

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
REQUEST FOR PROPOSAL
URBAN FEDERAL AID PROJECT NO. HEU-8-984(179) (PCN-24053)

0.100 Miles

TURN LANE REALIGNMENT, ADA RAMP UPDATES, TRAFFIC SIGNALS, LIGHTING
19TH AVE N, INTERSECTION WITH UNIVERSITY DRIVE N - FARGO

CASS COUNTY

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 November 14, 2025.**

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)

PAGE INTENTIONALLY LEFT BLANK

Project: HEU-8-984(179) (PCN-24053)

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: HEU-8-984(179) (PCN-24053)

-
- 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.

Project: HEU-8-984(179) (PCN-24053)

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: HEU-8-984(179) (PCN-24053)

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: HEU-8-984(179) (PCN-24053)

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	105	0200	POTHOLE UTILITY	EA	6.				
003	202	0128	REMOVE AGGREGATE BASE	TON	391.				
004	202	0130	REMOVAL OF CURB & GUTTER	LF	974.				
005	202	0136	REMOVAL OF PAVEMENT	TON	282.				
006	302	0120	AGGREGATE BASE COURSE CL 5	TON	15.				
007	550	0131	9IN REINF CONCRETE PAVEMENT CL AE	SY	859.				
008	702	0100	MOBILIZATION	L SUM	1.				
009	704	1000	TRAFFIC CONTROL SIGNS	UNIT	684.				
010	704	1052	TYPE III BARRICADE	EA	12.				
011	704	1054	SIDEWALK BARRICADE	EA	2.				
012	704	1058	PEDESTRIAN WALKWAY	LF	114.				
013	704	1060	DELINEATOR DRUMS	EA	85.				
014	704	1067	TUBULAR MARKERS	EA	22.				
015	704	2108	TEMPORARY CURB RAMP	EA	2.				
016	704	2200	TEMPORARY PEDESTRIAN SURFACING	SY	22.600				

BID ITEMS

Project: HEU-8-984(179) (PCN-24053)									
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
017	708	1540	INLET PROTECTION-SPECIAL	EA	6.				
018	748	0140	CURB & GUTTER-TYPE I	LF	126.				
019	750	0030	PIGMENTED IMPRINTED CONCRETE	SY	61.				
020	750	0125	SIDEWALK CONCRETE 5IN	SY	140.				
021	750	0210	CONCRETE MEDIAN NOSE PAVING	SY	5.				
022	750	2115	DETECTABLE WARNING PANELS	SF	76.				
023	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	8.				
024	754	0210	GALV STEEL POST-STANDARD PIPE	LF	34.				
025	762	0112	EPOXY PVMT MK MESSAGE	SF	64.				
026	762	0113	EPOXY PVMT MK 4IN LINE	LF	954.				
027	762	0115	EPOXY PVMT MK 8IN LINE	LF	1,009.				
028	762	0116	EPOXY PVMT MK 16IN LINE	LF	48.				
029	762	0117	EPOXY PVMT MK 24IN LINE	LF	314.				
030	770	0001	LIGHTING SYSTEM	EA	1.				
031	770	0100	PULL BOX	EA	1.				
032	770	4567	REMOVE LIGHTING SYSTEM	EA	1.				

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
033	770	4579	REMOVE PULL BOX	EA	1.				
034	772	0001	TRAFFIC SIGNALS SYSTEM	EA	1.				
			TOTAL SUM BID						

PROPOSAL FORM

North Dakota Department of Transportation

BID OPENING: November 14, 2025**Job 24053**

Page 8 of 9

Project: HEU-8-984(179) (PCN-24053)**Type of Work:** TURN LANE REALIGNMENT, ADA RAMP UPDATES, TRAFFIC SIGNALS, LIGHTING**County:** CASS**Length:** 0.1000 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: 48 * working days are provided. The Department will begin charging working days beginning 06/17/2026 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 NA. 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 FOR ADDITIONAL TIME AND LIQUIDATED DAMAGE REQUIREMENTS.**

PROPOSAL FORM

North Dakota Department of Transportation

BID OPENING: November 14, 2025**Job 24053**

Page 9 of 9

Project: HEU-8-984(179) (PCN-24053)**Type of Work:** TURN LANE REALIGNMENT, ADA RAMP UPDATES, TRAFFIC SIGNALS, LIGHTING**County:** CASS**Length:** 0.1000 Miles**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 24053, HEU-8-984(179)

Turn Lane Realignment, ADA Ramp Updates, Traffic Signals, Lighting

INDEX OF PROVISIONS

Road Restriction Permits

Hot Line Notice

Price Schedule for Miscellaneous Items dated January 3, 2025 (PS-1)

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

Required Contract Provisions Federal Aid Construction Contracts
(Form FHWA 1273 Rev. October 23, 2023)

SP Certified Payrolls, dated 3-7-24

SP Project Payment Reporting

NOTICE - Electrician

Labor Rates from U.S. Department of Labor dated May 30, 2025 (Mod. No. 1)

On-The-Job Training Program 2025

SSP 3 Local Agency Contracts

SSP 5 Limitations of Operations

SSP 8 Federal Prohibition on Certain Technological Hardware

SSP 11 Buy America

SSP 12 Public Liability and Property Damage Insurance

SP 234(24) City Paving, Utility, and Landscaping Specifications

SP 235(24) City Lighting and Traffic Signal Specifications

SP 236(24) Utility Coordination

INDEX OF PROVISIONS

Page 2 of 2

SP 264(24) Temporary Pedestrian Facilities

SP Fuel Cost Adjustment Clause dated September 8, 2006

Contract

Contract Bond

NOTICE

T0: 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.

