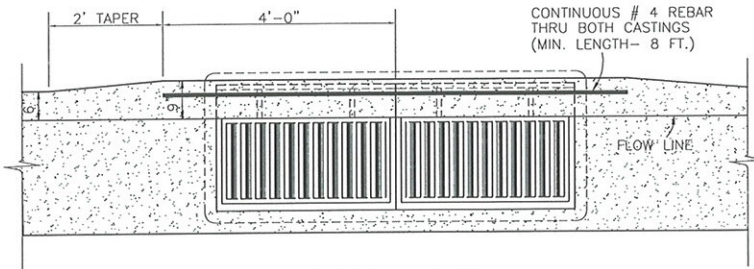
(AS REQUIRED)
WATERTIGHT FLEXIBLE
PIPE-TO-MH-CONNECTOR
FOR 4" PVC DRAIN TILE
SEE DETAIL 1500 5.12



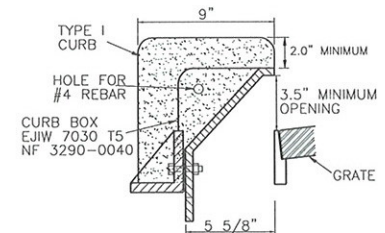
FRONT



PLAN

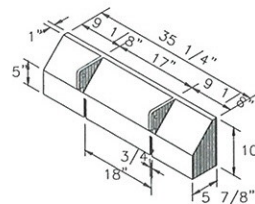


DOUBLE INLET PLAN
TYPE II CURB



TYPE II CURB

CURB BOX
STANDARD CURB - NEENAH 3290-0040 or E.J. T5
MOUNTABLE CURB - NEENAH 3067-7009 or E.J. T7
OR APPROVED EQUAL

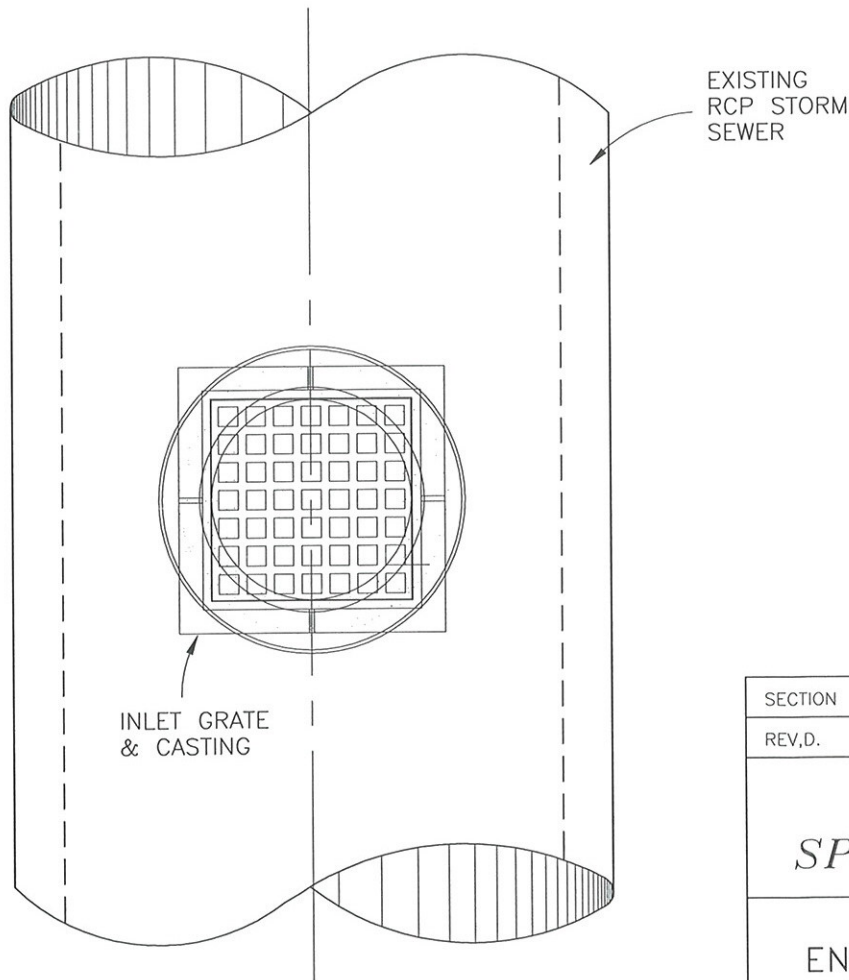
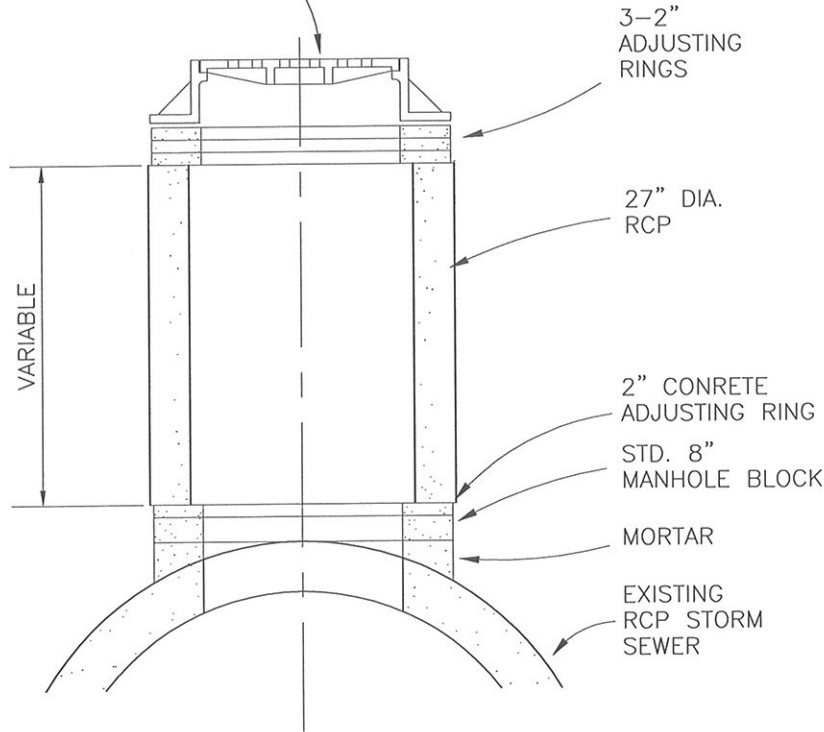


NOTES:

1. SEE INLET CASTINGS CHART IN SECTION 1500 FOR FRAME AND/OR GRATE TYPE.
2. METAL USED IN THE MANUFACTURE OF CASTINGS SHALL CONFORM TO AASHTO M-105, CLASS 35B.
3. THE CONTRACTOR SHALL HAVE THE OPTION OF USING PRECAST OR POURED IN PLACE BASES. CLASS OF CONCRETE SHALL BE AE. THE AGGREGATE SIZE SHALL BE APPROVED BY THE ENGINEER IN THE FIELD.
4. PRECAST RISERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199.
5. ON PROJECTS WITH P.C.C. PAVEMENT ALL INLET RISERS OR BARRELS SHALL BE CONSTRUCTED 4 TO 5 INCHES BELOW FINAL ELEVATION AND ADJUSTED TO FINAL GRADE AFTER THE PAVING. ADJUSTMENT MAY BE DONE WITH ADJUSTMENT RINGS, MASONRY OR CAST-IN-PLACE. ALL COSTS FOR THIS ADJUSTMENT SHALL BE INCLUDED IN THE BID PRICE FOR THE INLET.

SECTION NO.	1500	DRAWING NO.	5.10
REV.D.	2013		
DOUBLE BOX INLET (DBI) DETAIL			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED	<i>CME</i>	DATE	1-2-13

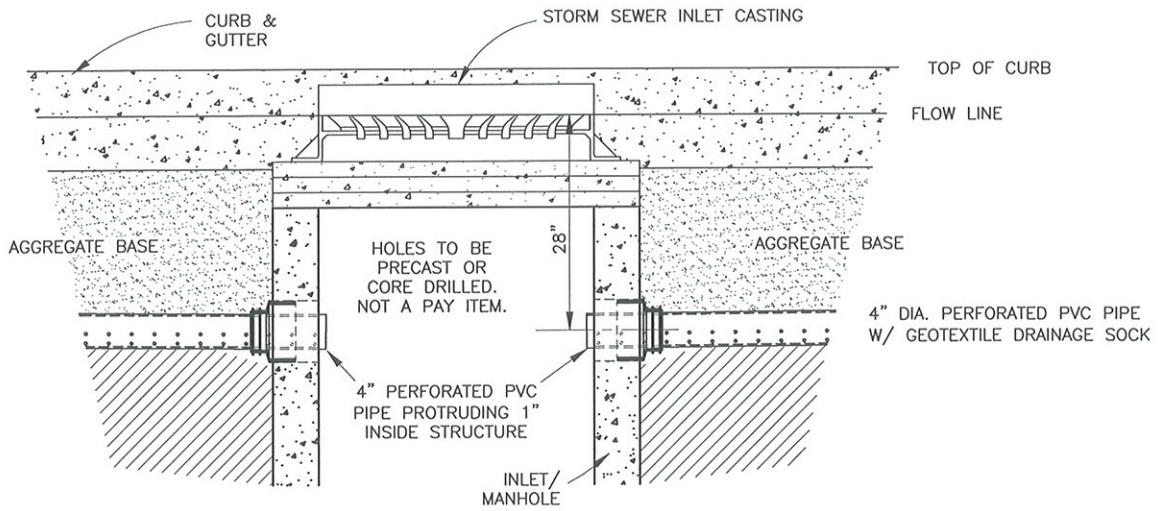
CASTING FRAME AND COVER SHALL DETERMINED BY THE ENGINEER BASED ON STRUCTURE LOCATION AND PURPOSE.



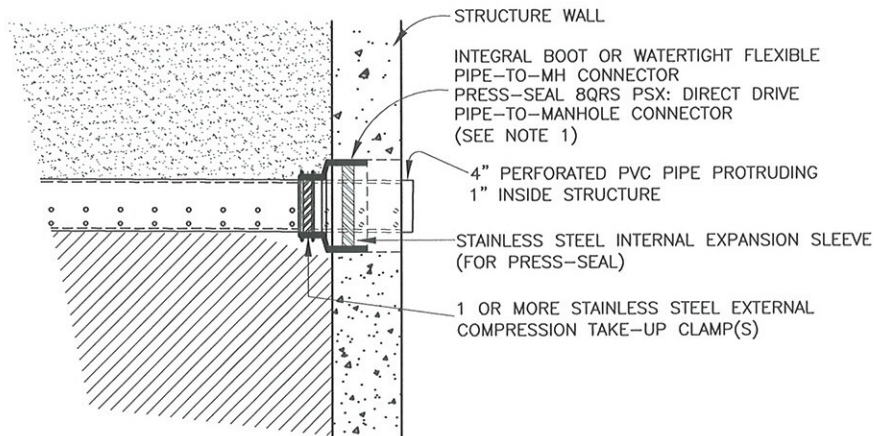
NOTES:

1. BUTYL RUBBER GASKET ON ALL JOINTS (JOINTS TO MEET ASTM 433 REQUIREMENT).
2. TOP OF INLET GRATE TO BE AT GUTTER ELEVATION OR 1.5' BELOW NATURAL GROUND IN NEW ADDITIONS.
3. 27" RCP BARREL TO BE A.S.T.M. DESIG. C76.
4. 27" OPENING THRU TOP OF R.C.P. SHALL BE GIVEN A SMOOTH MORTAR FINISH TO PERMIT SAFE ENTRY INTO STORM SEWER.
5. SPECIAL INLETS MAY ONLY BE INSTALLED ON 36" DIA. RCP OR LARGER PIPE.

SECTION NO.	1500	DRAWING NO.	5.11
REV.D.	2013		
STORM SEWER SPECIAL INLET (SPI)			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED	<i>OME</i>	DATE	1-2-13



INLET/MANHOLE CONNECTION

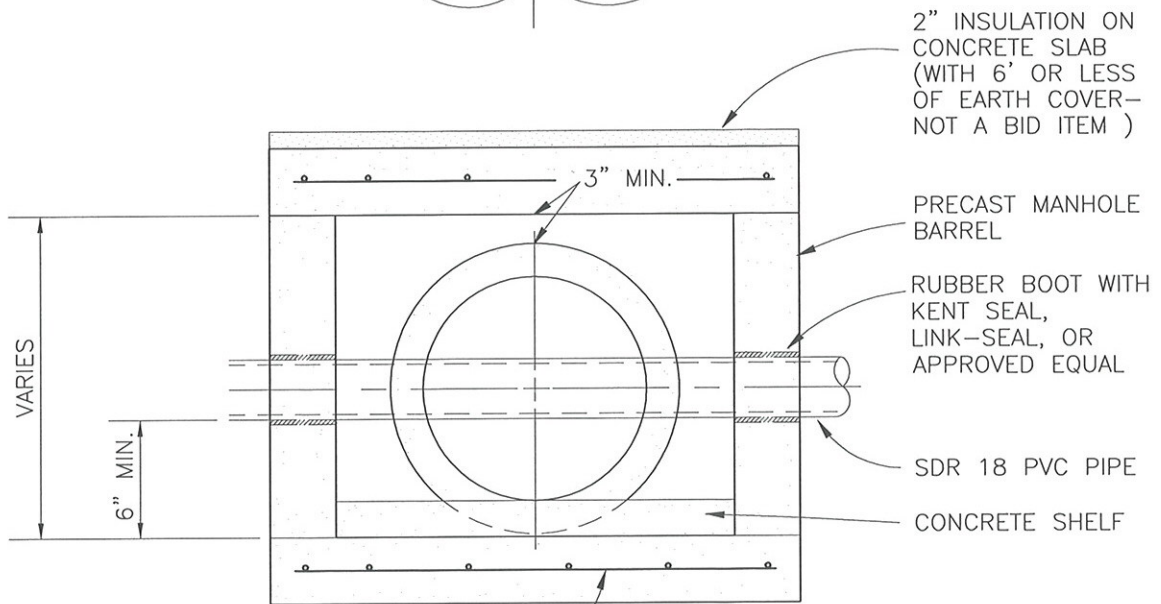
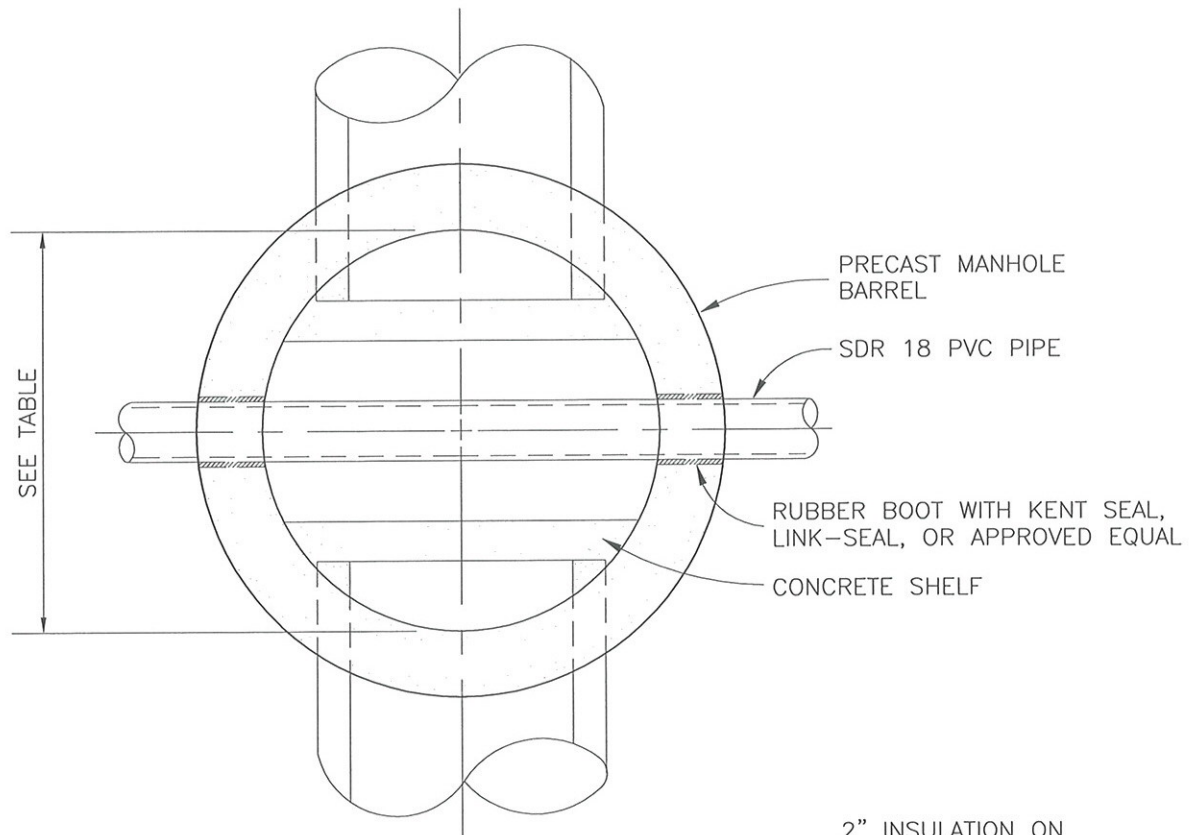


CONNECTION DETAIL

NOTES:

1. INSERTA TEE, LINK-SEAL, OR OTHER APPROVED EQUAL MAY BE UTILIZED WITH ENGINEER APPROVAL.
2. SEE 4" PVC EDGE DRAIN DETAIL IN SECTION 2100 FOR ADDITIONAL DETAILS.

SECTION NO. 1500	DRAWING NO. 5.12
REV.D. 2013	
<i>STORM INLET/PVC DRAIN PIPE DETAIL</i>	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>CME</i>	DATE 1-2-13



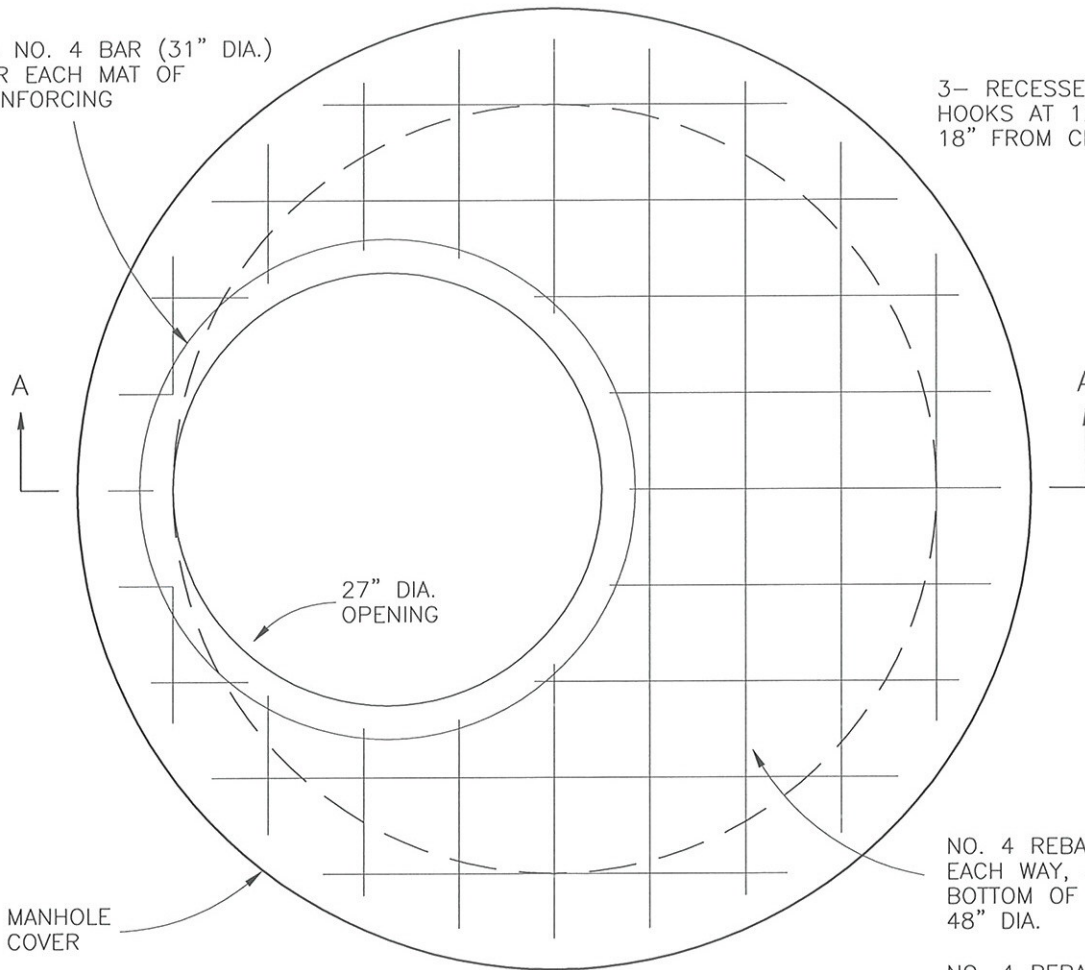
CONCRETE SLAB W/#4
DEFORMED BARS 12" O.C.
BOTH WAYS (TOP & BASE)
(SEE TABLE FOR DIA. & THICKNESS)

RCP DIAMETER (MAXIMUM)	BASE (INSIDE DIA.)	BASE (THICKNESS)
15"	2'-0"	6"
27"	4'-0"	8"
54"	6'-0"	8"

SECTION NO. 1500	DRAWING NO. 5.13
REV.D. 2013	
UTILITY CROSSING CHAMBER	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>CME</i>	DATE 1-2-13

1- NO. 4 BAR (31" DIA.)
FOR EACH MAT OF
REINFORCING

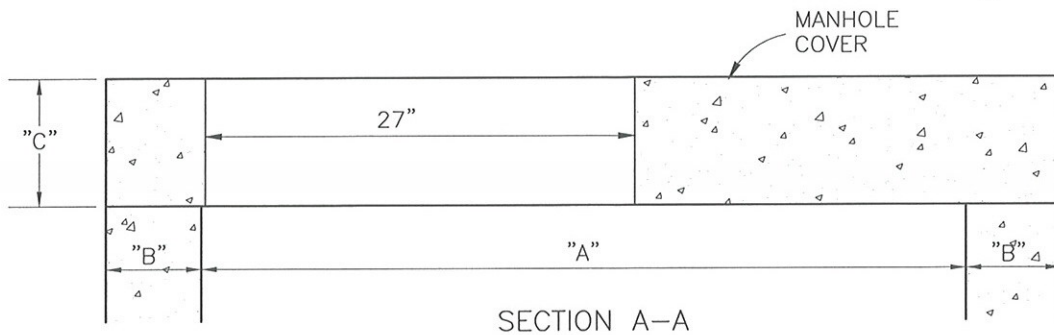
3- RECESSED LIFT
HOOKS AT 120°,
18" FROM CENTER



NO. 4 REBARS AT 6" O.C.
EACH WAY, 3" UP FROM
BOTTOM OF COVER FOR
48" DIA.

NO. 4 REBARS AT 6" O.C.
EACH WAY, 2" UP FROM
BOTTOM OF COVER AND
2" DOWN FROM TOP OF
COVER FOR 60" DIA.
DT

MANHOLE
COVER

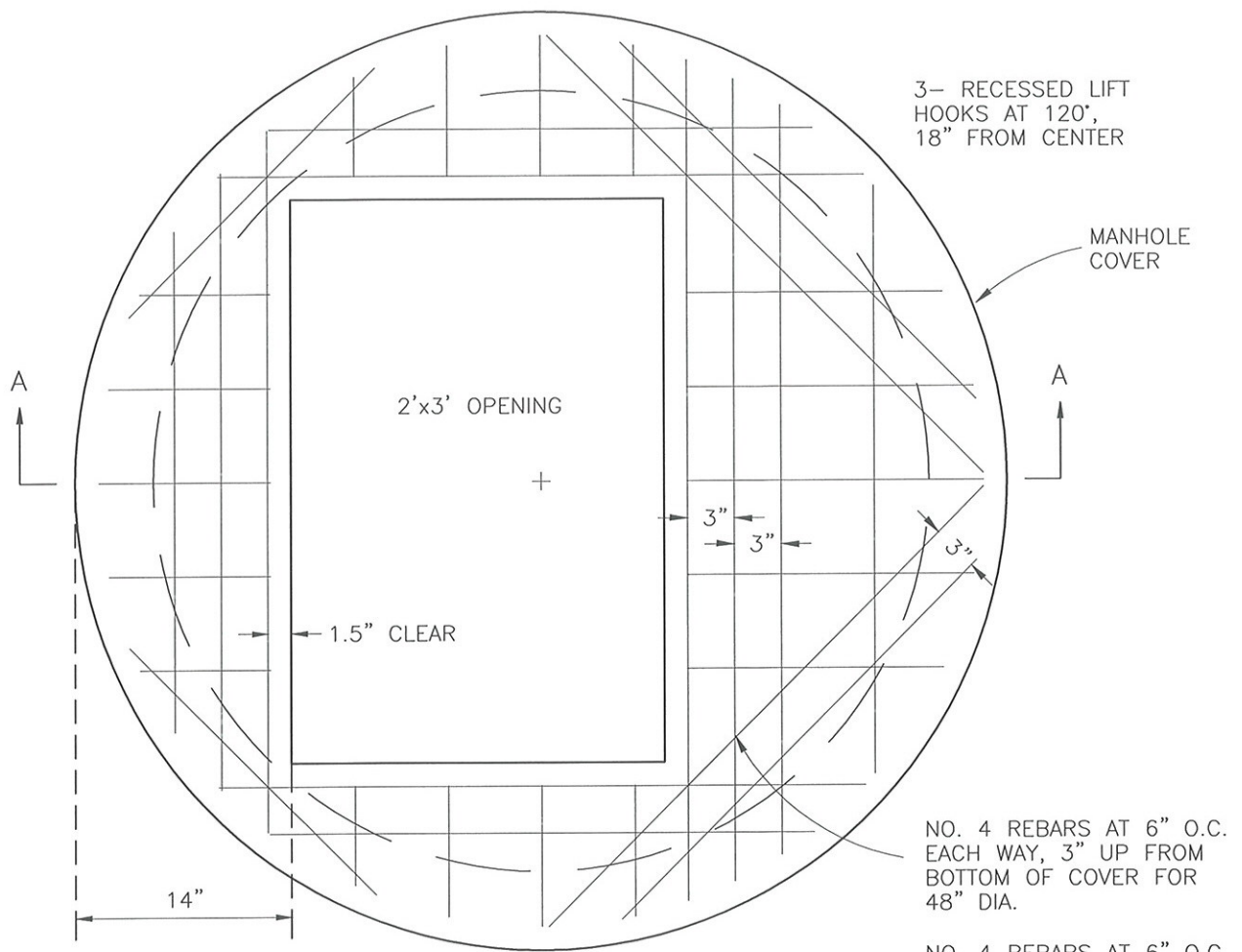


DIMENSION TABLE

A	B	C
48"	5"	6"
60"	6"	7"
72"	7"	8"
84"	8"	9"
96"	9"	9"

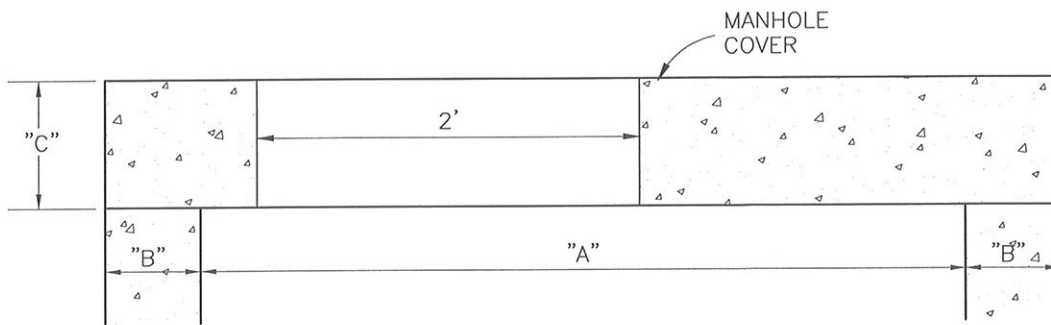
TO BE USED WHEN
STRUCTURE IS LOCATED
OUTSIDE GUTTER LINE

SECTION NO. 1500	DRAWING NO. 5.14
REV.D. January 2013	
MANHOLE COVER DETAIL	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>CME</i>	DATE 1-2-13



NO. 4 REBARS AT 6" O.C. EACH WAY, 3" UP FROM BOTTOM OF COVER FOR 48" DIA.

NO. 4 REBARS AT 6" O.C. EACH WAY, 2" UP FROM BOTTOM OF COVER AND 2" DOWN FROM TOP OF COVER FOR 60" DIA.



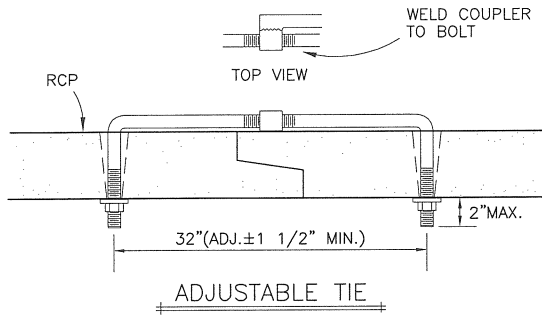
SECTION A-A

DIMENSION TABLE

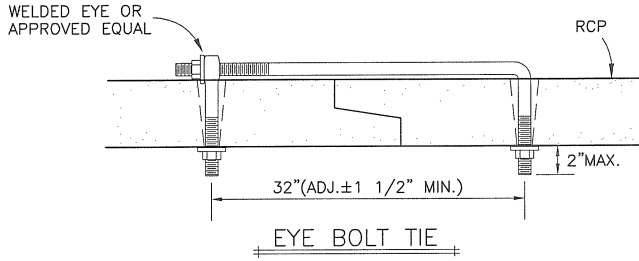
A	B	C
48"	5"	6"
60"	6"	7"
72"	7"	8"
84"	8"	9"
96"	9"	9"

TO BE USED WHEN STRUCTURE IS LOCATED IN GUTTER LINE

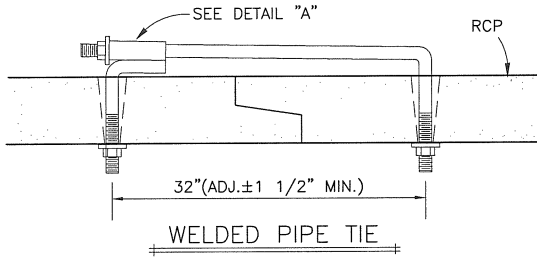
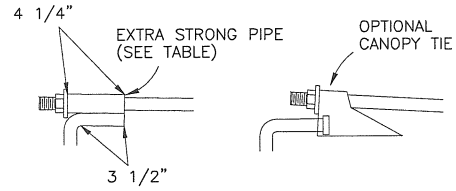
SECTION NO. 1500	DRAWING NO. 5.14B
REV.D.	
MANHOLE COVER DETAIL (GUTTER)	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>CME</i>	DATE 1-2-13



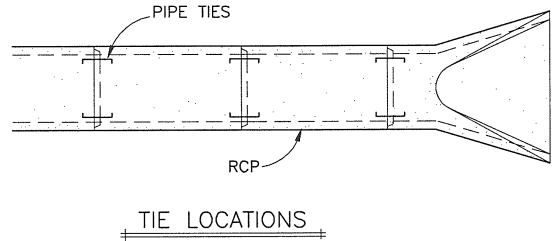
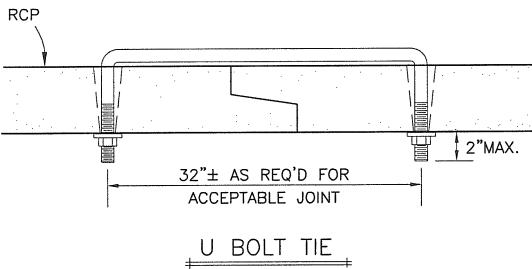
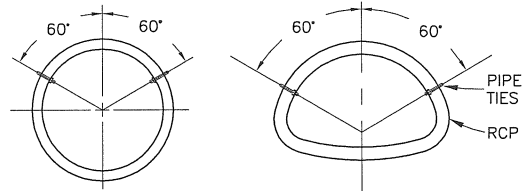
REQUIRED SIZE OF TIE BOLTS					
PIPE SIZE (INCHES)	THREAD DIA.	PIPE SIZE (INCHES)	THREAD DIA.	PIPE SIZE (INCHES)	THREAD DIA.
12	5/8"	30	3/4"	72	1"
15		33		78	
18		36		84	
21		42		90	
24		48		96	
27	SEE NOTE TWO	54		102	
		60		108	
		66		120	
				132	



THREAD DIA.	E.S. PIPE DIA.
5/8"	3/4"
3/4"	1"
1"	1 1/4"



DETAIL "A"



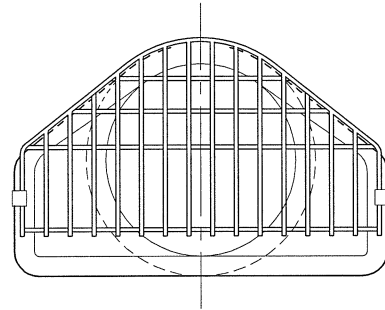
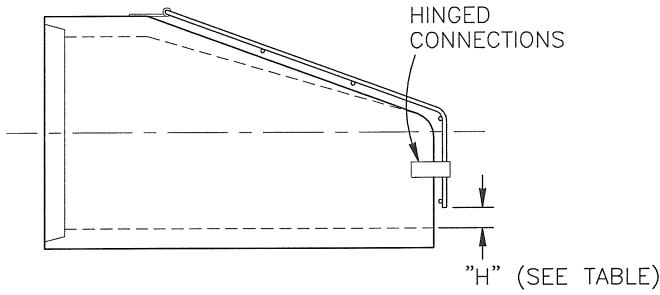
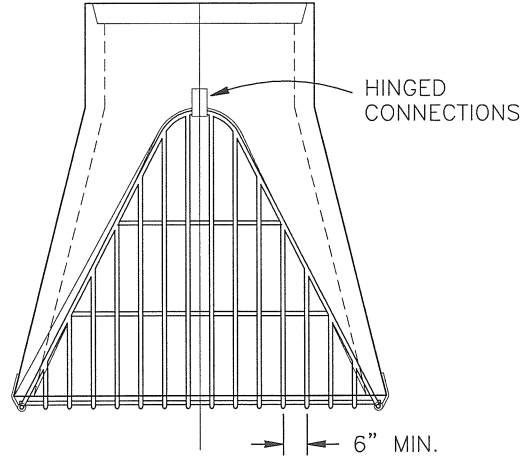
NOTES

- PIPE SIZE LISTED IS INSIDE DIAMETER OF ROUND PIPE OR EQUIVALENT DIAMETER OF PIPE ARCH.
- NUTS AND WASHERS ARE NOT REQUIRED ON INSIDE OF 21" DIAMETER PIPE OR LESS.
- TIES TO BE USED ONLY TO HOLD PIPE SECTIONS TOGETHER, NOT FOR PULLING SECTIONS TIGHT.
- TIE BOLTS SHALL BE PAINTED AFTER FABRICATION WITH ONE COAT OF ZINC CHROMATE IRON OXIDE PAINT. THREADED PORTION OF RODS DO NOT HAVE TO BE PAINTED.
- HOLES IN PIPE TO ACCOMMODATE THE TIE BOLTS CAN BE PRECAST OR DRILLED. TAPERED HOLES WILL BE PERMITTED WHEN PRECAST. WHEN EXISTING PIPE ARE EXTENDED OR SALVAGED AND RELAYED, THE CONTRACTOR WILL BE REQUIRED TO DRILL THE NECESSARY HOLES.
- THE CONTRACTOR HAS THE OPTION OF SELECTING THE TYPE OF TIE BOLT TO BE USED. THE TYPE SELECTED SHALL BE APPROVED BY THE ENGINEER.
- THE COST OF PRECASTING OR DRILLING THE REQUIRED HOLES AND FURNISHING AND INSTALLING THE TIE BOLTS SHALL BE INCLUDED IN THE PRICE BID FOR REINFORCED CONCRETE PIPE CULVERTS.
- TIE BOLTS ARE NOT REQUIRED ON STORM SEWER PIPE UNLESS SPECIFICALLY NOTED IN THE PLANS.
- TIE BOLTS ARE REQUIRED ON END SECTIONS (4 SECTIONS) FOR ALL R.C.P. CULVERTS. ON CULVERTS WITHOUT FLARED END SECTIONS, THE THREE END SECTIONS OF THE CULVERT SHALL BE TIED TOGETHER IN THE SAME MANNER FOR EACH END.

SECTION NO. 1500	DRAWING NO. 5.15
REV.D. March, 1999	
CONCRETE PIPE TIES DETAILS	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>BED</i>	DATE <i>2-21-2012</i>

ALL TRASH GUARDS TO HAVE (1) CROSS BAR
60" DIA. & UP TO HAVE (2) BARS EQUALLY
SPACED

HOT DIP GALVANIZED PER MN/DOT 3392
OR ASTM-A153

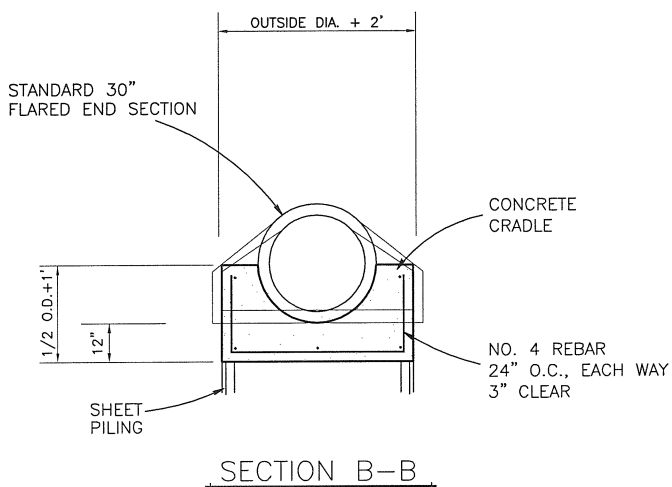
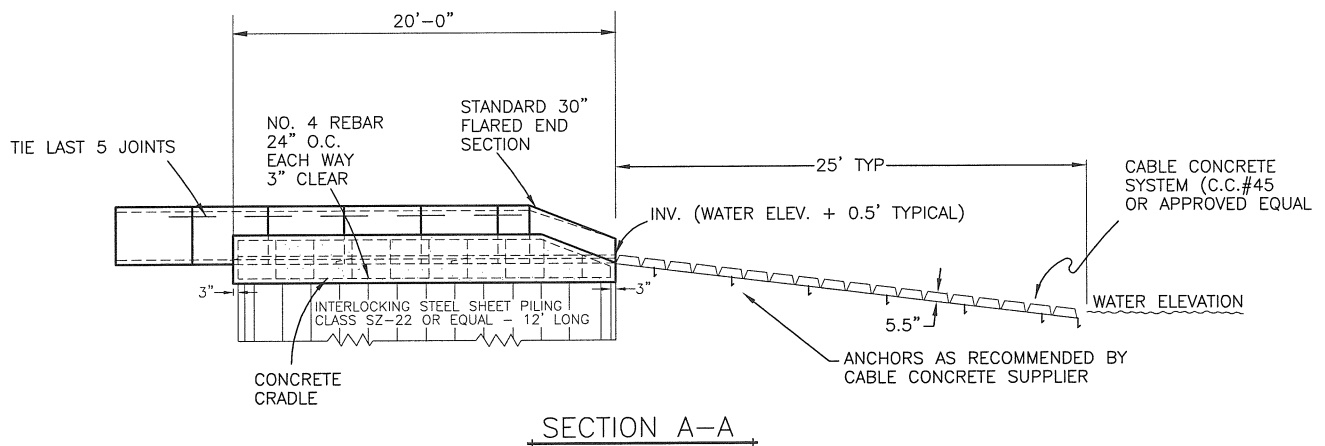
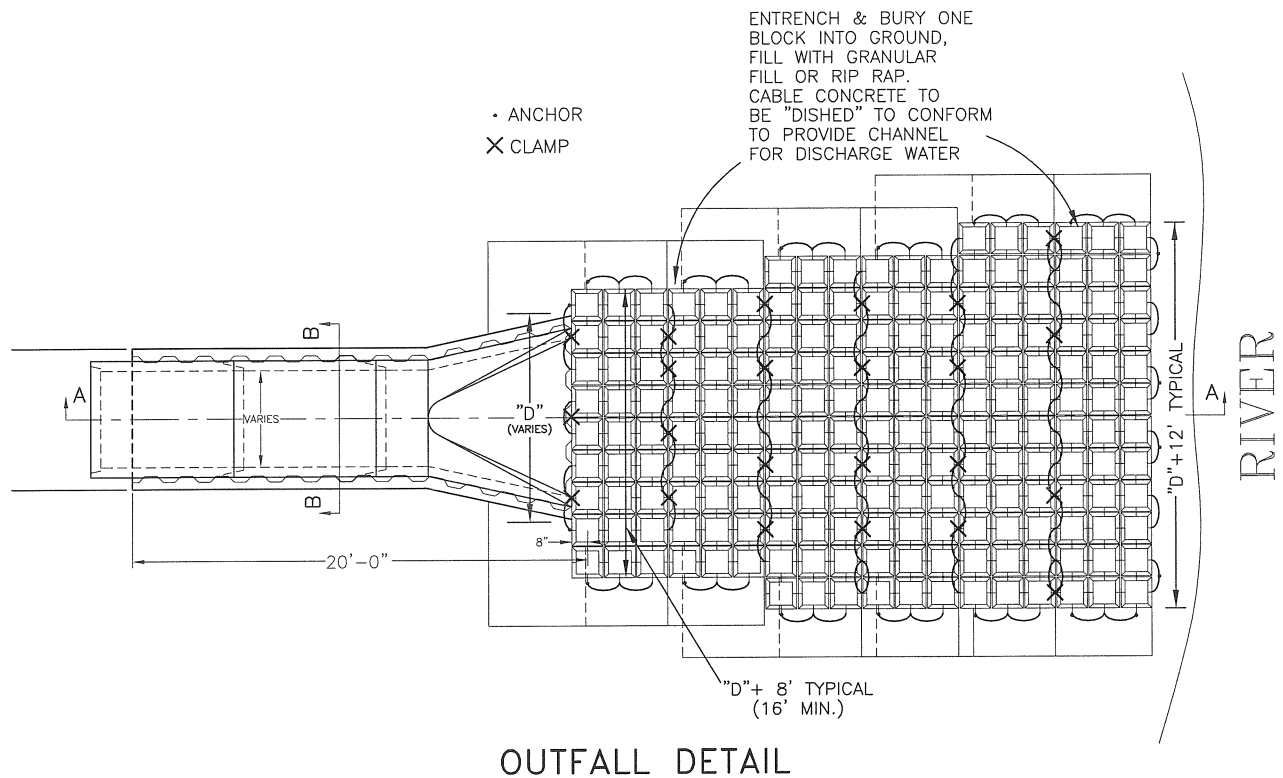


BAR SIZES									
STANDARD DESIGN					HEAVY DESIGN				
	PIPE SIZE	HOLE DIA. REQ'D	BOLT DIA.	BAR SIZE		PIPE SIZE	HOLE DIA. REQ'D	BOLT DIA.	BAR SIZE
ROUND	12"-24"	3/4"	5/8"	5/8"	ROUND	12"-18"	3/4"	5/8"	3/4"
	27"-48"	7/8"	3/4"	3/4"		21"-42"	7/8"	3/4"	1"
	54"-90"	1 1/8"	1"	1"		48"-90"	1 1/8"	1"	1 1/4"
ARCH	22"-29"	3/4"	5/8"	5/8"	ARCH	22"	3/4"	5/8"	3/4"
	36"-59"	7/8"	3/4"	3/4"		29"-51"	7/8"	3/4"	1"
	65"-88"	1 1/8"	1"	1"		59"-88"	1 1/8"	1"	1 1/4"

BOLT LG. = PIPEWALL THICKNESS + 2 1/2"

VALUES FOR "H"			
ROUND PIPE		ARCH PIPE	
PIPE SIZE	H	PIPE SIZE	H
12"	2 1/2"	22"-29"	4"
15"	3"	36"-44"	5"
18"-24"	4"	51"-55"	6"
27"-36"	5"	73"-88"	7"
42"-54"	6"		
60"-72"	7"		
78"-90"	8"		

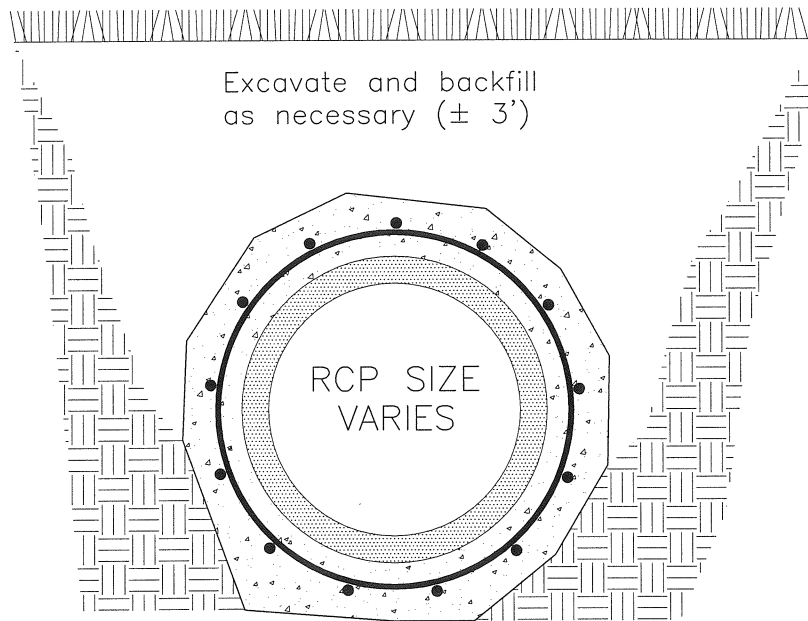
SECTION NO. 1500	DRAWING NO. 5.16
REV.D. March, 1999	
TRASH GUARD FOR FLARED END SECTIONS	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>BEO</i>	DATE <i>2-21-2012</i>



SECTION NO. 1500	DRAWING NO. 5.17
REV.D. MARCH, 2007	
OUTFALL DETAIL	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>BEO</i>	DATE <i>2-21-2012</i>

Reinforcing:

- 5 – No. 4 Deformed Bars (Circumferential)
- No. 4 Deformed Bars 12" O.C. (Transverse across joint)



Excavate and backfill
as necessary ($\pm 3'$)

RCP SIZE
VARIES

8" Minimum Concrete Repair Band.
Extend 18" Along Pipe Each
Direction from Joint.