NDDOT ROAD AND VEHICLE RESTRICTIONS

Date Revised 05-22-10

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.

RESTRUCTION CLASSIFICATIONS WITH ALLOWABLE AXLE WEIGHTS AND GROSS VEHICLE WEIGHTS	PERMIT AND TON/MILE FEES
Highways Restricted by Legal Weight Single Axle -- 20,000 lbs. Tandem Axle -- 34,000 lbs. Triple Axle -- 48,000 lbs. 4 Axles or more -- 15,000 lbs. per axle Gross Vehicle Weight -- 105,500 lbs. 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.	Permit Fee: \$20-\$70 per trip Ton Mile Fee: 105,501 lbs. to 130,000 lbs. GVW -- \$1 per mile Over 130,000 lbs. GVW -- \$1 per mile plus \$5 per ton per mile for that weight exceeding 130,000 lbs. GVW Exceeding axle limits -- \$1 per ton per mile
8-Ton: Single Axle -- 16,000 lbs. Tandem Axle -- 32,000 lbs. 3 Axles or more -- 14,000 lbs. per axle Gross Vehicle Weight -- 105,500 lbs.	Permit Fee: \$20-\$70 per trip Ton Mile Fee: 105,501 lbs. to 120,000 lbs. GVW -- \$1 per mile Over 120,000 lbs. GVW -- \$1 per mile plus \$5 per ton per mile for that weight exceeding 120,000 lbs. GVW Exceeding restricted axle limits -- \$1 per ton per mile
7-Ton: Single Axle -- 14,000 lbs. Tandem Axle -- 28,000 lbs. 3 Axles or more -- 12,000 lbs. per axle Gross Vehicle Weight -- 105,500 lbs.	Permit Fee: \$20-\$70 per trip Ton Mile Fee: 105,500 lbs. to 110,000 lbs. GVW -- \$1 per mile Over 110,000 lbs. GVW -- \$1 per mile plus \$5 per ton per mile for that weight exceeding 110,000 lbs. GVW Exceeding restricted axle limits -- \$1 per ton per mile
6-Ton: Single Axle -- 12,000 lbs. Tandem Axle -- 24,000 lbs. 3 Axles or more -- 10,000 lbs. per axle Gross Vehicle Weight -- 80,000 lbs.	Permit Fee: \$20-\$70 per trip Ton Mile Fee: \$5 per ton per mile for all weight exceeding 80,000 lbs. GVW Exceeding restricted axle limits -- \$1 per ton per mile
5-Ton: Single Axle -- 10,000 lbs. Tandem Axle -- 20,000 lbs. 3 Axles or more -- 10,000 lbs. per axle Gross Vehicle Weight -- 80,000 lbs.	No overweight movement allowed

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

**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. Materials and construction methods used in performing maintenance and restoration work for 107. 08 Haul Roads shall meet the requirements of the relevant specifications.

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.

Spec	Code	Specification Section No.	Section Name	Item	Price
100	9950	704.04 C.5	Temporary Traffic Control	Flagging	\$60.00 per MHR
100	9951	216.04	Water	Water	\$30.00 per M Gal
100	9952	430.04 G & I.3	HMA – Bituminous Materials	Patching – Machine Placed	\$250.00 per Ton
100	9952	430.04 G & I.3	HMA – Bituminous Materials	Patching – Hand Placed	\$260.00 Per Ton
100	9954	302.04 B	Aggregate Base and Surface Course	Aggregate Base CL 13	\$40.00 per Ton ¹
100	9955	203.01 C	Rock Excavation	Rock Excavation	\$30.00 per CY
100	9956	203.01 D	Shale Excavation	Shale Excavation	\$8.50 per CY
100	9957	203.01 E	Muck Excavation	Muck Excavation	\$10.50 per CY
100	9958	203.01 G & 203.05 G.3	Excavation and Embankment	Overhaul	\$0.08 per CY-Sta
100	9960	420.04 E	Bituminous Seal Coat	Blotter Sand	\$30.00 per Ton ¹
100	9962	260.06	Silt Fence	Cleaning Silt Fence	\$5.00 per LF
100	9963	261.06	Fiber Rolls	Cleaning of Fiber Rolls	\$5.00 per LF
100	9964	260.06	Silt Fence	Removal of Silt Fence ²	\$5.00 per LF
100	9965	261.06	Fiber Rolls	Removal of Fiber Rolls ²	\$5.00 per LF

¹ Price 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 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.

² This is only for pre-existing items that were not installed under the Contract.

**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 – Statewide 6.9%
 - b. Goals for Minority Participation in Each Trade by County:
Barnes, Cass, Dickey, Eddy, Foster, Griggs, LaMoure, Logan,
McIntosh, Ransom, Richland, Sargent, Steele, Stutsman, Traill 0.7%

Grand Forks 1.2%

Benson, Cavalier, Nelson, Pembina, Ramsey, Towner, Walsh 2.0%

Burleigh, Morton 0.4%

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, Williams 4.4%

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).

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Non-segregated 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. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

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, United States Code, as required in 23 CFR 633.102(b) (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). 23 CFR 633.102(e).

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. 23 CFR 633.102(e).

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) in accordance with 23 CFR 633.102. 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 solicitation-for-bids or request-for-proposals 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). 23 CFR 633.102(b).

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. 23 CFR 633.102(d).

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. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A 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 Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 230, Subpart A, 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 (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 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 Part 35 and 29 CFR Part 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. 23 CFR 230.409 (g)(4) & (5).

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, sexual orientation, gender identity, 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 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 or other knowledgeable company official.

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, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure 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. 23 CFR 230.409. 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, sexual orientation, gender identity, 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, sexual orientation, gender identity, 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 thereunder. 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, sexual orientation, gender identity, 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, 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. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient 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 recipient 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.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

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 more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, 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, sexual orientation, gender identity, 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), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

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 (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), 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 basic hourly 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. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. 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 must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. 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 classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must 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. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

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

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must 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 be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate 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 used 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) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) 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 will be sent by the contracting officer by email to DBAconformance@dol.gov. 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.

(4) 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 will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The 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.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must 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.

d. *Fringe benefits not expressed as an hourly rate.* 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 may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* 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, in accordance with the criteria set forth in § 5.28, 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.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and 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.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. Basic record requirements (1) Length of record retention. All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) Information required. Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; 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 [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) Additional records relating to fringe benefits. Whenever the Secretary of Labor has found under paragraph 1.e. of this section 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 [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must 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.

(4) Additional records relating to apprenticeship. Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. Certified payroll requirements (1) Frequency and method of submission. The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) Information required. The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHDL/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) Statement of Compliance. Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working 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 [29 CFR part 3](#); and

(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(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

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

(5) *Signature*. The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification*. The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention*. The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents*. The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers*. The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements*. If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, 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, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures*. Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices (1) Rate of pay*. Apprentices will be permitted to work at less than the predetermined rate for the work they perform 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 (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits*. Apprentices must 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, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio*. The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must 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 this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates*. Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity*. The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. 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. 23 CFR 230.111(e)(2). 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 journeyworkers 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 as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 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 as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, 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 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 [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), 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 watchpersons 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. 29 CFR 5.5.

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 and interest from the date of the underpayment. 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 watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* 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.

* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, 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 that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

- a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;
- b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;
- c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or
- d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

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" in paragraph 1 of Section VI 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: (based on longstanding interpretation)

- (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. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), 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. Pursuant to 23 CFR 635.116(c), 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. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

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 Part 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. 23 CFR 635.108.

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 Part 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). 29 CFR 1926.10.

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 Part 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 11, 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 (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

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. 2 CFR 180.220 and 1200.220.

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. 2 CFR 180.320.

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. 2 CFR 180.325.

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. 2 CFR 180.345 and 180.350.

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, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient 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 recipient or subrecipient 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. 2 CFR 180.330.

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. 2 CFR 180.220 and 180.300.

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. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. 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 System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

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 CFR 180.325.

* * * * *

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 CFR 180.335;.

(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, 2 CFR 180.800;

(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, 2 CFR 180.700 and 180.800; 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. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. 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). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant 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. 2 CFR 180.365.

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, Subpart I, 180.900 – 180.1020, 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 recipient or subrecipient of Federal funds and a participant (such as the prime or general contractor). "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 recipient or subrecipient 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. 2 CFR 1200.220 and 1200.332.

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. 2 CFR 180.220 and 1200.220.

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 System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

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. 2 CFR 180.325.

* * * * *

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

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should 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 Part 20, App. A.

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.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, 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. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)**

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 on one of these lists before entry of the subcontractor into LCPtracker. These lists may be found at: <https://www.dot.nd.gov/construction-and-planning/construction-and-contractor-resources/contractor-information>. 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 Program (Davis-Bacon)/LCPtracker page at: <https://www.dot.nd.gov/about-nddot/civil-rights/labor-compliance-program-davis-bacon>. 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.

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

A. DESCRIPTION

This Special Provision (SP) replaces Section 109.04 D, "Prompt Payment"

This SP details the requirements for Contractors to document payment to all tiers of DBE subcontractors and suppliers and all non-DBE subcontractors. For the purposes of this SP, the term "payee" will be used to denote all tiers of DBE subcontractors and suppliers as well as all tiers of non-DBE subcontractors.

The Department utilizes the Certification and Compliance System (CCS) for this purpose. The direct web address to this system is <https://dotnd.diversitycompliance.com/>

B. PROMPT PAYMENT REQUIREMENTS

Within 20 calendar days of receiving payment from the Department, pay all payees their portion of the payment less applicable retainage, not to exceed 2 percent. If the Contractor does not make prompt payment, the payee may notify the Engineer.