SECTION NO. 1500	DRAWING NO. 5.18
REV.D. 2012	
<i>PIPE JOINT REPAIR BAND DETAIL</i>	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>BED</i>	DATE <i>2-21-2012</i>

**CITY OF FARGO SPECIFICATIONS
CONCRETE PAVING AND CURBS & GUTTERS**

**PART 1
DESCRIPTION OF WORK**

The work to be done under this section of the Specifications and the accompanying plans consists of furnishing all labor, material, accessories, and plant necessary to complete the concrete curb and gutter and/or concrete paving of certain streets, avenues or alleys in the City of Fargo.

This section includes excavation, filling, and subgrade preparation in accordance with Section 2000 Excavation, Filling, and Subgrade Preparation and aggregate bases in accordance with Section 2070 Aggregate Bases. This section shall also include the furnishing and placing reinforcing steel, dowels, curb and gutter, valley gutters, furnishing and setting headers, constructing the type of paving designated, setting castings or valve boxes to grade, and all other work as may be necessary to properly complete the work in accordance with these Specifications and the accompanying plans.

**PART 2
MATERIALS**

2.1. CEMENTITIOUS

2.1.1. PORTLAND CEMENT

Cement shall meet the current specifications of one of the following ASTM's.

- ASTM C 150 Standard Specification for Portland Cement
- ASTM C 595 Standard Specification for Blended Hydraulic Cements
- ASTM C 1157 Standard Performance Specification for Hydraulic Cement

Different brands of cement, or the same brand of cement from different mills, shall not be mixed during use without approval of the Engineer. Cement shall be stored in a suitable manner to prevent moisture damage; cement which is partially set or which contains lumps or cakes shall be rejected. Cements shall meet the following requirements unless written approval is provided by the Engineer.

Specification	ASTM C 150	ASTM C 595*	ASTM C 1157
Requirement	Types I or II	Types GU, MS and HS	Types GU, MS or HS

* Slag cement and fly ash content shall be a maximum of 30% and a maximum total replacement of 40% with ternary cementitious mixtures.

All mixes shall include a maximum of 620 lbs. total cementitious content including fly ash or slag cement. At least 20% of the total cementitious content, by mass, shall be fly ash or slag cement. When approved by the Engineer, the fly ash and slag cement content may be reduced to 15%, by mass, between October 15 and April 15.

2.1.2. FLY ASH

Fly ash shall meet the requirements of ASTM C 618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete. Fly Ash will be allowed as a cement replacement on a 1:1 ratio, by mass, up to a maximum of 30%.

2.1.3. SLAG CEMENT

Slag cement shall meet the requirements of ASTM C 989 Standard Specification for Slag Cement for Use in Concrete and Mortars. For machine placed concrete with slumps less than 1.5 inches, slag cement will be allowed as a cement replacement on a 1:1 ratio, by

mass, up to a maximum of 40%. For all other concrete mixtures, slag cement will be allowed as a cement replacement on a 1:1 ratio, by mass, up to a maximum of 30%.

2.2. AGGREGATES

Aggregates for all concrete mixes shall be provided with gradations considered well-graded by specification as determined by the most current NDDOT Standard Specifications for Road and Bridge Construction for Well-Graded Aggregates for concrete. Optimization techniques will be used to prepare the final aggregate gradations for workability and coarseness factor considerations.

2.2.1. DELETERIOUS REACTIONS

A. Alkali Silica Potential

Aggregate data shall be provided for all aggregates to be used in the concrete mixture to mitigate the risk of Alkali Silica Reaction (ASR) occurring in the concrete. One or more of the following methods shall be submitted for review by the Engineer.

- i. Field history of the aggregate. This data shall represent at least 10 years of performance with similar cementitious materials and exposure.
- ii. ASTM C 1260 Standard Test Method for Potential Alkali Aggregate Reactivity (Mortar-Bar Method). This method shall be conducted with each aggregate separately to determine the potential reactivity. The maximum expansion shall be 0.1 percent. This data shall be current within 1 year from time of submittal.
- iii. ASTM C 1567 Standard Test Method for Determining the Potential Alkali Aggregate Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method). Fly Ash, Slag Cement, Silica fume or Lithium may be used to mitigate potential ASR. This method shall be conducted with each aggregate separately to determine the potential reactivity. The maximum expansion shall be 0.1 percent. This data shall be current within 1 year from time of submittal.
- iv. ASTM C 1293 Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction. This method shall be conducted with each aggregate separately to determine the potential reactivity. The maximum expansion shall be 0.04 percent. This data shall be current within 3 years from time of submittal. If supplementary cementitious materials are used in this testing for the mitigation of ASR the result must be less than 0.04 percent at 2 years.

- v. ASTM C 295 Standard Guide for Petrographic Examination of Aggregates for Concrete. Petrographic analysis must indicate there is no risk of ASR occurring with the aggregate to be used in the mixture.
- vi. Limit the alkali content in the concrete to no more than 3 lbs per cubic yard Na₂O equivalent.

2.2.2. AGGREGATE MATERIAL PROPERTIES

Fine Aggregate properties shall meet the requirements of Section 802 of the most current NDDOT Standard Specifications for Road and Bridge Construction with exceptions, the maximum limits of lightweight pieces of aggregate shall not exceed 1%.

Coarse aggregate properties shall meet the requirements of Section 802 of the most current NDDOT Standard Specifications for Road and Bridge Construction with exceptions, the maximum percent weight of the plus No. 4 fraction of Shale shall not exceed 0.5%.

2.3. WATER

Water shall meet ASTM C 1602 Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete or be potable.

2.4. ADMIXTURES

All admixtures shall be non-chloride and shall not have chlorides added during the manufacturing process.

2.4.1. AIR ENTRAINMENT

An air entrainment admixture shall meet ASTM C 260 Standard Specification for Air-Entraining Admixtures for Concrete.

2.4.2. WATER-REDUCING ADMIXTURES

If water-reducing admixtures are utilized in the concrete mixture they shall meet the requirements of ASTM C 494 Standard Specification for Chemical Admixtures.

2.4.3. OTHER ADMIXTURES

No other admixture shall be used unless approved by the Engineer.

2.5. PROPORTIONS

Concrete shall be proportioned to meet the following properties:

Concrete Properties	Requirement
Compressive Strength at 28 days of age	4500 psi (minimum)
Water-to-Cementitious Ratio	0.40 maximum for all slip-form paving mix 0.42 maximum for all other placed mix
Air Content	* 5% to 8% target range by volume at placement
Slump	Maximum 4 inches

* For slip-form paving, the frequency of air contents will be tested at discretion of the Engineer from in-place concrete behind the paver to measure potential air loss after consolidation. The air content target range may be adjusted by the Engineer based on the test results. Engineer may test for potential air loss during other handling and consolidation operations and likewise make adjustments to the air content target range. The Contractor shall make a reasonable effort to work toward the mid-range value of the determined target air content range.

Aggregate gradation shall be optimized as such that the workability and coarseness factor plots inside the box in the figure below. Workability and coarseness factors are calculated as follows:

$$\text{Coarseness Factor} = \frac{\text{Cumulative Percent Retained on the } \frac{3}{8} \text{ Sieve}}{\text{Cumulative Percent on the No. 8 Sieve}} * 100$$

$$\text{Workability Factor} = \text{Percent Passing No. 8} + \frac{2.5 * (\text{Cementitious Content} - 564)}{94} * 100$$

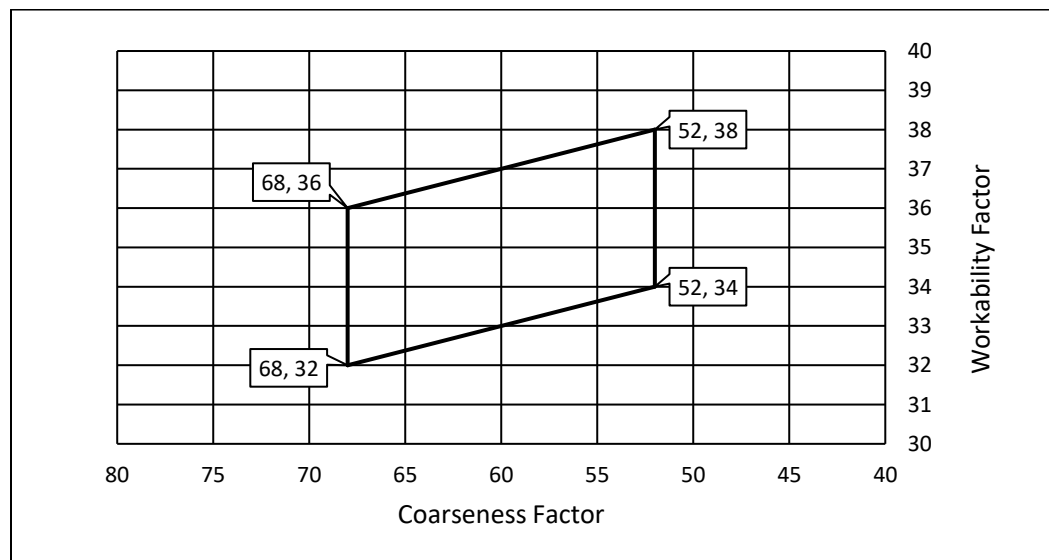


Figure 2.5.1 Coarseness and Workability

2.6. FAST-TRACK CONCRETE

When fast-track concrete mixes are specified, or upon request by the Contractor, the Contractor shall submit a concrete mix design for review and approval. The mixture shall meet the requirements in Section 2.5. Proportions, except the in-situ minimum compressive strength shall be 3,000 psi at 30 hours. The compressive strength of the placement can be measured by ASTM C 873 Standard Test Method for Compressive Strength of Concrete Cylinder Cast in Place in Cylindrical Molds and field cured.

Fast-track concrete mixes shall have optimized well-graded aggregate and shall include a maximum of 620 lbs. total cementitious content including fly ash or slag cement, at a minimum of 20% cement replacement, by mass. Non-chloride accelerators may be used for early strength, and may use hydration stabilizers to preserve workability en-route to the project.

At no time may concrete exceed 150°F in temperature while under blankets or other protection devices, nor fall below 60°F during the 30 hour period. The surface temperature shall be regulated to a gradual drop of no more than 50 degrees in a 24 hour period.

Contractor shall provide an environment to ensure that mixes will attain a field strength of 3000 psi compressive strength in 30 hours.

2.7. PLANT CERTIFICATION

All plants supplying concrete shall be certified by an approved plant certification program by the National Ready Mix Concrete Association, MNDOT or NDDOT (in the current construction season).

2.8. MIXING

Use of ready-mixed concrete shall meet all applicable requirements of ASTM C 94 Standard Specification for Ready-Mix Concrete with exceptions as noted in the plans and these Standard Specifications. The size of the batch shall not exceed the manufacturer's rated capacity as shown on a metal rating plate that shall be attached in a prominent place on the truck mixer. When mixing, the drum shall rotate at a mixing speed for not less than 70-100 revolutions. All concrete hauling equipment shall be operated to deliver and discharge the required concrete mixture completely without segregation. The drum shall be completely emptied before receiving the material for the succeeding batch.

Batch mix or job-site mixed concrete shall be mixed in a rotary batch mixer of a type acceptable to the Engineer and shall meet all requirements as specified in Section 155 of the most current NDDOT Standard Specifications for Road and Bridge Construction of Concrete Equipment. The volume of

the mixed material for each batch shall not exceed the manufacturers rated capacity of the mixer. The batch material shall be delivered to the mixer accurately measured to the desired proportions and shall be continuously mixed for not less than 90 seconds after all materials including water are in the mixer, during which time the mixer shall rotate at the speed recommended by its manufacturer.

Mix temperatures between batching and placement shall be maintained between 50°F and 90°F.

2.8.1. AGITATING TRUCK TIME LIMITATIONS

The concrete transported in an agitating truck shall be completely discharged within 90 minutes after the introduction of the mixing water to the dry materials when ambient temperatures are less than or equal to 80°F. This time is reduced to 60 minutes when temperatures exceed 80°F.

2.8.2. NON-AGITATING TRUCK TIME LIMITATIONS

The concrete transported in a non-agitating truck shall be completely discharged within 45 minutes after the introduction of the mixing water to the dry materials when ambient temperatures are less than or equal to 80°F. This time is reduced to 30 minutes when temperatures exceed 80°F.

2.9. FIELD ADJUSTMENTS TO MIXED CONCRETE

The table below illustrates potential field adjustments the Contractor may administer in the field under authorization of the Engineer before truck discharging occurs. The Engineer will test each subsequent load of concrete to determine the concrete is within the specified limits. Placement of concrete will not be allowed until the Engineer has determined the concrete is within the limits. If two consecutive tests fail, the load will be rejected. The Engineer reserves the right to reject any loads not meeting specified limits.

Problem	Resolution	Specified Limits
Slump too low	* Contractor may “add water” one time prior to start of concrete discharge from the truck (water to be added before testing).	Not to exceed 4” slump
Slump too high	If first test fails, immediately re-test a new concrete sample from same truck. If 2 nd test fails, reject load.	Not to exceed 4” slump

Problem	Resolution	Specified Limits
Air too high	If first test fails, immediately re-test a new concrete sample from same truck. If 2 nd test fails, reject load.	** Between 5% and 8%
Air too low	* If first test fails, Contractor may perform one adjustment by adding air entrainment to load. Obtain new sample from adjusted concrete and test. If the sample of adjusted concrete fails, immediately re-test a new concrete sample from same truck. If 2 nd test of the adjusted concrete fails, reject load.	** Between 5% and 8%

*Only one adjustment per load allowed. After adjustment, mixing must consist of at least 30 revolutions at mixing speed.

** See Section 2.5. Proportions.

2.10. EPOXY RESIN ADHESIVE

Epoxy resin shall meet or exceed the requirements of AASHTO M 235 Type IV, Grade III.

2.11. REINFORCEMENT STEEL, DOWEL BARS, AND TIE BARS

All material delivered to project site shall be tagged with a metal or plastic tag showing the manufacturer's heat number. Place the heat numbers on the tag in one of the following manners:

- Embossed numbers;
- Printed using waterproof ink; or
- Engraved numbers.

2.11.1. PLAIN SMOOTH AND DEFORMED STEEL BARS

Plain smooth or deformed steel bars shall be Grade 60, conforming to AASHTO M 31. Grade 60 tie bars shall not be bent or re-straightened during construction. Tie bars designated as Grade 40 conforming to AASHTO M 31 shall be used for construction requiring bent bars.

All tie bars shall be coated on all surfaces lengthwise with epoxy coating conforming to the requirements of ASTM A 775 Standard Specification for Epoxy-Coated Steel Reinforcing Bars. Exposed ends resulting from saw cutting or shearing do not need to be coated.

2.11.2. DOWEL BARS

Dowel bars shall be smooth steel bars conforming to AASHTO M 31 or M 322 and shall be clean, straight, and free of loose material. Dowel bar deviation from true shape shall not exceed 0.04 inch in diameter of the dowel and shall not extend more than 0.04 inch from the end of the dowel. Before delivery to the construction site, steel dowel bars shall be coated on all surfaces lengthwise with epoxy coating conforming to the requirements of ASTM A 775 Standard Specification for Epoxy-Coated Steel Reinforcing Bars with a minimum thickness of 8 mils. Exposed ends resulting from saw cutting or shearing do not need to be coated.

Dowel basket assemblies shall provide rigid support to prevent dowels from becoming misaligned during paving operations. Dowel bars shall have a uniform coat of Tectyl 506 applied by the manufacturer, field applied NLGI Grade #2 multipurpose lithium grease, or an approved equal that has been applied to the full length of the dowel bars.

All epoxy coated bars shall be protected from the sun's rays with tarps or other means if they are to be subjected to the sun's rays for more than 120 days. Exposure for periods longer than 120 days will result in the product being rejected from use. Bars carried over as excess from previous year's construction shall not be used on any project unless documentation of protection from the sun is provided to the Engineer. Bars showing rust through the coating shall be rejected for use.

2.12. JOINT MATERIAL

2.12.1. EXPANSION/ISOLATION JOINTS

Expansion/isolation joint material shall be made of rubber material and conform to the requirements of ASTM D 1752 Standard Specification for Preformed Sponge Rubber, Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction. The joint material shall be Reflex® Rubber Expansion or approved equal.

2.12.2. HOT Poured JOINT SEALANT

The material for sealing all expansion and concrete joints shall be hot poured elastic type and shall conform to the requirements of ASTM D 6690 Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements, Type I. The material shall be composed of a homogeneous blend of virgin polymers, plasticizers, special fillers and asphalt cement specifically for sealing concrete pavement joints. The asphalt cement shall meet the requirements of AASHTO M 226. Meadows Safe-Seal 3405 is an approved substitute for the hot pour material.

2.12.3. SILICONE JOINT SEALANT

When silicone joint sealant is specified, the sealant shall be a Low Modulus Silicone Sealant meeting the requirements ASTM D 5893 Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements.

2.12.4. BACKER ROD

Backer Rod shall conform to the requirements of ASTM D 5249 Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints, Type 1 or Type 3.

2.13. CURING & SEALING COMPOUNDS

All curing compounds shall be applied in accordance with the manufacturer's recommendations.

2.13.1. ALL CONCRETE PAVING (INCLUDING ALLEY PAVING AND CURB & GUTTER SECTIONS)

White pigmented, liquid curing compound, conforming to the requirements of ASTM C 309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete Type 2, Class B with 100 percent poly-alpha-methylstyrene resin.

2.13.2. COLORED CONCRETE PAVEMENT

Transparent, non-yellowing, acrylic-based liquid curing & sealing compound, conforming to the requirements of ASTM C 309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete Type 1, Class A or B.

2.14. SUBMITTALS

At the Engineer's discretion, the Contractor may be required to submit representative samples of the materials he proposes to use prior to the delivery of the materials to the site of the work. On all projects, the Contractor shall provide the following to the Engineer at least 7 days prior to commencing any concrete placement or paving operations.

*2.14.1. REQUIRED SUBMITTALS**A. Project Concrete Mix Design*

Mix designs, including the per yard quantity of each material and the following information:

- i. Cement Mill Certificate
- ii. Fly Ash Mill Certificate
- iii. Slag Cement Mill Certificate
- iv. Aggregate sources including:
 - a. Gradations
 - b. Physical test results
 - c. Absorption and specific gravity
 - d. Deleterious reaction results
- v. Admixtures to be used and technical data sheets

B. Hot Weather Plan

C. Cold Weather Plan

D. Concrete Curing Plan

The concrete curing plan shall include the following information;

- i. An original certificate of compliance, project number, name of contractor, and name of the manufacturer and type of curing compound
- ii. The trade name of the curing compound
- iii. Statement that curing compounds meet all requirements of the Specifications
- iv. Equipment and methods used for applying curing compounds

E. Joint Sealant Certificate of Compliance

The type of backer rod shall be shown, along with an original certificate of compliance showing the following information for each type of joint sealant to be used on a project, as applicable:

- i. Project number and name of Contractor
- ii. Name of the manufacturer and type of joint sealant
- iii. The manufacturer's batch and lot number
- iv. The trade name of the material
- v. The weight, pouring temperature, and safe heating temperature
- vi. Statement that materials meet all requirements of the Specifications

F. Reinforcing Steel, Dowel Bars, and Tie Bars

Certified Mill Analysis from the Manufacturer shall include the following information:

- i. Producer name and address
- ii. Type and grade of reinforcement or dowel bar
- iii. Heat number
- iv. Authorized signature of person responsible for Quality Control
- v. List all chemical and physical test results
- vi. Date and location where steel was melted
- vii. Date reinforcement or dowel bars were rolled
- viii. Date document printed

PART 3

CONSTRUCTION

3.1. EXCAVATION, SUBGRADE PREPARATION, AND AGGREGATE BASES

Excavation and subgrade preparation shall meet the requirements of Section 2000 Excavation, Filling, and Subgrade Preparation and aggregate base shall meet the requirements of Section 2070 Aggregate Bases.

Aggregate base shall be fine graded to the shape and grade shown on the plans, allowing construction of the pavement to the thickness and cross section shown on the plans.

Aggregate base shall be smooth, uniformly compacted and proof rolled tested before placing steel and concrete.

3.2. CONTRACTOR FLATWORK CERTIFICATION

The Contractor(s) performing concrete work, are required to have at least two employees with a current ACI concrete flatwork technician or flatwork finisher certification, and at least one of those employees must be onsite performing quality control and guidance during all concrete forming, placement of reinforcement steel, dowel bars, and tie bars, pouring, finishing, and curing operations.

3.3. PLACING REINFORCING STEEL

All reinforcing steel shall be kept clean, free of rust, scale, and foreign material which would impair the bond between the steel and concrete. Contractor shall establish all reinforcing steel locations as shown on jointing and reinforcing layout in the plans. All reinforcing shall be set and secured in place a minimum two hours in advance of the concrete placing operation to allow the Engineer to inspect. Placement of reinforcing during and directly in front of paving operation will not be allowed unless approved by Engineer.

Reinforcing shall be overlapped a minimum of 20 inches and tied securely in place at all points where the bars cross. Reinforcing shall be positioned on supports of a design and material approved by the Engineer and of sufficient strength to hold the bars in place while the concrete is being placed.

Reinforcing shall be placed mid-depth of concrete thickness at dimensions shown on the reinforcing steel detail.

3.4. PLACING CONCRETE

Prior to setting forms or placing concrete, the base material shall be accepted by the Engineer for concrete placement. The base material shall be satisfactorily graded to within a tolerance of +/- 0.02' (1/4") of final grade. The base material shall be smooth, uniformly compacted, clean and free from debris, ruts, waste concrete, frost, ice, and standing water. Concrete shall not be placed on frozen base material.

Manhole castings shall be installed with the paving operation or installed with each adjoining full concrete panel. Manhole isolation or box outs will not be allowed.

Use of tongue and groove configurations (keyway) between abutting slabs will not be allowed.

Curb & gutter shall be poured separate from adjacent concrete pavement.

All concrete pavement and curb and gutter shall be placed by slip-form operation. Fixed forms may be used in irregular areas, intersections, tapers, alleys, roundabouts, areas inaccessible to slip-form equipment or other areas approved by Engineer.

Trucks hauling concrete shall not drive over reinforcing bars or over previously deposited concrete.

Concrete placement shall be suspended when any equipment is leaking oil in a manner which allows the oil to contaminate the fresh concrete mixture. Contaminated concrete shall be removed at the Contractor's expense.

When concrete pumping is utilized, the truck booms shall be configured to minimize the free fall of concrete at the point of discharge to minimize segregation and the loss of air and slump.

Immediately prior to placing the concrete, the aggregate base shall be uniformly moistened with water and kept moistened during the duration of concrete placement. The concrete shall be placed so segregation and unnecessary re-handling is avoided. The mixed concrete shall be deposited on the aggregate base to the required depth and for a width not exceeding the direct reach of the mixer boom, in successive batches and in a continuous operation without the use of intermediate forms or bulkheads between joints.

If concrete placement is temporarily interrupted, with an elapsed time between placement loads of concrete greater than 45 minutes, a transverse construction joint shall be installed. This timeframe may be decreased if there is potential for a cold joint when adverse conditions are encountered such as in hot weather. While being placed, the concrete shall be uniformly vibrated so that the formation of a cold joint, voids, and/or honeycombing is prevented.

The Engineer reserves the right to halt any concrete placement if, in the judgement of the Engineer, the Contractor has failed to comply with any portion of the plans or these Standard Specifications.

3.4.1. COLD WEATHER POURING

A cold weather plan shall be submitted by the Contractor to the Engineer for approval. If the ambient temperature during placement or curing is predicted to fall below 40°F, the cold weather concrete plan shall be followed. The plan shall at a minimum include the following:

- Method for delivering concrete at a temperature above 55°F
- Method for protecting and measuring base temperature
- Method for measuring in-situ concrete temperature
- Method for maintaining concrete temperature above 50°F until concrete attains a compressive strength of 3000 psi.

Concrete placement shall not occur if the ambient temperature during placement is less than 30°F or the temperature of the base material is greater than 20°F below the plastic concrete temperature.

Calcium chloride, chemicals, or other materials may not be added to the concrete mix to prevent freezing. Concrete shall not be placed on a frozen base or subgrade. Use of combustion heaters shall be vented away from poured concrete. Any concrete damaged from cold weather shall be removed and replaced at Contractor's expense.

3.4.2. PROTECTING CONCRETE FROM RAIN DAMAGE

The Contractor shall not place concrete when rain conditions appear imminent. The Contractor shall possess, on the project site, sufficient waterproof material, and the means to rapidly place it, to cover all unhardened concrete surface or any other concrete surface that may be damaged by rain. Concrete shall not be placed during rain that results in any standing water on the surface of the fresh concrete surface.

Rain-damaged concrete shall be cored as directed by the Engineer and depth of damage determined by petrographic examination. When the depth of damage is 1/4 inch or less of the pavement thickness, if applicable, the damaged areas may be corrected by diamond grinding. Diamond grinding requirements are detailed in Section 2900 Pavement Milling or Grinding. Coring for petrographic examination, diamond grinding, and any other related activities shall be at the Contractor's expense. Engineer reserves right to reject any rain-damaged concrete.

If depth of damage is greater than 1/4 inch, the slab shall be considered defective and replaced at the Contractor's expense.

3.5. SLIP-FORM EQUIPMENT AND CONSTRUCTION

3.5.1. GENERAL

All equipment shall be self-propelled, and designed for the specific purpose of placing, consolidating, and finishing the concrete pavement or curb section to grade, required thickness and cross-section in one complete pass without the use of side forms. The slip-form equipment shall vibrate or tamp the concrete for the full width and depth of the layer being placed. Equipment shall leave the pavement vertical edges square shaped, free of slumping and irregularities. The concrete shall be uniformly consolidated throughout its width and depth, free from honeycombed areas, tearing, and have a consistent void-free closed surface. If needed in isolated areas, the Contractor shall tool pavement edges to a 1/4 inch radius ensuring that edges are smooth and true to line. Operation of slip-form equipment shall be a continuous forward movement coordinating all operations of mixing, providing adequate concrete hauling, and spreading concrete to provide uniform progress with minimal stopping and starting of the equipment.

Track propelled equipment should be equipped with rubber protective pads on the crawler tracks, or the tracks shall travel on cushions of wood or belting.

Contractor shall use a tightly stretched string line to achieve the line and grade reference for operating the automatic equipment controls for base trimming, slip-form paving, and curbing operations. The string line shall be supported at intervals to maintain the established grade, vertical curves, and alignment shown in plans. Where specific vertical curves are not provided in the plans, the Contractor shall make reasonable effort, under guidance from the Engineer, to add vertical curvatures at all differing tangent grades.

3.5.2. SLIP-FORM PAVING

A. GENERAL

Unless otherwise allowed for in the plans, or approved by the Engineer, the use of Automated Machine Guidance (Stringless paving) will not be allowed.

The Contractor may, under discretion of Engineer, use a dampened burlap to be attached behind the slip-form paver. Dampening of this drag material will be accomplished through a uniform, fogging spray pattern. The addition of water to the

drag shall not produce unsatisfactory conditions such as puddling, dripping, or excessive slurry on the surface.

B. CONSOLIDATION VIBRATOR OPERATION

Operate internal vibrators within a frequency range of 4,000 to 8,000 vibrations per minute.

Operate surface vibrators within a frequency range of 3,500 to 6,000 vibrations per minute.

Reduce vibrator frequency when forward motion of the paver is reduced and stop vibrators when forward motion of the paver is stopped.

Contractor shall provide an electronic monitoring device meeting the following characteristics and requirements to display the operating frequency of each individual internal vibrator for concrete pavement placed by the slipform method:

- i. Contains a readout display near the operator's controls; visible to the paver operator and to the Engineer,
- ii. Operates continuously as the paving machine operates,
- iii. Displays all the vibrator frequencies with manual and automatic sequencing for each of the individual vibrators, and
- iv. Records the following at least every 25 foot of paving or at least every 5 min of time:
 - a. Clock time,
 - b. Station location,
 - c. Paver track speed, and
 - d. Operating frequency of individual vibrators, expressed as VPM.

Do not delete the data from the vibratory monitoring system until the records are in their final form and given to the Engineer. Contractor shall provide an electronic copy containing the daily record of data after each concrete paving operation or as directed by Engineer.

Provide a written explanation each week that details:

- i. Vibrator setting changes
- ii. Out of tolerance vibratory operations
- iii. Monitoring device malfunctions.

3.5.3. SLIP-FORM CURBING

A. AUTOMATED MACHINE GUIDANCE (AMG)

When acceptable by the Engineer, Automated Machine Guidance (AMG) operations may be an option in lieu of using string line to slip-form curb and gutter sections.

The Contractor shall submit an AMG operation plan containing the following items to the Engineer, for approval, a minimum 14 days prior to slip-form curbing. At a minimum, the following items must be included in an AMG operation plan:

- i. Locations on the project where AMG will be utilized.
- ii. The vertical and horizontal accuracies of the AMG.
- iii. The Contractor's past performance with AMG. This shall include project locations, the amount of curbing installed, and Owner and/or Engineer references that the City may contact.
- iv. The equipment manufacturer and type of equipment that would be used to operate the AMG system.

Contractor's Liability:

The Contractor is solely responsible and assumes all liability for the creation of the Contractor's model. The Contractor must verify the model reflects the plans, contract documents, and field conditions. Subsequently, any concerns relative to the design must be brought to the attention of the Engineer and resolved prior to the commencement of any AMG operations. The Contractor shall be responsible for all errors resulting from the use of AMG and shall correct deficiencies to the satisfaction of the Engineer at the Contractor's own expense. In the event that a design change is required, warranting a plan revision by the Engineer, the Contractor will be responsible for updating the Contractor's model at the Contractor's own expense. The Contractor shall provide and use a GPS rover unit to perform quality assurance checks during all AMG operations. AMG equipment shall accurately and efficiently complete construction activities to a tolerance of +/- 0.02 (1/4") foot vertically and +/- 0.04 (1/2") horizontally.

City's Involvement:

Upon request by the Contractor, the City will provide 2D line work representing the curb line (face of curb) alignment. The data can be provided in either .dwg or .dxf format and will be released to the Contractor upon receipt of a completed Hold Harmless Agreement. It will be the responsibility of the Contractor to further develop the data provided by the City into a format compatible with their AMG application.

Operation of AMG equipment shall not be considered a replacement for survey construction staking completed by the City. Upon request by the Contractor, the City will provide a network of control points with labeled X, Y, Z values. In addition, the City will provide conventional staking of finish grade at critical points, or as needed, for quality assurance. These stakes shall remain in place until completion of all curb and gutter installation unless otherwise allowed by the Engineer. The Contractor shall be responsible for verifying the control points and performing continuous quality assurance checks with conventional staking alignments and elevations to ensure accuracy of AMG operations.

3.6. FIXED FORM EQUIPMENT AND CONSTRUCTION

Forms shall be metal, made of shaped steel, with sections that interlock and are at least 10 feet in length. In special cases, such as irregular shapes and short sections, wood forms shall be permitted. The forms shall be of the same thickness as the concrete to be placed against them and shall have a base width of at least $\frac{2}{3}$ their height. They shall have at least 3 stake pockets for every 10 feet of length and the bracing and support must be able to withstand the pressure of the concrete and weight and thrust of the machinery operating on the forms. Forms shall be mortar and dirt free and shall be checked with a 10-foot straightedge and any variation in excess of $\frac{1}{8}$ inch shall be corrected or forms shall be rejected by the Engineer. Forms shall be set upon the compacted aggregate base to exact line and grade a minimum two hours in advance of the concrete placing operation to allow the Engineer to inspect. A form release agent shall be used on all metal forms before depositing the concrete against them.

Approved flexible or curved forms of proper radius shall be used on curves having a radius 150 feet or less. Straight forms longer than 10 feet shall not be used on any curved line unless approved by the Engineer.

If the pavement is being placed adjacent to previously finished pavement or curb and gutter, such finished pavement or curb and gutter may serve as a side form if approved by the Engineer.

Concrete finishing machines shall be adjustable to the specified crown and elevation. The forms shall be filled and concrete brought to the established grade. The machines shall be capable of striking-off, consolidating, and finishing the concrete. Consolidation shall either be done by the same machine, or if Engineer allows, in a separate operation by hand-operated single spud internal vibrators capable of consolidating concrete pavement adjacent to forms, joints, or fixtures. The hand operated vibrator shall produce a minimum of 3600 impulses per minute. Concrete shall be uniformly consolidated with no segregation, honeycombing, or voids. The screed shall extend the full width of the slab. Roller screeds will be allowed if there is no visible deflection or bounce of

the tube. Contractor shall straightedge the tube for variations prior to using. All finishing equipment shall be kept in good repair and their use subject to the approval of the Engineer.

3.7. AUXILIARY FINISHING EQUIPMENT

The Contractor shall provide the following auxiliary equipment:

- Footbridge (when applicable): A footbridge shall be provided and so designed that it can be readily transported from place to place and span the width of the slab.
- Straight Edge: A minimum (10) foot straight edge of an approved type shall be used. Extra blades shall be provided and used when previously used edges become wavy and warped.
- Floats: Approved long-handled floats, each having a blade at least 3 feet in length and 6 inches in width.
- Master Straight-Edge: All straight edges shall be tested by the master straightedge before use and frequently during their use.
- Brooms: Brooms shall be of an approved push type not less than 18 inches wide and made from good quality bass or bassine fiber not more than five (5) inches in length. The handle shall be at least one foot longer than one-half the pavement width and shall be readily adjustable.

All hand finishing tools shall be constructed of aluminum, magnesium, or wood. Use of steel hand finishing tools will not be allowed.

3.8. JOINTS AND SAWING

3.8.1. GENERAL

Joints in concrete pavement shall be constructed at the spacing and locations shown on jointing and reinforcing layout in the plans. Where a specific jointing and reinforcing layout is not provided, jointing shall be constructed per typical details. Under guidance from the Engineer, the Contractor shall be responsible for establishing all joint, dowel, and tie bar locations. The location of each joint shall be marked in a manner satisfactory to the Engineer prior to placement of the concrete and the markings shall be transferred to the fresh concrete as soon as the final finishing operations have been completed. The use of marking by spray paint will not be allowed.

3.8.2. TRANSVERSE CONTRACTION JOINTS

Transverse contraction joints shall extend across the entire width of paving and through curb and gutter adjacent to pavement. When the pavement abuts existing pavement,

driveways, or curb and gutter, if applicable, the transverse joints shall be placed in locations matching existing joints.

When specified, contraction joints shall include dowel bars as shown in the transverse contraction joints detail. Dowel bars shall be secured and held in position by basket assemblies in transverse contraction joints to within placement tolerances listed below. Dowel bar assemblies shall be secured with approved anchors to hold the dowel bars in the correct position and alignment while preventing movement during concrete placement. Dowels shall be painted or coated with an approved bond breaker. All dowel bar basket assemblies shall be set and secured in place a minimum two hours in advance of the concrete placing operation to allow the Engineer the ability to inspect. Placement of dowel bars during and directly in front of paving operation will not be allowed unless approved by Engineer.

Dowel Bar Placement Tolerances:

- Alignment placement: Within 1/8 inch in both the horizontal and vertical planes.
- Longitudinal shift: 1/2 inch.
- Vertical placement: Placed at midpoint of slab.
- Do not use (splice) more than two dowel bar assemblies in any one doweled joint in each lane width.

3.8.3. LONGITUDINAL JOINTS

All longitudinal joints shall be tied together with epoxy-coated deformed bars as shown in the longitudinal joints detail. Tie bars may be bent at right angles against the side of the first lane constructed and straightened into final position before the adjacent concrete is placed. Tie bar installation shall be completed by inserting into the side of plastic concrete during slip-form paving operation, inserting through accurately positioned holes in side forms, drilling into hardened concrete, or by other approved methods. Drilling method shall meet the requirements of construction joints as specified below. Tie bars that are loose or easily rotated after hardening of concrete shall have additional tie bars drilled and installed as directed by the Engineer.

The tie bars shall be positioned on supports of a design and material approved by the Engineer and sufficient in strength to hold the bars in place while the concrete is being placed.

Tie-Bar Placement Tolerances:

- Longitudinal shift: 3 inches
- Vertical placement: 1 inch
- Tie bars or tie bar baskets shall be placed so that they are not within 15 inches of the transverse joint.

3.8.4. TRANSVERSE AND LONGITUDINAL CONSTRUCTION JOINTS

Transverse and longitudinal construction joints shall be constructed whenever the placing of the concrete is suspended for more than 45 minutes or at the end of each pour. Construction joints shall only be constructed at planned transverse and longitudinal joint locations. A construction joint shall be formed by securely staking in place at right angles to the sub base and centerline of the pavement, a bulkhead of wood or metal cut to the cross-section of the pavement. Dowel and tie bars shall be installed with the construction joint by either inserting bars into plastic concrete or later drilled in place. If dowels are installed in plastic concrete, dowels shall be secured and held in place midway across the joint, parallel to both the surface and the centerline of the slab by a self-supported dowel sleeve, or other supporting device approved by the Engineer.

Concrete accumulated in the grout box of the paver at end of each pour shall not be incorporated into the construction joint. Concrete contained in the grout box shall be removed from the project.

Drilling holes for placement of dowel and tie bars may be completed after concrete has gained sufficient strength to prevent spalling or damage to new concrete. The diameter of the drilled holes shall be drilled 1/8 to 1/4 inch larger than the diameter of the bars. Gang-mounted rigs shall be used for drilling holes for dowel bars and shall be capable of drilling holes at proper alignment without excessive chipping and spalling. Hand-held drills will only be allowed for drilling tie bars. The drilled holes shall be blown out with compressed air at a working pressure of at least 90 psi using a device that will reach to the back of the hole to ensure all debris and/or loose material is removed prior to epoxy injection. An epoxy resin adhesive shall be used to anchor the bars in the drilled hole. Prior to insertion of the bars, drilled holes shall be filled with epoxy resin 1/3 to 1/2 full, or as recommended by the manufacturer. Each bar shall be rotated during installation to eliminate voids and to ensure complete bonding occurs. Bar insertion by the dipping method will not be allowed.

Exposed ends of the dowels shall be painted or coated with an approved bond breaker.

The dowel bars and tie bars shall be installed to within the tolerances specified above.

3.8.5. EXPANSION AND ISOLATION JOINTS

When specified, expansion joints shall be spaced as specified or shown on the plans. Expansion material shall extend entirely through the depth and width of the concrete joint.

All expansion joints, unless specified otherwise, shall have epoxy coated smooth bars installed for load transfer across expansion joints. They shall be held in place midway across the joint face, parallel to both the surface and the centerline of the slab by an approved supporting device or drilled in place. The “free” end of the smooth bar shall be coated with an approved lubricant and covered with an approved non-corrosive metal or plastic dowel cap or sleeve. The expansion material shall be accurately pre-punched to fit tightly around the smooth bars.

The expansion material shall be accurately and firmly staked or fastened to the concrete face before pouring concrete. The top edge of all expansion material shall be set flush with the concrete surface and tight against the vertical faces. When installed as specified, hot pour sealant will not be required. Where the expansion material is not installed flush with concrete surface or tight against concrete faces, the Engineer will determine whether removal and replacement is required, or allowing the expansion material to be cut down 1/2" below concrete surface. The joint faces shall then be cleaned by sandblasting and sealed with hot pour sealant 1/8" below to flush with the concrete surface.

3.8.6. SAWING

All non-construction joints shall have weakened planes created by sawing to the required dimensions shown on the saw joint detail. Sawed joints shall be extended through adjacent curb and gutter sections. All joints shall be sawed along a true and straight line established by the Contractor and shall not deviate at any point by more than 1/2 inch from the established line. Tooling of joints in lieu of sawing will not be allowed unless approved by the Engineer.

The initial sawing shall be accomplished as soon as the condition of the concrete will permit without raveling and before random cracking occurs. The sequence of initial sawing shall be the Contractor's responsibility. The sawing shall be immediately delayed if any raveling occurs. Water under nozzle pressure shall be used to remove the sawing residue from each joint and the pavement surface immediately after completing the sawing of the joints. At least one backup saw shall be available for use if a breakdown occurs during

initial saw cutting operations. An inventory of at least two saw blades shall be on-site during initial saw cutting operations

Widening of the joints to full width, as per dimensions shown on the saw joint detail, shall not be performed until the concrete has cured for at least 24 hours and shall be delayed longer when the sawing causes joint raveling.

Self-propelled wet cutting saws with automated depth control shall be used for all joint establishment and widening operations. The early entry dry saw "Soff-Cut" method of sawing will only be allowed with the Engineer's approval for the initial saw-cutting.

If joint raveling is present, the Engineer will categorize the degree of raveling and determine whether a contract price adjustment to the pavement bid item or rejection of pavement will be administered. The Engineer will determine the degree of raveling by using the table below and areas of contract price adjustments by measuring the defective areas in square yards. Price adjustments will be deducted from monies due or to become due to the Contractor. Engineer reserves the right to reject any concrete with joint raveling present.

Joint Raveling Deduct Adjustments (Percent of Contract Unit Price)	
Degree of Raveling	% Deduct per SY
No Raveling: 0" to 1/4"	(0%)
Light Raveling: 1/4" to 3/8"	(15%)
Moderate Raveling: 3/8" to 1/2"	(25%)
Severe Raveling: 1/2" +	Remove and Replace

3.8.7. UNCONTROLLED CRACKING

Concrete pavement in which uncontrolled cracks occur shall be removed to the nearest planned longitudinal and transverse joints. The removal and replacement method shall be approved by Engineer and at the Contractor's expense. The work shall include the complete removal and replacement of a quantity of pavement, to include dowel bar assemblies when applicable, as is determined necessary for acceptance of the pavement by the Engineer. Any damage caused during the removal and replacement process shall be restored at the Contractor's expense (including but not limited to base or subgrade). All removal and replacement work shall be in accordance with the requirements of these Specifications.

3.9. CONCRETE FINISHING

Concrete shall be consolidated, leveled, finished, and cured within 45 minutes of it being placed on the grade.

The addition of water to the surface of the concrete to assist in finishing operations is not allowed and will result in non-payment, replacement, and/or repair of the wetted area as determined by the Engineer. Failure to take acceptable precautions to prevent surface drying of the concrete will be cause for shut down of placing operations. Evaporation retarders shall not be used as a finishing aid.

Forms shall be left in place for at least 15 hours after placing the concrete, and the method of removing them shall not damage or mar the concrete.

The finished surface of the pavement and curb & gutter shall conform to the grade, alignment, dimensions, and contour shown on the plans and typical sections. Immediately following the floating operation, the Contractor shall test the slab surface for trueness with a 10-foot straightedge. The straightedge shall be placed parallel to the pavement centerline and be passed over the slab to reveal any high or depression areas. The high or depression areas shall be cut or filled as necessary with the long handled floats and the area checked again with the straightedge. Successive advances of the straightedge shall overlap by 1/2 the length of the straightedge. The entire surface shall be checked until all variations have been eliminated.

All curb and gutter surfaces shall be finished true to line and grade without any irregularities of surface noticeable to the eye. The curb and gutter shall not depart from more than 1/4 of an inch from a 10 foot straight edge, placed on the curb parallel to the center line of the street, nor shall any part of the exposed surface present a wavy appearance.

Any concrete areas with segregation, honeycombing, and/or voids shall be removed and replaced at the Contractor's expense

3.10. FINAL SURFACE FINISH

After surface irregularities have been removed, the pavement shall be uniformly textured using a seamless strip of artificial grass-type carpet, or by using broom bristle sections. The artificial grass-type carpet shall have a molded polyethylene pile face with a blade length of 5/8 inches to 1 inch, a minimum weight of 70 ounces per square yard, and a strong, durable, rot-resistant backing material bonded to the facing.

The texturing material shall be pulled longitudinally and be mounted to a self-propelled support system, operated off of the paving string line, and shall not deviate visually from the established alignment. Other approved texturing methods will be allowed if Engineer determines it is not

feasible to use a self-propelled system or string line. All texturing material shall apply a uniform texture with 1/16 to 1/8 inch deep striations. The width of the texturing material shall be in full uniform contact over the full width of the pavement. The texturing material shall be in good repair and shall be cleaned as often as necessary to remove hardened particles or debris that would otherwise scar the surface.

With formed paving only, brooms shall be drawn across the surface at right angles to the centerline of the pavement, with the stroke of the broom overlapping by 2 inches of adjacent strokes. Brooms shall be washed and dried at frequent intervals during the pour. Any long or coarse bristles that may cause surface irregularities shall be trimmed or cut out, and any brooms that have become worn out shall be discarded.

The final surface texture shall be uniform in appearance and free of rough or porous spots, irregularities, depressions, and other objectionable features.

Areas of pavement surfaces showing deficient or non-uniform texture shall be re-textured by diamond grinding. Diamond grinding shall be performed in accordance to Section 2900 Pavement Milling or Grinding of these Specifications. The Engineer will test the “mean texture depth” achieved by the carpet drag or broom material in accordance with ASTM E 965 Standard Test Method for Measuring Pavement Macrottexture Depth Using a Volumetric Technique and the NDDOT *Field Sampling and Testing Manual*. The Engineer will determine the test locations.

3.11. CURING CONCRETE

Concrete curing compound shall be applied to the surface of the concrete within 45 minutes after being placed on the grade. The finished surface shall be sprayed with a curing compound on all exposed faces. The curing compound shall be applied to form a uniform coverage at the rate of not less than one (1) gallon per two-hundred (200) square feet of surface area, unless the manufacturer recommends a heavier application. Curing compounds shall be applied using mechanically-pressurized spray equipment with multiple atomizing spray nozzles mounted on a self-propelled frame that spans the paving lane. Handheld sprayers shall be limited to small areas inaccessible to span framed style equipment or other areas approved by Engineer. Curing compound shall be immediately reapplied to any surfaces exposed or repaired within the curing period. After application of the curing compound, the surface of the concrete shall be as white as a sheet of paper.

Colored concrete pavement shall be cured with transparent curing and sealing compound. Curing and sealing procedures shall follow the manufactures recommendations.

Failure to provide the required amount of approved curing compound in specified time period shall be cause for immediate shutdown of concrete placing operations and/or rejection of placed concrete.

3.12. JOINT SEALING

All concrete pavement joints shall be sealed using a hot pour sealant. Joints shall be sealed before opening to construction and public traffic and no more than 10 days after placement of concrete. Prior to sealing joints, the Contractor shall keep newly-placed concrete clean of loose aggregate and debris at all times. The Contractor shall not seal joints until they have been inspected and approved by the Engineer. Failure to comply will result in complete removal of the sealant material to allow inspection by the Engineer, at the Contractor's expense. The joints shall not be sealed when the air temperature is below 40°F.