The Contractor may withhold payment to a payee for just cause. If withholding payment from a payee, immediately provide written notification to the payee and the Engineer with the reasons for withholding the payment. If the Engineer determines the Contractor is withholding payment with just cause, interest will not accrue.

If the Engineer determines the Contractor is withholding payment without just cause, beginning on the 21st calendar day after the Contractor's receipt of payment from the Department interest will accrue for the payee at the rate provided by NDCC 13-01.1-02. Additionally, the Department may withhold all payments to the Contractor until the Contractor properly pays the payee and agrees to make all future payments to payees as required by the contract.

The Department will apply these prompt payment procedures to all payees, in accordance with 49 CFR 26.29.

C. REPORTING REQUIREMENTS

1. General.

Create a vendor account with CCS if one does not exist. Create a user for each employee who will use the system and identify the main user. The main user will receive communications from the Department.

2. Utilization Plan.

Complete a Utilization Plan (UP) and submit it for approval in CSS within 14 days of being notified the UP is available, or contract execution, whichever is later. The Department may grant an extension upon written request from the Contractor.

List all payees with the UP and at the proper tier. Ensure payees are completing their requirements and provide assistance as necessary.

The Department's Civil Rights Division will review the UP, verify the DBE participation is reported correctly, and approve the UP or return it for updates. If the UP is returned it will contain a note describing the necessary updates. Complete changes and resubmit within 7 days of receiving a returned UP.

a. Non-Account Holders.

If a payee does not already have an account within CSS when creating the UP send the information listed below to the compliance officer via CSS:

- Company name;
- Mailing address;
- Phone number;
- Contact person's name; and
- Contact person's email address.

The NDDOT will then set up a vendor account within CCS for the payee and notify the contractor when they are available to add to the UP.

b. Additional Payees.

If a payee is added after the initial UP is approved, submit a request for the payee to be added via the "Subs" tab inside CCS. Complete this process before the payee is due payment.

3. Payments.

Once the UP is approved, the UP is locked in and contractor progress payments will be reported, and the monthly auditing process begins. An audit is the term used in the system to refer to a monthly period while the project is active.

Contractors must report any payments for all payees for each audit period. A payment may be marked as final and if the payee agrees to the final payment no other reporting will be required on that payee. Payments of \$0 must be reported or the audit will be considered incomplete. Audits are available in subsequent months, meaning the January audit period will open in February. Payments not reported within 30 days will be considered past due. Audits containing past due payments must be unlocked by a system administrator.

4. Payment Discrepancies.

Payees are required to confirm payments or open a Discrepancy (dispute original submission) within 30 days of the payment being recorded. Payments not confirmed nor disputed within 30 days will be auto-confirmed by the system administrators and the ability to dispute that payment will no longer be available. Contractors are to ensure the payees on their project are timely confirming/disputing payments.

Attempts should be made to resolve Discrepancies between the two parties. CCS provides functionality for each party to comment publicly or privately (private comments are visible to system administrators only). If the parties cannot come to a resolution, the Department will make a resolution. The Department may request additional information, if applicable, before making a resolution.

5. Certification and Compliance System Assistance.

A user manual for UP's and recording project payments is available within the system. The user manual and other training is offered by navigating to it once logged in. A UP does not have to be assigned to an entity to view the guide or attend system training.

For further assistance, contact the Civil Rights Division for DBE related inquiries and the Construction Services Division for all other inquiries.

01242023

NOTICE:

All employees of contractors performing electrical work outdoors as part of a highway construction project must be classified and compensated under the applicable Line Construction rates. Electrical work that is performed exclusively within a commercial building structure, such as a rest area facility, must be classified and compensated under the Electrician rates. Contractors are prohibited from classifying employees engaged in any phase of electrical work on highway construction projects as power equipment operators or laborers and should be classified and compensated in either the line construction or electrician rates.

Apprentices in Line Construction

Apprentices in Line Construction must be classified and paid as Apprentice Linemen, with wages based on a percentage of the journeyman rate that corresponds to their current level of training in the apprenticeship program. When performing work as an Apprentice Lineman, the employee must receive the correct apprentice wage and fringe benefits.

If an Apprentice Lineman is assigned duties that fall under a different line construction classification—such as Groundman—they must be reclassified and paid accordingly for the duration of that work.

Contractors are responsible for:

- Monitoring the progress of employees enrolled in the U.S. Department of Labor (DOL) Lineman/Electrical Apprenticeship Program.
- Uploading all approved apprenticeship documents under the eDocuments tab in LCPtracker.
- Updating the employee's profile within LCPtracker to reflect their apprentice status and current training level.
- Notifying the LCPtracker Administrator once the documents and profile updates are complete, so the apprenticeship submission can be reviewed and approved.

As an apprentice advances in their program, it is the contractor's responsibility to update the system and notify the LCPtracker Administrator to ensure accurate wage classification and compliance.