All vertical joint faces shall be cleaned by sandblasting, or if approved by the Engineer, water blasting may be allowed. The minimum working pressure of sandblasting shall be a minimum of 100 psi and water blasting shall be a minimum of 2000 psi. Oil, asphalt, slurry, curing compound, paint, rust, and other foreign materials shall be completely removed. Just before the joints are sealed, the Contractor shall clean the joints with compressed air at a working pressure of at least 100 psi. All joints shall be dry before applying joint sealant.

Backer rod shall be used in all transverse joints to control the depth of the sealer material, achieve the desired shape of the material, and support the material against indentation and sag. The backer rod shall be compatible with the hot pour sealant and not subject to the absorption of water.

Any joints filled above or below the specified level shall be corrected at the Contractor's expense. Any excess sealant spilled on the pavement surfaces shall be removed.

3.12.1. SEALANT APPLICATION

A. Hot Pour Sealant

All joints shall be sealed with hot pour sealant. The hot pour sealant shall be forced into the joint with a pressure type applicator capable of filling the joint from the bottom up to a height approximately flush to 1/8" below the pavement surface, without any overflow or spillage onto the pavement surface.

B. Silicone Sealant

When allowed by the Engineer, silicone joint sealer may be used in lieu of hot sealant. The sealant shall be tooled to produce a slightly concave surface approximately 1/8 inch below the pavement surface.

3.13. PROTECTION OF PAVEMENT

The newly-placed concrete with insufficient strength shall be protected from traffic by employing watch persons, if necessary, and by the erection and maintenance of barricades, fences, warning signs and lights, pavement bridges, and cross-overs. The newly-placed concrete shall be kept clean of loose aggregate, dust, and debris at all times during construction activities. Any part of the pavement damaged from traffic or other causes occurring prior to the acceptance of the pavement shall be repaired to the satisfaction of the Engineer at the Contractor's expense.

When bituminous pavement or colored concrete is placed adjacent to concrete pavement, the adjacent concrete pavement shall be protected from spills and smears. Discolored concrete pavement shall be cleaned at the Contractor's expense. The concrete pavement shall not be used to stockpile or mix any material unless approved by the Engineer. Contractor shall use a "pickup" type power sweeper equipped with adequate dust storage capacity to keep the newly constructed pavement clean of loose aggregate, dust, and debris at all times during construction activities.

The Contractor will be subject to an hourly charge for failure to keep the pavement surface clean. If the Contractor does not make an effort to clean the surface within (1) hour of being notified, the Contractor will be assessed \$200.00 per hour until which time the Engineer determines that the Contractor has complied.

3.14. OPENING TO TRAFFIC

Newly constructed pavement shall not be opened to Contractor or public traffic until the concrete has attained a compressive strength of 3,000 psi. This strength may be measured by one of the following methods; field cured cylinders in accordance with ASTM C 31 Standard Practice for Making and Curing Concrete Test Specimens in the Field or concrete maturity in accordance with ASTM C 1074 Standard Practice for Estimating Concrete Strength by the Maturity Method. Newly constructed concrete pavement shall not be opened to any traffic until all joints have been sealed and the pavement has been swept clean of loose aggregate, dust, and debris.

3.15. PAVEMENT SURFACE SMOOTHNESS

This section describes the methods for locating areas of localized roughness and measuring the smoothness of final concrete surface, and provisions for corrective action. The Engineer may direct Contractor to use the 10 foot straightedge method, the profiler method, or both to determine surface smoothness. All pavement smoothness testing and corrective measures, if required, shall be at the Contractor's expense.

All Concrete Pavements shall meet the following thresholds of localized roughness and smoothness:

Methods of Measuring Localized Roughness and Smoothness				
Concrete Pavement Categories	MRI Threshold	ALR Threshold	RSE Threshold (Excluded Areas)	10' Straight edge Threshold (Excluded Areas)
> 30 mph	120 in/mile	160 in/mile	0.25 inch deviation per 25 ft. segment	1/8-inch deviation
All others	140 in/mile	180 in/mile	0.25 inch deviation per 25 ft. segment	1/8-inch deviation

Definitions:

IRI – International Roughness Index

MRI – Mean Roughness Index

ALR – Areas of Localized Roughness

RSE – Rolling Straight Edge

3.15.1. 10 FOOT STRAIGHTEDGE METHOD

Where directed by Engineer, the Contractor shall furnish an approved 10 foot straightedge, depth gauge, and operator to aid the Engineer in testing the pavement surface. Areas showing high or low spots of more than 1/8 inch but not exceeding 1/4 inch in 10 feet shall be ground with diamond grinding equipment to an elevation within the 1/8 inch tolerance. When the deviation exceeds 1/4 inch high or low, the Contractor shall submit a corrective action plan that includes either grinding or removal and replacement of the pavement. If the corrective action plans contains grinding, the pavement must be ground to within the 1/8 inch tolerance. The Engineer will determine what corrective action shall be implemented.

3.15.2. PROFILER METHOD

A. Inertial Profiler

The Contractor shall furnish an Inertial Profiler capable of measuring International Roughness Index (IRI) in dual wheel paths, producing a profilogram, and exporting raw profile data in an unfiltered electronic Engineering Research Division (ERD) file format. The Contractor shall furnish current proof of profiler calibration and certification from MnDOT, or other approved agency, to the Engineer prior to performing profiling operations. The profiler shall meet all requirements and specifications found in AASHTO M 328 Standard Specification for Inertial Profiler.

B. Operator Certification

Contractor shall provide an operator trained in the operation of the Inertial Profiler and knowledgeable in the use of the required Profile Analysis Software (ProVal). Operators shall be certified by MnDOT, or other approved agency, and provide documentation of operator certification to the Engineer.

C. Profiler Operation

Contractor shall clean and prepare the surface of pavement for accurate testing. All traffic control costs associated with profiling shall be incidental to other bid items.

All mainline concrete pavement shall be profiled for smoothness and ALR evaluation. Profiles shall be reported in 0.1 mile segments, measured in each wheel path per lane and shall be reported based on the Mean Roughness Index (MRI), the average IRI values from both wheel paths. A “wheel path” is defined as the 2.5 feet from the edge of the travel lane or as directed by the Engineer.

Pavement areas listed below shall be excluded from MRI smoothness and ALR evaluation, however, if directed by the Engineer, these areas shall be profiled to identify bumps or dips using the Rolling Straight Edge Method (RSE) in ProVal, and/or measured by 10 foot Straight Edge Method. The Engineer will evaluate and determine which method type measuring will be required for the excluded pavement areas listed below.

- i. Intersections (PC to PC)
- ii. Roundabouts (circular portion)
- iii. Parking lanes
- iv. Turn lanes
- v. Interchange Ramps and Loops

D. Evaluation.

The Contractor shall utilize the most current version of ProVal and use the program to calculate the MRI from the Engineering Research Division (ERD) files. A copy of the ERD files shall be sent to Engineer upon completion of the data collection. The low- and high-pass filters shall be set to zero.

i. Determining Areas of Localized Roughness.

Identify areas of localized roughness using the Smoothness Assurance Module (SAM) within the current version of ProVal. Use the following settings in the SAM:

- Ride Quality Index set to MRI.
- The base length:
 - Short continuous - 25 feet.
 - Long continuous - 528 feet.
 - Fixed interval - 528 feet.
- Ride Quality Threshold of 160 in/mile for 30 mph or greater.
- Ride Quality Threshold of 180 in/mile for less than 30 mph.

Apply a 250 mm filter to the file being analyzed.

The localized roughness shall be calculated in inches per mile at the short continuous interval of 25 feet.

ii. Determining MRI.

Identify areas of localized roughness using the Smoothness Assurance Module (SAM) within the current version of ProVal. Use the following settings in the SAM:

- Ride Quality Index set to MRI.
- The base length:
 - Short continuous - 25 feet.
 - Long continuous - 528 feet.
 - Fixed interval - 528 feet.
- Ride Quality Threshold of 120 in/mile for 30 mph or greater.
- Ride Quality Threshold of 140 in/mile for less than 30 mph.

Apply a 250 mm filter to the file being analyzed.

The localized roughness shall be calculated in inches per mile at the long continuous interval of 528 feet.

MRI numbers recorded in inches per mile will be established for each 528 foot section for each travel lane of the finished pavement. If the last segment is greater than 250 feet and less than 528 feet, the segment shall be measured as an

independent segment. If the last segment is 250 feet or less, the profile for that segment shall be included in the evaluation for the previous segment.

- iii. Determining Roughness in excluded pavement areas as directed by the Engineer.

Identify areas of roughness using the Rolling Straight Edge (RSE) within the current version of ProVal. Use the following settings in the RSE:

- Straightedge length – 25 feet.
- Deviation Threshold – 0.25 inches

Dips and bumps in excess of 0.25 inches shall be corrected.

3.15.3 CORRECTIVE ACTION

Methods to correct areas which do not meet the required ride quality thresholds for either MRI, ALR, or RSE shall be diamond ground, remove and replace, or other methods approved by the Engineer. Diamond grinding shall be performed according to Section 2900 Pavement Milling or Grinding of these Specifications, except that diamond grinding shall be conducted in increments no smaller than one driving lane width and two panel lengths. Ridges left during grinding shall be feathered and day lighted out with additional passes. Joint sealant damaged in corrective grinding areas shall be removed and replaced at Contractor's expense.

The Contractor shall submit a detailed corrective action plan using the ProVal and SAM data, 5 working days in advance of grinding. Contractor shall generate grinding simulations in ProVal with multiple grinding depths, varying equipment, and multiple pass patterns and include the grinding simulations with the corrective action plan. Any corrective action performed shall not reduce the integrity or durability of the pavement that is to remain in place, and in any case, the pavement thickness shall not be reduced by more than 1/4 inch less than the thickness shown in the Plans, unless approved by the Engineer. Based on Contractor's corrective action plan, the Engineer will determine what extent of the corrective action shall be implemented. The Contractor shall locate and perform all required pavement surface corrective work, with the approval of and in the presence of, the Engineer. Corrective work may also be required for any additional combination of bumps, dips, chatter, or other roughness that, in the opinion of the Engineer, produces an objectionable ride.

On pavement areas where corrections are necessary, second profiler runs shall be performed to verify that corrections have produced thresholds within acceptable limits. In addition, any concrete panels replaced after completed initial smoothness testing and corrective action shall meet the smoothness requirements.

3.16. PAVEMENT SURFACE POP OUT TOLERANCE

Definition of a Pop Out - A hole or crater in the concrete surface, ranging in size from 1/4 inch to several inches in diameter that results from the fracturing of unsound aggregate particles due to expansion pressures. Usually caused by porous aggregate having a high rate of absorption.

3.16.1. POP OUT TOLERANCE CONTRACT PRICE ADJUSTMENTS

The contract price adjustment for each lot will be determined by multiplying the determined lot size by the contract unit price for concrete pavement and the appropriate Contract Price Adjustment Factor shown in the Table below. Price adjustments will be deducted from monies due or to become due to the Contractor. In the event that a contract price adjustment results in an overpayment, the Contractor shall repay overpayment monies within 30 days of notice. No price adjustments will be made for lots with 15 or less pop outs per one square yard.

A. Lot Establishment

The Engineer will select random test locations for determining the number of visual pop outs present in all pavement and curb and gutter sections. The Engineer will mark a square yard perimeter and visually count pop outs 1/2 inch or greater in diameter located within the perimeter. Lot sizes will be determined by considering each separate pour as a separate lot size based on project records.

For lot sizes less than 1000 square yards, the Engineer will test three random locations and average the number of pop outs counted in each location to determine the number of pop outs per one square yard for pay adjustments.

For lot sizes greater than 1000 square yards, the Engineer will test one random location per 1000 square yards, or a minimum of three random locations, whichever is greater, and average the number of pop outs counted in each location to determine the number of pop outs per square yard for pay adjustments.

Pop Out Deduct Adjustments (Percent of Contract Unit Price)	
Number of Pop Outs per One Square Yard	Total Deduct per Defined Lot Size
0-15	0%
16-25	(5%)
26-35	(15%)
*36 or more	To be determined by Engineer

* Engineer reserves the right to determine deduct amounts and/or reject any concrete exceeding 36 or more pop outs per square yard.

3.17. FINAL ACCEPTANCE OF PAVEMENT

At the time of final acceptance, the concrete pavement shall be free of random cracks, surface scaling, flaking, spalling, or any other related defects or damages. The concrete shall be swept clean of all debris. Any defects or damage to concrete pavement before final acceptance, including damage from freeze thaw cycles or use of deicers, shall be repaired or removed and replaced at the Contractor's expense to the satisfaction of the Engineer.

3.18. LOCATION OF EXISTING UTILITIES

Existing manholes, gate valves, and stop boxes have been shown to direct the Contractor's attention to their existence. The Contractor is cautioned that not all utilities have been shown and their location is not guaranteed. The Contractor is responsible for determining the exact location of existing utilities that affect the installation of the paving.

3.19. CASTING TO GRADE (ALL)

Floating manhole castings as shown in the typical details are required on all manholes structures located in concrete pavement.

This item includes all labor, materials and equipment necessary to adjust the various castings to the proper line and grade. Note that wood shims to adjust rings and castings are not allowed. Changes in grade shall be made as follows:

Height adjustment of manholes and inlets within the paving section shall be performed using either engineered polymer rings or precast reinforced concrete rings.

When using precast reinforced concrete rings, the rings shall be free from cracks, voids, and other defects. Interior I/I Barrier, manufactured by Strike Products or approved equal, shall be used when height adjustment is performed utilizing round precast reinforced concrete rings. The casting and between each ring shall be sealed with a minimum 1/2" x 1/2" double bead of butyl rubber sealant in caulking form. Preformed butyl tape is not allowed. Precast reinforced concrete rings shall be wrapped with nonwoven geotextile fabric, secured around the outside of the rings from three (3) inches below the top of the manhole/inlet structure to the top of the rings. When minor shimming is required, the voids shall be filled with concrete. All precast reinforced concrete rings shall receive a four (4) inch wide concrete encasement placed around the outside of the rings from three (3) inches below the top of the structure to the frame casting.

All engineered polymer rings shall be properly sealed in accordance with the manufacturer's recommendations.

Height adjustment of manholes and inlets is limited to a maximum of 12" of adjustment and no more than 4 adjusting rings. Taller rings shall be used where required to limit adjustment to 4 adjusting rings. When caused by the negligence of the Contractor, a new structure requiring adjustment greater than 12" shall be reconstructed to limit adjustment to 12" and shall be at the Contractor's expense.

Care shall be taken to adjust the casting to the proper grade so the final riding surface is smooth and free of bumps and it conforms to the alignment and grade of the adjoining concrete. Any castings not satisfying these requirements shall be redone to the satisfaction of the Engineer. Castings should be set flush to 1/16 inch below the finished pavement surface.

The casting to grade item also includes cleaning all construction debris or dirt from the manhole or inlet bottom and installing a wiped mortar finish around the inside circumference of the precast concrete adjusting rings.

3.20. GATE VALVES TO GRADE

This item shall include all labor, material, and equipment necessary to raise or lower water gate boxes to the final grade. Care shall be taken to adjust the valve box to the proper grade so the final riding surface is smooth and free of bumps and that it conforms to the grade of the adjoining concrete. The alignment shall be checked to ensure that the box is straight and that the valve is operable. Any valve boxes not satisfying these requirements shall be redone to the satisfaction of the Engineer. Valve boxes should be set flush to 1/16 inch below the finished pavement surface. The gate box to grade item also includes cleaning all construction debris or dirt from the box, verifying that the box is straight, undamaged, and that the valve is operable.

3.21. TESTING

The Concrete shall be tested at least once per day of placement or at the discretion of the Engineer. This testing shall include; Slump, Air Content, Temperature, Compressive strengths (1 cylinder at 7 days and 3 cylinders at 28 days) and gradations and property tests on aggregates. Changes to this frequency of testing may be altered by the Engineer. The Contractor shall cooperate in the making of such tests to the extent of allowing free access to the work for the selection of samples. The Contractor shall be responsible for all costs of quality control testing. The City shall be responsible for all costs of quality assurance testing.

Samples shall be obtained and tested in accordance with the latest ASTM methods of tests. Testing labs will supply reports to the Engineer, Contractor, and concrete supplier.

3.22. SIDEWALKS AND DRIVEWAYS

The construction of sidewalks, driveways, and impressed concrete shall be performed in accordance with Section 2300 Concrete Sidewalks and Driveways.

PART 4
GUARANTEE, MEASUREMENT & PAYMENT

4.1. GUARANTEE

The guarantee shall be per the contract.

4.2. MEASUREMENT AND PAYMENT

Payment for concrete paving and castings and gate valves to grade shall be full compensation for all labor, material, equipment and miscellaneous items necessary for constructing these items in place.

4.2.1. *EXCAVATION AND SUBGRADE PREPARATION*

Paid under Section 2000 Excavation, Filling, and Subgrade Preparation contract bid items.

4.2.2. *UNDER-STRENGTH CYLINDERS*

Payment for Concrete Bid Items specified herein will not be made until the Engineer is satisfied that the material will meet the specified strength requirements. When test cylinders show under-strength concrete, cores shall be taken in the field and tested. The number and location of the cores will be at the discretion of the Engineer. All costs for coring and retesting will be deducted from the Contractor's payment. All concrete found to be under-strength shall be removed and replaced at the Contractor's expense.

4.2.3. *CONCRETE PAVEMENT*

Concrete pavement shall be paid for at the unit price bid per square yard. Concrete pavement shall include the area of paving only and does not include the area of the curb or gutter section.

4.2.4. *CONCRETE CURB AND GUTTER*

Curb and gutter will be measured along the curb face and be paid for at the contract unit price per linear foot.

4.2.5. *CONCRETE VALLEY GUTTERS*

Valley gutters will be measured and paid for at the unit price bid per square yard.

4.2.6. *CONCRETE SIDEWALKS, DRIVEWAYS, AND IMPRESSIONED CONCRETE*

Sidewalks, driveways, and impressioned concrete shall be in accordance with Section 2300 Concrete Sidewalks and Driveways.

4.2.7. *CASTING TO GRADE*

This bid item shall include all work to adjust the casting with up to 4 rings (12 inches), including all sealant, wrap, or chimney seals as specified herein. Adjustments to inlets and manholes located in the pave shall be paid for under the “Casting to Grade – w/Conc” bid item. Adjustments to inlets and manholes located outside the pave shall be paid for under the “Casting to Grade – Blvd” bid item.

4.2.8. *VALVE BOXES TO GRADE*

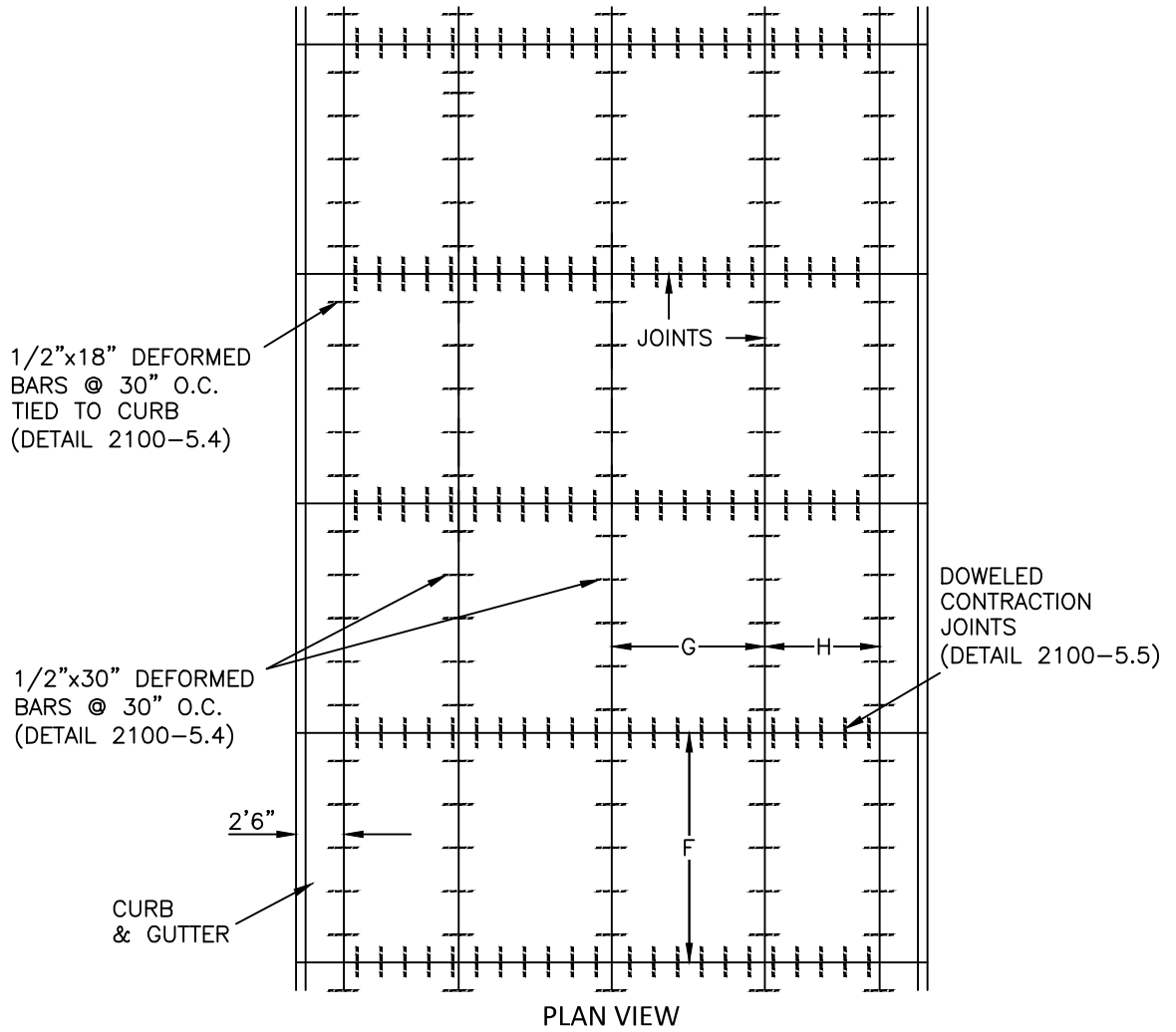
Adjustments to valve boxes located in the pave shall be paid for under the “GV Box to Grade – w/Conc” bid item. Adjustments to valve boxes located outside the pave shall be paid for under the “GV Box to Grade – Blvd” bid item.

4.2.9. *OTHER COSTS*

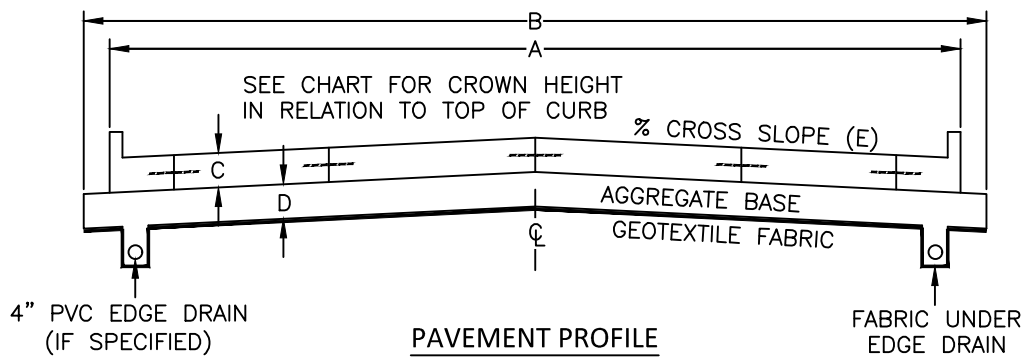
All costs of dowels, reinforcing steel, sawing, curing and protection, jointing and joint filling/sealing, and all other costs of work necessary to properly complete the work specified herein shall not be bid items; the costs shall be charged to other items unless a bid item is included on the bid sheet.

NOMINAL STREET WIDTH	CONCRETE PAVEMENT WIDTH	BACK-BACK WIDTH	GRAVEL BASE WIDTH	SLAB THICKNESS	GRAVEL THICKNESS	% CROSS SLOPE	CROWN HEIGHT ABOVE OR BELOW TOP OF CURB		PANEL HEIGHT	CENTER PANEL WIDTH-G	OUTSIDE PANEL WIDTH-H	GEOTEXTILE FABRIC
							STANDARD	MOUNTABLE				
32'	28'	33'	35'	9"	10"	2.35%	1-1/2" BELOW	1/2" ABOVE	10'	8'	6'	WOVEN
36'	32'	37'	39'	9"	10"	2.30%	1" BELOW	1" ABOVE	10'	10'	6'	WOVEN
40'	36'	41'	43'	9" OR 10"	10"	2.30%	1/2" BELOW	1-1/2" ABOVE	12'	10'	8'	WOVEN
52'	48'	53'	55'	10"	12"	2.30%	1" ABOVE	N/A	15'	12'	12'	WOVEN
63'	59'	64'	66'	10"	12"	2.25%	2-1/2" ABOVE	N/A	15'	11'	12'	WOVEN

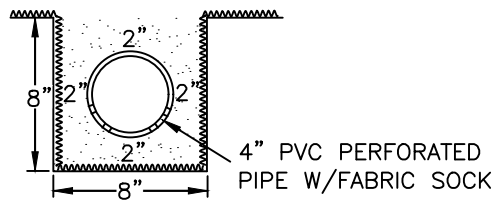
*NOTE: CENTER PANEL IS CENTERED ON R/W, TOTAL OF 4-12' AND 1-11' PANELS



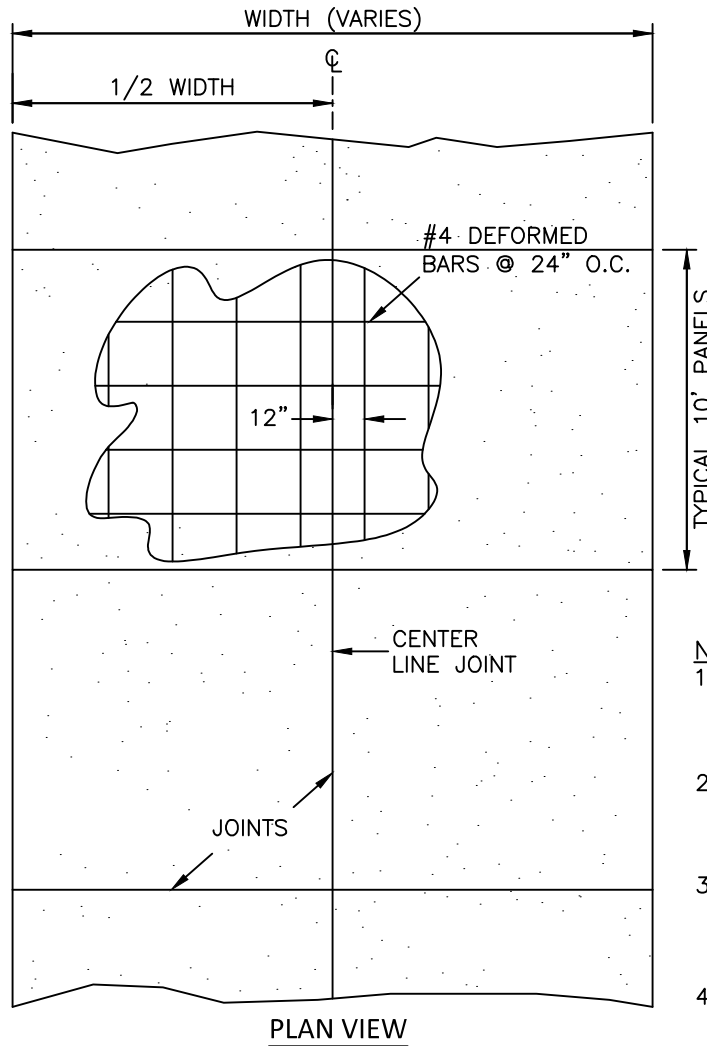
PLAN VIEW



PAVEMENT PROFILE

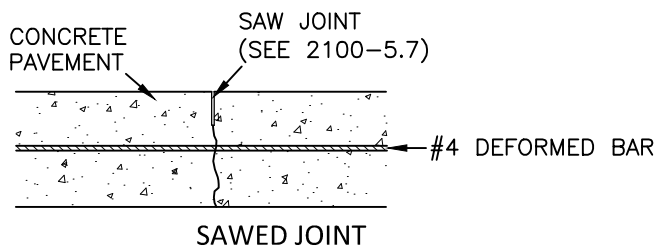
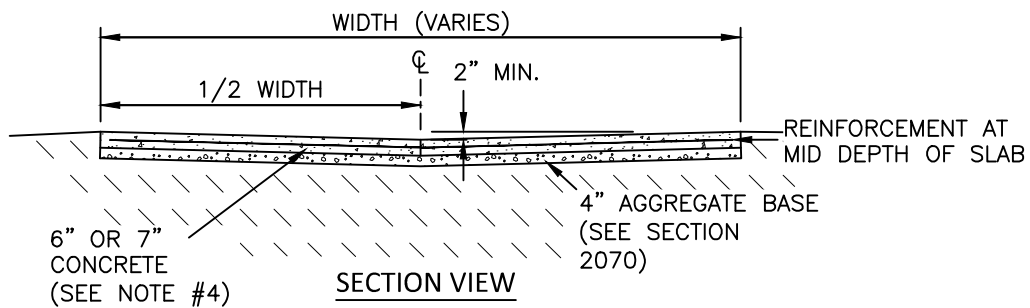


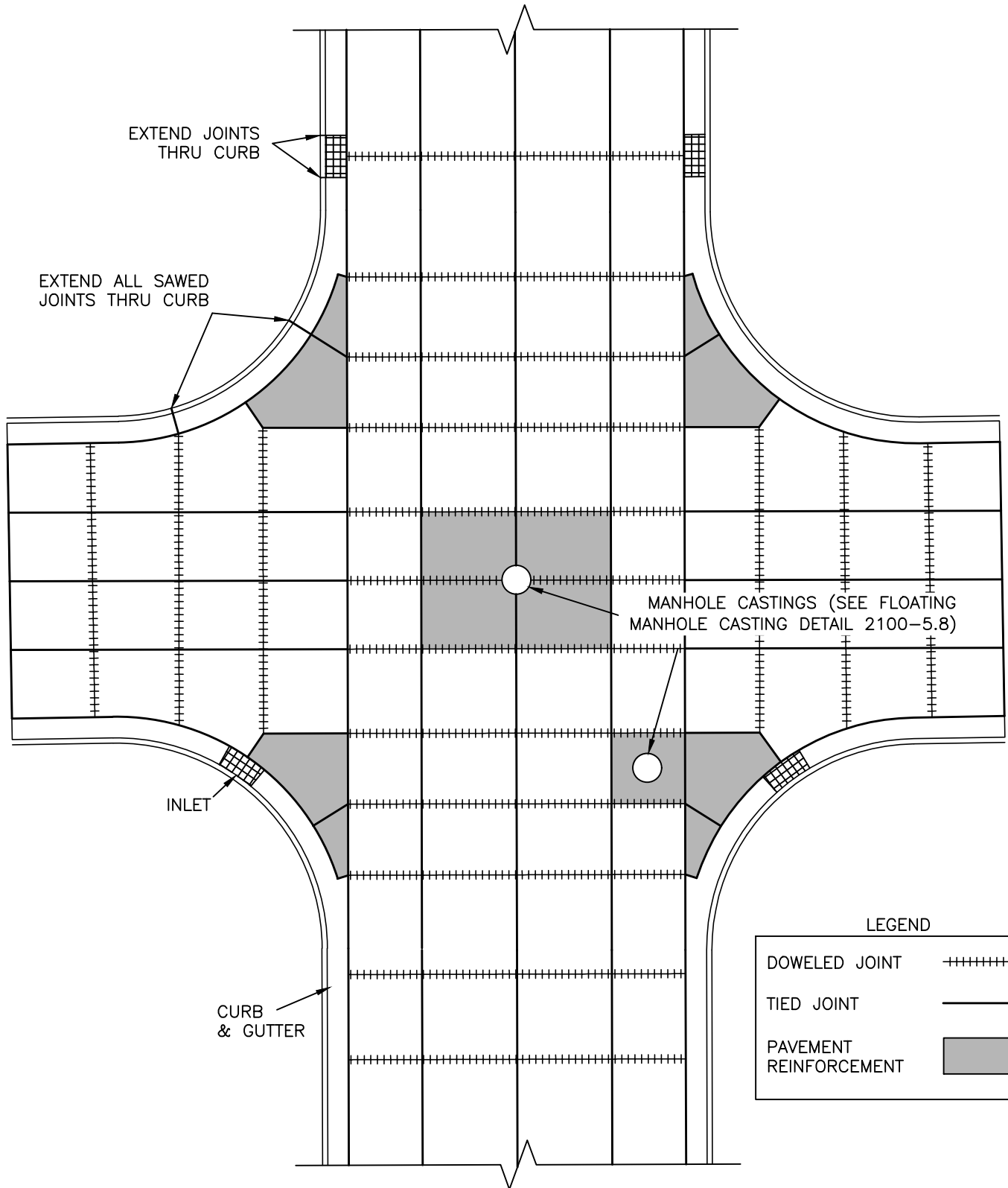
TRENCH DETAIL



NOTES:

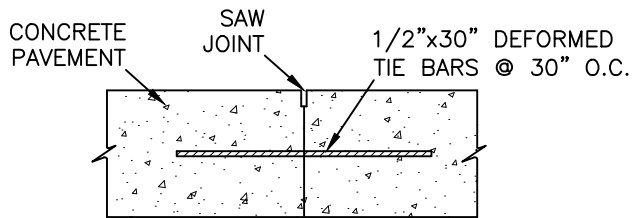
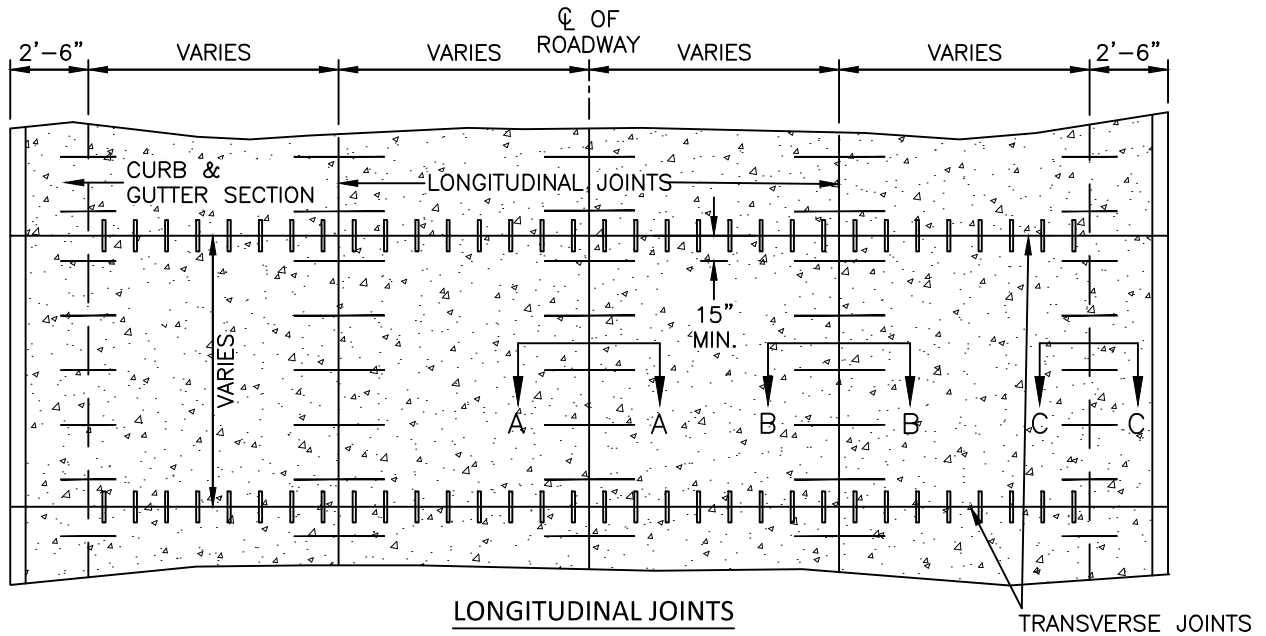
1. JOINTS SHALL BE SAW CUT AND SEALED AS PER SAW JOINT DETAIL 2100-5.7.
2. 4" AGGREGATE BASE SHALL BE INCLUDED IN THE CONCRETE PAVEMENT BID ITEM.
3. ALL CONSTRUCTION JOINTS SHALL BE TIED WITH #4 X 18" DEFORMED BARS @ 24" O.C.
4. 6" RESIDENTIAL THICKNESS
7" COMMERCIAL THICKNESS
5. AGGREGATE BASE SHALL BE INSTALLED 1' MIN. WIDER THAN CENTERLINE FORMS



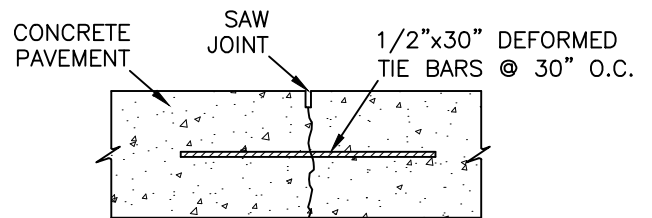


NOTES:

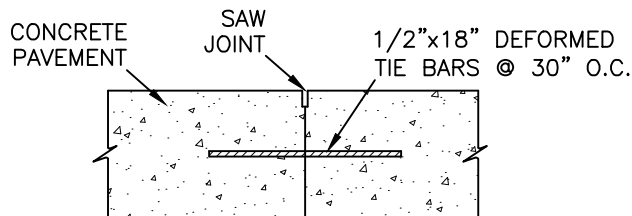
1. ALL DIMENSIONS ARE VARIABLE, SEE JOINTING PLANS AND CONCRETE PAVEMENT DETAILS FOR DIMENSIONS.
2. CURB AND GUTTER SHALL BE POURED SEPARATE FROM ADJACENT CONCRETE PAVEMENT.



SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT



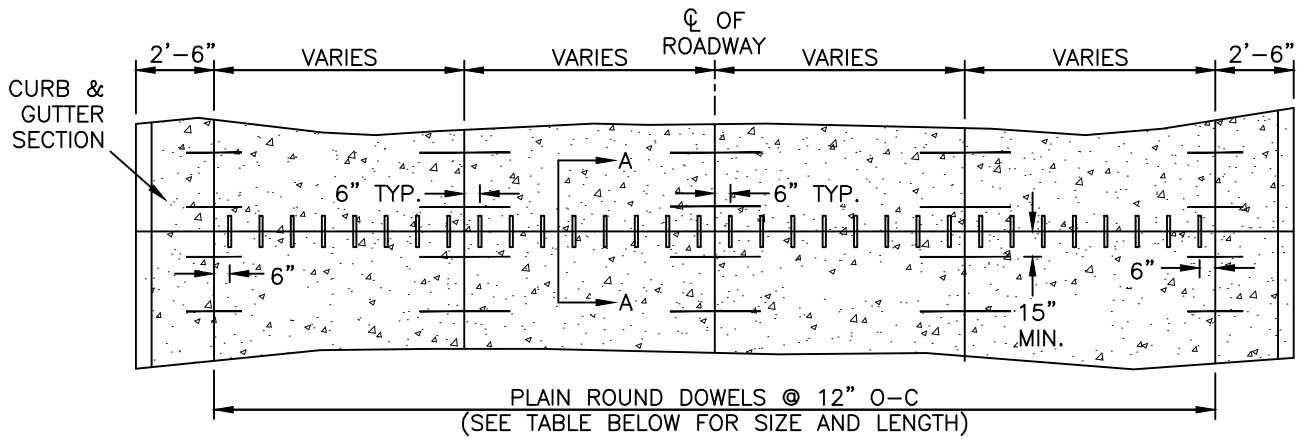
SECTION B-B
SAWED LONGITUDINAL JOINT



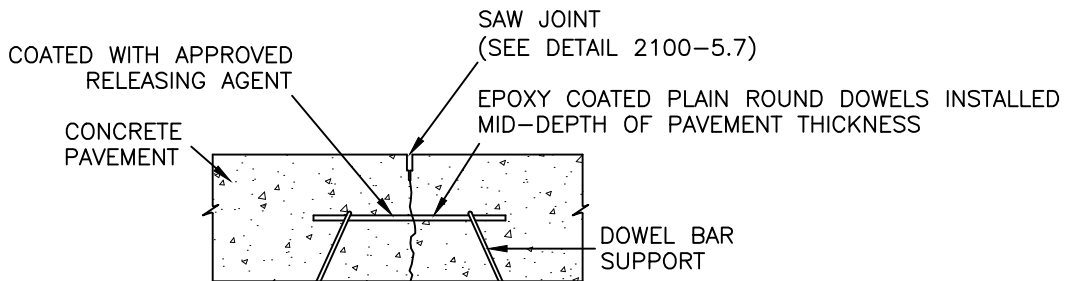
SECTION C-C
LONGITUDINAL CONSTRUCTION JOINT

NOTES:

1. ALL LONGITUDINAL JOINTS SHALL BE TIED
2. SEE SAW JOINT DETAIL 2100-5.7
3. WHERE TIE BARS ARE INSTALLED AND LATER STRAIGHTENED, GRADE 40 STEEL SHALL BE USED
4. ALL TIE BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A 775



**TRANSVERSE CONTRACTION JOINT
DOWEL ASSEMBLY**



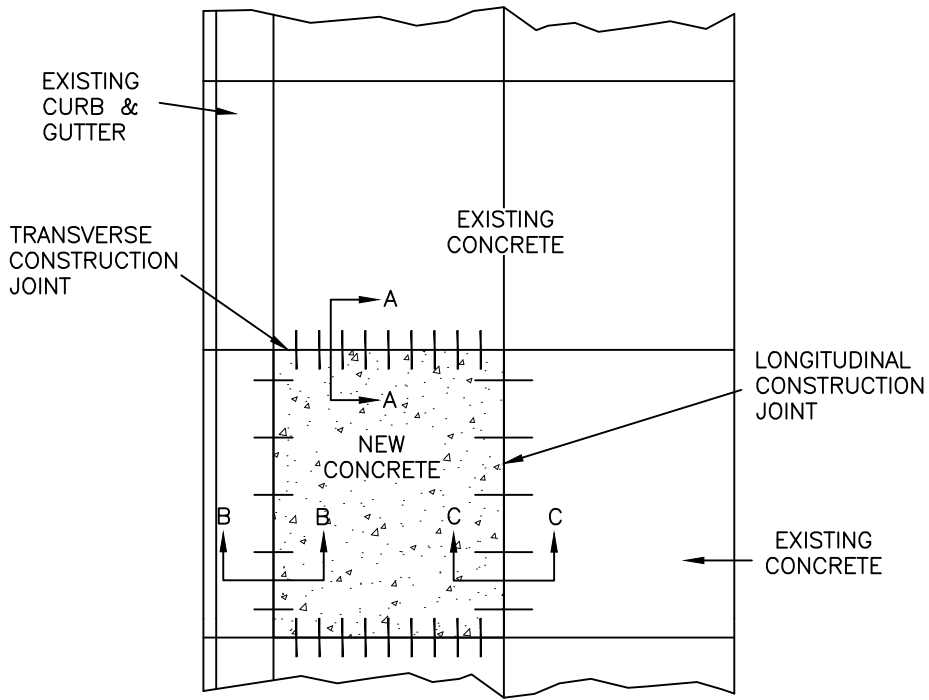
**SECTION A-A
DOWEL ASSEMBLY**

NOTE:

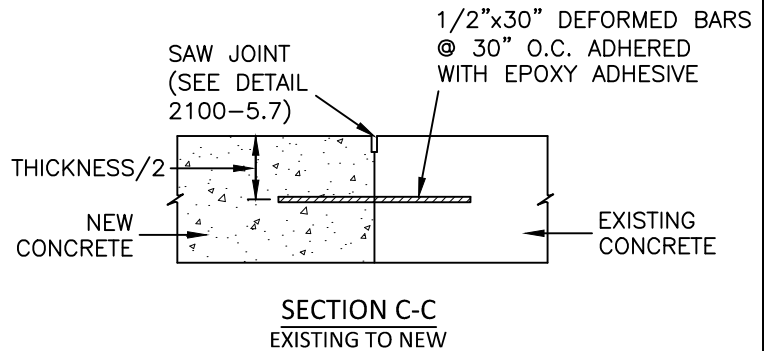
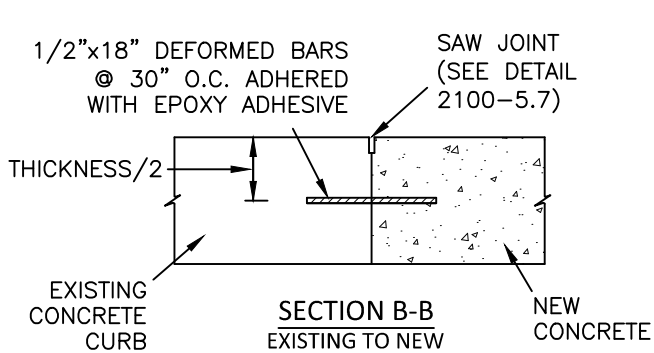
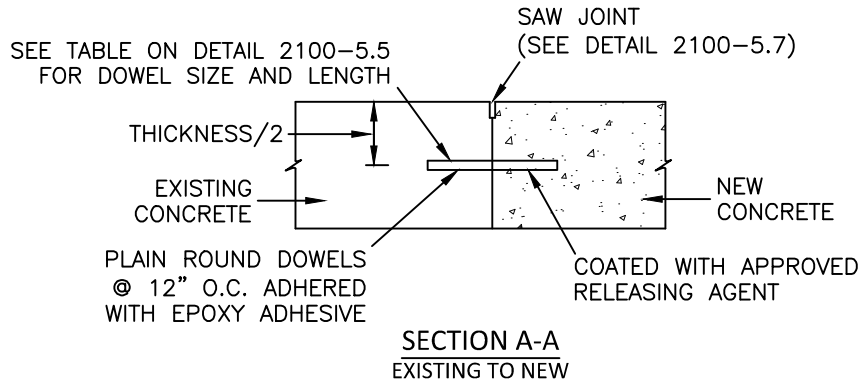
1. ALL DOWELS SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A 775, EXCEPT EXPOSED ENDS RESULTING FROM SAW CUTTING OR SHEARING.

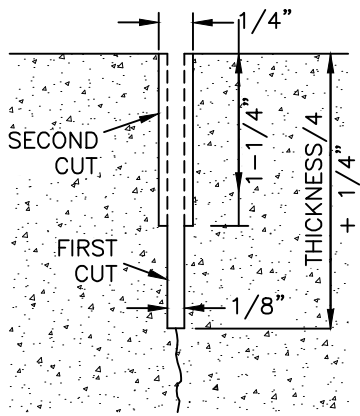
DOWELED JOINTS		
PAVEMENT THICKNESS	DOWEL BAR SIZE	TOTAL DOWEL LENGTH
7"	1"	18"
8 - 10"	1-1/4"	18"
10.5 - 12"	1-1/2"	18"

NOTE: ALL DOWELS ARE TO BE SPACED AT 12" O.C.



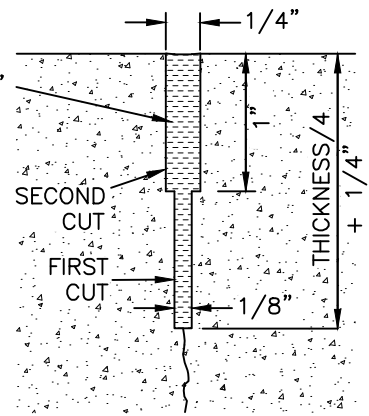
CONSTRUCTION JOINT
EXISTING TO NEW



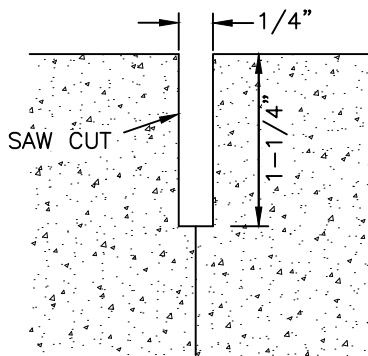


TRANSVERSE SAWED JOINT
(SEE JOINT SEALANT DETAIL)

HOT POUR JOINT SEALANT
INSTALLED FLUSH TO 1/8"
BELOW TOP OF CONCRETE
PAVEMENT

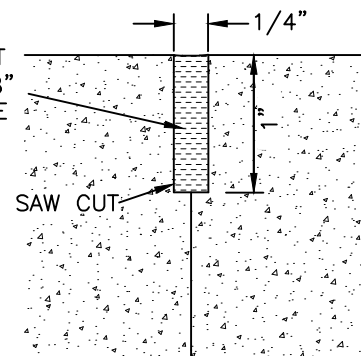


LONGITUDINAL SAWED JOINT



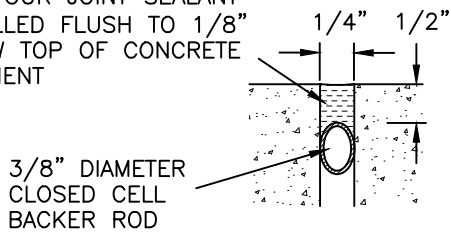
TRANSVERSE CONSTRUCTION JOINT
(SEE JOINT SEALANT DETAIL)

HOT POUR JOINT SEALANT
INSTALLED FLUSH TO 1/8"
BELOW TOP OF CONCRETE
PAVEMENT



LONGITUDINAL CONSTRUCTION JOINT

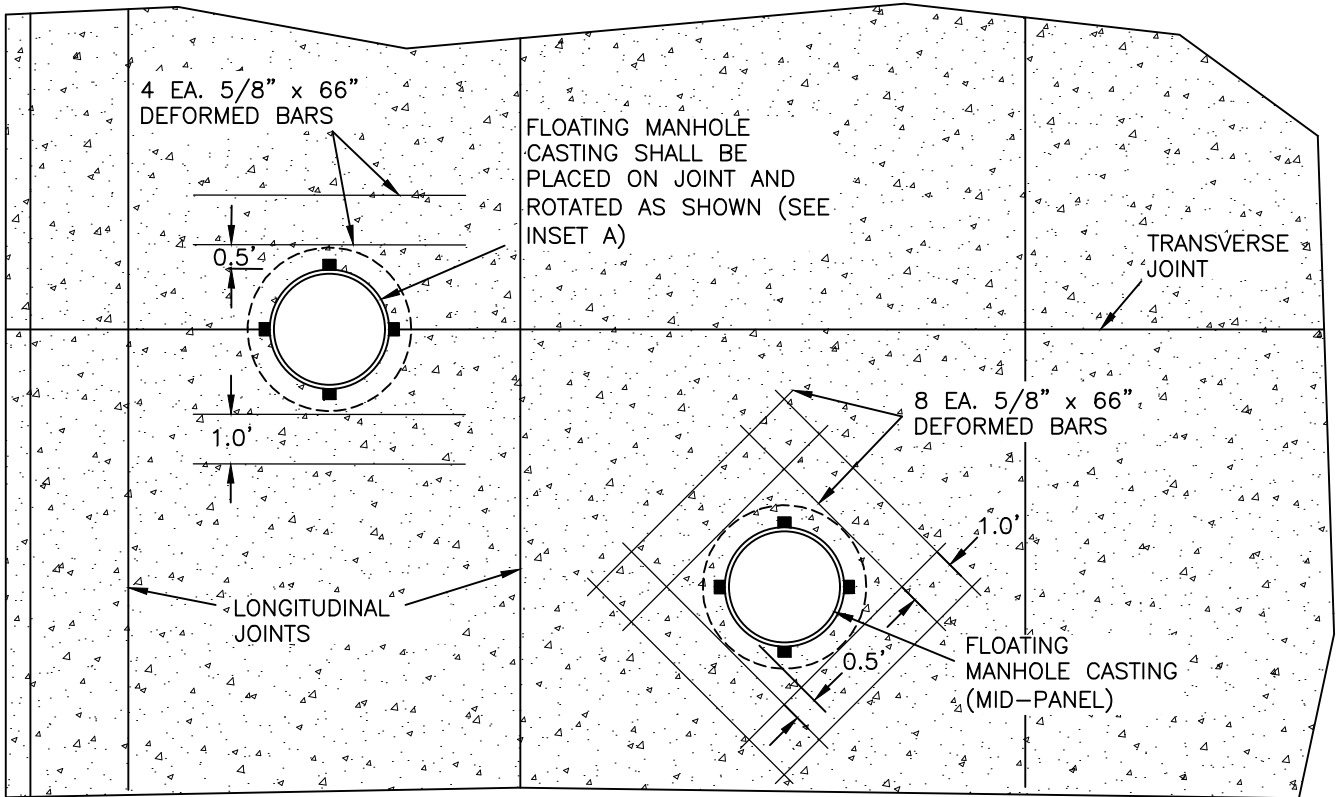
HOT POUR JOINT SEALANT
INSTALLED FLUSH TO 1/8"
BELOW TOP OF CONCRETE
PAVEMENT



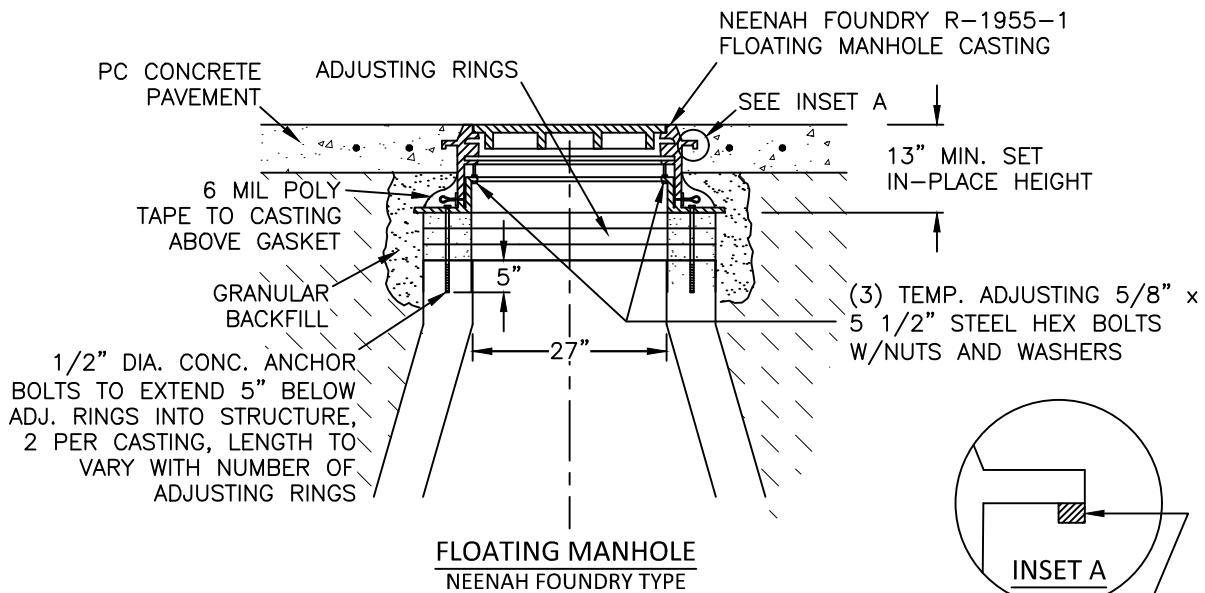
JOINT SEALANT DETAIL
ALL TRANSVERSE JOINTS

NOTES:

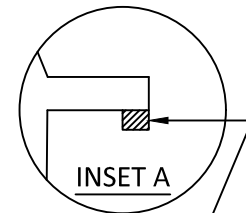
1. ALL LONGITUDINAL AND TRANSVERSE JOINTS SHALL BE FILLED WITH HOT POUR.
2. TRANSVERSE SAWED JOINTS, BACKER ROD AND JOINT SEALANT SHALL EXTEND THROUGH ENTIRE CURB & GUTTER SECTION.
3. ALL CONCRETE JOINT SEALANT AND BACKER ROD SHALL BE IN ACCORDANCE WITH SPECIFICATIONS.



PLAN VIEW



FLOATING MANHOLE
NEENAH FOUNDRY TYPE

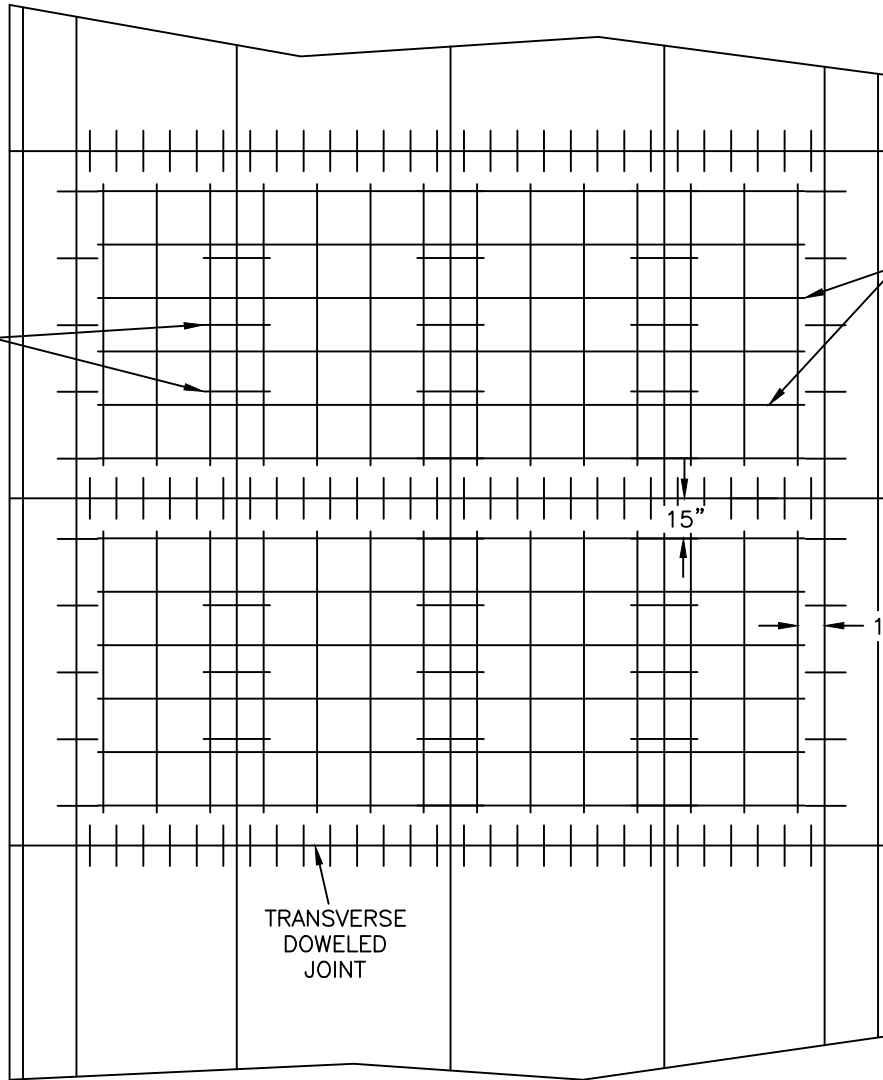


REMOVE ALL FOUR (4) LOWER HOOK PORTIONS FROM THE FLANGES WHEN CASTING IS PLACED ON TRANSVERSE JOINTS AND COAT OUTER SURFACE OF CASTING W/APPROVED RELEASING AGENT

NOTES:

1. THIS DETAIL APPLIES TO ALL MANHOLES LOCATED WITHIN THE CONCRETE PAVING SECTION.
2. SEE SECTION 1200 AND 1500 FOR CASTING LID TYPES.

1/2"x30" #4
EPOXY COATED
DEFORMED BARS
@ 30" O.C. TIED
TO MATS



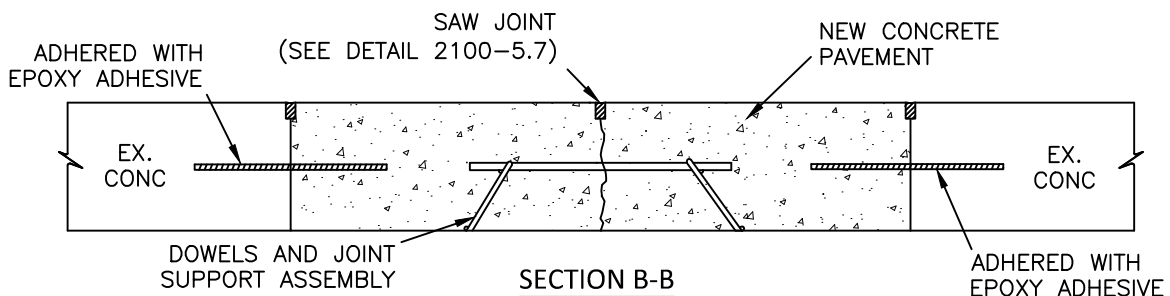
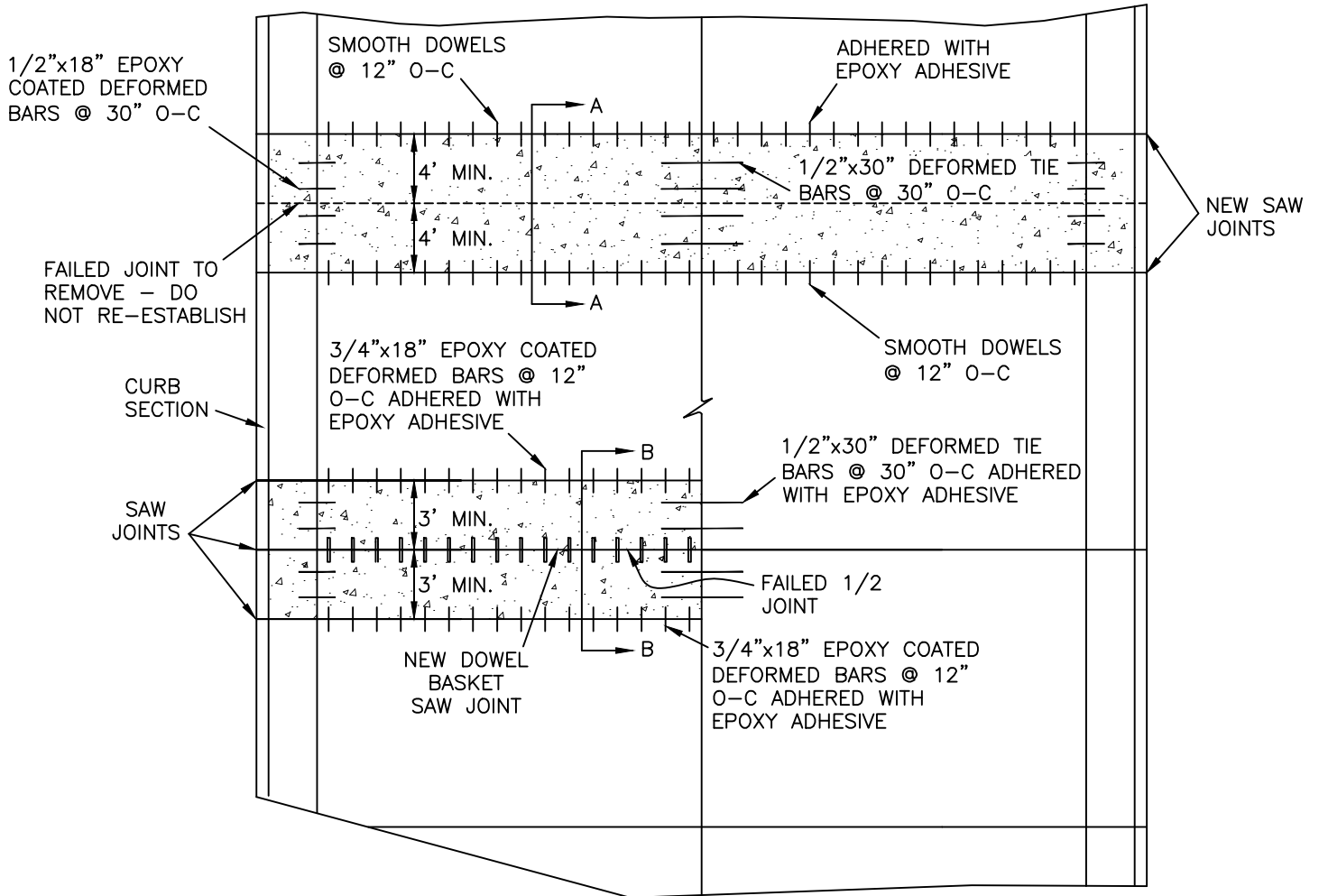
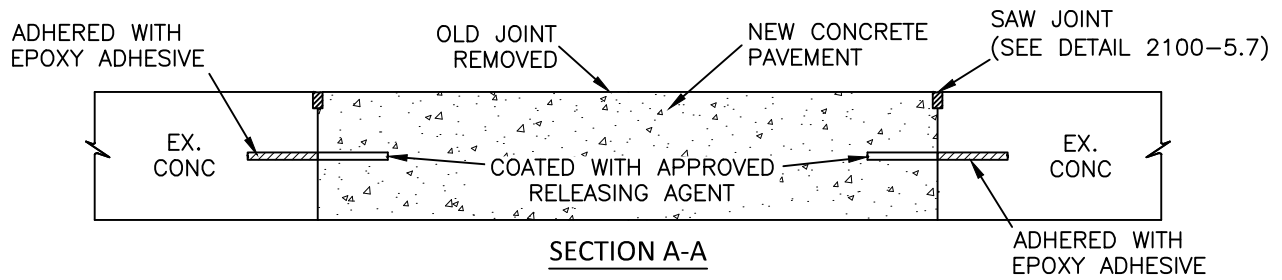
PANEL REINFORCEMENT
(#4 DEFORMED BAR
@ 24" O-C)

CURB SECTION

TRANSVERSE
DOWELED
JOINT

NOTES:

1. AREAS FOR REINFORCEMENT SHALL BE DETERMINED BY THE ENGINEER USING THE PLAN SHEETS AS A GUIDELINE. PAYMENT FOR REINFORCEMENT SHALL BE INCIDENTAL TO THE PRICE OF THE CONCRETE PAVEMENT.
2. REBAR MATS SHALL BE SECURED FROM HORIZONTAL MOVEMENT AND SUPPORTED BY CHAIRS AT THE MID-DEPTH POINT OF THE SLAB.
3. REBAR SHALL STOP WITHIN 15" OF THE DOWELED CONTRACTION JOINT.



NOTES:

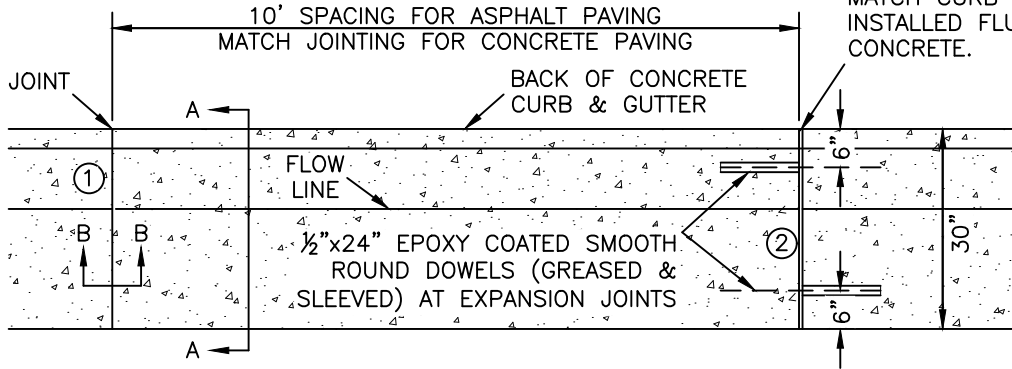
1. SMOOTH DOWELS - SEE CHART ON TRANSVERSE CONTRACTION JOINTS DETAIL 2100-5.5 FOR SIZE AND LENGTH.
2. SEE SAW JOINT DETAIL 2100-5.7.
3. THIS DETAIL SHALL ONLY APPLY TO REHABILITATION PROJECTS WHERE DESIGNATED ON THE PLANS.

① ASPHALT PAVING: SAW CUT OR TOOLED JOINTS AT 10' SPACINGS.

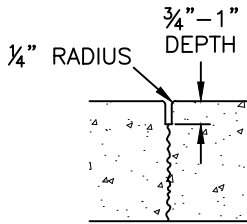
② PLACE 1" EXPANSION JOINTS AT P.C.'S AND AT 250' MAX. SPACINGS FOR ASPHALT PAVING

CONCRETE PAVING: SAW CUT JOINTS TO MATCH CONCRETE PAVEMENT JOINT SPACINGS. SEE SAW JOINT DETAIL 2100-5.7.

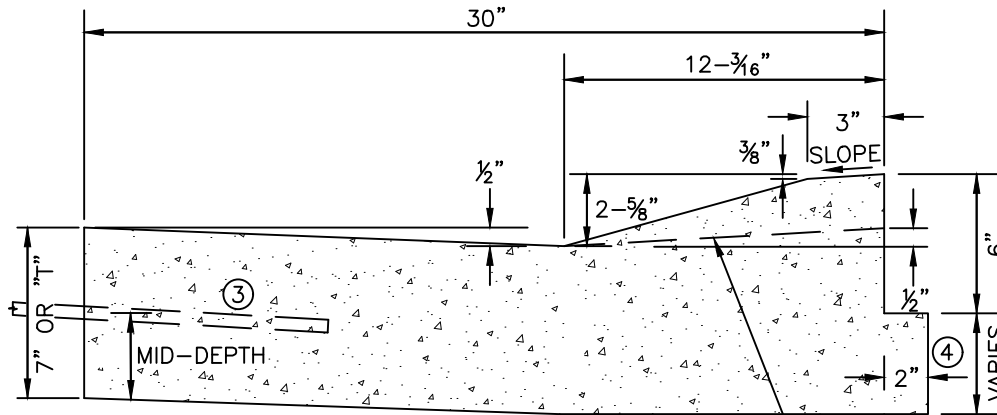
1" EXPANSION JOINT MATERIAL SHALL BE PREMOLDED TO MATCH CURB DIMENSION AND INSTALLED FLUSH WITH TOP OF CONCRETE.



CURB & GUTTER PLAN



TOOLED JOINT DETAIL SECTION B-B



CURB SECTION WHEN DROPPED FOR DRIVEWAY OR PUBLIC SIDEWALK OPENING. (1.5' TRANSITION CURB FOR SIDEWALK AND DRIVEWAY)

③ 1/2"x18" DEFORMED BARS AT 30" O.C. REQUIRED WHEN ADJOINING CONCRETE PAVEMENT

④ 2" LEDGE REQUIRED WHEN ADJOINING DRIVEWAYS, MEDIAN CONCRETE, OR SIDEWALKS.

SECTION A-A

NOTES:

- DIMENSION "T" SHALL MATCH THE THICKNESS OF THE ADJOINING CONCRETE PAVEMENT
- WHEN OUTFLOW CURB IS SPECIFIED SLOPE SHALL BE 1/4" PER FOOT



SECTION: 2100 | DRAWING: 5.11
REVISION: 2021

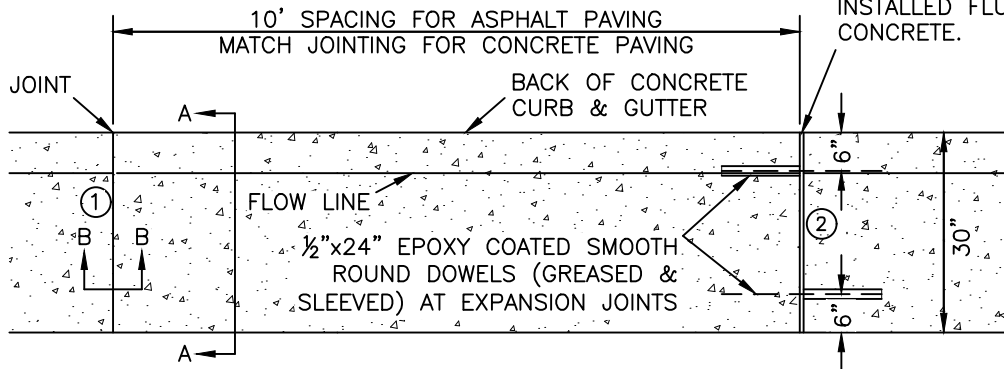
**MOUNTABLE (TYPE I)
CURB & GUTTER**

① ASPHALT PAVING: SAW CUT OR TOOLED JOINTS AT 10' SPACINGS.

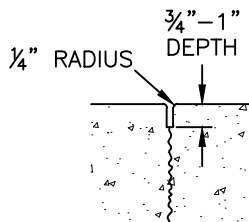
② PLACE 1" EXPANSION JOINTS AT P.C.'S AND AT 250' MAX. SPACINGS FOR ASPHALT PAVING

CONCRETE PAVING: SAW CUT JOINTS TO MATCH CONCRETE PAVEMENT JOINT SPACINGS. SEE SAW JOINT DETAIL 2100-5.7.

1" EXPANSION JOINT MATERIAL SHALL BE PREMOLDED TO MATCH CURB DIMENSION AND INSTALLED FLUSH WITH TOP OF CONCRETE.

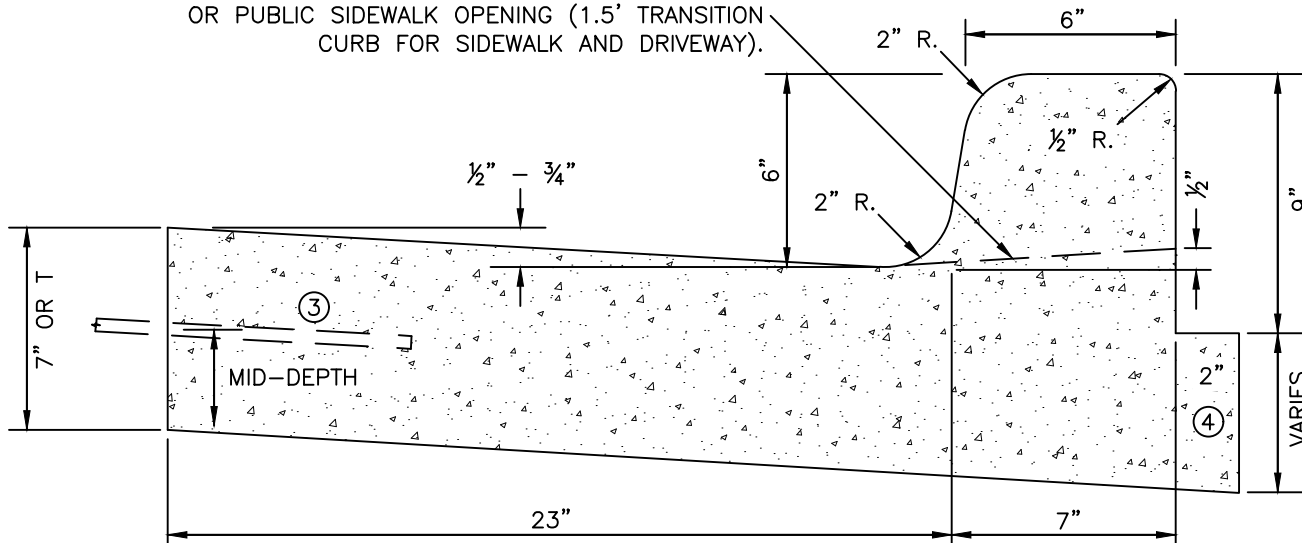


CURB & GUTTER PLAN



TOOLED JOINT DETAIL SECTION B-B

CURB SECTION WHEN DROPPED FOR DRIVEWAY OR PUBLIC SIDEWALK OPENING (1.5' TRANSITION CURB FOR SIDEWALK AND DRIVEWAY).



③ 1/2"x18" DEFORMED BARS AT 30" O.C. REQUIRED WHEN ADJOINING CONCRETE PAVEMENT

④ 2" LEDGE REQUIRED WHEN ADJOINING DRIVEWAYS, MEDIAN CONCRETE, OR SIDEWALKS.

SECTION A-A

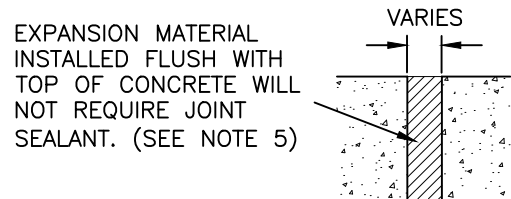
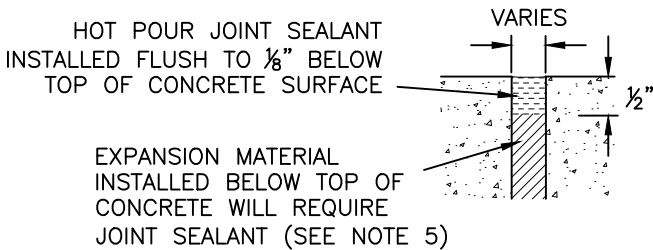
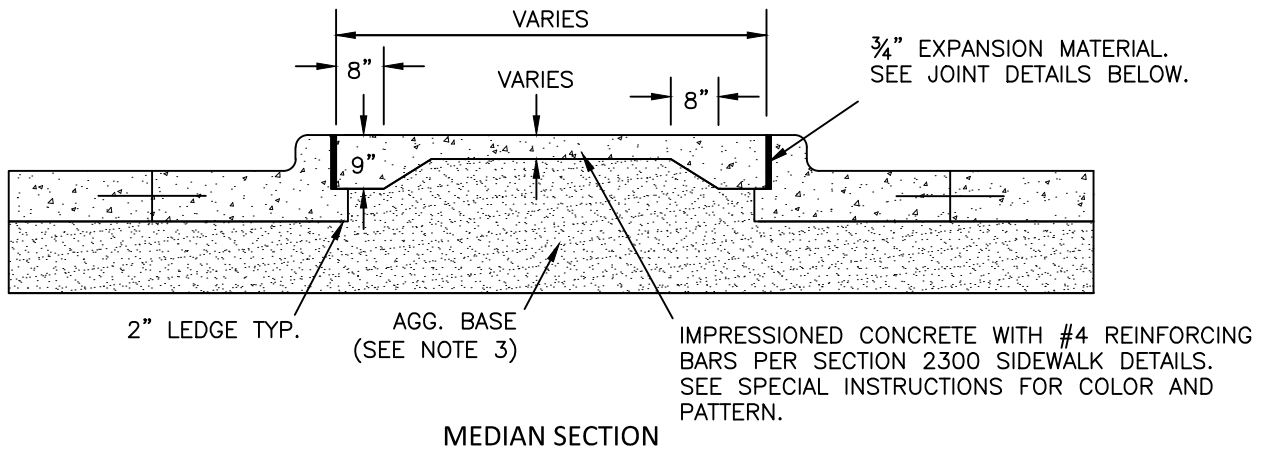
NOTES:

1. DIMENSION "T" SHALL MATCH THE THICKNESS OF THE ADJOINING CONCRETE PAVEMENT
2. WHEN OUTFLOW CURB IS SPECIFIED SLOPE SHALL BE 1/4" PER FOOT



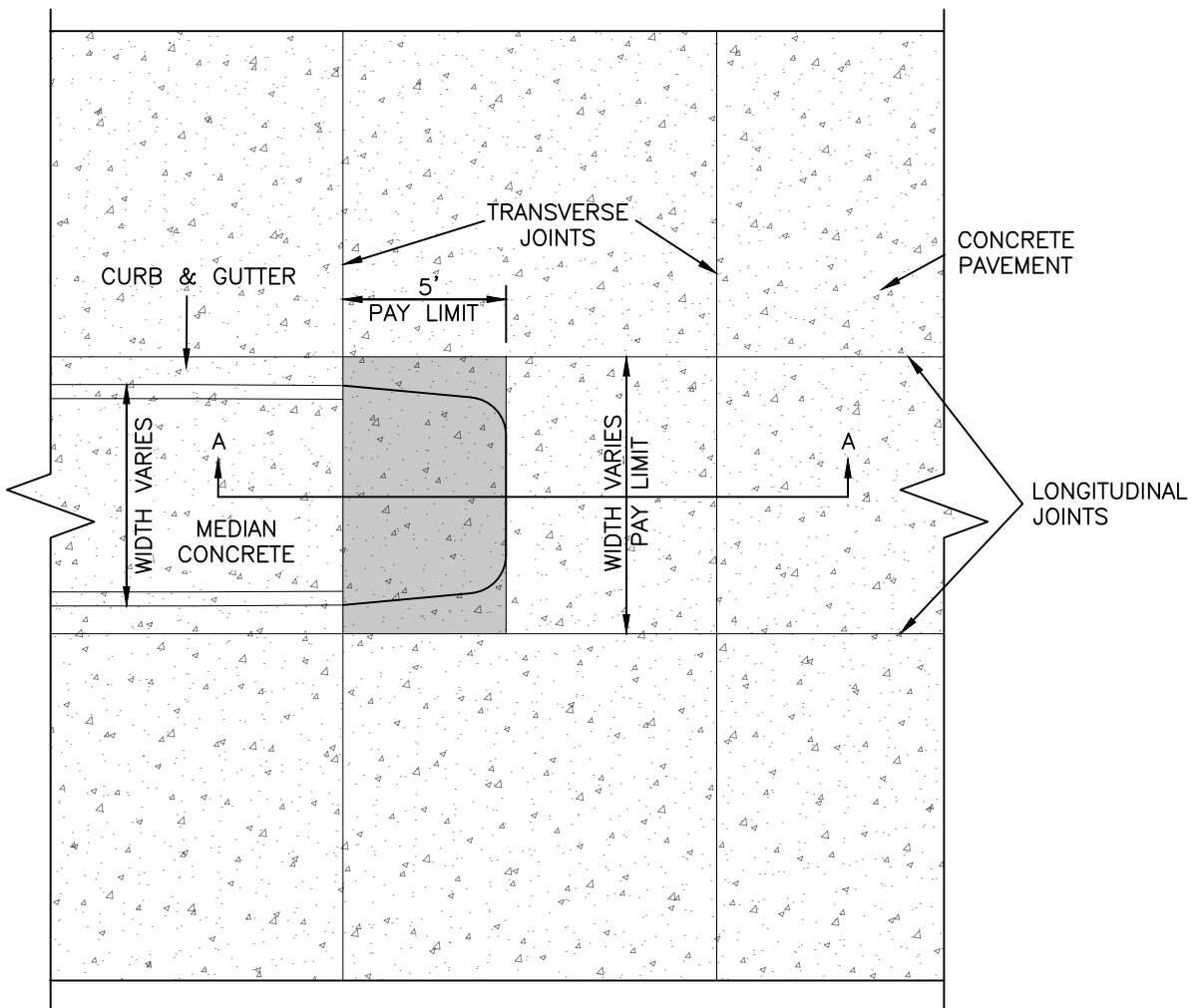
SECTION: 2100 DRAWING: 5.12
REVISION: 2021

**STANDARD (TYPE II)
CURB & GUTTER**

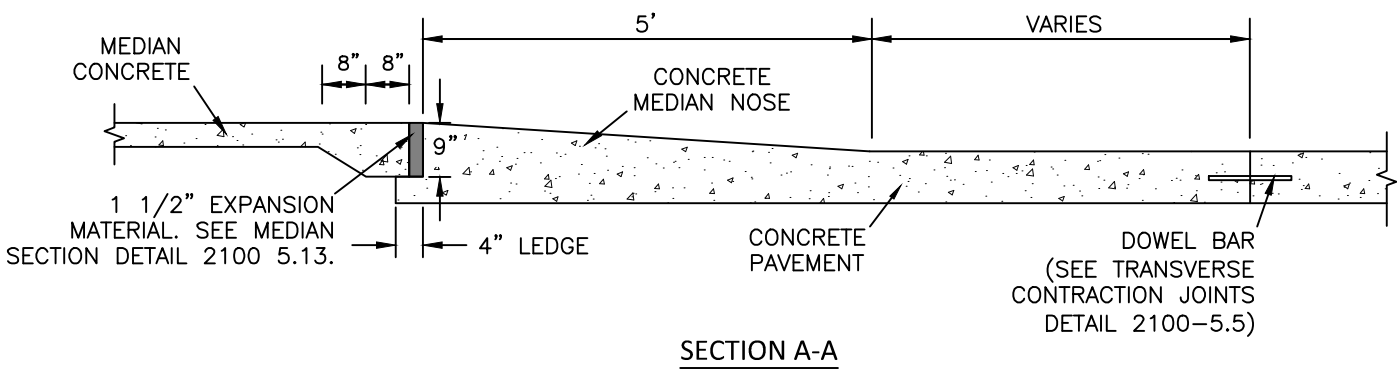


NOTES:

1. JOINTS SHALL BE SAWCUT AND MATCH THAT OF ADJACENT PAVE.
2. SEE MOUNTABLE (TYPE I) AND STANDARD (TYPE II) CURB & GUTTER DETAILS (2100-5.11 & 5.12) FOR 2" LEDGE DIMENSIONS. LEDGE INCIDENTAL TO CURB & GUTTER.
3. ADDITIONAL AGGREGATE BASE USED TO BRING MEDIAN IMPRESSIONED CONCRETE TO GRADE SHALL BE INCIDENTAL TO OTHER ITEMS.
4. TRANSVERSE 3/4" EXPANSION JOINTS SHALL BE PLACED AT 250-FOOT INTERVALS OR AS DIRECTED BY ENGINEER.
5. ALL EXPANSION MATERIAL SHALL BE INSTALLED FLUSH WITH THE TOP OF CONCRETE AND TIGHT AGAINST THE VERTICAL FACES. WHEN INSTALLED AS SPECIFIED, HOT POUR SEALANT WILL NOT BE REQUIRED. SEE SECTION 3.8.5. EXPANSION AND ISOLATION JOINTS IN STANDARD SPECIFICATIONS.

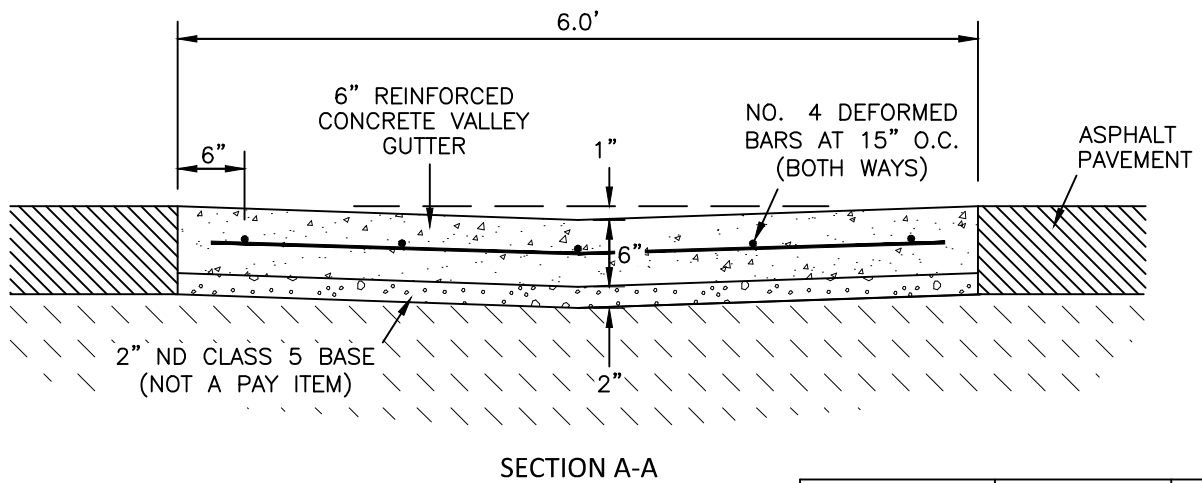
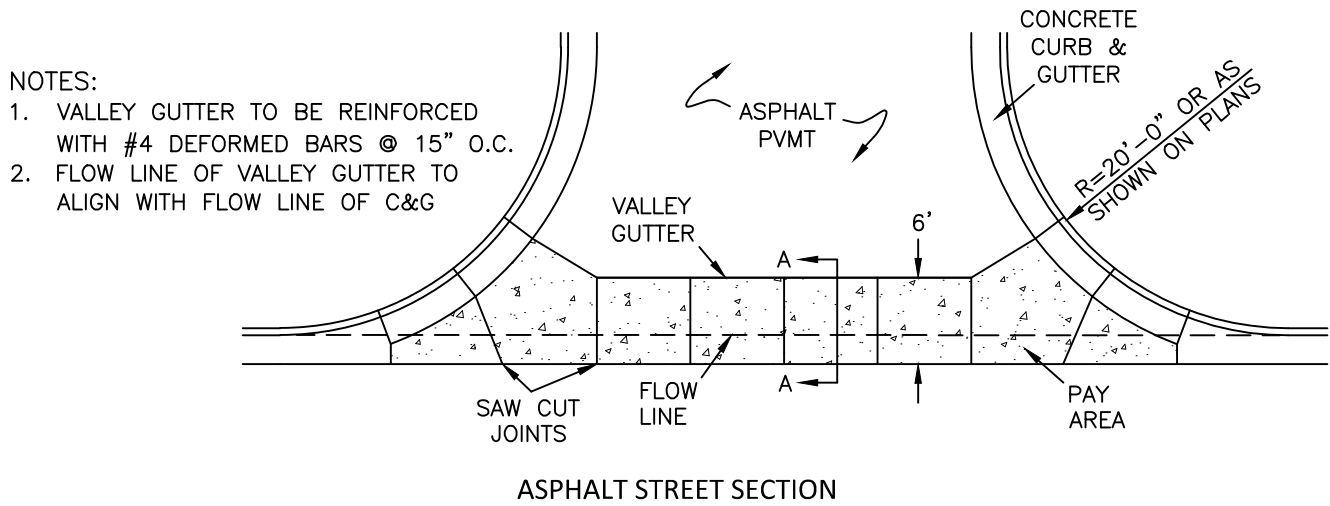
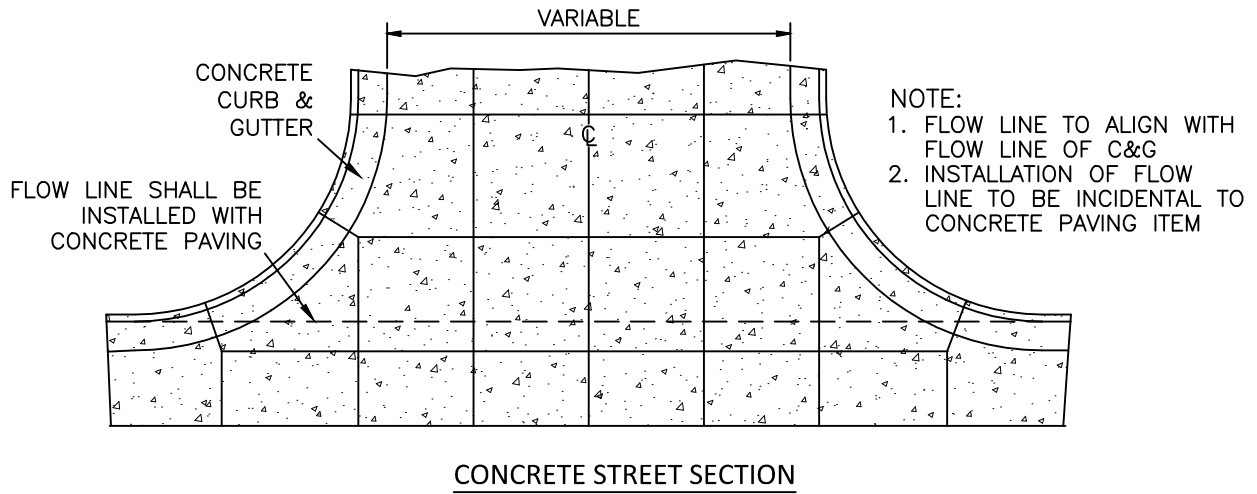


CONCRETE MEDIAN NOSE DETAIL



SECTION A-A

NOTE:
PAID AS "MEDIAN NOSE - CONCRETE"

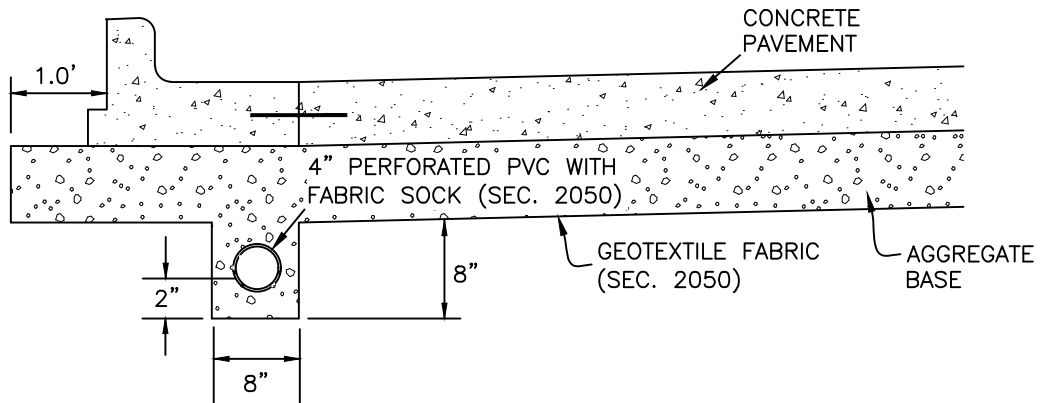


- NOTES:
 1. AGG. BASE REQUIRED UNDER ENTIRE VALLEY GUTTER (NOT A PAY ITEM)
 2. REFER TO PLANS FOR LENGTH OF VALLEY GUTTER

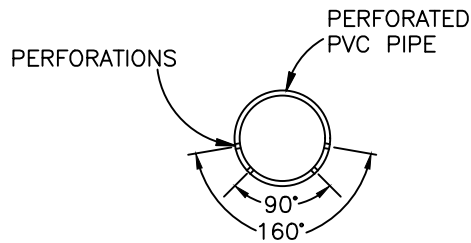
THE CITY OF
Fargo
FARGOND.GOV

ENGINEERING DEPARTMENT

SECTION: 2100	DRAWING: 5.15
REVISION: 2021	
VALLEY GUTTER	



EDGE DRAIN PLACEMENT



4" PVC PIPE DETAIL

TYPE OF PIPE:

1. THE PIPE SHALL BE POLYVINYL CHLORIDE SCHEDULE 40 SEWER PIPE WITH SOLVENT CEMENTED JOINTS AS SPECIFIED IN ASTM SPEC. NO. F-758.
2. PERFORATIONS SHALL BE CIRCULAR AND $1/4" \pm 1/16"$ IN DIAMETER. THEY SHOULD BE ARRANGED IN ROWS PARALLEL TO THE AXIS OF THE PIPE AND SHALL BE SPACED APPROXIMATELY 3" CENTER TO CENTER ALONG THE ROWS. THE SPIGOT END OF THE PIPE SHALL BE UNPERFORATED FOR A LENGTH EQUAL TO THE DEPTH OF THE SOCKET. THE PLACEMENT AND TOTAL NUMBERS OF THE ROWS SHALL BE AS SHOWN ABOVE WITH AN ALLOWABLE TOLERANCE OF $\pm 10'$.
3. MOLDED FITTINGS SHALL BE IN ACCORDANCE WITH ASTM SPEC NO. D 2665 OR F1866. COST OF FITTING AND INSTALLATION TO BE INCLUDED IN THE PRICE BID FOR 4" PVC EDGE DRAIN.
4. THE PERFORATED PVC SHALL BE ENCASED IN A GEOTEXLILE FABRIC PER SECTION 2050. COST OF FABRIC TO BE INCLUDED IN THE PRICE BID FOR 4" PVC EDGE DRAIN.
5. PIPE SIZE: 4" DIAMETER IPS SCH 40
6. ROWS OF PERFORATIONS: 4
7. HOLE SIZE: 1/4"
8. HOLE SPACING PER ROW: 3"

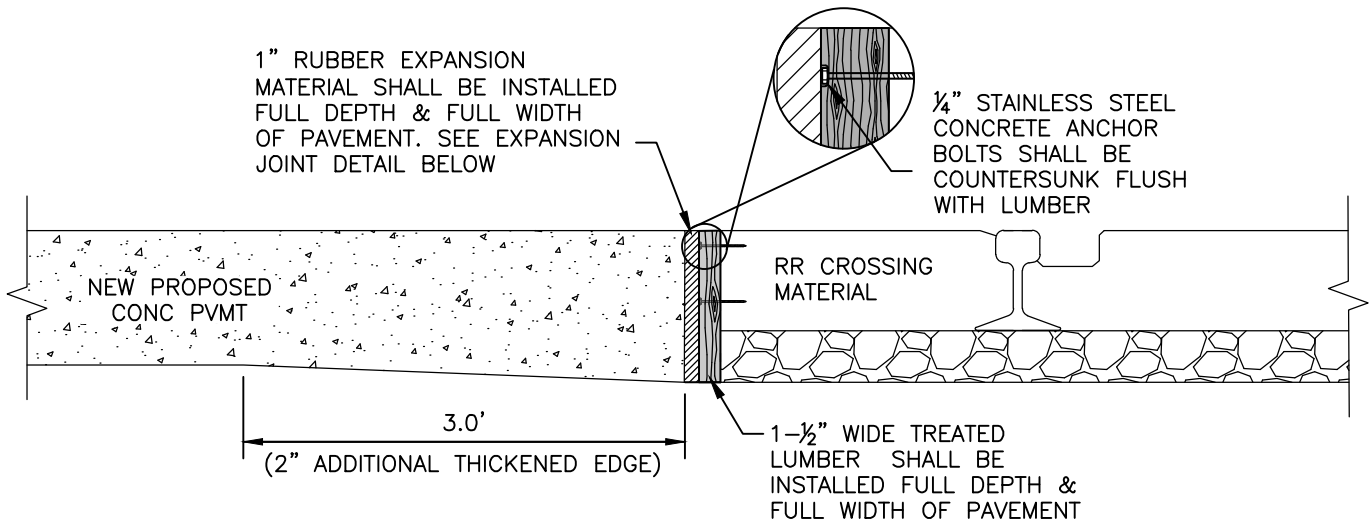
NOTES:

1. SEE STORM INLET/PVC DRAIN PIPE DETAIL IN SECTION 1500 FOR ADDITIONAL DETAILS.

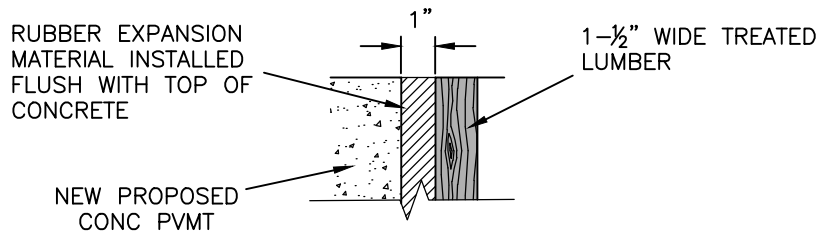


SECTION: 2100 | DRAWING: 5.16
REVISION: 2021

**4" PVC
EDGE DRAIN**



RAILROAD EXPANSION JOINT DETAIL - CONCRETE
NOT TO SCALE



EXPANSION JOINT DETAIL

NOTE:

1. ALL WORK AND MATERIAL SHOWN IN DETAIL SHALL BE INCIDENTAL TO PAVEMENT BID ITEMS.

**CITY OF FARGO SPECIFICATIONS
CONCRETE SIDEWALKS AND DRIVEWAYS**

**PART 1
DESCRIPTION OF WORK**

The work to be done under this section of the Specifications and the accompanying plans consists of all labor, material, and equipment necessary to construct concrete sidewalks, driveways, and impressed concrete in the City of Fargo according to Municipal Code Article # 18-02 governing the construction of same, which is hereby made a part of this Specification. A copy of the article is attached at the end of this Specification for reference. For the purposes of these Specifications, alley returns shall be considered driveways, and all decorative/colored concrete behind curbs shall be considered impressed concrete.