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

<https://www.dot.nd.gov/about-nddot/civil-rights/labor-compliance-program-davis-bacon>

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

<https://www.dot.nd.gov/about-nddot/civil-rights/labor-compliance-program-davis-bacon>

STATE	COUNTY	ND20250006 Page 1
NORTH DAKOTA	STATEWIDE	DATE OF DECISION 01-03-2025 Revised 05/30/2025 (Mod No. 1)

	Basic Hourly Rates	Fringe Benefits Payments
		H & W/Pensions
CARPENTERS	\$35.85	\$ 7.60
CEMENT MASONS/FINISHERS	35.85	7.60
LINE CONSTRUCTION:		
Lineman	53.48	8.80 + 29.5%
Cable Splicer	53.48	8.80 + 29.5%
Line Equipment Operator	45.41	8.80 + 29.5%
Groundman	30.26	8.80 + 19.5%
ELECTRICIANS:		
Electrician	53.48	8.80 + 29.5%
Cable Splicer	53.48	8.80 + 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	53.48	8.80 + 29.5%
Cable Splicer	53.48	8.80 + 29.5%
(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	53.48	8.80 + 29.5%
Cable Splicer	53.48	8.80+ 29.5%
(Burleigh, Morton and Stark Counties)		
Electrician	35.35	16.32
(Cass County)		
WELDERS:		
Receive rate prescribed for craft performing operation to which welding is incidental		

LABOR RATES

Page 2 of 5

01-03-2025

Revised 05/30/2025 (Mod No. 1)

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; 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 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; Traveling Tower Crane.

Group 2

All Cranes 59 tons and under; Backhoe Operator 3 CY. and over; Creter Crane; Dredge Operator 12" and over; Equipment Dispatcher; Equipment Foreman; Finish Dozer; 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; Tugboat.

ND20250006

Page 2

Basic Hourly Rates	Fringe Benefits Payments
	H & W/Pensions
\$27.65	\$ 3.15
27.90	3.15
28.05	3.15
28.80	3.15
35.05	21.90
33.65	21.90

LABOR RATES

Page 3 of 5

01-03-2025

Revised 05/30/2025 (Mod No. 1)

ND20250006

Page 3

POWER EQUIP.OPERATORS: (CONT.)

Group 3

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; Lazer-Screed 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 (SurfacePlaner) 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(Controls the spread of asphalt); Asphalt Paving Screed 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; Fuel/ Lube Truck Operator; Grade Person(Responsible for establishing and determining grade through instrumentation); Gravel Screening Plant Operator (not Crushing or Washing); Greaser; Hydro Vac and Hydro Excavator self propelled; Longitudinal Float and Spray Operator; Micro Surfacer Machine; Motor Grader Operator (Haul Roads); Paving Breaker HydroHammer 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.

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-Non-Truck; Power Actuated Auger and Horizontal Boring MachineOperator up to and including 5"; Roller (on other than hot mix asphalt

Basic Hourly Rates	Fringe Benefits Payments
	H & W/Pensions
\$33.40	\$21.90
33.25	21.90

LABOR RATES

Page 4 of 5

01-03-2025

Revised 05/30/2025 (Mod No. 1)

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); Gunite 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
\$32.40	\$21.90
31.60	21.90
32.88	17.99
33.00	17.99
33.31	17.99
33.31	17.99
34.83	17.99

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

LABOR RATES

Page 5 of 5

01-03-2025

Revised 05/30/2025 (Mod No. 1)

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022: Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least \$17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing the contract in 2025.

If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022: Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.

The applicable Executive Order minimum rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION (NDDOT)

ON-THE-JOB TRAINING 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 within the ND Highway Construction industry. 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 based only on federal highway dollars awarded to contractors from April to March. Trainee assignments are not project specific; that means the contractor may train program participants on any project where training opportunities exist within the state of North Dakota.

The number of trainee positions assigned will be determined by formula based on calculations involving particular project specification numbers on applicable projects. Once the formula calculations are determined the OJT Program Administrator completes a further analysis based on number of trainees per contractor, contractor work type,

location, past assignments, etc.

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 as part of 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 April to March the following year:

8,000,000 to 16,000,000	1	trainee
16,000,001 to 24,000,000	2	trainees
24,000,001 and above	3	trainees

A maximum of three (3) 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 three trainee maximum, e.g., a contractor with one carryover and three assigned positions may have a total four trainees.

Contractors assigned OJT positions are required to attend one-on-one meetings with the OJT Program Administrator and the OJT Supportive Services Consultant in early spring. The meeting is conducted virtually via Microsoft TEAMS. At this meeting any changes to the program and other important information will be shared and the contractor will have an opportunity to ask any questions they may have.

Failure to follow the OJT Special Provision and 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

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>

SFN 62136 On-The-Job Training (OJT) Program Dependent Child Care Reimbursement:
<https://www.dot.nd.gov/forms/sfn62136.pdf>

VI. APPROVALS REQUIRED

- A. Requests for Approval of Training Programs and Trainee Candidates 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.
2. Submit *SFN 7857 Application for Eligibility* directly to Job Service North Dakota (JSND) for 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 Civil Rights Division.

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 not directly assigned by NDDOT.