PART 2
MATERIAL

2.1. CEMENT

Cement shall conform to the requirements of Section 2100.

2.2. AGGREGATES

Fine and course aggregates shall conform to the requirements of Section 2100-2.2.

2.3. ADMIXTURES

Any admixtures shall conform to the requirements of Section 2100.

2.4. EPOXY RESIN ADHESIVE

Epoxy resin shall conform to the requirements of Section 2100.

2.5. CONCRETE PROPORTIONS AND PROPERTIES

One cubic-yard of mixed concrete in place shall contain not less than 517 lbs. of cement at a maximum water/cement ratio of 0.53. The slump shall not exceed four inches. Minimum 28-day compressive strength shall be 4,000 psi. Air content shall be targeted for 6% and shall fall between 5% and 8%.

2.6. REINFORCEMENT

Deformed reinforcing bars conforming to the Standard Specifications for Billet Steel Concrete Reinforcement Bars of the designation ASTM A615. Wire mesh reinforcement shall conform to the Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement of ASTM.

2.7. EXPANSION MATERIAL

Expansion joint material shall conform to ASTM D-1751 Type 5. It shall be 3/4 inch in thickness and shall have a width equal to the full depth of the slab in which it is to be used.

2.8. BASE AND BACKFILL MATERIAL

Base material under the concrete shall meet the gradation requirements of N.D. Class 5. Fill placed against the sides of the sidewalk shall be topsoil conforming to the requirements of Section 2000 of these Specifications.

2.9. FORMS

Forms shall be metal or wood free from warp and of sufficient strength to resist springing during the process of placing the concrete against them. Wood forms shall be at least 1 1/2 inch thick except for sharply curved sections where a flexible material shall be used with the Engineer's approval. Metal forms shall have a flat top and shall be of an approved section. Forms shall be of a depth equal to the sidewalk or driveway and shall be securely braced to retain the correct line and grade. Forms should be thoroughly cleaned and oiled or wetted before concrete is placed against them and be sufficiently tight to prevent mortar leakage between them.

2.10. STAMP

Stamp shall consist of letters 1 1/4 inches high and of sufficient depth to imprint the concrete to the depth of 1/8 inch. The stamp shall have the Contractor's name and the year of construction.

2.11. DETECTABLE WARNING PANELS

2.11.1. CAST IRON PANELS

Intended for use downtown and where specified by the Engineer in the plans. Panels shall be cast-in-place, powder-coated federal color FS 30166 (brick red), manufactured by East Jordan Iron Works, Neenah Foundry, or approved equal.

2.11.2. ENGINEERED POLYMER COMPOSITE PANELS

Intended for use on all projects where cast iron panels are not specified. Panels shall be cast-in-place, skid resistant, non-glare finished, and have a UV stable homogeneous integral color - federal color FS 33538 (safety yellow). Acceptable products are "Armor-Tile" as manufactured by Engineered Plastics, Inc., "Access Tile" as manufactured by Access Products, Inc., "Replaceable Wet-Set" as manufactured by ADA Solutions, Inc., or approved equal.

2.11.3. *TRUNCATED DOME CONFIGURATION*

The detectable warning panel shall consist of surface of truncated domes aligned in a square grid pattern.

Dome Size – Truncated domes in a detectable warning surface shall have a base diameter of 0.9 inches minimum to 1.4 inches maximum, a top diameter of 50% of the base diameter minimum to 65% of the base diameter maximum, and a height of 0.2 inches.

Dome Spacing – Truncated domes in a detectable warning surface shall have a center-to-center spacing of 1.6 inches minimum and 2.4 inches maximum, and a base-to-base spacing of 0.65 inches minimum measured between the most adjacent domes on the square grid.

Size – Detectable warning surfaces shall extend 24 inches in the direction of travel and the full width of the curb ramp landing.

Friction – Panels shall have a minimum coefficient of friction of 0.80.

2.12. *CURING COMPOUND*

All curing compounds shall conform to the requirements of AASHTO M 148 Type 2, and shall be applied in accordance with the manufacturer's recommendations.

2.12.1. *SIDEWALKS AND DRIVEWAYS*

White pigmented in color.

2.12.2. *IMPRESSIONED CONCRETE*

Transparent (no color).

PART 3
CONSTRUCTION

3.1. ALIGNMENT AND GRADE

Prior to the construction or reconstruction of the sidewalk or driveway, the Contractor shall request the Engineer to set line and grade for the construction. Where necessary, the Engineer shall provide offset line stakes, which will be placed on each property corner and at interim intervals as necessary. Stakes will be offset and indicate the location and grade of the sidewalk or driveway to be constructed. Sidewalk shall have a 1/4-inch drop per foot across the width of the walk with the property side being higher than the street side.

3.2. EXCAVATION

The excavation for sidewalks, driveways, and impressed concrete shall be performed in a manner as to leave any finished lawn and boulevard in good condition and so as to protect any trees or shrubs adjacent to the work. The excavation shall be to a minimum depth of two inches below the bottom of the slab to be poured. If no excavation is required, all vegetation shall be removed in the area below the slab. No sidewalk subbase shall be constructed on any surface that is sloping to such an extent as to cause a future sliding or shifting of the finished work. Such slopes shall be benched or excavated to a horizontal plane before the subbase is constructed.

Excavated material not used at the site and not desired by the property owner shall be disposed of as directed by the City Engineer.

3.3. REMOVAL OF OLD SIDEWALK

Removal of old sidewalk will be required - the old concrete shall not be left in place beneath the new concrete. Removals shall be per Section 1050 of these Specifications.

3.4. REMOVAL OF CURBS FOR DRIVEWAYS

Existing curbs shall be removed for the construction of driveways. Removals shall be per Section 1050 of these Specifications.

3.5. PREPARATION OF THE SUBGRADE

All soft spongy spots or other unsuitable material shall be removed and replaced with suitable material and the subgrade compacted to a firm uniform surface.

3.6. PREPARATION OF THE SUBBASE

The aggregate subbase material shall be placed between the forms and compacted to a firm uniform surface by means of a hand tamper or vibratory compactor, then leveled off to the proper grade.

3.7. REINFORCING STEEL

All bars and/or mesh shall be clean and rust free and shall be supported at mid-depth by “chairs” of a type approved by the Engineer. All reinforcement bars shall be drilled into existing concrete a minimum depth of six (6) inches.

When drilling holes for placement of dowel bars and tie bars, an epoxy resin adhesive shall be used to anchor the bars in the drilled hole. The diameter of the drilled hole shall be as recommended by the epoxy manufacturer. In the absence of recommendations from the manufacturer, holes shall be drilled 1/8 to 1/4 inch larger than the diameter of the dowel bars and tie bars. The drilled holes shall be blown out with compressed air using a device that will reach to the back of the hole to ensure all debris and/or loose material is removed prior to epoxy injection.

Prior to insertion of the bars, drilled holes shall be filled with epoxy resin 1/3 to 1/2 full, or as recommended by the manufacturer. Each bar shall be rotated during installation to eliminate voids and to ensure complete bonding occurs. Bar insertion by the dipping method will not be allowed.

A. SIDEWALK AND IMPRESSIONED CONCRETE REINFORCEMENT

Two 3/8 inch deformed reinforcing bars shall be placed longitudinally for the full length of the sidewalk, said bars being placed one foot in from the edge of the form, and tied to the transverse bars. One 3/8 inch bar shall be placed one foot on either side of all expansion and contraction joints, said bar being 6 inches shorter than the width of the slab in which it is placed. Sidewalks over vaults or other openings shall be constructed to carry a load of not less than 250 pounds per square foot.

Reinforcement for sidewalk wider than 4 ½ feet shall be #3 bars at 24" on center. Welded wire mesh may be used on sidewalk wider than six feet in width. The wire mesh shall be cut into panels six inches smaller than the panel in which it is to be placed, but shall not extend through any contraction or expansion joint. Welded wire mesh shall be 6x6 W1.4/1.4 or heavier.

Two additional 3/8 inch reinforcement bars at least 10 feet long shall be placed in sidewalks over sewer and water trenches. Tie-ins to existing sidewalks shall have two 3/8" smooth bars drilled into the existing slab with a greased and capped end installed in the new sidewalk slab.

B. DRIVEWAY REINFORCEMENT

Reinforcement for driveways shall consist of #4 deformed bars spaced 24 inches on center both ways.

3.8. DIMENSIONS OF SLABS

Sidewalk shall be a minimum of 4 inches thick, residential driveways and alley returns shall be a minimum of 6 inches thick, and commercial and industrial driveways shall be a minimum of 7 inches thick. Sidewalk thickness shall be no less than the adjoining drive or 6 inches, whichever is greater, when located within a driveway section.

Sidewalks shall be a minimum of 4.5 feet wide and no sidewalk shall be reconstructed to a width less than that existing prior to reconstruction. Should occupancy of a commercial property change so as to substantially increase pedestrian traffic, the City Engineer shall require the sidewalk to be widened to conform to the sidewalks in the surrounding area.

Residential driveways shall be no less than 9 feet wide or more than 30 feet wide at the sidewalk line. Maximum width for commercial or industrial driveways is forty feet. Driveways shall be located so as to provide access to a parking location within the property served. Upon approval from the City Engineer, residential driveways may be constructed to a maximum 36-foot width or one-half the width of the lot. Locations of said driveways near block corners shall be approved by the City Engineer and shall be in accordance with the Fargo Land Development Code. In no case shall the aggregate width of a driveway into a property exceed one-half the lot width.

3.9. PLACING OF CONCRETE

All concrete shall be placed using formwork unless a mechanical paver is used. The subbase shall be moistened immediately prior to placing the concrete. The concrete shall be placed on the moist subbase and spread uniformly with as little handling as possible. The concrete shall be rough finished with a mechanically vibrated screed assembly and shall be spaded or vibrated with hand vibrators next to the forms to prevent voids or honeycomb surfaces.

3.10. CONTRACTION JOINTS

Contraction joints shall be constructed so as to divide the sidewalk into square slabs the greatest horizontal dimension of which shall not exceed 6 feet. All joints shall be saw cut on all sidewalk six feet or wider. Driveways shall have sawed contraction joints transversely spaced evenly between the crossing plate and the curb, not to exceed 8', and longitudinally spaced evenly across the driveway, not to exceed 12'. The contraction joints on sidewalk less than 6 feet wide shall be cut with a pointed trowel and edged to a radius of 1/2 inch, or sawed to a depth of 1/3 the depth of the slab within 24 hours of being placed.

3.11. EXPANSION JOINTS

Expansion joints in sidewalks shall be placed at 250-foot intervals, driveway edges, at every property corner and along existing curbs abutting the sidewalk or as directed by the Engineer. Greased 3/8" smooth bars shall be placed at mid-depth six (6) inches in from each sidewalk edge through the expansion joint. All expansion joints along curbs shall be 3/4 inch (shown on details) wide. All expansion joints shall be sealed with low modulus silicone sealant to produce a slightly concave surface approximately 1/4 inch below the concrete surface.

3.12. FINISHING

Immediately after placing, the concrete shall be floated down to a uniformly dense surface. The concrete surface shall have a slightly rough wood-float finish or a light broom finish. No apparent surface defects shall be allowed.

3.13. A.D.A. CURB RAMPS

Sidewalk curb approach ramps shall be constructed to current A.D.A. standards as detailed in the plans.

A. DETECTABLE WARNING PANELS

All panels shall be installed according to the manufacturer's recommendations. Protective plastic shall be removed prior to opening the ramp to public use.

Dome Alignment – The rows of truncated domes in a detectable warning surface shall be aligned to be perpendicular to the grade break of the curb ramp.

Rail Crossings – The detectable warning surface shall be located so that the edge nearest the rail crossing is 6 feet minimum and 15 feet maximum from the centerline of the nearest rail. The rows of the truncated domes in the detectable warning surface shall be aligned with the direction of wheelchair travel.

B. SLOPE

1) NEW CONSTRUCTION

Maximum slope shall be 1 foot vertical to 12 feet horizontal. Maximum rise for any run shall be thirty (30) inches or less.

2) RECONSTRUCTION

Curb ramps reconstructed where space limitations prevent the use of 1:12 slopes may have the following:

- a) Slopes between 10 and 12 to 1 are allowed a maximum rise of 6 inches.
- b) Slopes between 8 and 10 to 1 are allowed for a maximum rise of 3 inches.
- c) Slopes greater than 8 horizontal to 1 vertical are not allowed.

3) SIDE SLOPE

When curb ramps are located where pedestrians must walk across the ramp, the ramp shall have flared sides with a maximum slope of 1-foot vertical to 10 feet horizontal.

3.14. STAMPING

The Contractor shall stamp the name of his firm and year of construction into the fresh concrete on both sides of all expansion joints and at all termination points.

3.15. SIDE FILL REQUIRED

The Contractor will be required to backfill against the sides of the sidewalk and driveways to the top of the walk or drive and sloping away from the walk or drive at a grade no steeper than 1 foot vertical to 4 feet horizontal.

3.16. IMPRESSIONED CONCRETE

The Engineer will specify the concrete color and pattern in the plans and/or special instructions.

Reinforcing shall be per the sidewalk reinforcing Specifications above. Where impressed concrete abuts sidewalk, they shall be tied together with 12" long #3 deformed bars at 2' O.C.

Concrete finishing shall follow normal procedures for sidewalk except that the surface shall not be troweled more than once. After the surface is troweled or floated, and the concrete is still in a plastic stage, a pattern roller/stamp shall be used to obtain the specified pattern. The roller/stamp shall be placed so that the pattern is accurately aligned and to obtain a uniform depth of stamp of 5/16 inch. After rolling, a tool similar to a brick mason's jointer shall be used to dress the edges. Transverse and longitudinal joints shall be sawed in locations to match joints in abutting concrete or as determined by the Engineer.

Sandblasting shall be done by the Contractor to clean any colored concrete from the roadway and/or curb and gutter surfaces

Impressed concrete shall be 4 inches thick in medians and boulevards, and shall be 8 inches thick inside curb radii at intersections or as directed by the Engineer.

Refer to the standard details for thickened edge, expansion joint, and joint sealing requirements.

3.17. CURING AND PROTECTION OF SLABS

The Contractor shall cure the concrete by covering as soon as practicable with waterproof paper, plastic film, wet burlap, or by spraying with an approved curing agent. The Contractor shall erect suitable barriers, protected by warning lights to protect the work and the public. The Contractor is responsible for all damage and repair to the slabs. Sidewalks shall be closed to pedestrian traffic for a minimum of 24 hours and crossings and driveways shall be closed to vehicular for a

minimum of seven days. The Contractor shall use due care when removing the forms to avoid marring or damaging the fresh concrete.

3.18. COLD WEATHER POURING

When pouring concrete in cold weather, the provisions for cold weather pouring outlined in section 2100 of these Specifications shall apply.

3.19. WORKZONE SAFETY

Provisions protecting pedestrians and the traveling public in the workzone shall be employed in all cases per section 4100 of these Specifications.

PART 4
GUARANTEE, MEASUREMENT & PAYMENT

4.1. GUARANTEE

The guarantee shall be per the contract.

4.2. MEASUREMENT AND PAYMENT

Payment will be full compensation for the excavation, subgrade and subbase preparation, furnishing and installing the aggregate base, concrete, reinforcing, expansion joints including sealant where specified, form work and all incidental labor, material, and equipment necessary to construct the sidewalks, driveways, and impressed concrete in accordance with these Specifications.

4.2.1. SIDEWALKS AND DRIVEWAYS

Sidewalks and driveways will be paid at the contract unit price per square yard.

4.2.2. CITY ORDER SIDEWALK

At the completion of each sidewalk constructed on city order, the Contractor shall measure the material and work involved, he shall then complete the estimate form provided, and shall forward the duplicate to the City Engineer for verification and payment.

4.2.3. A.D.A. CURB RAMPS

Payment for the curb ramp constructed shall be at the contract unit price for each of the following:

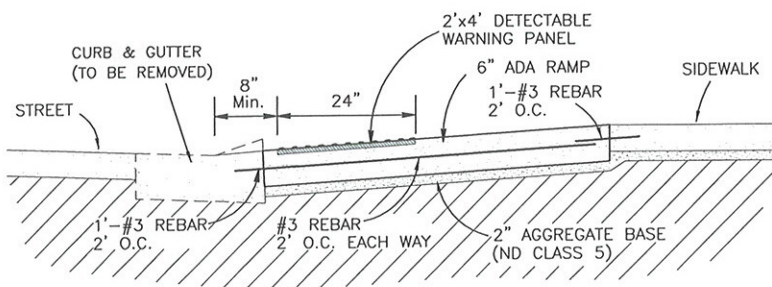
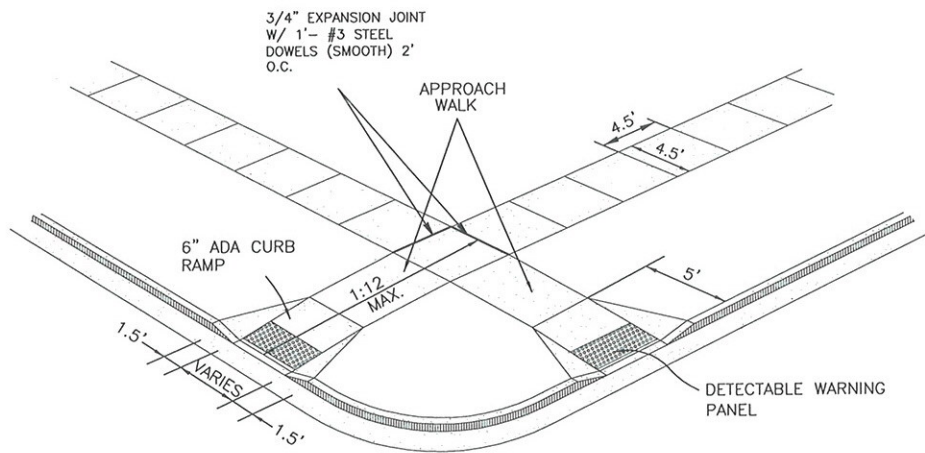
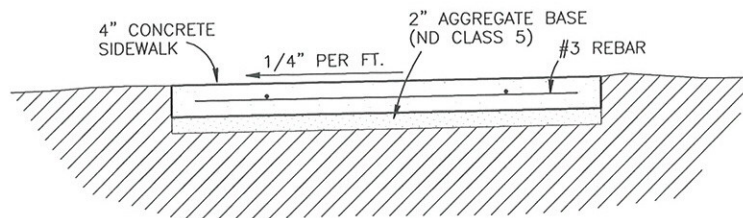
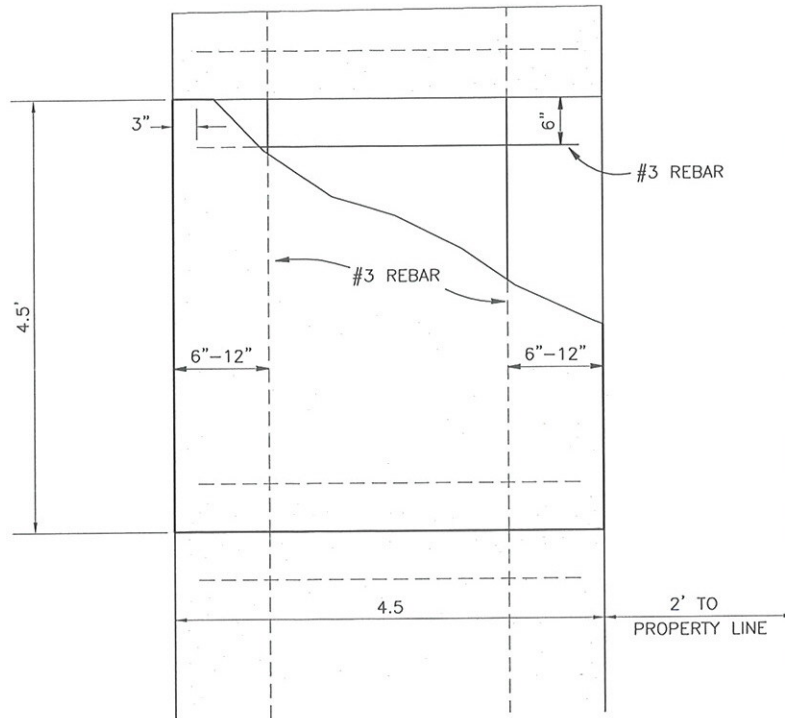
- A. Detectable Warning Panels – Panels shall be paid at the contract unit price per square foot.
- B. The remaining portion of the curb ramp shall be paid for under the 6” RC Sidewalk bid item at the contract unit price per square yard.

4.2.4. IMPRESSIONED CONCRETE

Impressed Concrete will be paid at the contract unit price per square yard. Payment for impressed concrete shall be made under the Impressed Concrete bid item for the appropriate thickness. No adjustments will be made for thickened edges adjacent to curbs.

4.2.5. OTHER COSTS

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



SECTION NO. 2300 | DRAWING NO. 5.1

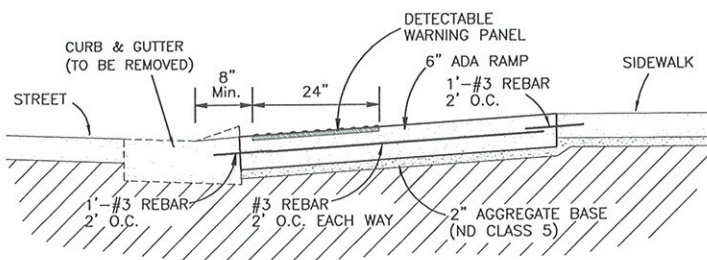
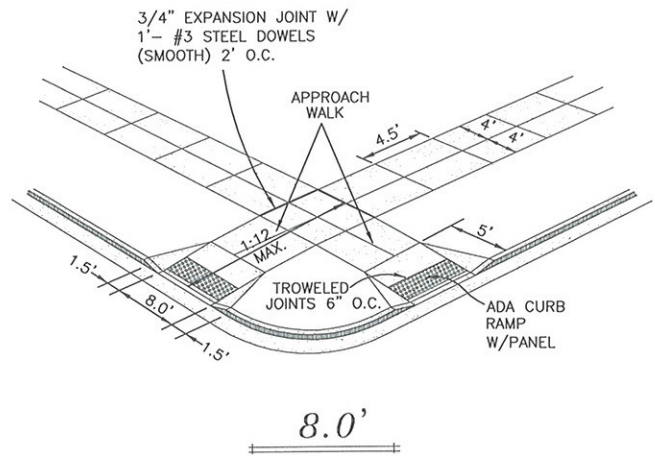
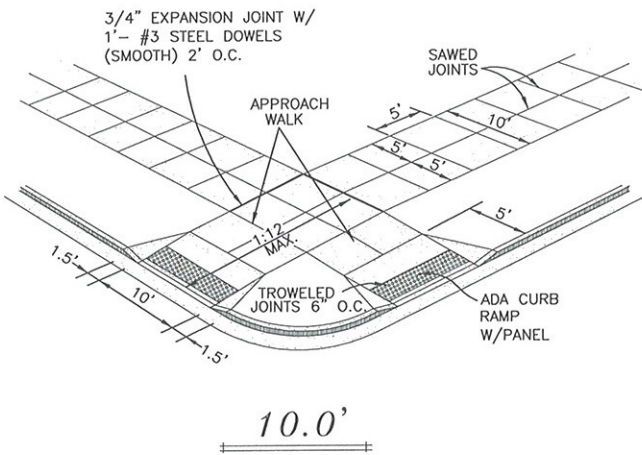
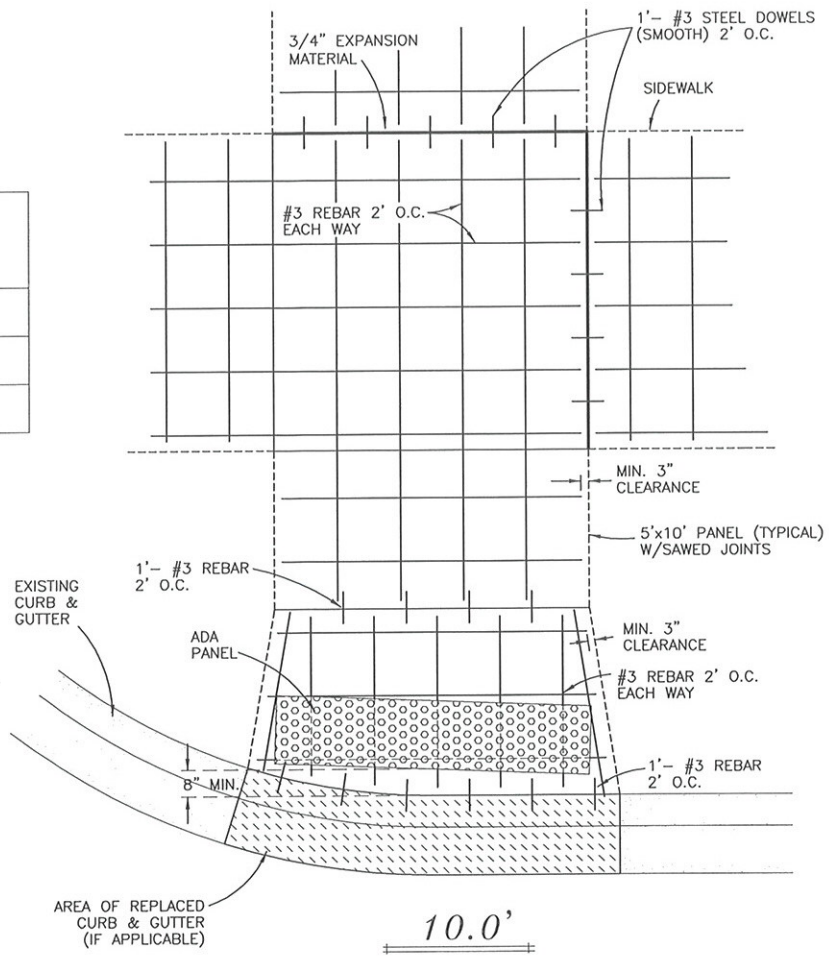
REV.D. 2013

SIDEWALK & CURB RAMP DETAIL (4.5')

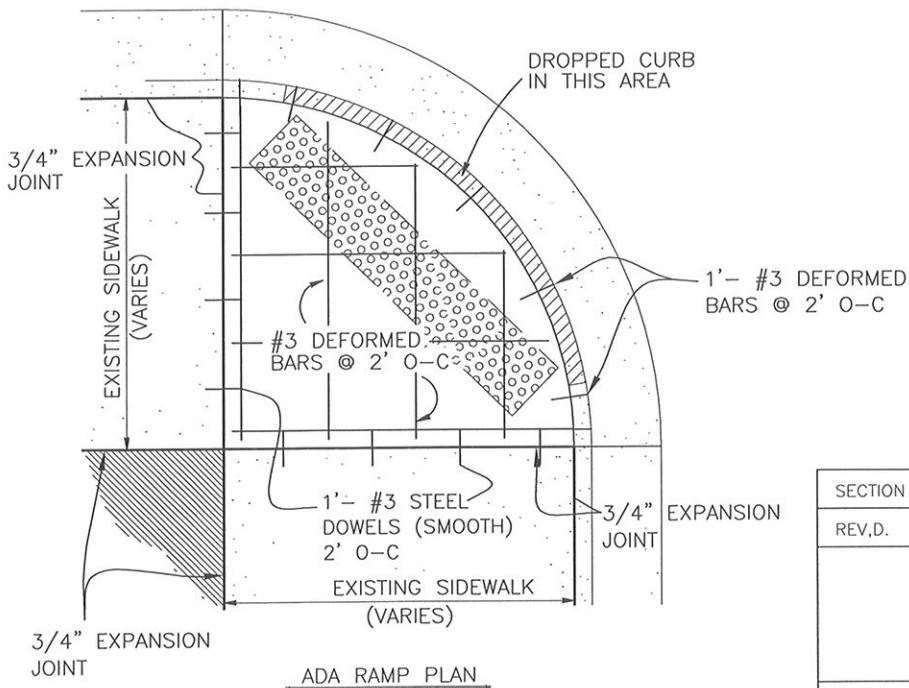
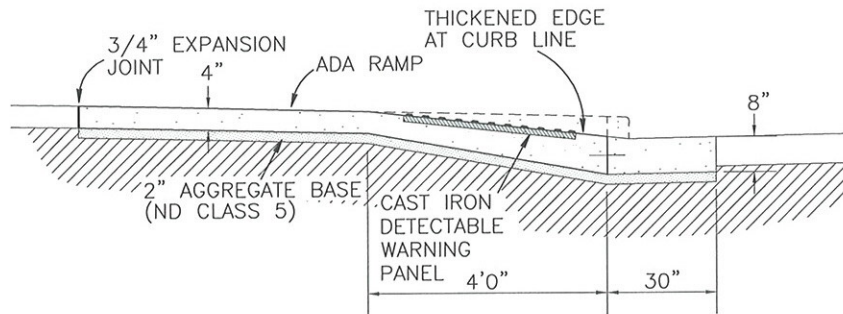
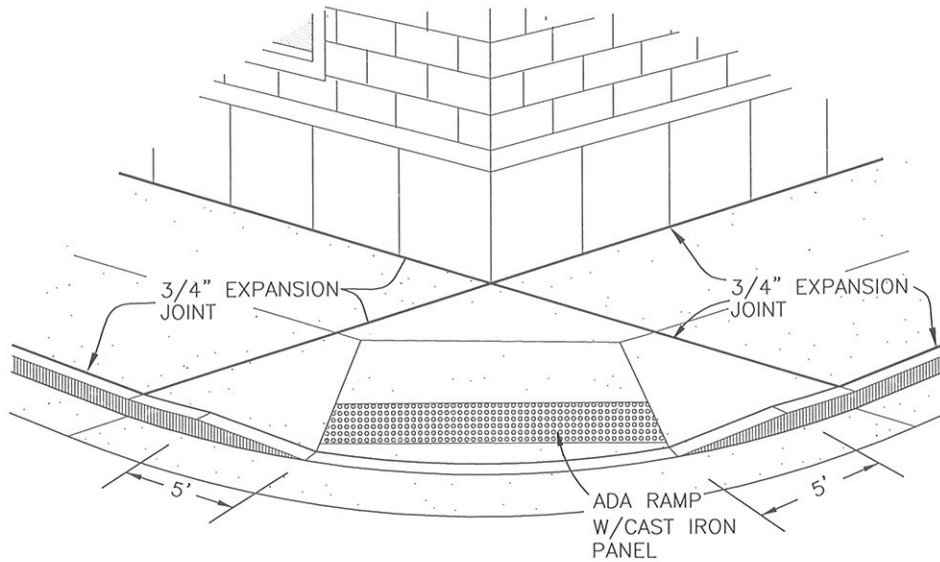
CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED *CME* | DATE 1-2-13

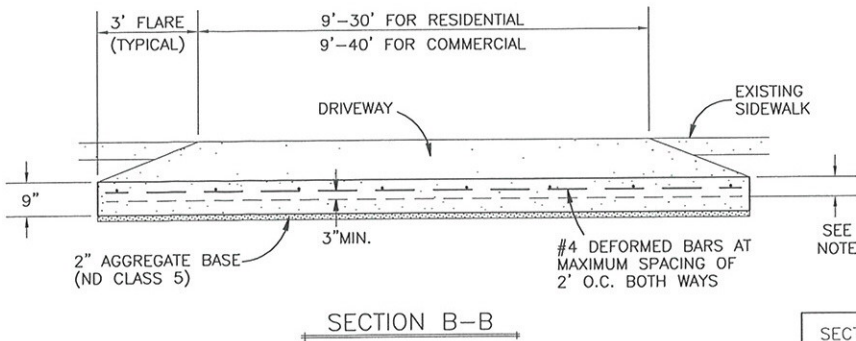
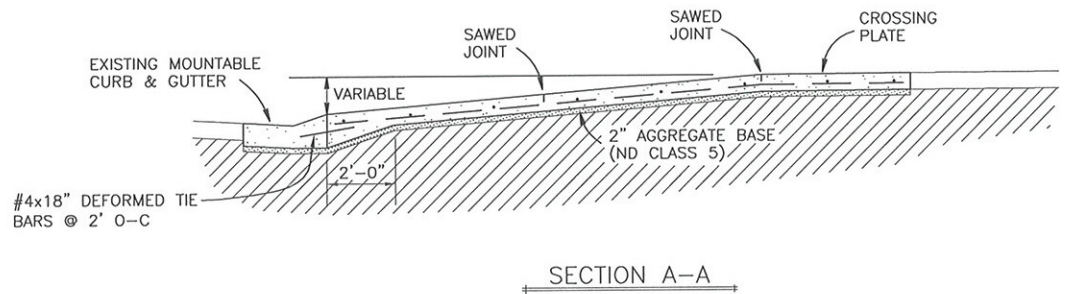
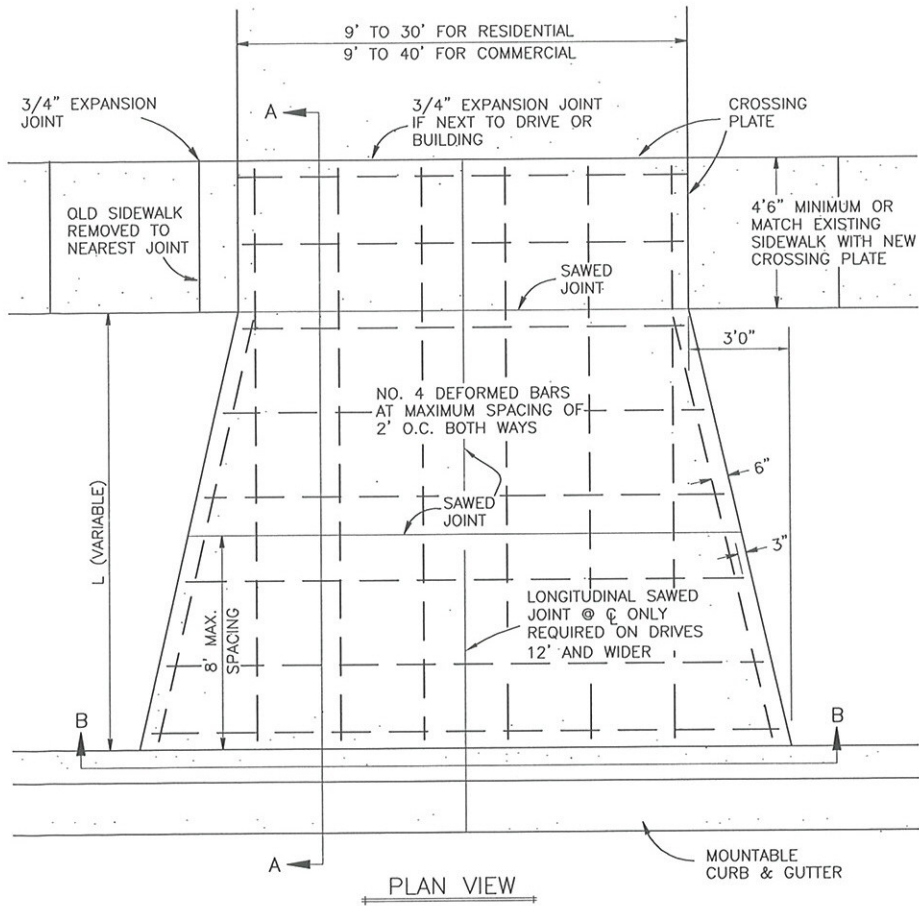
SIDEWALK WIDTH	PANELS (L'xW')
6'	5'x6'
8'	4.5'x4'
10'	5'x5'



SECTION NO. 2300	DRAWING NO. 5.2
REV.D. 2013	
SIDEWALK & CURB RAMP DETAIL (6', 8', or 10')	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>CME</i>	DATE 1-2-13

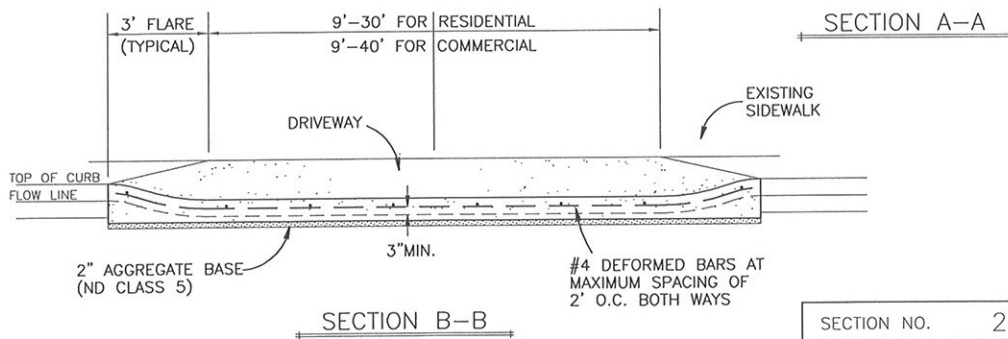
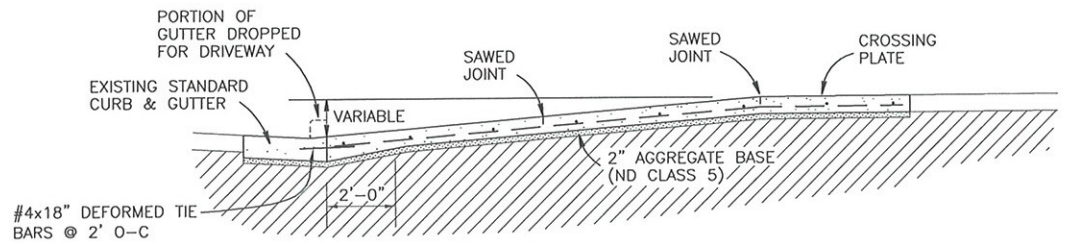
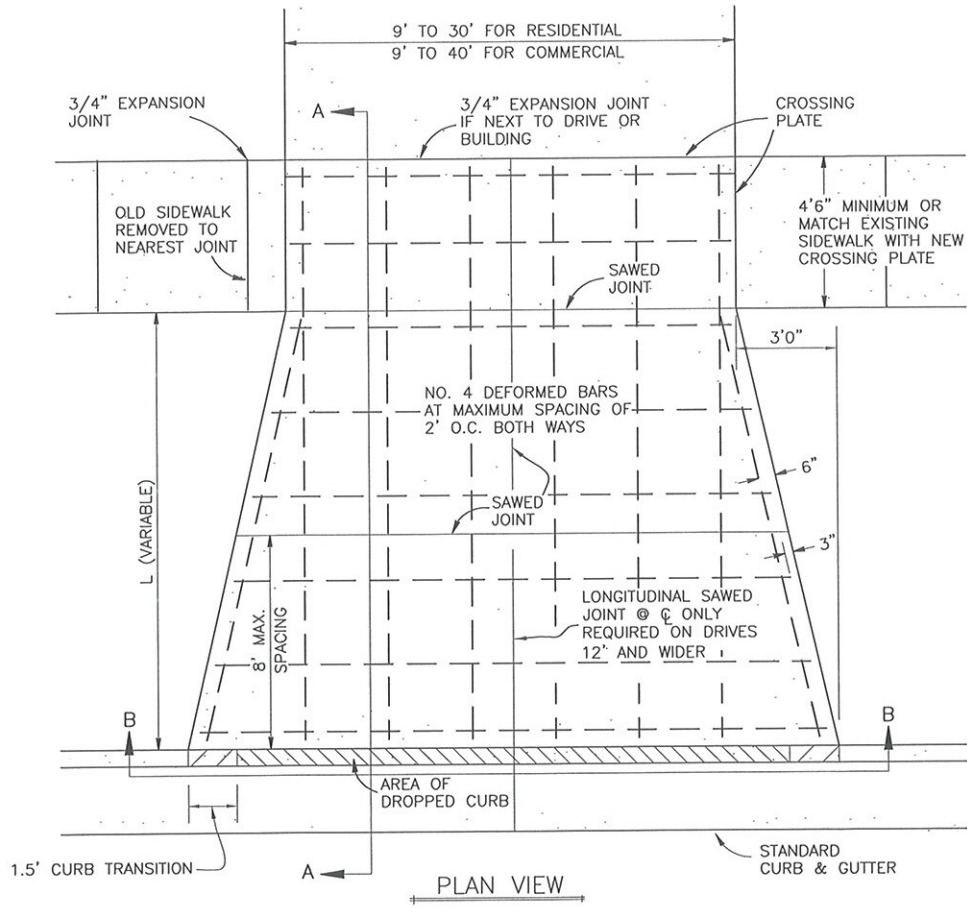


SECTION NO.	2300	DRAWING NO.	5.3
REV.D.	2013		
ADA RAMP DOWNTOWN AREA			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED	<i>CME</i>	DATE	<i>1-2-13</i>



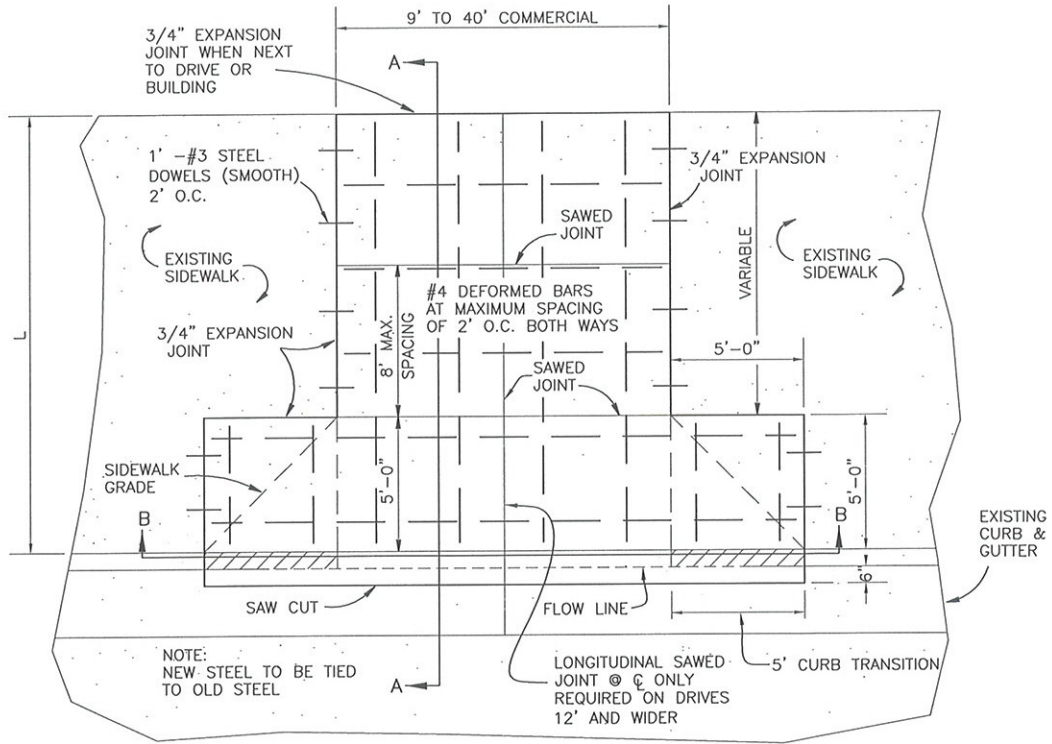
- NOTES:
1. MIN. THICKNESS OF DRIVEWAYS SHALL BE:
6" FOR RESIDENTIAL
7" FOR COMMERCIAL AND INDUSTRIAL
 2. JOINT SPACINGS: THE DRIVEWAY LONGITUDINAL JOINT SPACING SHALL MATCH CURB AND GUTTER OR CONCRETE PAVEMENT JOINT SPACING. THE DRIVEWAY TRANSVERSE JOINT SPACING SHALL NOT EXCEED 8' SPACING.
 3. SAW DEPTH: THICKNESS/4 + 1/4"

SECTION NO. 2300	DRAWING NO. 5.4
REV.D. 2013	
STANDARD PRIVATE DRIVE ABUTTING MOUNTABLE CURB	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>OME</i>	DATE 1-2-13

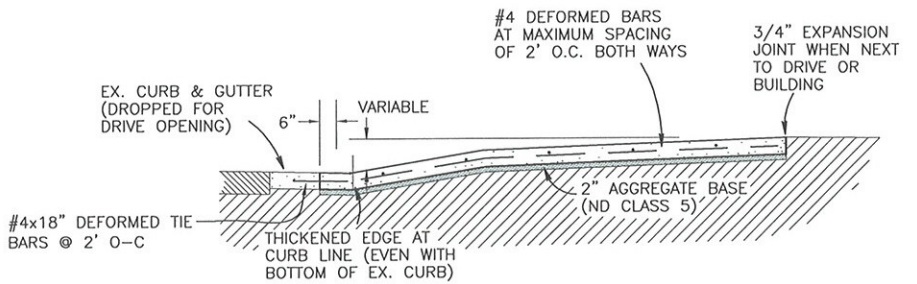


- NOTES:
1. MIN. THICKNESS OF DRIVEWAYS SHALL BE:
6" FOR RESIDENTIAL
7" FOR COMMERCIAL AND INDUSTRIAL
 2. JOINT SPACINGS: THE DRIVEWAY LONGITUDINAL JOINT SPACING SHALL MATCH CURB AND GUTTER OR CONCRETE PAVEMENT JOINT SPACING. THE DRIVEWAY TRANSVERSE JOINT SPACING SHALL BE EVENLY SPACED BETWEEN THE CROSSING PLATE AND CURB, NOT TO EXCEED 8' SPACING.
 3. SAW DEPTH: THICKNESS/4 + 3/8"

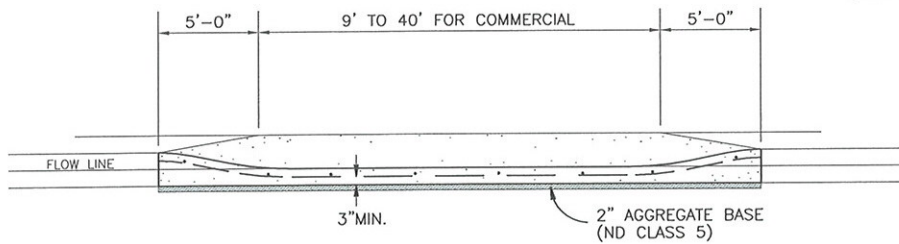
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REV.D. 2013	
STANDARD PRIVATE DRIVE ABUTTING STANDARD CURB	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>CME</i>	DATE 1-2-13



PLAN VIEW



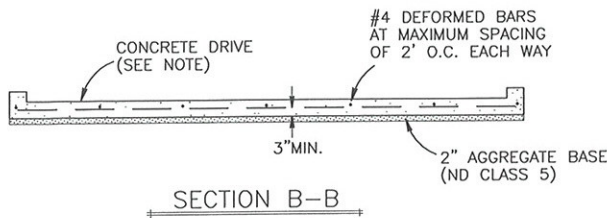
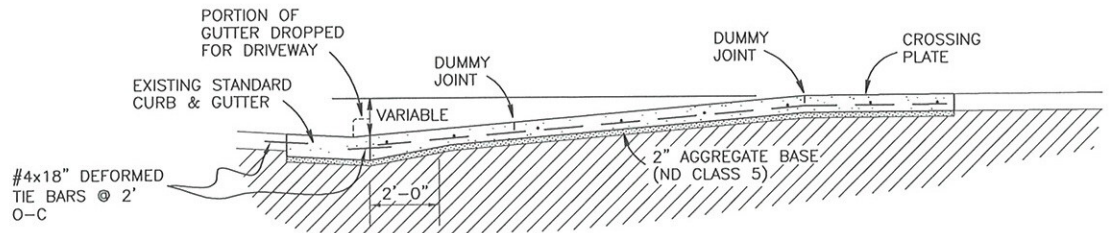
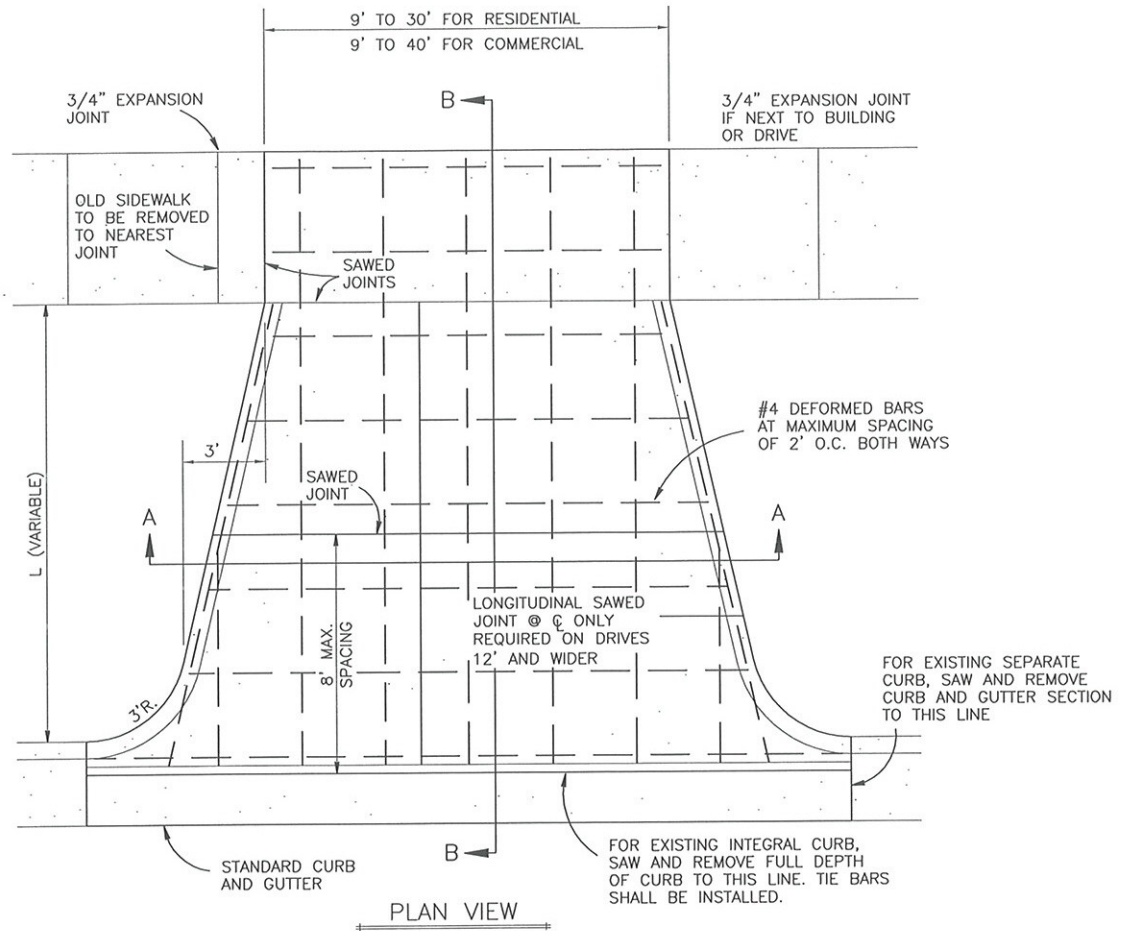
SECTION A-A



SECTION B-B

- NOTES:
1. MIN. THICKNESS OF DRIVEWAYS SHALL BE:
6" FOR RESIDENTIAL
7" FOR COMMERCIAL AND INDUSTRIAL
 2. JOINT SPACINGS: THE DRIVEWAY LONGITUDINAL JOINT SPACING SHALL MATCH CURB AND GUTTER OR CONCRETE PAVEMENT JOINT SPACING. THE DRIVEWAY TRANSVERSE JOINT SPACING SHALL MATCH EXISTING SIDEWALK JOINTS.
 3. SAW DEPTH: THICKNESS/4 + 1/4"

SECTION NO. 2300	DRAWING NO. 5.6
REV.D. 2013	
RETROFIT PRIVATE DRIVE W/FULL SIDEWALK	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>OME</i>	DATE 1-2-13



NOTES:

1. MIN. THICKNESS OF DRIVEWAYS SHALL BE:
6" FOR RESIDENTIAL
7" FOR COMMERCIAL AND INDUSTRIAL
2. JOINT SPACINGS: THE DRIVEWAY LONGITUDINAL JOINT SPACING SHALL MATCH CURB AND GUTTER OR CONCRETE PAVEMENT JOINT SPACING. THE DRIVEWAY TRANSVERSE JOINT SPACING SHALL BE EVENLY SPACED BETWEEN THE CROSSING PLATE AND CURB, NOT TO EXCEED 8' SPACING.
3. SAW DEPTH: THICKNESS/4 + 1/4"
4. THIS DRIVEWAY DETAIL NOT TO BE USED FOR NEW CONST. UNLESS SPECIFICALLY DIRECTED BY THE ENGINEER.

SECTION NO. 2300	DRAWING NO. 5.7
REV.D. 2013	
STANDARD PRIVATE DRIVE ABUTTING STANDARD CURB	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED <i>CME</i>	DATE 1-2-13

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
CITY LIGHTING AND TRAFFIC SIGNAL SPECIFICATIONS
SU-8-984(165) – PCN 22292**

This document was
originally issued and
sealed by Brent Muscha
Registration Number
PE-7123
on 01/22/21
and the original
document is stored at the
City of Fargo

STREET LIGHTING SPECIFICATIONS

1.0 DESCRIPTION OF WORK

1.1 GENERAL

All street lighting work completed under this contract shall meet the requirements of this special provision, unless otherwise specified.

The work to be done under this special provision shall consist of furnishing and installing a complete and operational street lighting system.

2.0 MATERIALS

2.1 GENERAL

The Contractor shall furnish the specified material unless substitute materials are approved in writing by the Engineer.

2.2 RIGID CONDUIT

2.2.1. NONMETALIC CONDUIT

Nonmetallic conduit shall be 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.

- A. HDPE innerduct shall meet the requirements of UL 651 and either ASTM 2447 or ASTM 3035 suitable for direct burial applications. HDPE innerduct shall 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 shall not be installed when either the innerduct temperature or ambient temperature is below –10 F.
- B. PVC conduit shall meet the requirements of UL 651 suitable for direct burial applications and shall have a minimum wall thickness equivalent to Schedule 40 as defined by ASTM 1785.

2.3 CONDUCTORS

- 2.3.1. Underground circuit conductors shall be stranded copper, Type "USE", conductors insulated for direct burial and rated 600 volts. Conductor sheath shall be marked as to voltage, AWG, type (USE), and manufacturer. All conductor shall be continuous color coded (red, black and green). Conductors shall be of the size shown on the Plans.
- 2.3.2. The conductor required for the street light standards between distribution conductors and luminaire shall consist of No. 10 AWG stranded copper, Type "USE" and rated 600 volts. Street Light fuses shall be a type FNM 10 amp fuse with a Bussmann type HEB-AA or a Littlefuse type LEB-AA in line fuse holder. Provide ground conductor from the luminaire to the handhole where required by the national electrical code.

2.4 SPLICE CONNECTORS

Splice connections in street light bases shall be Tyco Electronics GelCap SL splice cover kit with connector. All other conductor splice connections in pull boxes and feed points shall be UL listed, with PowerGel sealant type connections meeting all codes for desired applications.

2.5 PULL BOX

Unless otherwise noted on plan, all street light pull boxes shall be PVC with metal frames and covers, and shall conform to the detail included in the plans. Pull boxes in landscaped areas shall have the top of the box 0" to 1" above final grade and sloped to match the slope of the final grade on all 4 quadrants. Pull boxes in concrete area shall be set with the top of the box flush with the final grade at all 4 quadrants.

2.6 FEED POINT

Pedestal type feed point shall be concrete pad mounted (see Plans for size of cabinet and number of circuits). The pedestal cabinet shall have a NEMA 3R rating. The cabinet shall 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 shall be rated 22,000 AIC. The pedestal cabinet shall 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 shall be provided by the local utility company.

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 information on size and type of standards.

2.8 STREET LIGHTING LUMINAIRES

Refer to Plans for information on size and type of luminaires.

All High Pressure Sodium lamps shall be eco style, no cycle lamps. Contractor shall supply and install all lamps.

3.0 CONSTRUCTION

3.1. GENERAL

- 3.1.1. All work and material shall 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 shall be new.

3.1.2. SHOP DRAWINGS

The Contractor shall provide an electronic PDF file of shop drawings and certifications required by the City of Fargo within 15 days of the Notice to Proceed sent out after the City Commission has approved the Project. All shop drawings and certifications shall be approved prior to any work being started. A list of required shop drawings will be provided to the Contractor by the Engineer upon request.

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

1. Conductors
2. Pull Box
3. Feed Point: cabinet, relays, switches, panels and photocells.
4. Street Light Standards, including all necessary calculations and drawings used in designing these poles.
5. Street Light Luminaires
6. Items requested by Engineer

3.1.3. WARRANTIES AND GUARANTEES

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

3.1.4. COORDINATION

The Contractor shall coordinate all work with the City's project Engineer and/or inspector when work activities are scheduled. The electrical Contractor is responsible to coordinate his activities with the underground, paving and landscape Contractors to insure the timely completion of the new street lighting system.

3.1.5. LOCATION OF EXISTING UTILITIES

Existing utilities have been shown to direct the Contractor's attention to their existence. Refer to the Utility Coordination Special Provision.

3.1.6. OVERHEAD LINES CLEARANCE

Minimum horizontal and vertical clearance between street light standards/luminaires and power lines shall be as shown for the following power line voltages:

Power Line Voltage	Horizontal Clearance	Vertical Clearance
0-15,000	5'	6'
15,000-50,000	5'	7'
50,000 Plus	5'+0.033' per KV Over 50 KV	7'+0.033' per KV Over 50 KV

3.2. CONSTRUCTION REQUIREMENTS

If the Contractor has a delay in delivery of ordered materials that will affect the completion date of the project and The City of Fargo is able to provide materials for the Contractor to borrow, the Contractor shall borrow the materials from the City by supplying the project from the City's maintenance stock, then replenishing the maintenance stock once the delivery arrives.

3.2.1. CONCRETE BASE

See plans for detail of Concrete Base size requirements and construction requirements. It shall be the Contractors 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 shall 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 shall have a maximum height of 2" above concrete base surface and the ground rod shall be a maximum of 1-1/2" above conduit with bell end. Finish of the base top shall 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 shall be removed as part of clean up before landscaping. Bases shall have a minimum seven day cure time before any standards shall be installed.

Excess dirt from the drilling of base hole shall be removed from the project site daily.

Concrete shall be a 6 bag mix with a minimum 28-day compressive strength of 3500 psi. Entrained air content shall be between 5% and 8%.

It is the Contractors responsibility to protect any concrete base left over winter. Any base damaged will be replaced at the Contractors expense.

3.2.2. CONDUIT

Innerduct shall be 1.5" schedule 40 innerduct, smooth outside, controlled outside diameter at 1.9000. Inside diameter of 1.579, minimum wall thickness of 0.145, and color RED, unless otherwise shown on plans.

Innerduct/conduit shall 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

shall be at a minimum depth of 24" below finished grade. The innerduct shall be placed in line with bases behind curb. Innerduct/conduit shall 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/conduit shall have Bell Ends installed on both ends of the innerduct/conduit run. All innerduct/conduit containing conductor/cables shall be sealed with duct seal at the feed point cabinets, pull boxes and at the street light standard bases. All spare conduits shall be plugged with an expanding rubber pipe plug at the feed point cabinet, pull boxes and street light standard bases.

3.2.3. CONDUCTORS

Conductors shall be continuous color coded (black, red and green). No splicing of conductors will be allowed without specific approval of ENGINEER. Conductors shall be of the size shown on the Plans.

All street lighting circuits shall be 240V single phase consisting of three conductors, black and red for the phase conductors and a green for the ground conductor.

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

Luminaire or festoon circuits are to be fused in the base of each lighting standard. Tape fuse holders with a 1/2-inch lapped layer for a distance of 1½ inches on each side of joint with conductor. Fuse holders to be complete with proper fuse to protect luminaire ballast. If required for a festoon circuit the neutral conductor shall be solidly connected and unfused throughout the system.

Ground conductors shall be bonded to standards by a 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 shall be installed from the gel cap splice to the ground rod and then to the ground lug on standard.

3.2.4. ADDITIONAL CONDUCTOR LENGTHS

Splices and conductors in street light standard. Splices and fuse holders shall have sufficient slack to separately extend 24" outside of the street light standard hand hole, meaning the fuse holder shall be able to extend 24" outside of the standard hand hole while

the gel cap splice is still stored in the shaft of the standard. Splices and fuse holders shall NOT be spooled in bottom of the street light standard, they shall be stored pointing up into the shaft of the standard.

Splices and conductors in pull box. Splices shall extend a minimum of four feet above finished grade. Splices shall be elevated off the bottom of pull box.

Spool up an additional three feet for each circuit feeder conductor into bottom of feed point cabinet.

3.2.5. PULL BOX

Pull boxes shall be PVC with metal frames and covers and shall conform to the detail included in the plans. Pull boxes in landscaped areas shall have the top of the box 0" to 1" above final grade and sloped to match the slope of the final grade on all four quadrants. Pull boxes in concrete area shall be set with the top of the box flush with the final grade at all four quadrants.

3.2.6. FEED POINT

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

Pedestal type feed point shall be concrete pad mounted (see plans for details of concrete pad, cabinet size and feed point wiring schematic with number of circuits). The pedestal cabinet shall have a NEMA 3R rating. The cabinet shall 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 shall be rated 22,000 AIC. The pedestal cabinet shall 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 shall be provided by the local utility company.

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

All exposed conduit shall be 2" galvanized steel. Concrete pad, riser (if needed) and other miscellaneous items needed to make feed point operational shall 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 and the Contractor shall also communicate with the utility company specific connection requirements. The meter shall be furnished and installed by the utility company.

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

3.2.7. STREET LIGHT STANDARDS

Refer to Plans for information on size and type of standards. The Contractor shall take delivery of standards from the manufacturer and shall be responsible for the storage and transportation of standards.

The packing material shall be removed from standards when stored outside and as per manufacturer's requirements to prevent damage to standards finish. Packing shall also be removed before any standards are delivered to The City of Fargo. The City of Fargo may purchase additional standards for maintenance stock and the Contractor shall be required to deliver and unload standards as directed to the Street Lighting Department located at 4630 15th Ave. N.

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 shall take delivery of luminaires from the manufacturer and shall be responsible for the storage and transportation of luminaires. The City of Fargo may purchase additional luminaires for maintenance stock and the Contractor shall be required to deliver and unload luminaires as directed to the Street Lighting

Department located at 4630 15th Ave. N. All luminaires shall be in their original containers and all luminaires and their containers shall be in new condition.

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

3.2.9. INSTALL STANDARDS AND LUMINAIRES

Refer to Plans for information on size and type of standards and luminaires. The Contractor shall take delivery of standards and luminaires from the manufacturer or The City of Fargo and shall 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 shall assume the standard one year warranty typically associated with Contractor provided materials.

3.2.10. REMOVE LIGHT STANDARD

The Contractor shall 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 City of Fargo.

Any standard/luminaire damaged during the removal, storage or transporting shall be replaced at the Contractors expense.

3.2.11. REMOVE BASE

The Contractor shall remove the concrete base as shown on the plans or as directed by the project Engineer. The Contractor shall backfill and properly compact the disturbed area.

3.2.12. REMOVE FEED POINT

The Contractor shall be responsible for removal of feed point, concrete foundation, conduit, conductor, backfilling and compaction in the disturbed area. The removed feed point shall 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 shall remain the property of The City of Fargo unless otherwise noted on the plans or directed by the project Engineer. Salvaged screw-in-bases shall 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 shall 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.

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.

After the Contractor has completed the installation of the street lighting system and any clean up items, he shall complete the "Contractor's Street Lighting Check List", provided by the City. Each item on the checklist shall be inspected and initialed by the Contractor's personnel performing this inspection, noting that any deficiencies have been corrected. The Contractor shall 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 shall 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 shall 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. Additional initial and final inspections shall assess the Contractor a fee of \$500 for each time an additional initial or final inspection is performed.

4.0 GUARANTEE, MEASUREMENT, & PAYMENT

4.1 GUARANTEE

The guarantee shall be per the contract.

4.2 MEASUREMENT AND PAYMENT

Items shall not be paid separately but will be included in payment for the bid item "LIGHTING SYSTEM". Payment shall 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 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

Measurement will be made for each size of innerduct/conduit and measured by the linear foot (LF). The measurement will be the length of innerduct/conduit installed 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. Cost for street light standard conductor, fuse holders and fuses will not be measured for payment and shall be incidental. Couplings/fittings used at concrete bases, and the method of innerduct installation, will not be measured for payment.

4.2.3 CONDUCTOR

Measurement will be made for each size of conductor by the linear foot (LF). The measurement 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 shown in the Materials Section will not be measured for payment but shall be incidental.

4.2.4 PULL BOX

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

4.2.5 FEED POINT

Measurement 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 shall be incidental to item. Additional conductor lengths at splices and feed points will not be measured for payment but shall be incidental.

4.2.6 STREET LIGHT STANDARD

The measurement 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. This item shall 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 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 shall be incidental to price bid for luminaire. This item shall 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

The measurement will be for each (EA) street light standard and luminaire installed as a complete and operational unit. Incidental to this cost shall 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 to install standards with twin mast arms and luminaires shall be incidental.

4.2.9 REMOVE LIGHT STANDARD

The measurement will be for each (EA) street light standard removed. The removal and transporting of standards and luminaires shall be incidental.

4.2.10 REMOVE BASE

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

4.2.11 REMOVE FEED POINT

The measurement will be for each (EA) feed point removed. The removal, backfilling and compaction, transportation and disposal of feed point and foundation shall be incidental. The removal, backfilling and compaction, transportation and disposal of feed point and foundation shall be incidental.

4.2.6 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, shall be incidental.

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 shall include all costs to salvage and deliver the material as specified.

4.2.6 BORROWING OF MAINTENANCE STOCK

All costs for the Contractor to borrow City maintenance stock, including all costs for work to load, transport, and unload borrowed and returned materials, shall be considered incidental.

TRAFFIC SIGNAL SPECIFICATIONS

1.0 DESCRIPTION OF WORK

1.1 GENERAL

All traffic signal work completed under this contract shall meet the requirements of this special provision unless otherwise specified.

This work shall consist of, but is not limited to, furnishing and installing traffic signals, communication cable, traffic surveillance cameras, and battery back-up systems.

All work and material shall 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 shall be furnished and installed new unless specified otherwise in the Special Instructions for Bidders.

2.0 SHOP DRAWINGS, SERVICE MANUALS, INSPECTIONS, AND WARRANTY

2.1 SHOP DRAWINGS

2.1.1. The Contractor shall 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 shall be approved prior to any work being started.

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

A. Traffic Signal Controller Cabinet

1. Load Bay
2. Controller
3. MMU
4. BIU's
5. Voltage Surge Suppression
6. Flash Transfer Power Relay
7. Solid State Flasher

A. Traffic Signal Controller Cabinet (cont.)

8. Solid State Load Switches with Input and Output Indicators
9. Power Supply
10. Vehicle Detector Rack Card
11. GTT Model 764 Opticom Phase Selector
12. Ethernet Switch
13. Audible Pedestrian Push Button System
14. Video Detection System
15. IP Addressable Power Strip
16. Any other relays or extra equipment in cabinet not listed above

B. Battery Backup Cabinet

1. UPS Power Module
2. Batteries
3. Battery Charge Management System
4. Maintenance Bypass Switch
5. Signal Cabinet Circuit Breaker

C. Feed Point Cabinet

1. Surge Protection
2. Circuit Breaker
3. # 6 Power Wire USE/RHW

D. EVP System

1. Opticom Detector
2. EVP Confirmation Light
3. EVP Mounting Hardware
4. Opticom Cable

E. Fiber Communication

1. Fiber Optic Cable
2. Fiber Optic Pigtail
3. Fan Out Kit
4. Fiber Optic Connectors
5. Fiber Optic Jumper Cables
6. Fiber Optic Distribution Panel
7. Fiber Optic Splice Cabinet
8. Fiber Optic Splice Enclosure
9. Fiber Pull box

F. Vehicle Heads

1. Housing
2. Back Plate (including screws and washers)
3. LED Sections
4. Mounting Hardware-Must include complete installation instructions
5. Visors-Cup or Cutaway

G. Pedestrian Heads

1. Housing
2. Visor
3. LED section
4. Mounting Hardware-Must include complete installation instructions

H. Signal Standards

1. Standard
2. Mast Arm
3. T-Base
4. Anchor Bolts
5. Bolts, Nuts, & Washers
6. Luminaire Extension & Fixture
7. Mouse Proofing

I. Pull Box

1. Frame - Non-Concrete and In-Concrete
2. Cover

J. Pedestrian Push Buttons

1. Button
2. Housing
3. Sign
4. Post
5. No.16 AWG 3(Polara APS)
6. APS Ped Head Module

K. Detection Loops

1. Loop Wire
2. Loop Sealant
3. Loop Lead-in
4. Splice Kits
5. Preformed Loop

L. Conduit & Innerduct (HDPE)

1. All sizes

M. Signal Control Cables

1. No.14 AWG 20
2. No.14 AWG 12
3. No.14 AWG 7
4. No.14 AWG 5
5. No.14 AWG 3
6. No.14 AWG 2

N. Labeling Tape

O. Camera Equipment

1. Camera
2. Mounting Hardware
3. Power Supply
4. POE Surge Protection Device
5. Cables CAT 6 & No.16 AWG 3
6. Ethernet Switch

2.2 SERVICE MANUALS

2.2.1. The Engineer shall be furnished one service and operating manual for all the electronic traffic signal equipment.

2.2.2. Each service manual shall include the following minimum information:

- A. Detailed description of operation and instructions for initial set-up
- B. All schematics and wiring diagrams of the unit
- B. Recommended servicing and service hints
- C. Complete parts list
- E. Recommended spare parts list

2.3 TRAFFIC SIGNAL INITIAL AND FINAL INSPECTION

2.3.1. The project will not be classified as substantially complete until the signal system is fully functional, including the completions of all pay items, including a fully functional fiber optic communication system.

- 2.3.2. After the Contractor has completed the installation of the signal system(s) and any clean up items, the Contractor shall complete the "Contractor's Pre-Initial Traffic Signal Inspection Check List" provided by the City. The Contractor shall inspect each item on the checklist.

The Contractor's personnel that actually did the inspection shall initial each item showing that it has been completed. The completed checklist shall be forwarded to the Engineer, along with the request for an initial inspection on the form provided by the City. The Engineer will set a date and time for the initial inspection. At the time of either an initial or a final inspection, the Contractor is required to open and close all pull boxes, open and close all signal standard doors, and remove and hold wiring to allow for inspection. Contractor shall be present within 10' of each item that is being inspected to ensure clarity on what needs to be corrected.

- 2.3.3. Initial and final 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.

- 2.3.4. All items requiring additional work after the initial inspection will be noted by the City on the checklist. The Contractor shall complete work on all items prior to requesting a final inspection. A final functional inspection will be made a minimum of 30 more days after the initial inspection date. The Contractor shall 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, at his discretion, stop the final inspection and require the Contractor to resubmit his 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. Additional initial and final inspections shall assess the prime Contractor a fee of \$250 for each time an additional initial or final inspection is performed. The project will not be classified as 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 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.

2.4 TRAFFIC SIGNAL WARRANTY

- 2.4.1 The Contractor shall 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 issue affects public safety. 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. In addition, the controller equipment supplier and manufacturer shall provide an additional four-year warranty, for a total of five years on the Econolite Cobalt controller. All manufacturer warranties and guarantees with respect to materials, parts, workmanship, or performance shall be secured and included with the shop drawing submittal.

3.0 COORDINATION, INSTALLATION, AND MATERIALS

3.1 PROJECT COORDINATION

- 3.1.1 The Contractor shall coordinate all work with the City's Project Engineer and/or Inspector when work activities are scheduled. The Contractor is responsible to coordinate his activities with other City, State or County work. If the Contractor determines that other work in the area will substantially affect the project's substantial completion date, it is his responsibility to notify the Project Engineer and request a time extension.
- A. The Contractor shall have a full set of plans when working on site and must present the plans to onsite engineer when asking any questions about project.

3.2 LOCATION OF EXISTING UTILITIES

- 3.2.1 Existing utilities have been shown to direct the Contractor's attention to their existence. Refer to the Utility Coordination Special Provision.

- 3.2.2 The Contractor is responsible for verifying and following minimum horizontal and vertical clearance between light and/or signal standards and overhead power lines.

3.3 TRAFFIC SIGNAL CABINETS

- 3.3.1 The Cabinet size shall conform to the details shown in the plan and the following:
- A. HAWK Cabinet shall be size M (49" H x 30" W x 17" D)
 - 1. -Plug-N-Go 8 phase panel
 - B. Type B - Cabinet shall be a P65 (65"H x 44" W x 25.5" D)
 - 1. -16 phase panel
- 3.3.2 Anchor bolts must be set into controller foundation when poured.
- 3.3.3 Controller foundations must be level in all directions, if not; foundation shall be removed and replaced level at contractor's expense.
- 3.3.4 All new foundations SHALL have a minimum of 3ea protective bollards (see detail 5.3), see engineer for locations. Bollards shall have a 1/8" thick plastic cover for the 4" pipe, 52" tall covers shall have 2ea 3/4" reflective strips and be yellow in color.
- 3.3.5 When installing the cabinet on the concrete foundation, a bead of SikaFlex 15LM construction sealant shall be placed under the bottom flange of the cabinet within one inch of the outside edge of the cabinet. An additional bead of SikaFlex 15LM construction sealant shall be placed continuously around the outside of the cabinet at the seam between the cabinet and the foundation. All exposed outer cabinet seams shall be sealed with a bead of SikaFlex 15LM construction sealant.
- 3.3.6 The Contractor shall supply a fully wired and terminated UL listed NEMA cabinet. The controllers shall be supplied by the same manufacturer and be of the same model number and most recent software.
- 3.3.7 ALL components SHALL have minimum temperature rating of -40 degrees F to 160 degrees F or needs to be approved by Engineer.

- 3.3.8 City of Fargo Type B TS2 Cabinet Assembly with an Econolite Cobalt TS2/Type 2 Controller shall have full ATC compliance with A, B, C, and D harness connectors. The MMU shall be a RENO Model MMU2-1600GE. All cabinets shall be wired for use of either 2 Channel or 4 Channel Global Traffic Technologies Opticom cards.
The Contractor shall supply rack mounted vehicle loop monitors Model G-200 from Reno or approved equal. See plans for additional cabinet requirements
- 3.3.9 All new Fargo Type B/HAWK cabinets shall have a Control RocketLinx ES8520-XT managed ethernet switch with (2) PULS ML60.242 Power supplies (part # 32112-5). Furnish (2) SFP MM 2KM 1000BASE-SX Fast Ethernet (Extended Temp) Part# 1200088 and (2) SFP SM 10KM 1000BASE-GLX (Extended Temp) Part#1200060.
- 3.3.10 OCC Fiber distribution enclosure or approved equal. Standard is a ZDMB6B enclosures, for single mode fiber. Adapter plates shall be 6112DLC or approved equal. Adapter plate may vary depending on the number of fibers to be landed in the signal cabinet. See fiber splice diagrams for details.
- 3.3.11 All cabinets and signal equipment to be programmed, shall be delivered to the City of Fargo Sign and Signal Maintenance building @ 4630 15th Ave N, Fargo ND 58102 before installation, and Contractor is responsible for picking up and installing at required intersections. Contractor shall drop off all required equipment a minimum of **ONE** month before installation. After programming and documenting is complete, Contractor shall pick up all cabinets and equipment within **ONE** week of being notified.

All equipment that is required to be delivered to the City for programming includes the following:

- A. Controller
- B. MMU2
- C. Fiber Switch w/ all accessories
- D. PTZ Camera (Camera only)
- E. EVP Card
- F. UPS Power Inverter AND Battery Management System
- G. IP Addressable Power Strip
- H. Cabinet

3.3.12. Cabinet Wiring Diagram

The following items shall be labeled on the Cabinet Wiring Diagram:

- A. The Loop Designation number (i.e. D2-1) from the plan shall be labeled on the Detector panel drawing adjacent to the point for termination.
- B. The field wire terminals for the Vehicle/Pedestrian Head Control Cables shall be labeled with the phase number and direction (i.e. 02, SB).
- C. The field wire terminals for the Opticom cable shall be labeled with the pre-empt number (i.e. P.E. #1).
- D. The field wire terminals for the pre-empt indicator lamps shall be labeled with the pre-empt number and direction (i.e. P.E. #1, N.B.).
- E. The field wire terminals for the pedestrian push button cables shall be labeled with the phase number (i.e. 08 PED).
- F. Provide an AutoCAD drawing file of the as-built cabinet wiring diagram; the drawing shall include battery backup wiring.
- G. All text on the cabinet wiring diagram shall use the "Arial Narrow" style font.
- H. The detector rack label shall look like the detector rack label on the plans. The text size shall be .13 in height for all text on the label except the L1, L2, etc. shall be .09 in height.
- I. Contractor is responsible for pickup of cabinet prints and for returning one revised print to the cabinet in the field and returning all other copies to the Traffic and Lighting shop, located at 4630 15th Ave N.

3.3.13. A complete cabinet conflict monitor test shall be performed and passed by the Contractor just prior to the uncovering of the traffic heads. The City will supply the Contractor the conflict monitor maintenance record test form. The instructions on this form must be followed completely before the signals are used. Contractor is responsible to provide a

flagger traffic control person for the intersection while the conflict monitor test is performed.

- 3.3.14. The Contractor shall provide **one** spare load switch, **two** spare BIU, and **two** spare two-channel vehicle detector for each controller and cabinet supplied on the project.
- 3.3.15. All load switches provided as part of this project shall be equipped with both input and output L.E.D.'s and shall be EDI or Reno.
- 3.3.16. All cabinets shall include a manual police door pushbutton cord for changing between phases.
- 3.3.17. Controller working slab shall be 6 feet wide and extend a minimum of 4 feet from the face of the controller foundation. The slab shall be 4 inches thick, reinforced with 6" x 6" x 10 GA welded wire fabric, and shall be tied to the controller foundation with 18-inch long #3 rebar spaced 18 inches on center. The controller working slab shall have a slope of .25 inches per foot away from the controller cabinet foundation. The closest point of the top of the slab to finished grade shall be 2 inches above grade, except where matched to sidewalk grade. Working slab shall be incidental to pouring the controller cabinet foundation. If working slab is within 3' of sidewalk, contractor shall connect working slab to sidewalk. Detail 5.3.
- 3.3.18. The cabinet shall have a 6x6x6 splice box mounted on the outside of the cabinet for locating personal. All trace wires shall be clearly labeled, and insulation removed a minimum of 1/2" at the end of each wire. Box shall be installed toward grass area, and not toward sidewalk.

3.4 PULL BOXES

3.4.1. Install PVC/PE Box

- A. Pull boxes shall be PVC/PE with metal frames and covers and shall conform to the drawing No. 5.6 included in the details/plans. ALL eyebolts SHALL be galvanized.
- B. Pull boxes in landscaped areas shall 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. Pull boxes in concrete area shall be set with the top of the box flush with the final grade at all four quadrants.

- C. All pull boxes installed in concrete areas shall have a 42" JDT HDPE Handhole (ESS Brothers part number 2442HD5 or approved equal) to prevent frost heaving, and a Neenah Foundry R-1733 frame, with R-1733 solid self-seal lid with "TRAFFIC SIGNAL" embossed on it (see details) or approved equal.
- D. ALL pull boxes and covers SHALL be a minimum of 24" from the back of the curb unless approved by the engineer.
- D. All boxes shall have a minimum of 2' of pea rock below for drainage. Backfill around pull boxes shall be a Class 3 gravel with 90% compaction.

3.4.2. Install Fiber Vault

- A. This shall include the cost to supply and install a Fiber Vault. The vault shall be manufactured by Channell and be Grade Level box BULK 7. The size shall be 30" x 48" x 36" deep, with no base. The cover shall be Composite and be rated for 33,750 lbs. of proof load. Cover shall be secured with stainless steel bolts, and have a logo of "Traffic Signals", and color shall be gray.
- B. Two feet of pea rock shall be installed for drainage below the pull box, will extend 6" beyond the outside edge of pull box, and backfill around pull boxes shall be a Class 3 gravel with 90% compaction. The box shall be a minimum of 4' from the back of curb, and the top of box shall be at final grade and sloped to match.
- C. A 6' x 6' concrete pad shall be installed around the IT-Pull box. The concrete pad shall be 6" thick, reinforced with 6" x 6" x 10 GA welded wire fabric and shall be incidental to the price bid for IT-Pull Box.
- D. All conduit entrances shall be a minimum of 24" from top of box. ALL conduits shall extend into pull box a minimum of 2" and a maximum of 3".

3.5 Vehicle and Pedestrian Heads

- 3.5.1. All signal plumbizers, mounting hardware, and pedestal adapters/collars shall be iron. ALL hub plates/shoes, and end caps shall be aluminum. Color SHALL be black unless noted in plans.

All mounting hardware shall be galvanized and Anti-Seize SHALL be applied to all treads. When securing post mounted vehicle/ped heads to mounting arms the following use of the rubber gasket SHALL be used: if threaded "close" nipple with nut is used, rubber gasket goes on top of head, and if threaded "chase" nipple is used, rubber gasket goes on the inside of head.

- 3.5.2. All vehicle heads and all pedestrian heads shall be SG polycarbonate. All heads shall be installed level on all sides. Five section cluster mast arm mounted heads shall be installed using a Frey Manufacturing 52CA Cluster Adapter with a 45V angled plumbizer and a 32C Clamp Adapter. All vehicle and pedestrian heads shall be manufactured by Siemens Eagle, McCain, or approved equal. All signal heads shall be required to have reinforcement plate kits installed on them. All 5-section doghouse style heads shall 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 **cap, or cutaway** style vision installed on them.
- 3.5.3. All vehicle heads installed at the end of a mast arm, shall be installed on a 45-degree plumbizer.
- 3.5.4. 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 shall indicate the type of mounting.
- 3.5.5. Vehicle Indication Alignment of Post and Pedestal Vehicle heads mounted on signal standards shall 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 shall be aimed to the center of the left turn lane 200 feet from the stop bar. Mast arm heads shall be parallel to oncoming traffic.
- 3.5.6. All traffic signal back plates shall be louvered aluminum and have a minimum thickness of .063". Back plates shall be installed using 3/4" O.D. x 3/16" I.D. x standard thickness washers on all screws. Washers shall be stainless steel #10 fender washers. Screws used to attach the back plates to the signal head shall be highest quality stainless steel 1/2" #10 pan head tap screws, if a magnet sticks to either, they shall be rejected.

- 3.5.7. All red, yellow, green and pedestrian indications shall be L.E.D. conforming to the latest standards of the Institute of Transportation Engineers. All LED's shall have a 5-year warranty. Approved 12" L.E.D. balls are Dialight "XL" series red ball part number 433-1210-003XL, yellow ball part number 433-3230-901XL, green ball part number 433-2270-001XL, or GE "GTX" series red ball part number DR6-RTFB-17A, yellow ball part number DR6-YTFB-17A-YX1, green ball part number DR6-GCFB-17A or Leotek "P2" series red ball part number TSL-12R-LX-IL6-A1-P2, yellow ball part number TSL-12Y-LX-IL6-A1-P2, green ball part number TSL-12G-LX-IL6-A1-P2.

Approved 12" L.E.D. arrows are Dialight red arrow part number 432-1314-001XOD, yellow arrow part number 431-3334-901XOD, and green arrow part number 432-2374-001XOD or GE "GTX" series red arrow part number DR6-RTAAN-17A, yellow arrow part number DR6-YTAAAN-17A-YX, green arrow part number DR6-GCAAN-17A, or Leotek "P2" series red arrow part number TSL-12RA-IL6-A1, yellow arrow part number TSL-12YA-IL6-A1, green arrow part number TSL-12GA-IL6-A1. Approved pedestrian heads shall be 16"x18" countdown pedestrian signals. Approved pedestrian countdown signals are GE "GTX" series part number PS7-CFF1-VLA, or Dialight ITE Compliant pedestrian countdown signal part number 430-7773-001X or approved equal.

- 3.5.8. Installing L.E.D. vehicle signal sections shall 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 shall include all materials and labor for each L.E.D. vehicle signal installed.

Contractor is required to place an LED Load on any phase with a single LED when changing out the LED to prevent the signal from going into flash. Contractor shall install Wago 222-series Lever Nuts on all splices in vehicle/pedestrian heads. Contractor shall install dielectric grease in all used or unused entrances of the Lever Nut.

- 3.5.9. Outside jacket/insulation of the multi-conductor wire entering into signal head, shall extend a minimum of 1" and maximum of 2" before removing.

- 3.5.10. Installing L.E.D. pedestrian signal sections shall include furnishing and installing 16" L.E.D. countdown pedestrian into the existing pedestrian signal head housing. The price bid shall include all materials and labor for each L.E.D. pedestrian signal installed.

- 3.5.11. All conductor from the signal/pedestrian heads to the splice in T-base shall be included in the cost of furnishing and installing of signal/pedestrian head. ALL incoming conductors shall extend a minimum of 2 feet out of each vehicle/ped housing.
- 3.5.12. Contractor shall confirm the height of all signal heads after installation and road is at final grade. Heads should be 18' to 19' (to the bottom of the back plate) of height at completion.

3.6 PEDESTRIAN PUSH BUTTON

- 3.6.1 Pedestrian push button signs shall be bolted directly to the traffic signal standards. Do not use bandit for this purpose. Furnishing and installing pedestrian push buttons and sign shall be included with the price bid for TYPE IV, TYPE V, combo signal standard and pedestrian push button post and interim signal.
- 3.6.2 All Pedestrian push buttons shall be Polara 3W iNS APS- wire push button system. All Pedestrian heads shall have a Ped Head Control Unit installed, and a 14 AWG/3C and a 14AWG/4C shall be installed between Ped Head Control Unit and button, this length of cable is incidental to the cost of the button. Pedestrian buttons shall 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 shall be provided with the system, and one spare Ped Head Control Unit. The system shall include the most current revision of software for installation on up to 10 computers. All sound/wave files for each APS button SHALL be supplied to City of Fargo.
- 3.6.3 All pushbutton cable runs from the push button to the controller cabinet, and push button to ped head, shall not be spliced.
- 3.6.4 The pedestrian push button post shall be manufactured by Frey Manufacturing, and black in color, unless matching existing intersection, or specified in plans. Post SHALL be mounted into concrete according to manufactures specifications (See detail if included in plan set).

3.7 VEHICLE DETECTION LOOPS

3.7.1. Preformed Loops

- A. Preformed loops shall be installed on all new pavement replacements. Preform loops shall be manufactured by Reno A&E, PLH model, and installed to manufactures specifications.
- B. Preformed loops shall be installed on bolster chairs and secured down with (3) "7" stakes per section (Detail 5.4).
- C. All vehicle loops in milled areas shall be pre-formed. Loops shall be manufactured by Reno A&E, PLB model, and sawed in and sealed. Loops shall be installed after the surface has been milled and prior to the first lift of new asphalt.
- D. Conduit shall be installed from the pull box to the same panel in which the loop is installed.
- E. ALL loops SHALL enter the pull box directly perpendicular from under the curb, NO running conduits parallel with curb.