VII. NDDOT'S RESPONSIBILITIES

- A. The NDDOT OJT supportive services (OJTSS) consultant will monitor excerpts from the weekly certified payrolls or LCP Tracker for NDDOT projects submitted with the monthly vouchers for reimbursement. 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.
- B. The OJTSS will review Daycare Reimbursement Forms and make recommendations to CRD on approvals. CRD approves any reimbursements and the OJTSS will process any payments. OJTSS tracks funds available/expended in order to stay within the limit of available funds that season/year. OJTSS Daycare reimbursements are made using OJTSS funding, which may be limited or unavailable year to year.
- C. 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.
- D. 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. Must have trainees available to the OJTSS consultant for at least two on-site visits during the construction season. The OJTSS consultant will be provided a private location to meet with the trainee and the trainee will be allowed as much time away from the project as necessary to complete the on-site visit.
- 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. Inform trainees on availability of Daycare Reimbursement Program while in an approved training curriculum and assist them with completing the required paperwork, if applicable.
- H. 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.
- I. 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 confirmation letter as proof of the graduate's successful training program completion.
- J. 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.
- K. 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 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 of CRD.

- L. May transfer trainees from one project to another to complete the OJT Program. If transfers are made, CRD must be notified and provided with the name of the trainer.
- M. May train trainees on municipal, private, 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. Payrolls of employees trained on non-NDDOT projects must be provided to prove appropriate wages are paid.
- N. Must train trainees on projects within North Dakota. Cannot train trainees on projects located outside of the state lines. The OJTSS consultant must be able to visit the trainee twice during their program. It is unreasonable for the OJTSS consultant to make these visits outside of the state.
- O. 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.
- P. May use trainees on projects subject to TERO requirements as part of the core crew. 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.
- Q. Must not use one trainee to simultaneously fill multiple trainee positions
- R. 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 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.

Contractors will be reimbursed for classroom training hours after the trainee has completed 40 hours of work on highway construction projects.

Reimbursement for classroom training will be limited to 40 hours per trainee per construction season.

- B. 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 non-federal aid 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. Current and prior labor rates can be found on the NDDOT website at: <https://www.dot.nd.gov/divisions/civilrights/laborcompliance.htm>
- 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. DBRA requirements can be found on the NDDOT website at <https://www.dot.nd.gov/divisions/civilrights/laborcompliance.htm>
- 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. Trainees must be a North Dakota resident during their training program.
- 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.

E. Daycare Reimbursement Program:

Approved trainees may apply for the OJT Daycare Reimbursement Program and be eligible for up to \$3,500 in reimbursement of daycare costs. The trainee must be the legal primary custodial guardian of the dependent(s) they are requesting reimbursement for. Dependent(s) must reside at the same address as the trainee for more than 50% of the calendar year. Proof of cost and other documentation will be required to be submitted with the OJT Dependent Child Care Reimbursement Form.

- Availability of program and eligible funds dependent on FHWA funding annually
- Once funding for the program has been expended for the year no further reimbursements are available
- W-9 will be required prior to any reimbursement
- Only daycare services provided during the dates/times the trainee is being trained in their approved OJT program will be reimbursed.

F. Completion Bonus Program:

Trainees that successfully complete their approved program may be eligible for a \$500 completion bonus. These funds are provided directly from NDDOT to the trainee once

completion is determined.

- Availability of program and eligible funds dependent on FHWA funding annually
- Once funding for the program has been expended for the year no further funds are available
- W-9 will be required prior to any payment
- Any voluntary positions and/or carryover positions are not eligible

G. Commercial Drivers License (CDL) Program Reimbursement:

Individuals that qualify may request reimbursement for tuition costs in an approved CDL Program upon completion up to \$6,000.

- Availability of program and eligible funds dependent on FHWA funding annually
- Once funding for the program has been expended for the year no further funds are available
- Pre-approval form and completion form required
- Periodic check-ins with instructors conducted to ensure compliance
- W-9 will be required prior to any reimbursement
- Only CDL Programs within ND on NDDOTs approved program list are available for reimbursement

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. LCPtracker must be utilized on NDDOT projects for reporting certified payrolls. The OJTSS consultant will be verifying hours submitted on NDDOT projects through this online reporting system. For non-NDDOT projects the firm must attach excerpts from the weekly certified payrolls showing the trainee's hours, rate of pay, and how applicable fringe benefits were paid. 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.
- 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.

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. Nighttime 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.

The following operations are exempt from the definitions of extended hours and nighttime operations:

- Pavement coring;
- Concrete joint cutting; and
- Temporary traffic control.

Work conducted less than 1 hour after sunset and less than 1 hour before sunrise is considered extended hours. All other operations conducted under darkness fall under nighttime operations.

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 before anticipated nighttime operations. Allow up to 7 calendar days for the Engineer to review the request. The Engineer may deny the request or delay approval if it would require additional staffing considerations. If nighttime

operations require 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

STANDARD 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

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.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION**STANDARD SPECIAL PROVISION****BUY AMERICA/BUILD AMERICA BUY AMERICA****DESCRIPTION**

Replace Section 106.08, "Buy America", with the following:

BUY AMERICA FOR INFRASTRUCTURE PROJECTS**A. General.**

Provide materials from domestic sources when products are permanently incorporated into the work.