3.7.2. Sawed Vehicle loops

- A. Sawed loops shall be shown on the plans and the Loop Detector Detail Sheet. The loop location shall be marked on the pavement. The loop shall 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.
- B. Loop saw cut shall be 2" in concrete, and 3" deep in asphalt, if asphalt condition is not in good shape, engineer may change saw depth.
- C. Interruption of the normal flow of traffic shall be the minimum time necessary for installation of the road loop. Work shall not begin until all material, equipment, and personnel are at the site. Type III Barricades, warning signs, and flag persons shall be placed to protect the workers and the traveling public.

- D. Conduit shall be installed from the pull box to the same panel in which the loop is installed. Each loop shall have a separate conduit installed for the pull box entry. Loops installed on an existing roadway surface shall have conduit installed from the pull box to the gutter or roadway edge as specified on the detail sheet. The excavation from the saw slot at the gutter or roadway edge shall be made by means of a punch or drill type tool, rather than by usual excavating methods. The visible portion of the gutter shall not be cut for conduit installation. The conduit shall be installed to directly receive the loop wire in line and not at an angle. The hole to receive the conduit shall 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 shall 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 shall be sealed with the same sealant used to close the saw cut. The conduit and the pull box shall be installed at the same time.
- E. Vehicle loop duct type wire shall be used having a ¼-inch XLPE high-density polyethylene tube jacket covering a #14 AWG stranded copper conductor with Type XHHW insulation.
- F. All loops shall have 3 turns of loop wire.

3.7.3. Loop Saw Slot

- A. The pavement slot shall be sawed with a self-propelled power saw equipped with a depth gauge and alignment guide. The pavement slot shall be cut cleanly and well defined. The saw cut shall be overlapped at all corners and right-angle corners shall be cored as shown on the Standard Drawings. The saw cut may be made at any time before installation of the wire. Slots shall be cleaned immediately after the cutting operation.
- B. All saw cuts shall be sealed with an approved sealant. Before sealing the saw slot, each saw slot shall be thoroughly dried, cleaned of all dust, dirt, concrete scale, and other foreign matter. Sandblast all sealed areas, and then blow out with a jet of compressed air to remove sandblaster material. The joint faces shall be clean and dry when the joints are sealed. Joints shall not be sealed when the air temperature is above 100 degrees and below 40 degrees F.

- C. Failure of the saw slot material in either adhesion or cohesion in the first year after the final acceptance date shall be cause for rejection and shall be repaired at the Contractor's expense.

3.7.4. Loop Sealant

- A. The sealant shall be 3M Detector Loop Sealant 5000

3.7.5. Loop Lead-In Cables

- A. Loop lead-in cables shall be a #14 AWG stranded polyethylene insulated twisted pair with a foil shield with drain wire and a polyethylene jacket. The loop lead-in conductor shall not be spliced except at the pull box where this conductor and the loop conductor are spliced together.

- B. Loop lead-in conductors shall be lightly sanded, cleaned with an approved method, and wiped clean with a clean towel, then wires **SHALL BE SOLDERED**, then wire nutted or crimp connected (levernuts are not allowed), and then encapsulated in an epoxy splice kit manufactured by URASEAL Product No. CK200 kits must be under 1 year from manufacturing date. Conductors in the splice kit shall not be taped together. Loop lead-in and loop wires shall have sufficient slack to extend a minimum of 6', and a maximum of 10' feet above the pull box opening and installed in the pull box with the splice kit taped a length of 1" PVC such that the splice is secured in the upper 1/3 of pull box.

3.7.6. Testing

- A. Before pouring the sealer, the loop shall be checked for continuity, inductance, and insulation resistance. The test shall be made in the Engineer's presence, and the necessary equipment needed to perform these tests shall be furnished by the Contractor.
The City reserves the right to retest, and these test results shall govern the acceptance or rejection of the loop installation. Tests shall be made as follows:

1. Continuity Test. Each loop detector circuit shall be tested for continuity at two locations:

- i. Loop detector at the pull box before splicing with the loop detector lead-in cable shall have a value less than 0.5 ohms.
 - ii. Loop detector and lead-in cable system at the traffic signal controller cabinet or detector cabinet after splicing in the pull box shall have a value less than 5 ohms. The continuity test ohm reading at the traffic signal controller cabinet or detector cabinet shall be greater than the ohm reading measured at the loop detector at the pull box
 2. Inductance Test. Each loop detector and lead-in cable system shall have an inductance test measured at the traffic signal controller cabinet or detector cabinet. The inductance shall be in the range of 50 to 700 micro Henries.
 3. Insulation Resistance Test. An insulation resistance test at 500 volts direct current shall be made 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 shall have a value of 500 mega ohms or greater.
- B. A vehicle loop detector test shall 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.
- C. The City will retest all loops at the Final Inspection.

3.8 CONTROL CABLES

- 3.8.1. The jacket on all control cables shall be polyethylene with the thickness meeting Table 7.4.2 NEMA WC-70.
- 3.8.2. All cables pedestrian pushbutton cables shall be un-spliced.
- 3.8.3. There shall be no splices below grade except for loop lead-in conductors. Pulled through conductors shall have sufficient slack to extend a minimum of 18 inches above the pull box opening.

- 3.8.4. Additional cable quantities shall be installed to provide for slack and the wiring of controllers, feed points, and signal heads (all slack shall be left in the nearest pull box unless noted) as follows:
- A. Ten feet at the controller
 - B. Twenty feet at post-mounted and pedestal-mounted vehicular signal heads
 - C. Eighteen feet at post-mounted and pedestal-mounted pedestrian signal heads
 - D. Eight feet at each pedestrian push button
 - E. Eighteen feet at each flashing beacon sign support
 - F. Twenty-three feet 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.
 - G. Ten feet at the feed point
 - H. Five feet at each foundation for each incoming and outgoing pedestrian and signal head control circuit
 - I. Ten feet at pull boxes where connections are made.
 - J. Ten feet for loop lead-in cables where they are spliced to the loop in the pull box
 - K. Three feet at each foundation for each incoming and outgoing circuit, which passes through the foundation with no connection being made.
 - L. 43 feet plus length of mast arm for Opticom and indicator light, contractor shall pull out any excess of five feet from T-base and store in the nearest pull box.
 - M. Vehicle and Ped heads SHALL have 2' of wire slack inside each head section.

3.9 LABEL ALL FIELD CABLES

- 3.9.1. All labels shall be machine printed on a tape width of 1/2". All lettering shall be 20pt. uppercase block style letters. The tape shall be affixed around the perimeter of cable with the tail at 90° to the cable. All lettering shall be on the tail of the label and readable without moving the cables. The labeling tape shall be designed for outdoor use. The tape shall have a minimum outdoor durability rating of 5 years in temperature ranging from 180°F to -40°F.
- The labels shall be capable of being applied outdoors at temperatures as low as 0°F.
- 3.9.2. All labeling materials shall be approved by the City. Labels shall be

readable without moving the cables.

All field cables installed by the Contractor shall be labeled with the cable designations: -

TYPE	LABEL	LABEL LOCATION
Fiber cable	Comm./intersection address of other end	Within 12" of conduit
Fiber Jumper & box	Fiber Jumper-Fiber #, fiber panel-Fiber #	See fiber Detail Sheet
Pedestrian push button	Phase/location (i.e. 02-NW, 02-SW, 02-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
T-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 #) see Photo Detail	See Photo Detail
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

3.10 EMERGENCY VEHICLE PRE-EMPTION

3.10.1. All locations on the plans calling for an Emergency Vehicle Pre-emption Detector shall consist of a Global Traffic Technologies Model 722 EVP detector and light assembly. Install assembly 6 feet from end on existing mast arm poles unless otherwise shown on the mast arm detail sheet.

Each detector tube shall be aimed at a point 1800' from the intersection towards the associated on-coming traffic.

The indicator lamp shall be angled downward 1 notch from level and aimed at a point 1800 feet from the intersection.

3.10.2. The Opticom Priority Control System shall be an Opticom Model 764 Multimode Phase Selector.

3.10.3. Install EVP L.E.D. indicator lamps for all phases when new cabinet/EVP system is in place and operational.

3.10.4. Approved LED bulbs

- A. Archipelago LED par38 Model number LPAR38C39048K1
- B. Dialight TB1-7401-101 (apply bead of SikaFlex on all seams).

3.10.5. The Contractor shall notify the Fargo Fire Department @ 701-241-1540 when EVP is taken out of service and returned to service.

3.10.6. The Contractor shall setup and verify the EVP detector operation within one week of the signal being operational to traffic. Contractor shall test range with a Contractor supplied EVP emitter at a distance of 1800' from the intersection. City will set the EVP range at the initial inspection.

3.10.7. The EVP system shall be wired with an approved Opticom cable that is recommended by the Manufacturer for the EVP detector.

- A. Top Tube Pre-emption 6(D) & 3(A) Blue Wire
- B. Bottom Tube Pre-emption 5(C) & 4(B) Yellow Wire

3.10.8. The Contractor shall follow Global Traffic Technologies instructions for all opticom cable connections. If only one circuit is needed, wire both tubes as assigned above. Cap the unused pre-empt opticom cable wire in the controller cabinet. Aim both tubes in the one direction that is being used.

3.11 CONDUIT

3.11.1. All conduit shall be installed 24 inches below final grade. Nonmetallic conduit shall be either polyvinyl chloride (heavy wall – PVC) or high-density polyethylene (HDPE) conduit, both as specified below.

3.11.2. All trenched or backhoed areas under sidewalks or roads shall be backfilled with a Class 3 gravel to a 90% compaction.

- 3.11.3. PVC conduit shall meet the requirements of UL 651 suitable for direct burial applications and shall have a minimum wall thickness equivalent to Schedule 40 as defined by ASTM 1785.
- 3.11.4. HDPE conduit shall meet the requirements of UL 651 and either ASTM 2447 or ASTM 3035 suitable for direct burial applications. HDPE conduit shall have a minimum wall thickness equivalent to Schedule 40 as defined by ASTM 2447 or DR 15.5 as defined by ASTM 3035. HDPE conduit shall not be installed when either the conduit temperature or ambient temperature is below -10 F.
- 3.11.5. Conduit shall be installed at the location shown on the plans. Conduit shall be bored under existing pavement. Boring conduit shall be considered incidental to the bid price for conduit and for which no additional compensation shall be made. ALL bored conduits SHALL be HDPE inner duct.
- 3.11.6. All conduits shall have bell ends installed on both ends of the conduit run. All conduits shall extend into pull boxes a minimum of 2" and a maximum of 3".
- 3.11.7. All conduits containing conductor/cables shall be sealed with duct seal at the controller cabinet and at the traffic signal standard foundations.
- 3.11.8. All spare conduits shall be plugged with an expanding rubber pipe plug and labeled at the cabinet and signal standard bases.
- 3.11.9. The Contractor shall use 2" innerduct for the interconnect conduit. Innerduct shall be 2", schedule 40 innerduct, smooth outside, controlled outside diameter at 2.375. Inside diameter of 2.027, minimum wall thickness of 0.154, and color ORANGE. Installation of innerduct shall be at a depth 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. Innerduct may also be used for all wire signal conduit runs, but if it is used, it must be red in color. All innerduct shall have Bell Ends installed on both ends of the innerduct run.
- 3.11.10. The Contractor shall install two additional 2-inch diameter conduits in each new controller foundation. The direction of these conduits will be determined in the field by the Engineer and labeled in the cabinet by the Contractor.

Each foundation for a traffic signal standard and each feed point foundation shall have one spare 2-inch conduit. The direction will be determined by the Engineer in the field and labeled at the foundation by the Contractor. The conduits shall be plugged with a 2" expandable pipe plug. Not a separate pay item, cost is to be included in the price bid for "Concrete Foundation Traffic Signal".

- 3.11.11. All conduits shall have a **RED 600V rated** No. 12 Copper Clad trace wire with HDPE insulation, rated at a minimum 250 LB of breaking load installed, including empty/spare. Dead end of all runs shall be grounded.

3.12 COMMUNICATION CABLE

- 3.12.1. The communication cable shall be a 144-strand single mode fiber optic cable suitable for outside plant operations manufactured by OCC Fiber, Corning, Superior Essex, or approved equal. The cable shall be a loose tube, single jacket, all dielectric cable design. The buffer tubes shall be gel filled, and the cable shall have a dielectric central strength member and a dry water blocking system. Tube colors shall follow fiber industry color standards.
- 3.12.2. The fiber optic cable shall be dual window single-mode fiber with a maximum attenuation of 0.35 dB/km at 1310 wavelength and maximum attenuation of 0.25 dB/km at 1550 wavelength and shall meet or exceed Ethernet transmission standard IEEE 802.3ae.
- 3.12.3. Fiber cable construction shall be loose tube gel-filled color-coding per TIA/EIA 598B standards. The Central Strength member shall contain no metallic conductors. The overall strength member shall be aramid fiber yarn or fiberglass; the inner jacket shall be black UV and moisture resistant PE. The outer jacket will be black UV and moisture resistant PE with sequential meter markings.
- 3.12.4. Fiber optic cable insulation shall have a maximum tensile load of 600 lbs. for installation and 200 lbs. for in-service load. The minimum bend radius shall be 20XOD for installation and 10XOD for in-service.
- 3.12.5. The item "Communication Cable" will be measured by the linear foot. The quantities measured will be paid for at the contract price and shall be full compensation for all labor, equipment, and material necessary to complete the installation of the communication cable.

Requirement	Single Mode
Outer Jacket	Polyethylene
Core Diameter (μm)	8.0 – 10.0
Clad Diameter (μm)	125
Max. Attenuation (dB/km)	0.35 @1310 nm 0.25 @1550 nm
Min. Bandwidth (MHz/km)	N/A N/A
Max. Tensile Loading (N)	2700 Short Term 600 Long Term

3.12.6. Cables or inner duct shall be carefully inspected by the Contractor during placement operation to be certain that the fiber optic cable and inner duct are free from damage before placement.

3.12.7. Bends of small radii and twists that might damage cable or wire shall be avoided. During the placement operation, fiber optic cable shall not be bent in a radius less than 20 times the outside diameter of the cable.

3.12.8. Care is to be exercised during the placing operation, to feed the cable into the inner duct loosely and at no tension. Equipment and construction methods shall be such as to assure compliance with this requirement. The Contractor shall furnish competent supervision at all times at the site of cable placing operations to assure compliance with this requirement.

3.12.9. Every instance of damaged cable or wire observed at any time whether prior to installation, occurring during construction, or discovered by test or observation subsequent to installation in plant, shall be immediately called to the attention of the Engineer. The method of repair or correction of such damage shall be in accordance with the written instructions of the Engineer. The Contractor shall promptly repair such damage or make such corrections in accordance with such written instruction of the Engineer. Minor damage to the outer jacket of the cable or wire observed prior to or occurring during construction shall be repaired in accordance with RUS Splicing Standard Bulletin 1753F-401 (PC-2).

3.12.10. The Contractor shall use a break-away swivel rated for 600 lb. break load for pulling all fiber optic cables.

- 3.12.11. The Contractor shall include an **ORANGE** No. 12 Copper Clad Trace Wire with HDPE insulation, rated at a minimum 250 LB of breaking load, running the full length and parallel to each communication cable installed in conduits as a trace wire. This is not a separate bid item. The cost shall be included in the price bid for communication cable. The trace wire shall be labeled with the intersection address that it connects to. If the distance is too long to have a trace wire un-spliced, then the Contractor may splice the trace wire with an approved underground splice connector. Dead end of all runs shall be grounded.
- 3.12.12. The Contractor shall provide 30' of slack cable in each pull box and 150' slack for each cable at the cabinet pull box where termination or splicing will occur or 85' of slack if the fiber cable is completely cut and is the end of the fiber run. The Contractor shall remove 10' of each cable end that was used to pull cable prior to installing the required amount of slack to be left in the pull box. Contractor is required to contact the Engineer in the field to discuss all footages left in pull boxes and what is needed for splicing before pulling in fiber and cutting it.
- 3.12.13. The price bid for Fiber Optic Terminations and Equipment shall include all necessary connectors, terminations, equipment, labor and all other miscellaneous material to install a fully functional communication system including, but not limited to, the following:
- A. Supply and install SM fiber optic pigtail, shall be an OCC LC12XBX8D-XXX SM ASSEMBLY W/BX 12F with yellow outer jacket for single-mode, and LCC12XBX8A-0100 MM ASSEMBLY W/BX 12F with orange outer jacket for multi-mode, with a 2.0mm sub cable around each fiber strand or approved equal. All ends of the pigtail shall be factory installed.
 - B. ONLY fusion splicing is allowed.
 - C. Supplying and installing all OCC fiber optic distribution panels or approved equals as per plan sheet.
 - D. OCC Fiber distribution enclosure. Standard is a ZDMB6B enclosure or approved equal. Adapter plates shall be 6112DLC or approved equal. Adapter plate may vary depending on the number of fibers to be landed in the signal cabinet. See fiber splice diagrams for details.

- E. Distribution panel labels shall be labeled with the intersection address of the cable's other end, the port group as shown on the detail, and the number of the fiber strand terminated, and placed on the face of the distribution panel adjacent to the cable's fiber ports
- F. Providing and installing all fiber optic jumpers.
 - 1. Fiber optic jumpers attached to the distribution panel should be labeled with the fiber # it is connected to for each port group, representing the port it is plugged into.
 - 2. Fiber jumper shall have a minimum outside diameter of 3.0 mm.
- G. Providing and installing FOOSC 450 D6 enclosures and splice trays as per plan sheet.
- H. Any managed Ethernet switches that are called out for on the fiber splice diagram.
- I. Labeling all fiber cables, fiber tubes, trace wires, fiber pigtailed, fiber distribution panels, fiber scalability centers, fibers jumpers, and all individual terminated fibers.
- J. The Contractor shall test all terminated fibers at both ends with an OTDR tester and light meter recording the results on a City of Fargo Fiber Test Report Form and providing a computer printout from the OTDR of each fiber tested. If multi-mode fiber tests at 850 NM and 1300 NM are not within the City of Fargo standards of .5 dB loss for each Type of connector at the bulkhead, .2 dB loss for each fusion splice, and .1 dB loss per 100 feet for 850 NM and .1 dB loss per 300 feet for 1300 NM of fiber being tested, then the Contractor shall repair/replace and the Contractor shall re-test the fiber with City personnel present. If single-mode fiber tests at 1310 NM and 1550 NM are not within the City of Fargo standards of .5 dB loss for each Type of connector at the bulkhead, .2 dB loss for each fusion splice, .1 dB loss per 600 feet for 1310 NM and .1 dB loss per 750 feet for 1550 NM of fiber being tested, then the Contractor shall repair/replace and the Contractor shall re-test the fiber with City personnel present. All fiber shall be tested at each end. Any terminated fiber run that doesn't meet the testing tolerances specified shall be repaired/replaced by the Contractor. If any connectors or fusion splices fail, the Contractor shall repair the connection, if a fiber cable is damaged or broke between connections the Contractor shall replace the entire cable between connections.

- K. Single mode fiber when tested shall be allowed the following tolerances: .1 dB per 600' (1310nm), .1 dB per 750' (1550nm) of fiber, .2 dB for each fusion splice, .5 dB for each Type of connector, and .5 dB for each end that is bare fiber tested.
- L. When all terminations are complete, the City of Fargo must inspect all splices inside the FOSC enclosures before the fiber optic communication system can be put into use. Contractor must set up a time to have the cases inspected, Contractor must open splice cases and show all splices and fiber tubes inside the splice case to the Engineer in the field. All fiber tubes shall be labeled inside the splice enclosure.
- M. All fiber optic cable that is removed shall be tested by the Contractor and documented after it is removed and placed on a wire spool. All existing fiber optic cable will be considered good and meeting City of Fargo tolerance Specifications. If the existing fiber tested doesn't fall within the tolerance of the specification, then the Contractor shall replace the fiber optic cable with a new one. The Contractor may test the existing cable before it is removed with an OTDR or light meter and provide a computer printout of the testing results to the City of Fargo, to ensure that the existing cable is good and meets specification tolerances.

3.13 REMOVAL OF TRAFFIC SIGNAL EQUIPMENT

3.13.1. Remove and Salvage Traffic Signal Equipment

- A. This item includes the removal and salvage of all above ground and removal and disposal of all unused below ground conduit. All salvaged material shall be delivered by the Contractor to a City storage facility, or disposed of, as directed by the Engineer. The Contractor shall protect all salvage material. Materials that are damaged by the Contractor's removal process or mishandling shall be replaced with new equipment at the Contractor's expense. Before removing existing equipment, arrangements shall 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 shall disconnect all wiring to the equipment and completely remove the item from its foundation.

The traffic signal heads, mounting brackets, and ped buttons and signs shall be removed from the standards, and the signal heads shall be removed from the mounting brackets. The old traffic control cabinet concrete foundation shall not be salvaged.

3.13.2. Remove and Salvage Signal Standard

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

3.13.3. Remove Traffic Signal Controller

- A. The controller cabinet and all controller equipment shall be removed for storage. The foundation shall be removed, and the surface of the site restored.

3.13.4. Remove Traffic Signal Foundation

- A. The existing foundations shall be completely removed, and the surface restored to match adjacent areas.

3.13.5. Remove and Salvage Conductor

- A. This item covers the disconnection of all wires, removal and salvage of all wire from intersection. Delivery of all salvaged wire to a facility designated by the City of Fargo.

3.13.6. Remove Pull Box

- A. The old concrete pull boxes shall not be salvaged; they shall be disposed of by the Contractor. All PVC pull boxes, frames and covers shall be salvaged and delivered to a facility designated by the City of Fargo.

3.13.7. Stop Sign Removal

- A. Removal of existing stop signs prior to starting up the operation of a traffic signal shall be incidental to installing the traffic signal system. Contractor shall deliver all signs to City of Fargo maintenance shop.

3.14 FEED POINT

3.14.1. All conduits, cabinets, service conductor, pole risers, service entrance heads, meter sockets (if required), ground rods, concrete foundation, and working slab SHALL BE NEW, NOT USED, and be furnished by the Contractor unless noted otherwise on plans. All equipment mounted in a switch box of the size shown on the Plans shall be arranged, installed, and wired as required. The local utility company shall be contacted for specific locations of feed points. The utility company will furnish and install the required single-phase voltage service connection and any required meter. The contractor is responsible for ALL coordination and costs involved with getting power to the feed point. Pole riser shall include the following:

- A. 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.
- B. PVC weather head entrance.
- C. 5' steel conduit guard, 6" below ground, and 4'6" above ground.
- D. All strap, conduit guard, feed points, disconnects, etc. must use galvanized 3" long fully threaded 1/4" lag screw for mounting/securing.
- E. Riser shall not face toward sidewalks or streets, consult with Project Engineer.

3.14.2. All traffic signal or combination traffic signal/streetlight feed points shall be pad mounted. The cabinet shall be NEMA 3R rating with lock drip shield and a 10-gauge steel back panel with 1/2" spacer behind the panel. The panel shall be painted white. The cabinet shall be constructed of welded, anodized Duranodiz 311 finished aluminum or stainless steel, minimum .125 thick, with non-corroding hardware. The minimum size shall be 60" high, 27" wide, 14" deep, (larger size may be required based on number of streetlight circuits) with a 3-point latch pad lockable handle.

Cabinet shall be weatherproof, and **ALL** seams shall be completely welded, no holes or gaps. Padlock shall be obtained from the City of Fargo Engineering Department. The Electrical Company may require 2 electrical meters; 1 for traffic signals and 1 for streetlights. This shall be incidental to the price bid for "Feed Point". Feed points shall require two ground rods that are spaced 6' to 7' apart. Install 6' wide by 4' deep working slab. This shall be incidental to cost of feed point.

3.14.3. A lightning protection device shall be installed on the feed point incoming lines to prevent lightning surges entering through the wiring from damaging electrical wiring and control equipment in the traffic controller cabinets. The protector shall be a sturdy, weatherproof, service-proven device that immediately drains lightning surges harmlessly to ground. The protector shall be installed on the switch box and shall discharge a surge in a fraction of a second. It shall perform this protective function over and over again, without any maintenance required; possessing the same long-life, value-type characteristics obtained in higher voltage distribution arrestors. The protector shall be a two-pole, three-wire device designed for single-phase 120/240 volt three-wire grounded neutral service. The protector shall be mounted in the knockout in the switch box. All leads shall be tinned copper No. 14 AWG. The protector shall be capable of:

A. Limiting the surge voltage to 3 KV peak, while; conducting surge currents of at least 10 KA with an 8 by 20 microseconds (time to crest by time to second half-crest) waveform; and Recovering to its former state after the surge is over with AC power applied. The manufacturer of the AC suppressor shall certify that the suppressor meets ANSI C 621.1/IEEE, Standard 28, paragraphs 7.1 and 7.6. The suppressor peak voltage shall not exceed 3 KV when tested according to paragraphs 7.3 and 7.5 of the ANSI/IEEE Specification. The AC line surge protector shall be installed on the load side of the circuit breaker. If the protector should fail and short the circuit, the circuit breaker shall open to give maximum protection. The AC neutral shall have the same protection as the AC load. The arrester leads shall be kept as short as possible. Grounds shall be made directly to the cabinet wall or ground plate as near as possible to the object being grounded. An acceptable arrangement is shown on the Plans. If the AC power is brought into the cabinet via an underground conduit, a similar arrangement shall be followed as shown on the Plans. If the conduit is metallic, it shall be connected to the ground rod as shown on the Plans. Connections from the ground rod to the objects inside shall be made with AWG No. 8 (or larger) copper wire.

3.15 BATTERY BACKUP SYSTEM

3.15.1. The cost bid for this item shall include all of the equipment listed below, any miscellaneous hardware, and installation of the UPS.

Qty.	Part Number & Description	Item #
1	Alpha-FXM HP1100 with SNMP Ethernet Interface	0170024-001
1	Universal Automatic Transfer switch with status dry contact terminal blocks 120 volt	020-165-22
1	Wall mount kit for UATS	740-756-21
4	AlphaCell 195 XTV - 5 Yr. Warranty - 100Ah	1810228
1	Remote Battery Management System/RMBS Plus	0370260-002
1	8' Cables - 33,160,165,180,210 - FXM	875-596-21
1	41H24W16D (Southern Quote JR-469) revised (Cabinet) with Fan and thermostat	New Part
1	30A Circuit breaker and mounting hardware	QOU130

Qty.	Part Number & Description	
4	3/8" x 2" bolts with nuts and lock washers UPS cabinet	used to mount
8	3/8" X 1 5/8"x 1/4" heavy square washers UPS cabinet	used to mount
4	1/4" spring nuts and 1/4" X 1/2" screws Bypass Transfer Switch	used to mount
1	2" chase nipple, lock nut and plastic bushing	
2	1 1/2" x 23" Telespar up the lower shelf	used to space

Qty.	Part Number & Description
unit	#10AWG solid blue, white and green power wires
unit	#16 AWG stranded black for logic common, yellow and orange control wires
3	#16 AWG #8 stud crimp lugs
unit	SikaFlex 15LM construction sealant

3.15.2. UPS Install Instructions

- A. Deliver UPS controller to the City of Fargo to program, and then pick up when done.
- B. Attach the UPS cabinet to the signal cabinet 10" up from the top of the signal cabinet cement foundation, using 4-bolts, nuts and 8-large square washers. Drill mounting holes through the UPS cabinet reinforcement plates about $\frac{3}{4}$ " from the cabinet sides. Sika flex the top and sides of the UPS cabinet where it meets the signal cabinet.
- C. Install top of top shelf 31" from bottom of UPS cabinet and top of the center shelf 16 1/2" from bottom of UPS cabinet. Install the bottom shelf on top of the Telespar spacers. ALL shelves batteries are installed on SHALL be pullout type.
- D. Install a 2" steel chase nipple and plastic bushing directly below the top shelf of the UPS cabinet into the signal cabinet.
- E. Install the following equipment in the UPS cabinet and wire per the plan wiring instructions and drawings:
 1. Place the UPS control and Remote Battery Management System (RBMS) unit on the top shelf.
 2. Place left to right batteries #1 & #2 on the middle shelf.
 3. Place left to right of the RBMS and batteries #3 & #4 on the bottom shelf.
- F. Install and wire the UPS transfer switch in the signal cabinet on the mounting channels above the power panel.

G. The existing traffic signal cabinet power panel will need modifications to comply with the plan's wiring drawing. Below is a written description:

1. Install circuit breaker CP4.
2. Remove feed wire from CP3 and install to CP4.
3. Remove feed jumper from between CP1 and CP2
4. Remove feed wire from CP2 and install to CP1.
5. Install Jumper between CP2 and CP3.

H. Verify the operation of the equipment by exercising the transfer switch to all positions and test for the appropriate 120 voltages on the terminals of the transfer switch, UPS, and signal cabinet power panel.

I. Remote Battery Management System/RMBS Plus SHALL be installed, and all Ethernet cables shall be long enough to full open all slide out drawers.

3.15.3. The City of Fargo shall supply a typical wiring diagram showing how the battery backup system shall be installed in the traffic signal cabinet. Contractor/Cabinet Manufacture is responsible for redlining and providing 3 copies of the cabinet prints for AutoCAD revisions of the traffic signal cabinet wiring diagram. Contractor is responsible for pickup of cabinet prints and for returning one revised print to the cabinet in the field and returning all other copies to the sign and signal shop. All costs associated with this shall be included in the cost bid for "Battery Backup System".

3.15.4. The Contractor will provide all traffic control for projects that need intersection shutdowns.

3.16 SIGNAL STANDARDS

3.16.1. Install Signal Standard New or Refurbished

A. The City of Fargo will provide the Type IV, and Type V signal standards. The New standards, T-Bases and anchor bolts have been ordered from Millerbernd Manufacturing, Winsted, MN or approved Valmont signal standard. All signal standards shall 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 Signal standards shall have 4 anchor bolts. The Contractor is responsible for unloading, storage and transporting of the standards from the time of delivery until installation.

The City will inspect the standards upon delivery from the manufacturer. Refurbished signal standards will be sandblasted and repainted to City of Fargo specifications. Any damage to the signal standards, T-Bases, 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.

- B. The cost bid for this item shall include unloading, storage, transportation, installation, miscellaneous hardware, installation of all signage, providing and installing all pedestrian buttons and signs, etc. The luminaire is included in the street lighting section.

3.16.2. Furnish and Install Signal Standard

- A. The Contractor will provide all new Combo, Type IV, and Type V signal standards. The standards, T-Bases and anchor bolts shall be ordered from Millerbernd Manufacturing, Winsted, MN or approved Valmont signal standard. All signal standards shall 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 Signal standards shall have 4 anchor bolts. The Contractor is responsible for unloading, storage and transporting of the standards from the time of delivery until installation. Any damage to the signal standards, T-Bases, or anchor bolts will be the Contractor's responsibility to repair or replace as directed by the Engineer.
- B. The cost bid for this item shall include providing unloading, storage, transportation, installation, miscellaneous hardware, installation of all signage, providing and installing all pedestrian buttons and signs, etc.
- C. All signal poles shall be Contractor provided unless otherwise noted on the signal plan.
- D. ALL signal standard anchor bolt nuts SHALL be torqued, **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

3.16.3. Furnish and Install Signal Standard

- A. Furnishing and installing mast arm and signal standard signs on new signal standards is considered incidental to the bid price for all types of combo and signal standards for which no direct compensation will be made.
- B. All mast arm mounted street designation signs shall utilize 18" 100-gauge flat aluminum, 48" or longer, depending on the space needed.
- C. The signs shall have modified "E" series letters with a 12" upper and 9" lower case format and a 1" sign border. The superscripts shall be 6" (half size) capital letters and will line up with the top of the other letters and numbers. Sign shall include approved City of Fargo Logo.
- D. The sign sheeting shall be 3M DG3 sheeting, and any processed colors, inks, or electronic cuttable film shall be a matched component system.
- E. Signal and pedestrian standard transformer bases shall have Xcluder double stacked 1.5" Fill BLOCKS continuously around the inside of the lower plate to prevent rodents from accessing the base through space between concrete foundation and the lower plate. The fabric shall be secured to the anchor bolts.

- F. Wire entrance fittings shall be provided by the Contractor. Fittings shall be a 1 ½" 45-degree galvanized steel elbow on each signal standard upright. The cost to supply and install the wire entrance shall be incidental to the price bid for the signal standard.
- G. All standards shall be plumbed with leveling nuts. The hand hole shall be located away from traffic and the mast arms shall be perpendicular to the roadway centerline.
- H. The anchor bolts shall be installed and tightened as specified on detail sheet and according to the manufacturer's recommendation.
- I. Spliced or pulled through conductors shall have sufficient slack to extend a minimum of 24 inches outside of the enclosure.
- J. All T-base terminations shall be made using a Wago Lever Nut (Series 222), installed and labeled as per drawing detail photo. Contractor shall install dielectric grease in all used or unused entrances of the Lever Nut.

3.16.4. Signal Paint

- A. All new signal standards shall be galvanized dipped and painted with the Millerbernd Factory Finish Paint Coat Specification using the Millerbernd I2/ZRU Paint System, with a clear topcoat or approved Valmont equal. Colors shall be as follows:
 - 1. Transformer base – galvanized, and gloss black
 - 2. Mast arm – galvanized, and gloss black, or yellow* (see plans)
 - 3. Signal head mounting hardware – gloss black, yellow*(see plans)
 - 4. Shaft – galvanized and gloss black, or yellow*(see plans)
 - 5. Signal housing – gloss black, or yellow*(see plans)
 - 6. Pedestrian push-button post – gloss black, or yellow*(see plans)
 - 7. Pedestrian push-button housing – gloss black or yellow* (see plans)
 - 8. Signal head doors, back plates, and visors – flat black

**Yellow color shall be No.13538 of Federal Standard No. 595 B.*

- B. All areas requiring painting or touch up paint shall be prepared as follows:
1. Completely remove all rust and loose paint.
 2. Sand all painted areas with 40 to 100-grit paper, depending on conditions.
 3. Wash down with “no rinse pre-paint cleaner” manufactured by Great Lakes Laboratories.
 4. Prime bare metal with Devran 205 Primer manufactured by Devoe high performance coatings, or an approved equal.
 5. Topcoat and clear coat with products supplied by the original pole manufacturer.
- C. The following method shall be followed for re-painting existing Standards when required on the plan:
1. Remove all bandit mounting material, signs and pedestrian buttons.
 2. Completely remove all rust and paint by White Metal Blasting the signal standard.
 3. White Metal Blast cleaning is used when a totally cleaned surface is required. This method of cleaning is defined as a sandblasted cleaned surface with a gray-white uniform metallic color. It shall be free of all oil, grease, dirt, mill scale, rust, corrosion products, oxides, paint, stains, streaks or any other contaminant across 100% of every square inch.
 4. Sandblasting material shall be a steel grit angular carbon steel.
 5. Sandblasting shall be done on site with the signal standards in place and operational. All pedestrians and the traveling public shall be protected from all debris. All sandblasting material and removed pole paint/debris shall be collected in a method that is approved by the EPA. Existing pole paint-debris may contain harmful chemicals or existing lead paint, which the Contractor shall be responsible for containing and cleaning up, along with protecting pedestrians and the traveling public from these hazardous contaminates. +
 6. Before the primer is applied, the pole must be inspected by the City of Fargo to ensure that it is free of all paint, rust and contaminates. Pole must be prepped according to Specifications and to the satisfaction of the Engineer in the field. Pole may need to be re-blasted or may need to be cleaned with Devoe DEVPREP 88 cleaner. The Engineer in the field will require which method shall be used.
 7. Mask all areas as per detail sheet in plans.

8. Prime bare metal with Devoe Devran 205 Primer.
 9. Apply two topcoats of Devthane 379UVA manufactured by Devoe high performance coatings, and one coat of clear coat as recommended by the topcoat manufacturer. **Yellow color shall be No.13538 of Federal Standard No. 595 B.*
 10. Thickness of all coats applied shall be according to the manufacturer's recommended film thickness. Application of all materials shall follow the manufacturer's directions for use.
 11. Re-install all pedestrian push buttons and signs. Re-install iron pole plates for vehicle heads as per detail. Remove all masking.
 12. After sandblasting has been approved, splice all conductor in T-base with lever nuts and splice according to City of Fargo splice detail.
 13. Remove and replace ALL post mount plugs on standard before painting.
- D. The Contractor shall warrant and guarantee all materials, work, and equipment for a period of at least five years from the date of final acceptance. Contractor is required to get a certified warranty from Devoe to the City of Fargo covering all labor and materials if the paint fails. Cost of warranty shall be included with the price bid for "Paint Signal Standard".

3.17 TRAFFIC SIGNAL SHUT DOWN

- 3.17.1. Signing Requirements: When a signal is taken out of operation, the Contractor is required to install a 36" x 36" "Signal Out Ahead" sign, a 24" x 30" R2-1 25mph speed limit sign, and 36" x 36" W20-7 "Flagger Ahead" sign. Contractor shall install two STOP signs for each direction of travel when signal is down.
- 3.17.2. Other Requirements: The Contractor shall contact the City of Fargo Sign and Signal Shop at 241-1440, and the project Engineer with a minimum of 2 hours' notice, that the signal is going to be taken out of service. The Contractor shall not be allowed to take the signal out of operation between the hours of 7am to 8:30am, 11am to 1pm, and from 4pm to 6pm. The Contractor shall shut down the traffic signal only during off peak hours as approved by the Engineer in the field. The Contractor shall provide two flaggers and have then control the intersection while the traffic signal is not in operation. All flagging activities and equipment shall conform to the standards set forth in the current version of the Manual on Uniform Traffic Control Devices, published by the FHWA.

3.18 CAMERA SYSTEM(S)

3.18.1. PTZ CAMERA

- A. This shall include all camera wires, camera equipment specified, and all labor involved in providing a fully functional camera system that can be view on the City of Fargo network. Camera shall be installed with 24" for the top on pole.

- B. Equipment
 - 1. Control managed Ethernet switch (if specified on plan).
 - 2. Belden 7953A CAT 6 600-volt cable ONLY
 - 3. AXIS T91L61 Pole Mount
 - 4. AXIS T8124-E - POE Injector, 60W
 - 5. Couple: RJ45 IP67
 - 6. AXIS P5655-E PTZ Camera
 - 7. 20 AMP four receptacle outlet with surge protection
 - 8. Fiber optic jumpers
 - 9. CAT6 field end OCC part #OCCUFP6A or approved equal
 - 10. POE Surge Protection Device
 - 11. All required hardware

4.0 MEASUREMENT & PAYMENT

3.1 LINEAR FOOT

4.1.1. These items will be measured by the Linear Foot as follows:

- A. Conduit
- B. Conductor Cable
- C. Opticom Cable
- D. Fiber Optics Cable
- E. Loop Wire
- F. Loop Lead-in Cable
- G. Saw Slot
- H. Coaxial Cable

3.2 EACH

4.2.1. These items will be measured by the number installed. Separate measurement will be made for each size or type if more than one size or type is installed. These items are as follows:

- A. Paint Traffic Signal Standards
- B. Sandblast Signal Standards
- C. Concrete Foundation Traffic Signal
- D. Remove Traffic Signal Foundation
- E. Remove Street Light
- F. Relocate Street Light Standard
- G. Traffic Signal Standards
- H. Install Pedestrian Push Button & Sign
- I. Relocate Pedestrian Post & Button
- J. Pedestrian Push Button Post
- K. Install LED Vehicle Section
- L. Install LED Pedestrian Section
- M. Pedestrian Head
- N. Vehicle Heads
- O. Electronic Signal Sign
- P. School Flashing Beacon
- Q. Pedestrian Flashing Beacon Assembly
- R. Relocate Signal Head
- S. Install Cabinet & Controller
- T. Relocate Pull Box
- U. Remove Pull Box
- V. Install Fiber Pull Box
- W. Install PVC Pull Box
- X. Install Frame and Cover
- Y. Traffic Signal Detector Loop
- Z. Replace Traffic Signal Detector Loop
- AA. Install Micro Loop Probe
- BB. Install Preformed Loop
- CC. Furnish & Install Luminaire Extension
- DD. Revise Controller and Cabinet
- EE. Fargo Type B Cabinet
- FF. Emergency Vehicle Pre-emption System
- GG. Feed Point
- HH. Battery Backup System
- II. Install Interim Signal System

3.3 LUMP SUM

4.3.1. These items will be measured by lump sum. These items are as follows:

- A. Traffic Signal System
- B. Modify Traffic Signal System
- C. Remove & Salvage Traffic Signal Equipment
- D. Install Flasher Cabinet
- E. Modify Existing Traffic Controller Cabinet
- F. Fiber Optic Terminations and Equipment
- G. Video Detection System
- H. Camera System
- I. Controller & Cabinet Assembly
- J. Temporary Signal Service

4.3.2. These items will be paid by lump sum. These items are as follows:

- A. Traffic Signals System
- B. IT System
- C. Surveillance Camera System

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

COMMERCIAL GRADE HOT MIX ASPHALT

PROJECT SU-8-984(165) – PCN 22292

DESCRIPTION

This work consists of supplying a Commercial Grade Hot Mix Asphalt that meets the requirements of Section 430, "Hot Mix Asphalt (HMA)", with the following revisions.

MATERIALS

Add the following to the end of Section 430.03 "Materials".

F. Commercial Grade Hot Mix Asphalt.

Provide commercial grade asphalt that meets the requirements of any of the FAA designations in Section 430.03 C, "Superpave Mix Properties".

The requirements of the following sections will not be applied to commercial grade asphalt:

- Section 430.04 B, "Engineer's Quality Assurance Plan";
- Section 430.04 C.2, "Determination of Specific Gravity"; and
- Section 430.04 E, "QC Testing".

Section 430.04 D "Mix Design" is replaced with the following requirements:

Submit a mix design that was previously approved under another Department contract. Include the project number and PCN of the previous project.

If using a stationary plant, use a mix design previously approved by the Department within the last year. Include the date that the mix design was approved.

If a previously approved mix design is not available, submit a new mix design to the Engineer at least 10 calendar days before placement of material. The Engineer will request materials to use in mix design verification before approving the mix design.

CONSTRUCTION REQUIREMENTS

A. Contractor Personnel.

Replace Section 430.04 A "Contractor Quality Control (QC) with the following:

Provide personnel meeting the requirements of NDDOT Technical Certification Program for the following tests:

- ND T 2 – Sampling of Aggregates; and
- NDDOT 5 Sampling and Splitting Field Verification of Hot Mix Asphalt (HMA) Samples.

B. Engineer's Acceptance Testing:

Replace Section 430.04 M "Acceptance" with the following:

The Engineer will perform acceptance tests at the frequency shown in Table 1. At times directed by the Engineer, obtain aggregate samples from the cold feed belt according to ND T 1.

Table 1	
Testing Frequencies	
Test/Assessment	Minimum Testing Requirements
ND T 11 Materials Finer than No. 200 Sieve	1 per production day.
ND T 27 Sieve Analysis of Fine and Coarse Aggregate	1 per production day
ND T 304 Fine Aggregate Angularity	1 per production day
ND T 166 Bulk Specific Gravity of Compacted Asphalt Mixtures Using Saturated Surface-Dry Specimens	1 per project
ND T 209 Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt	1 per project

The Engineer will determine the percentage of air voids when determining the maximum theoretical density. Provide mix with between 2 and 6 percent air voids, when calculated on the Maximum Density Worksheet (SFN 50289).

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Pay Item	Pay Unit
Commercial Grade Asphalt	Ton

Include the cost of aggregate, asphalt cement, prime coat, and tack coat in the contract unit price for "Commercial Grade Asphalt."

Such payment is full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
PERMITS AND ENVIRONMENTAL CONSIDERATIONS
SU-8-984(165) - PCN 22292

This Special Provision incorporates a US Army Corps of Engineers (USACE) Section 404 Permit and a Southeast Cass Water Resource District (SECWRD) Access Agreement obtained by the City of Fargo into the bidder's proposal.

The Contractor is responsible for complying with all the terms and conditions as contained in the permit(s) and agreement(s) attached hereto. Bidders shall become familiar with all standard conditions and special conditions of the permit(s) and agreement(s) and submit their bid for the construction of this project based on the following:

- **Section 404 Permit**

The Section 404 Permit number NWO-2019-00141-BIS authorizes fill within USACE jurisdictional waters. The Section 404 permit authorizes 0.027 acre of permanent impacts and 0.047 acre of temporary impacts to jurisdictional wetlands. Temporary impacts will be restored to preconstruction contours.

See Section 75 sheets of the design plans for the permitted impact areas. The Section 404 Permit is attached.

- **Access Agreement**

The Access Agreement between the SECWRD and the City of Fargo authorizes the construction and installation of the following items on SECWRD property at Drain No. 3 (approximate Sta 14+00 to Sta 15+30):

- Extending the existing 72" RCP culvert which conveys the drain flow beneath University Drive N, approximately 14 feet to the west, and installing a new end section on the extension;
- Constructing a new 54" RCP storm sewer outfall and end section into the drain on the east side of University Drive N, on the north side of the drain channel;
- Installing new 16" PVC watermain underneath the drain channel on the west side of University Drive N (minimum 5' bury depth from channel bottom to top of watermain will be maintained);
- Placing riprap pads at inlets and outlets of the above-mentioned RCP storm culverts, and on the sideslopes of the drain channel on the west side of University Drive N where ditches enter the drain channel.

The Access Agreement is attached.

The contractor is responsible for impacts not authorized by the attached Permit(s) and Agreement(s) obtained by the City of Fargo.



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
NORTH DAKOTA REGULATORY OFFICE
3319 UNIVERSITY DRIVE
BISMARCK, NORTH DAKOTA 58504-7565

January 14, 2020

NWO-2019-00141-BIS

City of Fargo
Attn: Mr. Jeremy Gorden
225 4th Street North
Fargo, North Dakota 58102

Dear Mr. Gorden:

We are responding to your December 15, 2020 request for a Department of the Army permit for the City of Fargo University Drive North Improvements Project from 32nd Ave N to 40th Ave N, SU-8-984(165), PCN 22292. The project site is located in Sections 13 and 24, Township 140 North, Range 49 West, and Section 19, Township 140 North, Range 48 West, starting at Latitude 46.919226° North, Longitude -96.797890° West, and ending at Latitude 46.933903° North, Longitude -96.797835° West, Cass County, North Dakota.

Based on the City of Fargo/Apex Engineering preliminary plan sheets, dated 10/1/2020, that you provided to this office, the project involves the enhancement of approximately 1.025 miles of University Drive N from 32nd Avenue N to 40th Avenue N to accommodate the growth and development in the surrounding areas. University Drive N will be widened and reconstructed to include two 13' driving lanes, curbs and gutters, a shared use path, water mains, storm sewers, and street lighting. The specific activities that requires discharges into WOUS include the 14' extension of a 72" by 96' RCP with 8.25' end sections and associated riprap and the placement of a new 54" by 38' RCP storm sewer outfall and associated riprap in Drain 3. Permanent impacts will total 0.027 acre and temporary impacts to 0.047 acre of Drain 3 will be restored to preconstruction contours following project completion.