The requirements of this SP are not applicable to equipment, tools, and temporary items.

This definitions and requirements in this SP have been assembled based on the following Federal requirements:

- Iron and steel requirements are based on 23 CFR part 635, "Buy America"; and
- Construction materials and manufactured products are based on 2 CFR part 184, "Buy America Preferences for Infrastructure Projects" (BABA).

B. Certifications.

All certifications are submitted by the prime Contractor. When submitting certifications for materials that are subject to the requirements of this provision, the prime Contractor shall include a signed letter stating that the submitted documentation is the documentation that was received by the prime Contractor for material incorporated into the work. The prime Contractor's signature on the Department's Certificate of Compliance form meets this requirement.

C. Determination of Material Category.**1. General.**

Only single category of requirements will apply to an item.

Some contract items are composed of multiple components that may fall into different categories. Individual components will be categorized based on their nature when they arrive at the work site. In cases where the classification of an item is in question or dispute, the Engineer's determination of the classification will be binding.

EXCEPTION:

Iron and steel components included in items classified as manufactured products must meet the requirements of Section D, "Steel and Iron Certification" of this SP.

2. Iron and Steel.

All iron and steel permanently incorporated into the work must meet the requirements of Section D, "Steel and Iron Certification" of this Special Provision. Buy America requirements do not apply to iron and steel items used by the Contractor to facilitate

construction that are left in place upon completion of the work and are not required to be permanently installed as part of the contract requirements.

3. Manufactured Products.

An FHWA general applicability waiver exists for Manufactured Products and this category is therefore currently not subject to BABA requirements; however, they are included in this Special Provision to maintain the category definition and consistency with Federal language.

Manufactured product is defined as articles, materials, or supplies that have been:

- Processed into specific form or shape; or
- Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.

4. Construction Materials.

The category of construction materials excludes cement and cementitious materials, aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

Construction materials are materials that consist primarily of:

- Non-ferrous metals;
- Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- Glass (including optic glass);
- Fiber optic cables (including drop cable);
- Optical fiber;
- Lumber;
- Engineered wood; or
- Drywall.

Minor additions of articles, materials, supplies, or binding agents to a construction material do not change the categorization.

5. Exempt Materials [Section 70917(c) Materials].

The following materials are exempt from the requirements of this provision per Section 70917(c) of the Build America, Buy America Act:

- Cement and cementitious materials;
- Aggregates such as stone, sand, or gravel; or
- Aggregate binding agents or additives.

D. Steel and Iron Certification.

1. General.

Ensure all manufacturing processes, including applications of coatings, occur in the United States. A coating includes all processes required to apply the coating to a product to protect or enhance the value of the product.

2. Bulk Manufactured Steel and Iron Materials.

In addition to the requirements of Section 106.01 C, "Certificate of Compliance", submit a contractor's Certificate of Compliance stating that the iron and steel products listed in Table 1 are of domestic origin.

Table 1

Mailbox supports	Cable Fence Materials
Chain Link Fence Materials	Barbed Wire Fence Materials
Guardrail Components	Woven Wire Fence Materials
Culvert Markers	Delineators
Perforated Tube Sign Supports and Related Materials	

3. Other Steel and Iron Products.

For steel and iron products that are not listed in Table 1, submit a manufacturer's Certificate of Compliance as specified in Section 106.01 C, "Certificate of Compliance" and the following information:

- a. A signed mill test report.
- b. A signed certification from each fabricator and manufacturer that has handled the steel and iron products affirming that all processes performed on the steel and iron products were conducted in the United States.
- c. Material descriptions, quantities, and a means of material identification (lot number, bin number, heat number, or factory identification) for each process performed on the steel and iron products.

Each certification shall contain the material identification from all previous fabricators and manufacturers in the process.

4. Foreign or Uncertified Products.

These requirements allow the use of steel and iron products produced and manufactured outside the United States, or products that cannot be certified as originating in the United States, of a total value less than 0.1 percent of the original contract amount, or \$2,500, whichever is greater.

The total value is that shown to be the cost of the steel and iron products as delivered to the project site.

Document the cost of:

- Foreign steel and iron products, plus
- Steel and iron products which cannot be certified as originating in the United States.

Submit the documentation of foreign and uncertified products with the required certifications.

E. Manufactured Products

An FHWA general applicability waiver exists for Manufactured Products and this category is therefore currently not subject to BABA requirements; however, they are included in this Special Provision to maintain the category definition and consistency with Federal language.

A manufactured product is acceptable under this provision if:

- The product was manufactured in the United States; and
- The cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product.

Compute the cost of components of manufactured products as follows:

- For components purchased by the manufacturer, the acquisition cost, including transportation costs to the place of incorporation into the manufactured product and any applicable duty; or
- For components manufactured by the manufacturer, all costs associated with the manufacture of the component, including transportation costs described in the prior bullet, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the manufactured product.

F. Construction Materials.

1. General.

Each material classified as a construction material has a specific standard for the material to be considered in compliance with this provision.

Except as specifically provided, only a single standard under this section should be applied to a single construction material.