We have determined activities in waters of the U.S. associated with the project are authorized by Nationwide Permit Number (NWP) 23 Approved Categorical Exclusions, found in the January 6, 2017 Federal Register (82 FR 1860), Reissuance of Nationwide Permits. Enclosed is a fact sheet that fully describes this Nationwide Permit and lists the General, Regional and Water Quality Conditions that must be adhered to for this authorization to remain valid. **Please note that deviations from the original plans and specifications of your project could require additional authorization from this office.**

This determination is applicable only to the permit program administered by the Corps of Engineers. It does not eliminate the need to obtain other Federal, state, tribal and local approvals before beginning work.

You are responsible for all work accomplished in accordance with the terms and conditions of the Nationwide Permit, **including the Regional Conditions specific to projects undertaken in North Dakota.** Information about the NWP and regional conditions are available at <http://www.nwo.usace.army.mil/Missions/Regulatory-Program/North-Dakota/>. If a contractor or other authorized representative will be accomplishing the work authorized by the Nationwide

Permit on your behalf, it is strongly recommended that they be provided a copy of this letter and the attached conditions so that they are aware of the limitations of the applicable Nationwide Permit. Any activity that fails to comply with all of the terms and conditions of the Nationwide Permit will be considered unauthorized and subject to appropriate enforcement action.

In addition, your work must comply with the following special conditions:

1. This permit verification is based on the attached Preliminary Plan Sheets dated October 1, 2020 for Project number SU-8-984(165), PCN 22292. Any deviations from these preliminary plan sheets shall be submitted to the North Dakota Regulatory Office prior to construction and approved in writing.
2. Within 60 days following completion of the authorized work or at the expiration of the construction window of this permit, whichever occurs first, you shall submit as-built drawings or stamped final construction plans showing any changes that occurred during construction and a description of the work conducted on the project site AND/OR avoidance areas to this office for review. The drawings shall be signed and sealed by a registered professional engineer and include the following:
 - a. The Department of the Army Permit number
 - b. A plan view drawing of the location of the authorized work footprint (as shown on the permit drawings) with an overlay of the work as constructed in the same scale as the attached permit drawings. The drawing should show all "earth disturbance," wetland impacts, structures, and avoidance areas. The drawings shall contain, at a minimum, 1-foot topographic contours of the entire site.
 - c. Ground and aerial photographs of the completed work. The camera positions and view-angles of the ground photographs shall be identified on a map, aerial photograph, or project drawing.
 - d. A description and list of all minor deviations between the work as authorized by this permit and the work as constructed. Clearly indicate on the as-built drawings the location of any deviations that have been listed.
3. At least 10 days prior to initiation of construction activities in waters of the U.S. authorized by this permit/verification, you shall submit to this office pre-construction site and aerial photographs of the project site, which have been taken no more than one year prior to initiation of construction activities in waters of the U.S. authorized by this permit/verification. Within 60 days following completion of construction activities in waters of the U.S. authorized by this permit-verification, you shall submit post-construction site and aerial photographs/satellite imagery of the project site, showing the work conducted, to this office. Aerial photographs/satellite imagery submitted, including those publicly available, must be taken no more than one year prior to initiation of construction activities in waters of the U.S. authorized by this permit/verification. The camera positions and view angles of post-construction photographs shall be identified on a map, aerial photo, or project drawing. Construction locations shall include all major project features and waters of the U.S. including avoidance and compensatory mitigation areas.
4. At least 10 days prior to initiation of construction activities in waters of the U.S. authorized by this permit/verification, you shall notify this office in writing of the

anticipated start date for the work. No later than 30 calendar days following completion of construction activities in waters of the U.S. authorized by this permit/verification, you shall sign and return the attached Project Compliance Certification verifying that construction activities have been completed.

5. You and your authorized contractor shall allow representatives from this office to inspect the activity authorized by this permit/verification and all avoidance areas at any time deemed necessary to ensure that work is being or has been accomplished in accordance with the terms and conditions of this permit verification.

Within 30 days after completion of the authorized work, you must sign the enclosed Compliance Certification and return it to this office.

This verification will be valid until **March 18, 2022**. If the nationwide permit is modified, suspended, or revoked prior to this date, but is reissued without modification or the activity complies with any subsequent modification, this authorization remains valid until the expiration date. All of the existing nationwide permits are scheduled to be modified, reissued, or revoked prior to **March 18, 2022**. It is incumbent upon you to remain informed of changes to the nationwide permits. We will issue a public notice when the nationwide permits are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation to complete the activity under the present terms and conditions.

The Omaha District, North Dakota Regulatory Office is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our website at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. If you do not have Internet access, you may call and request a paper copy of the survey that you can complete and return to us by mail or fax.

Please refer to identification number NWO-2019-00141-BIS in any correspondence concerning this project. If you have any questions, please contact Amber Inman by email at Amber.L.Inman@usace.army.mil, or telephone at (701) 255-0015, extension 2009.

Sincerely,



Toni R. Erhardt
Senior Project Manager
North Dakota

Enclosures

COMPLIANCE CERTIFICATION

Permit File Name: City of Fargo; N University Drive Improvements from 32nd Ave N to 40th Ave N, SU-8-984(165), PCN 22292, Cass County

Action ID: NWO-2019-00141-BIS

Nationwide Permit Number: 23 Approved Categorical Exclusions

Permittee: City of Fargo
Attn: Mr. Jeremy Gorden
225 4th Street North
Fargo, North Dakota 58102

County: Cass County

Date of Verification: January 14, 2020

Within 30 days after completion of the activity authorized by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers, Omaha District
North Dakota Regulatory Office
3319 University Drive
Bismarck, North Dakota 58504
CENWO-OD-RND@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with the terms and conditions of the permit your authorization may be suspended, modified, or revoked. If you have any questions about this certification, please contact the U.S. Army Corps of Engineers.

* * * * *

I hereby certify that the work authorized by the above-referenced permit, including all the required mitigation, was completed in accordance with the terms and conditions of the permit verification.

Permittee Signature

Date

**FACT SHEET
NATIONWIDE PERMIT 23
(2017)**

APPROVED CATEGORICAL EXCLUSIONS

Activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal agency or department where:

(a) That agency or department has determined, pursuant to the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (40 CFR part 1500 et seq.), that the activity is categorically excluded from the requirement to prepare an environmental impact statement or environmental assessment analysis, because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment; and

(b) The Office of the Chief of Engineers (Attn: CECW-CO) has concurred with that agency's or department's determination that the activity is categorically excluded and approved the activity for authorization under NWP 23.

The Office of the Chief of Engineers may require additional conditions, including pre-construction notification, for authorization of an agency's categorical exclusions under this NWP.

Notification: Certain categorical exclusions approved for authorization under this NWP require the permittee to submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 32). The activities that require pre-construction notification are listed in the appropriate Regulatory Guidance Letters. (Sections 10 and 404)

Note: The agency or department may submit an application for an activity believed to be categorically excluded to the Office of the Chief of Engineers (Attn: CECW-CO).

Prior to approval for authorization under this NWP of any agency's activity, the Office of the Chief of Engineers will solicit public comment. As of the date of issuance of this NWP, agencies with approved categorical exclusions are: the Bureau of Reclamation, Federal Highway Administration, and U.S. Coast Guard. Activities approved for authorization under this NWP as of the date of this notice are found in Corps Regulatory Guidance Letter 05-07, which is available at: <http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl05-07.pdf>. Any future approved categorical exclusions will be announced in Regulatory Guidance Letters and posted on this same Web site.

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/ or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain

permit authorization under one or more NWP, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation.

- (a) No activity may cause more than a minimal adverse effect on navigation.
- (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.
- (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements.

No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas.

Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas.

Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds.

No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material.

No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes.

No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects from Impoundments.

If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows.

To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains.

The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment.

Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls.

Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Fills.

Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance.

Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project.

The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers.

(a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights.

No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

18. Endangered Species.

(a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If pre- construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non- Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species- specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt,

shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide Web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles.

The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether “incidental take” permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties.

(a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may

be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed.

(d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any

views obtained from the applicant, SHPO/ THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts.

If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters.

Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWP 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWP 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation.

The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre- construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally

appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns.

Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the

United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures.

To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality.

Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not

result in more than minimal degradation of water quality. *Specifically for North Dakota, the North Dakota Department of Health has denied water quality certification for all projects proposed to affect Class I and IA rivers and streams, and classified lakes in Appendix I and II of the standards, and individual certification must be obtained. For projects proposed to affect any other waters, the North Dakota Department of Health has issued water quality certification provided the attached Construction and Environmental Disturbance Requirements are followed. The Standards may be found at <http://www.legis.nd.gov/information/acdata/pdf/33-16-02.1.pdf?2016031115632>*

On Tribal Lands, Water Quality Certification is denied for all Nationwide Permits. Applicants must work with EPA to obtain individual water quality certification. Contact: USEPA, Region 8, 401 Certification Program – 8WP-AAP, 1595 Wynkoop Street, Denver, Colorado 80202-1129. (303-312-6909)

26. Coastal Zone Management.

In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions.

The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits.

The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications.

If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ (Transferee) _____ (Date)

30. Compliance Certification.

Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

- (a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;
- (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and
- (c) The signature of the permittee certifying the completion of the activity and mitigation. The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States.

If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a “USACE project”), the prospective permittee must submit a pre- construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification.

- (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of

receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

- (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
- (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

- (1) Name, address and telephone numbers of the prospective permittee;
- (2) Location of the proposed activity;
- (3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;
- (4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no

more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act.

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it

is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) Agency Coordination:

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) All NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre- construction notifications to expedite agency coordination.

Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

**2017 NATIONWIDE PERMITS
REGIONAL CONDITIONS
OMAHA DISTRICT
STATE OF NORTH DAKOTA**

The following Nationwide Permit Regional Conditions will be used in the State of North Dakota. Regional conditions are placed on Nationwide Permits to ensure projects result in no more than minimal adverse impacts to the aquatic environment and to address local resource concerns.

1. Wetlands Classified as Peatlands – Revoked for use

All Nationwide Permits, with the exception of 3, 5, 20, 32, 38 and 45, are revoked for use in peatlands. Peatlands are permanently or seasonally saturated and inundated wetlands where conditions inhibit organic matter decomposition and allow for the accumulation of peat. Under cool, anaerobic, and acidic conditions, the rate of organic matter accumulation exceeds organic decay.

2. Wetlands Classified as Peatlands – Preconstruction Notification Requirement

For Nationwide Permits 3, 5, 20, 32, 38 and 45 permittees must notify the Corps in accordance with General Condition 32 (Pre-Construction Notification) prior to initiating any regulated activity impacting peatlands.

3. Waters Adjacent to Natural Springs – Preconstruction Notification Requirement

For all Nationwide Permits permittees must notify the Corps in accordance with General Condition No. 32 (Pre-Construction Notification) for regulated activities located within 100 feet of the water source in natural spring areas. For purposes of this condition, a spring source is defined as any location where there is flow emanating from a distinct point at any time during the growing season. Springs do not include seeps and other groundwater discharge areas where there is no distinct point source.

4. Missouri River, including Lake Sakakawea and Lake Oahe – Pre-construction Notification Requirement

For all Nationwide Permits permittees must notify the Corps in accordance with General Condition No. 32 (Pre-Construction Notification) prior to initiating any regulated activity occurring in or under the Missouri River, including Lake Sakakawea and Lake Oahe. In addition, any activity occurring in an off channel area (marinas, bays, etc.) of any of these waterbodies, a preconstruction notification is required.

5. Spawning Areas

Spawning restrictions and important fish habitat areas, if applicable, can be accessed on the North Dakota Game & Fish Department's website at:

<http://gf.nd.gov/gnf/conservation/docs/spawning-restriction-exclusions.pdf>

No regulated activity within the Red River of the North shall occur between 15 April and 1 July. Spawning season restrictions do not apply to projects involving dredging or other discharges of less than 25 cubic yards of material in any jurisdictional water.

6. **Counter-Sinking Culverts and Associated Riprap – All Nationwide Permits**

In streams with intermittent or perennial flow and a stable stream bed, culvert stream crossings shall be installed with the culvert invert set below the natural streambed according to the table below. This regional condition does not apply in instances where the lowering of the culvert invert would allow a headcut to migrate upstream of the project into an unaffected stream reach or result in lowering the elevation of the stream reach.

Riprap inlet and outlet protection shall be placed to match the height of the culvert invert.

Culvert Type	Drainage Area	Minimum Distance Culvert Invert Shall Be Lowered Below Stream Flow Line
All culvert types	≤ 100 acres	Not required
Pipe diameter <8.0 ft	100 to 640 acres	0.5 ft
Pipe diameter <8.0 ft	>640 acres	1.0 ft
Pipe diameter ≥ 8.0 ft	All drainage sizes	1.0 ft
Box culvert	All drainage sizes	1.0 ft

REGIONAL CONDITIONS APPLICABLE TO SPECIFIC NATIONWIDE PERMITS

Nationwide Permit 7 – Outfall Structures and Associated Intake Structures and Nationwide Permit 12 – Utility Line Activities.

Intake Structures – Intake screens with a maximum mesh opening of ¼-inch must be provided, inspected annually, and maintained. Wire, Johnson-like, screens must have a maximum distance between wires of 1/8-inch. Water velocity at the intake screen shall not exceed ½-foot per second.

Pumping plant sound levels will not exceed 75 dB at 50 feet.

Intakes located in Lake Sakakawea, above river mile 1519, and on the Yellowstone River, are subject to the following conditions:

- The intakes shall be floating.
- At the beginning of the pumping season, the intake shall be placed over water with a minimum depth of 20 feet.
- If the 20-foot depth is not attainable, then the intake shall be located over the deepest water available.

- If the water depth falls below six feet, the intake shall be moved to deeper water or the maximum intake velocity shall be limited to ¼ foot per second.

Intakes located in Lake Sakakawea, below river mile 1519, and the Missouri River below Garrison Dam are subject to the following conditions:

- The intakes shall be submerged.
- At the beginning of the pumping season, the intake will be placed at least 20 vertical feet below the existing water level.
- The intake shall be elevated 2 to 4 feet off the bottom of the river or reservoir bed.
- If the 20-foot depth is not attainable, then the intake velocity shall be limited to ¼-foot per second with intake placed at the maximum practicable attainable depth.

Intakes and associated utility lines that are proposed to cross sandbars in areas designated as piping plover critical habitat are prohibited.

Utility Lines

- Any temporary open trench associated with utility lines are to be closed within 30 days of excavation. This time limit may be extended by notifying the North Dakota Regulatory Office and receiving a written response that the extension is acceptable.

Nationwide Permit 11 – Temporary Recreational Structures – Boat Docks

To ensure that the work or structure shall not cause unreasonable obstruction to the free navigation of the navigable waters, the following conditions are required:

- No boat dock shall be located on a sandbar or barren sand feature. The farthest point riverward of a dock shall not exceed a total length of 30 feet from the ordinary high watermark. Information Note: Issuance of this permit does not supersede authorization required by the North Dakota State Engineer’s Office.
- Any boat dock shall be anchored to the top of the high bank.
- Any boat dock located within an excavated bay or marina that is off the main river channel may be anchored to the bay or marina bottom with spuds.

Section 10 Waters located in the State of North Dakota are:

Bois de Sioux River
 James River
 Missouri River
 Red River of the North
 Upper Des Lacs Lake
 Yellowstone River

Nationwide Permit 13 – Bank Stabilization

Permittees must notify the Corps in accordance with General Condition No. 32 (Pre-Construction Notification) prior to initiating any regulated activity. The notification must also include photo evidence of erosion in the area. Prohibited materials found at

<http://www.nwo.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/2034/Article/487696/prohibited-restricted-materials.aspx> cannot be used in waters of the United States.

Nationwide Permit 23 – Approved Categorical Exclusions

Permittees must notify the Corps in accordance with General Condition No. 32 (Pre-Construction Notification) prior to initiating any regulated activity. In addition to information required by General Condition 32 (Pre-Construction Notification), permittees must identify the approved categorical exclusion that applies and provide documentation that the project fits the categorical exclusion.

GENERAL CONDITIONS (REGIONAL ADDITIONS)

General Condition 32 Notification– Pre-construction Notification

Prospective permittees should be aware that a field aquatic resources delineation may be required for applications where notification is required in accordance with General Condition 32 (Pre-Construction Notification) and/or mitigation may be required. Specific guidelines outlining the aquatic resources delineation process in the State of North Dakota and the Corps 1987 Wetland Delineation Manual and applicable Regional supplements to the Manual can be accessed on the North Dakota Regulatory Office's website at:

<http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/NorthDakota.aspx>



NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov



Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

Fill Material

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.

Environmental Health
Section Chief's Office
701.328.5150

Division of
Air Quality
701.328.5188

Division of
Municipal Facilities
701.328.5211

Division of
Waste Management
701.328.5166

Division of
Water Quality
701.328.5210

ACCESS AGREEMENT

THIS AGREEMENT is by the Southeast Cass Water Resource District, a North Dakota political subdivision, whose post office address is 1201 Main Avenue West, West Fargo, North Dakota 58078-1301 (the "District"); and the City of Fargo, a North Dakota municipal corporation, whose post office address is 225 4th St. N., Fargo, North Dakota 58102 (the "City").

RECITALS

A. The District owns, operates, and maintains CASS COUNTY DRAIN NO. 3 (the "Drain"), a legal assessment drain in portions of Cass County and within the City's municipal boundaries.

B. The City plans to reconstruct a portion of University Drive North, a project that will require modifications to certain components of the Drain, and the City has requested temporary access on and over certain portions of the Drain and the Drain right of way for purposes of installation and construction of the City's project.

C. The District is willing to grant the City temporary access across portions of the Drain and the District's Drain right of way, subject to the terms and conditions contained in this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants contained in this Agreement, and other good and valuable consideration, the receipt and sufficiency of which the parties acknowledge, the parties agree as follows:

AGREEMENT

1. **The Project.** The City's project will include construction, modification, and installation of the following components on the District's property:

- Extension of the existing 72" RCP culvert, which conveys the Drain flow beneath University Drive North, approximately 14 feet to the west, and installation of a new end section on the extension;
- Construction of a new 54" RCP storm sewer outfall and end section into the Drain on the east side of University Drive North, on the north side of the Drain channel;
- Installing new 16" PVC watermain underneath the Drain channel on the west side of University Drive North (minimum 5' bury depth from channel bottom to top of watermain will be maintained); and
- Placing riprap pads at inlets and outlets of the above-mentioned RCP storm culverts, and on the sideslopes of the Drain channel on the west side of North University Drive where ditches enter the Drain channel.

The improvements described above are depicted in the map attached as **Exhibit A** (the "Project"). The City refers to the Project as the "Fargo University Drive North Project."

Southeast Cass Water Resource District

City of Fargo - Fargo University Dr. N. Project

Access Agreement

Page 2

2. **The License Property.** The District grants and conveys to the City a non-exclusive, revocable license for the construction, installation, and maintenance of the Project, with the access rights described in this Agreement, upon, over, and across the District's Drain right of way in Cass County, North Dakota, as depicted in the map attached as **Exhibit A**; the property depicted in **Exhibit A** is the "License Property." The rights granted to the City by the District under this Agreement constitute a license, revocable by the District for cause or for protection of the Drain or the District's other property under the terms of this Agreement, and the license does not create for or on behalf of the City any interest or estate of any kind in the License Property, either by virtue of this Agreement or by the City's entry upon or use of the License Property.

3. **Access Rights.** The City's access rights are limited to access, ingress, and egress rights upon, over, and across the License Property for purposes of constructing, installing, and maintaining the Project. The City will take steps to ensure proper operation of the Drain during construction of the Project. Following completion of the Project, the City will repair or replace any portions of the Drain damaged as a result of the City's access or as a result of the Project. The City may not use the License Property or any of the District's facilities or right of way for any other purpose, and the City's use, access, ingress, and egress rights regarding the License Property will not disrupt or interfere with the Drain or the District's use of the License Property for purposes of the Drain.

4. **Drainage Priority and Use.** The parties understand and agree the Drain is a public facility that provides drainage benefits and other important public benefits to residents of Cass County, including the City, and further agree the District's use of the Drain, including the License Property, for purposes of a public drainage facility takes priority over any other use of the License Property, including the City's use of the License Property for purposes of the Project. The parties further understand and agree the District and the Drain are subject to certain laws, rules, regulations, requirements, and directives under the jurisdiction of the North Dakota State Engineer's Office, and possibly other various federal and state agencies, and the City's use of the Drain for purposes of the Project is subject to any applicable laws, rules, regulations, requirements, or directives from or regarding any applicable federal or state agencies; the District does not have any control over, and does not make any representations or warranties regarding, the State of North Dakota or any other federal or state agencies, or the City's use of, or inability to use, the License Property for purposes of the Project. The District will not unreasonably interfere with the Project or the City's rights under this Agreement. The District has not made any warranties, express or implied, that the License Property is now, or will be in the future, suitable for the Project, and the District has not made any other representations, warranties, or promises regarding the License Property. The District will use reasonable care to avoid any disruptions or damages to the Project or related appurtenances. The District may impose restrictions or limitations on the City's access rights as necessary for drainage purposes or otherwise as necessary to protect the integrity of the Drain or the License Property.

Southeast Cass Water Resource District

City of Fargo - Fargo University Dr. N. Project

Access Agreement

Page 3

5. **Improvements to the License Property.** With the exception of the installation of the Project, the City will not construct any improvements in, upon, under, over, or across any portion of the Drain or the License Property; the City will not place any fixtures, equipment, or other personal property on any portion of the License Property; the City will not construct or install, nor allow construction or installation of, any utility facilities, lines, structures, or associated appurtenances on, over, in, under, through, or across the License Property; the City will not encumber any portion of the License Property; and the City will not otherwise alter any portion of the License Property without prior consent from the District. The City will cease any activity and remove any structure or obstruction that interferes with the Drain or the District's use of the License Property, at the City's sole cost.

6. **Duty to Repair and Remedies.** The City will repair the Drain and the License Property, and will repair or replace any of the District's other structures, facilities, right of way, or any other property owned by the District, damaged as a result of the City's construction, operation, inspection, maintenance, alteration, repair, replacement, reconstruction, or removal of the Project or otherwise damaged as a result of any entry upon or use, access, ingress, or egress upon or over the License Property by the City or any of its officers, employees, agents, representatives, contractors, consultants, subcontractors, licensees, or other invitees. The City will otherwise repair and return the License Property as nearly as practicable to its original condition following any disturbance or damages, at the City's sole cost, with the exception of the extended RPC culvert, 54" RCP storm sewer, 16" PCV watermain, riprap pads, and other Project improvements. If the City fails to repair or replace within a reasonable time following request or demand from the District, or if the City otherwise fails to perform any of the City's obligations under this Agreement within a reasonable time following request or demand from the District, the District may perform the City's obligations and the City will reimburse the District for all of the District's costs and expenses. The District's remedies provided in this Agreement are cumulative and not exclusive, and are in addition to any and all other remedies available to the District under North Dakota law. The City will reimburse the District for all of the District's costs and expenses, including reasonable attorneys' fees, incurred in enforcing, collecting, or attempting to collect under this Agreement, or incurred in litigating the terms or validity of this Agreement.

7. **Term.** The City's rights under this Agreement will continue as long as the City operates and maintains the components of the Project. The District may terminate this Agreement if the District concludes termination is necessary to protect the integrity of the Drain following notice to City with adequate time to rectify any Drain concerns; as necessary to comply with any laws, rules, regulations, requirements, or directives of any applicable federal or state agency with regulatory jurisdiction over the Drain; or in the event of any default by the City not remedied within a reasonable time. Upon any termination of this Agreement, the City will repair and return the License Property as nearly as practicable to its original condition, with the exception of Project improvements, at the City's sole cost.

Southeast Cass Water Resource District
City of Fargo - Fargo University Dr. N. Project
Access Agreement

Page 4

8. **Compliance with Laws.** The City, at its own cost, is solely responsible for promptly complying with all present and future laws, ordinances, rules, and regulations, and obtaining all necessary licenses, permits, registrations, and/or approvals, from all applicable federal, state, county, and municipal governments and any other applicable governmental entities or political subdivisions, and their appropriate departments, commissions, boards, and officers, regarding the Project, including all Project components, or the City's other permissible use, access, ingress, and egress rights upon, over, or across any of the License Property.

9. **Forbearance.** The failure or delay of the District to insist on the timely performance of any of the terms of this Agreement, or the waiver of any particular breach of any of the terms of this Agreement, at any time, will not be construed as a continuing waiver of those terms or any subsequent breach, and all terms will continue and remain in full force and effect as if no forbearance or waiver had occurred.

10. **Governing Law.** This Agreement will be construed and enforced in accordance with North Dakota law,

11. **Interpretation.** This Agreement will be construed as if prepared by both parties.

12. **Severability.** If any court of competent jurisdiction finds any provision or part of this Agreement is invalid, illegal, or unenforceable, that portion will be deemed severed from this Agreement, and all remaining terms and provisions of this Agreement will remain binding and enforceable; the parties will reconvene negotiations to arrive, in good faith, at an agreement as to matters remaining undetermined as a result of any finding by a court of competent jurisdiction that any provision or part of this Agreement is invalid, illegal, or unenforceable.

13. **Entire Agreement.** This Agreement, together with any amendments, constitutes the entire agreement between the parties regarding the matters described in this Agreement, and this Agreement supersedes all other previous oral or written agreements between the parties.

14. **Assignment.** Neither party may transfer or assign this Agreement, nor any rights or obligations under this Agreement, without the express written consent of the other party.

15. **Binding Effect.** The covenants, terms, conditions, provisions, and undertakings in this Agreement, or in any amendment, will be binding upon the parties' heirs, successors, and assigns.

16. **Modifications.** Any modifications or amendments of this Agreement must be in writing and signed by the District and the City.

Southeast Cass Water Resource District
City of Fargo - Fargo University Dr. N. Project
Access Agreement

Page 5

17. **Headings**. Headings in this Agreement are for convenience only and will not be used to interpret or construe its provisions.

18. **Effective Date**. This Agreement will become effective upon the execution by the last party to sign.

(Signatures appear on the following pages.)

Southeast Cass Water Resource District
City of Fargo - Fargo University Dr. N. Project
Access Agreement

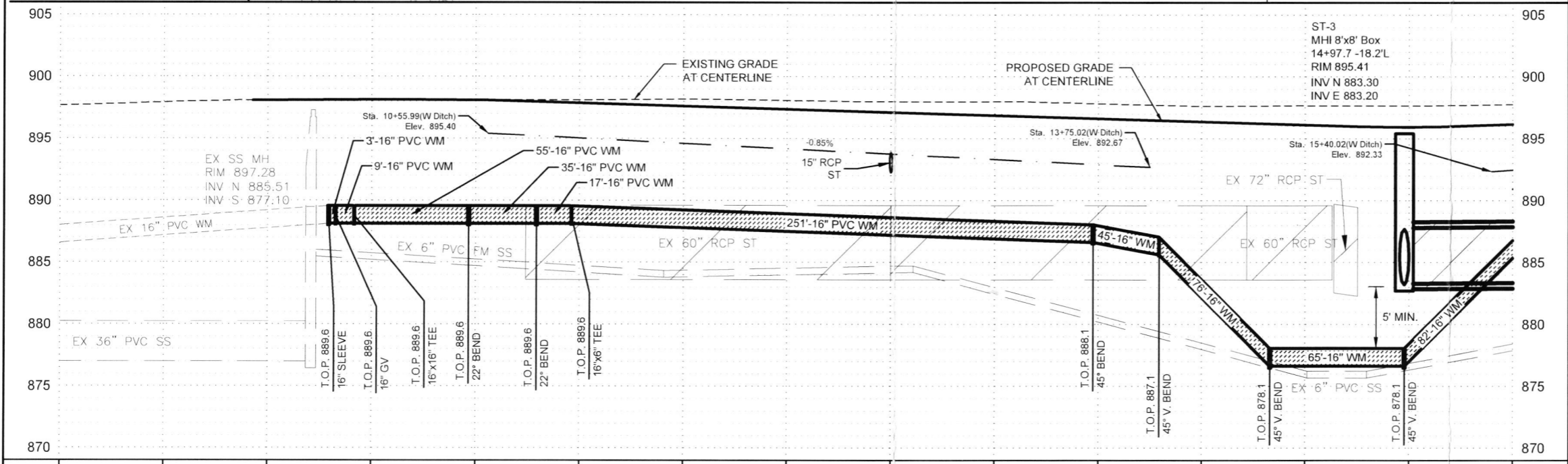
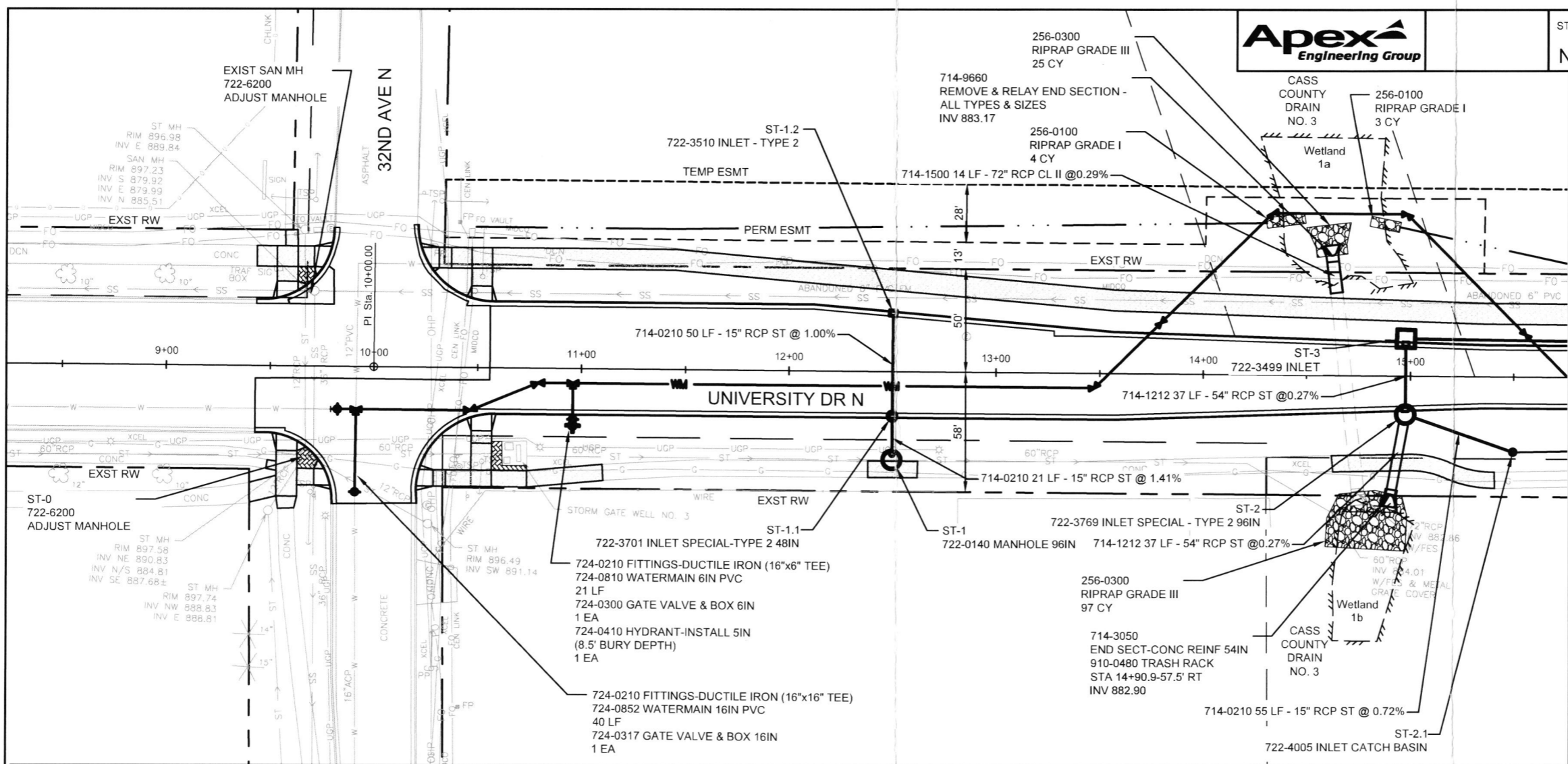
Page 8

EXHIBIT A

Map of the License Property and the Project



LEGEND
 - - - - - DITCH GRADING LINE



This document
is preliminary
and not for
construction or
implementation
purposes.

UNIVERSITY DRIVE N RECONSTRUCTION
32ND AVE N TO 40TH AVE N
SEWER & WATER PLAN & PROFILE
STA 8+00 - 15+00

897.7	897.9	898.1	898.06	898.1	898.12	898.1	898.08	898.1	897.86	898.2	897.61	898.1	897.36	898.0	897.11	898.0	896.86	897.8	896.61	897.6	896.36	897.7	896.11	897.6	895.93	897.7	896.16
8+50	9+00	9+50	10+00	10+50	11+00	11+50	12+00	12+50	13+00	13+50	14+00	14+50	15+00	15+50													

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION

FUEL COST ADJUSTMENT CLAUSE
Revision Date: 9/8/2006

Introduction

This Special Provision provides for price adjustments to the Contract when significant changes in the cost of motor fuels and burner fuels occur while completing the Contract work. Participation in fuel cost adjustment program is not mandatory. A Contractor is not required to notify the Department at the time of submitting bids whether the Contractor will or will not participate in the fuel cost adjustment provision.

The North Dakota Department of Transportation (NDDOT) will send the low responsible bidder a "Fuel Cost Adjustment Affidavit" (SFN 58393) with the proposed Contract. The Contractor shall return a completed Fuel Adjustment Affidavit with the signed Contract as specified in Standard Specification Section 103.06, Execution and Approval of the Contract. The affidavit shall be returned on all Contracts with this provision even if the Contractor elects not to participate in the provision.

Compensation adjustments for motor fuels and burner fuels consumed in prosecuting the Contract shall be determined by the Engineer in accordance with the provisions set forth herein. Compensation adjustments will be assessed monthly for the cost of the motor fuels and burner fuels whenever the Current Fuel Index (CFI) is outside the given threshold of the Base Fuel Index (BFI) for the Contract.

If the Contractor has a fixed price for fuel for motor or burner fuels to complete the work, no fuel cost adjustments will be made for that fuel type. If there is no fixed fuel price for motor or burner fuels, participation in the Fuel Adjustment provision is the decision of the prime Contractor.

If the prime Contractor decides not to participate, no fuel cost adjustments will be made to the Contract for the Contractor or any subcontractors. If the prime Contractor elects to participate in the fuel cost adjustment provision, the prime Contractor shall include the anticipated fuel cost of subcontractors who wish to participate. If fuel cost adjustments are made to the Contract, the prime Contractor shall ensure that participating subcontractors including second and lower tier, are included in the adjustments in proportion to the percentage of work and anticipated fuel cost by that subcontractor.

Fuel Indexes

Each month, NDDOT will record the average wholesale price for No. 2 diesel fuel and the average wholesale price for unleaded gasoline (87 octane). The monthly average will be the average of the daily rack prices for the month as reported by DTN Energy for Fargo ND.

The burner fuel index will be the No. 2 diesel fuel index regardless of the type of burner fuel actually used.

The Base Fuel Index (BFI) price for motor fuels and burner fuel to be used in the Contract will be the average wholesale price for the month prior to the bid opening.

The Current Fuel Index (CFI) price for motor fuels and burner fuel to be used for each monthly adjustment will be the average wholesale price for the month prior to the adjustment month.

Fuel Ratio

For motor fuels diesel and unleaded gas, the fuel ratio of the Contract will be determined by dividing the Contractor's affidavit costs for each motor fuel by the original Contract amount.

For burner fuels, the fuel ratio of the contract will be determined by dividing the Contractor's affidavit cost for burner fuels by the original Contract amount of plant-mixed hot bituminous pavement paid by the ton. Asphalt cement, binders and other miscellaneous bituminous items shall not be included.

The fuel ratio of the contract for motor and burner fuels will remain the same throughout the length of the contract. The sum of the affidavit fuel costs shall not exceed 15% of the original Contract amount.

The fuel ratio for the three fuel types will be determined by the following equation:

Fuel Ratio_(x, y, z) = Affidavit Cost_(x, y, z) / Original Contract Amount_(x, y, z)		
(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel
Fuel Ratio _(x, y, z)	=	Fuel ratio of the contract for each respective fuel type
Affidavit Cost _(x, y, z)	=	Fuel costs from Fuel Adjustment Affidavit (SFN 58393)
Original Contract Amount _(x, y)	=	Total of the original contract amount excluding lane rental, and Part B of the bid (when A+B bidding is used), if applicable.
Original Contract Amount _(z)	=	Total original contract amount for all hot bituminous pavement bid items combined, excluding bid items for asphalt cement, sawing and sealing joints, coring, etc. Only hot bituminous pavement bid items measured by the Ton will be included in the calculation.

Cost Change

The monthly change in fuel costs will be determined by the following equation:

Cost Change_(x, y, z) = (CFI_(x, y, z) - BFI_(x, y, z)) / BFI_(x, y, z)		
(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel (use diesel prices)
Cost Change _(x, y, z)	=	The relative change in the current CFI and the BFI for each fuel type
CFI _(x, y, z)	=	Current Fuel Index for each fuel type
BFI _(x, y, z)	=	Base Fuel Index for each fuel type

Contract Adjustments

Contract adjustments will be made for the cost of motor and burner fuels whenever the cost change exceeds a ±0.10 threshold. No fuel cost adjustment will be made for work done under liquidated damages. Adjustments will be determined for Motor Fuel (diesel), Motor Fuel (unleaded), and Burner Fuel (burner) separately and shall be computed on a monthly basis.

When the cost change is greater than 0.10, the rebate to the Contractor for each fuel type shall be computed according to the following formulas:

$FCA_{(x, y, z)} = Fuel\ Ratio_{(x, y, z)} \times Estimate_{(x, y, z)} \times (Cost\ Change_{(x, y, z)} - 0.10)$		
(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel
$FCA_{(x, y, z)}$	=	Fuel Cost Adjustment for each of the fuel types
$Fuel\ Ratio_{(x, y, z)}$	=	Fuel Ratio for each of the fuel types
$Estimate_{(x, y)}$	=	The monthly total of work done on estimates issued in the current month excluding incentive or disincentive payments, pay factor adjustments and any work completed under liquidated damages.
$Estimate_{(z)}$	=	The monthly total of hot bituminous pavement work done on estimates issued in the current month, excluding bid items for asphalt cement, sawing and sealing joints, coring, etc. Only hot bituminous pavement bid items measured by the Ton will be included in the calculation. Hot bituminous pavement work completed under liquidated damages will not be included.
$Cost\ Change_{(x, y, z)}$	=	The monthly change in fuel costs for each of the fuel types

When the cost change is less than -0.10, the credit to the Department for each fuel type shall be computed according to the following formulas:

$FCA_{(x, y, z)} = \text{Fuel Ratio}_{(x, y, z)} \times \text{Estimate}_{(x, y, z)} \times (\text{Cost Change}_{(x, y, z)} + 0.10)$		
(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel
$FCA_{(x, y, z)}$	=	Fuel Cost Adjustment for each of the fuel types
$\text{Fuel Ratio}_{(x, y, z)}$	=	Fuel Ratio for each of the fuel types
$\text{Estimate}_{(x, y)}$	=	The monthly total of work done on estimates issued in the current month excluding any incentive or disincentive payments, pay factor adjustments and any work completed under liquidated damages.
$\text{Estimate}_{(z)}$	=	The monthly total of hot bituminous pavement work done on estimates issued in the current month, excluding bid items for asphalt cement, sawing and sealing joints, coring, etc. Only hot bituminous pavement bid items measured by the Ton will be included in the calculation. Hot bituminous pavement work completed under liquidated damages will not be included.
$\text{Cost Change}_{(x, y, z)}$	=	The monthly change in fuel costs for each of the fuel types

Payments

Adjustments will be determined by the Engineer monthly. Adjustments will be made under the following spec and code for each fuel type:

109 0100	Motor Fuels (Diesel)
109 0200	Motor Fuels (Unleaded)
109 0300	Burner Fuel

When significant payment adjustments are made on final estimates to account for final in-place measured quantities, the Engineer may prorate the adjustments back to the months when the work was done.

Attachments

For informational purposes, a 'Fuel Cost Adjustment Affidavit' (SFN 58393) is included as Attachment A.

FUEL COST ADJUSTMENT AFFIDAVIT

North Dakota Department of Transportation, Construction Services
 SFN 58393 (8-2017)

SP Fuel Cost Adjustment Clause
 6 of 6

Attachment A

PCN	Project Number		
The Contractor is not required to notify the Department at the time of submitting bids whether he will or will not participate in the fuel cost adjustment program. The Contractor shall return the affidavit on all Contracts with this Provision even if the Contractor elects not to participate.			
Check the box for each fuel type that has a fixed price. No adjustments in fuel price will be made for the boxes that are checked.			
<input type="checkbox"/> Diesel <input type="checkbox"/> Unleaded <input type="checkbox"/> Burner			
Does your company elect to participate in a fuel adjustment for this contract for the fuels that do not have a fixed price? No adjustments in fuel prices will be made if No is checked .			
<input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, provide the total dollars for each of the applicable fuels:			
Diesel (D)		% of Original Contract Amount *	
Unleaded (U)			
Burner Fuel (B)			
Sum (D+U+B)			
<small>*The sum of the D, U, and B may not exceed 15% of the original contract amount.</small>			
Under the penalty of law for perjury of falsification, the undersigned,			
Name (print or type)		Title (print or type)	
Contractor (print or type)			
hereby certifies that the documentation is submitted in good faith, that the information provided is accurate and complete to the best of their knowledge and belief, and that the monetary amount identified accurately reflects the cost for fuel, and that they are duly authorized to certify the above documentation on behalf of the company.			
I hereby agree that the Department or its authorized representative shall have the right to examine and copy all Contractor records, documents, work sheets, bid sheets and other data pertinent to the justification of the fuel costs shown above.			
Signature			Date

Acknowledgement

State of	
County of	
Signed and sworn to (or affirmed) before me on this day _____ (month, day, year)	
Name of Notary Public or other Authorized Officer (Type or Print)	Affix Notary Stamp
Signature of Notary Public or other Authorized Officer	
Commission Expiration Date (if not listed on stamp)	

**CITY OF FARGO
FEDERAL AID CONTRACT**

This agreement made between the City of Fargo (hereinafter called City), and

(hereinafter called contractor), WITNESSETH:

1. That in consideration of the payments to be made by the NDDOT on behalf of the City, the contractor agrees to provide all labor, equipment, and materials; to pay or cause to be paid, all claims for work, labor, materials, equipment, including equipment rental or repair, and other supplies or insurance premiums, all of which are attributable to or utilized in the improvement and construction of City's

PROJECT NO. AND TYPE

Job No. _____

all in accordance and in conformity with this contract and bond, the project proposal, the standard specifications, supplemental specifications, special provisions, and the plans approved _____, all of which are incorporated as a part of this contract. DATE

2. On behalf of the City of Fargo, the NDDOT agrees to pay the contractor for the work, when completed and accepted in accordance with this contract, the price stated in the proposal, amounting to approximately _____

Dollars (\$_____).

Payments are to be made as per specifications upon presentation of the proper certification to the City Engineer, or his representative, and by the terms of this contract. NDDOT payment process is outlined in NDDOT Standard Specifications for Road and Bridge Construction.

3. The work shall be done pursuant to this contract and the laws of the State of North Dakota, and to the satisfaction of the City, subject at all times to the inspection and approval of the U.S. Department of Transportation, its agents and representatives and in accordance with the rules and regulations made pursuant to City, State, and federal law.
4. The decision of the City Engineer upon any question connected with the execution of this agreement or any failure or delay in the prosecution of the work by the contractor shall be final and conclusive.
5. The contractor, in employing and maintaining labor, shall do so in conformity with the City, State, and federal law and this contract.
6. The contractor shall begin work as required by this contract or when ordered by the City and shall maintain the maximum and efficient work force on the project necessary to complete the work within the time established by this contract.

IN WITNESS THEREOF, the parties to this contract have hereunder set their hands and seal this _____ day of _____, 20____.

CITY OF FARGO

MAYOR

WITNESS TO CONTRACTOR'S SIGNATURE

CONTRACTOR

By _____

CONTRACT BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we,

(hereinafter called the principal),

(hereinafter called the surety), are held firmly bound unto

(hereinafter called the owner), in the sum of

\$ _____, for the payment whereof the principal and the surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the principal has, by means of a written agreement, dated _____, 20 _____, entered into a contract with the owner for

_____Improvement District No. _____

in accordance with plans and specifications, a copy of which agreement is by reference made a part hereof.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that the principal will well and faithfully perform the work bid for in accordance with the terms of and within the time provided for in the contract, and pursuant to the plans and specifications for such work on file in the office of the City Auditor; that they will pay for all labor and material used in such work including all demands of subcontractors; that the principal will pay or cause to be paid all sales and use taxes payable as a result of the performance of the contract, as well as the payment of gasoline and special motor fuel taxes used in the performance of the contract, and all motor vehicle fees required for commercial motor vehicles used in connection with the performance of such contract, and shall pay all state income taxes to the State of North Dakota upon income derived from such work or project, and that in case of a default on the part of the principal in the performance of the work as provided in their contract, the sum named in the bond shall be taken and held to be fixed and liquidated damages in favor of the owner, and that the full amount thereof may be recovered from said principal and their sureties in an action by the owner against them on said bond; that the said principal has made, or will make prior to the commencement of any work by themselves or any subcontractor under such contract, full and true report to the Worker's Compensation Bureau of the payroll expenditures for the employees to be engaged in such work, and that the principal has paid or will pay the premium thereon prior to the commencement of said work.

The term of this bond shall expire on _____ and no suit, action, or proceeding by reason of any default whatever shall be brought on this bond after six (6) years from the date on which the final payment under the contract falls due.

PROVIDED, that any alterations which may be made in the terms of the contract, or in the work to

be done under it, or giving by the owner of any extension of time for the performance of the contract, or any other forbearance on the part of either the owner or the principal to the other shall not in any way release the principal and the surety, or either or any of them, their heirs, executors, administrators, successors, or assigns from their liability hereunder, notice to the surety of any such alteration, extension or forbearance being hereby waived.

Signed and sealed this ____ day of _____, 20 ____.

WITNESSES:

By _____
Principal

As to Principal

By _____
Attorney-in-Fact

Countersigned:

By _____
North Dakota Resident Agent

(Acknowledgement by both principal and surety required.)