2. Non-Ferrous Metals.

For non-ferrous metals, all manufacturing processes from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.

3. Plastic and Polymer-Based Products.

For plastic and polymer-based products; including polyvinylchloride, composite building materials, and polymers used in fiber optic cables; all manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.

4. Glass.

For glass; including optic glass; all manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.

5. Fiber Optic Cable.

For fiber optic cable; including drop cable; all manufacturing processes, from the initial ribboning if applicable, through buffering, fiber stranding and jacketing, occurred in the United States.

All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic and polymer-based products, or any others.

6. Optical Fiber.

For optical fiber, all manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States.

7. Lumber.

For lumber, all manufacturing processes, from initial debarking through treatment and planing, occurred in the United States.

8. Drywall.

For drywall, all manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.

9. Engineered Wood.

For engineered wood, all manufacturing processes from the initial combination of constituent materials until the wood product is in its final form, occurred in the United States.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE

DESCRIPTION

This SP replaces Section 107.14 Public Liability and Property Damage Insurance.

107.14 Public Liability and Property Damage Insurance.

A. General Requirements.

Submit to the Department the certificates of insurance effecting the requirements in this section for the Commercial General Liability and Commercial Automobile Liability Insurances with the contract and the contract bond in accordance with Section 103.06, "Execution and Approval of Contract."

Provide insurance policies executed by a corporation qualified and authorized to write the policies in the State of North Dakota. The State reserves the right to obtain complete, certified copies of all required insurance documents, policies, or endorsements at any time.

Secure and maintain insurance in full force and effect before starting the work and until completion of all work required and accepted by the Department or owner. The policies shall provide 30 calendar days notice to the Department or the owner of any intent to cancel or materially alter such insurance.

Failure to maintain the insurance as required constitutes a material breach of contract. The Department or the owner may, after giving 5 business days notice to the Contractor to correct the breach, immediately terminate the Contractor in accordance with Section 108.08, "Termination of the Contract for Default," and procure or renew such insurance and pay all premiums. The Department or the owner may demand repayment of premium costs by the Contractor, or may offset the premium costs against funds due the Contractor from the Department or the owner.

B. Insurance Requirements.

Secure and maintain in full force and effect during the term of the contract the following insurance coverages:

1. Commercial General Liability for limits not less than \$2,000,000 combined single limit per occurrence and aggregate for bodily injury, property damage, personal injury and completed operations/product liability. Provide products and completed operations coverage for a period of one year following final acceptance of the work. Provide coverage with the aggregate limit applied separately to occurrences at the location or project described in this contract. Provide a policy including a "stop-gap" Employers Liability endorsement to cover the employer's liability for injury to employees falling outside the State Worker's Compensation Law.
2. Commercial Automobile Liability for limits not less than \$2,000,000 combined single limit per accident for bodily injury and property damage.

3. Workers Compensation coverage as required by the State of North Dakota.

The General Liability and Automobile policies shall provide an additional insured endorsement in favor of the State of North Dakota and the Owner and shall contain a "Waiver of Subrogation" to waive any right of recovery that the Insurance company may have against the State and the Owner. The coverage required under this agreement shall be primary for the State and the Owner, and shall not be affected by any other insurance or coverage obtained by the State or the Owner on their own behalf.

Any right of the State to receive indemnification and insurance shall not give rise to a duty on the part of the State to exercise its rights or status for the benefit of the owner, or any other person or entity.

C. Subcontractor.

If subletting a portion of the contract, the Contractor shall obtain insurance protection in accordance with Section 107.14.B, "Insurance Requirements," to provide liability coverage to protect the Contractor, State, and owner for work undertaken by the subcontractor. Ensure public liability and property damage insurance coverage in accordance with Section 107.14.B, "Insurance Requirements," for all parties performing work under the contract.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

CITY PAVING, CITY UTILITY, CITY SIGNING, AND CITY LANDSCAPING SPECIFICATIONS

HEU-8-984(179) - PCN 24053

I hereby certify that this specification was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of North Dakota.

1. SUMMARY

- A. The City of Fargo has Standard Specifications to cover the concrete paving, signing, and landscaping 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
2100	Concrete Paving and Curbs & Gutters
2300	Concrete Sidewalks and Driveways
4300	Signing
7000	Landscaping

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

2. GENERAL

- A. All related requirements in these portions of the City of Fargo specifications not included in this special provision default to the NDDOT Standard Specifications for Road and Bridge Construction at the time of bid letting. This includes references to legal requirements, quality assurance, product delivery, storage, and handling, submittals, substitutions.
- B. The schedule of material testing for the specifications here within should be in accordance with City of Fargo Specifications as outlined in below City of Fargo Field Sampling and Testing Frequency Table. All other schedule of materials not included in this SP should be in accordance with the most recent version of the NDDOT Field Sampling and Testing manual at the time of bid letting.
- C. Payment and measurement for Concrete Paving, Curbs & Gutters, Sidewalk, Driveways, Landscaping, Water, Sanitary, Storm distribution items, and Signing 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)
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	2100	5.4, 5.5, 5.6, 5.7, 5.9	
708	1540	INLET PROTECTION - SPECIAL	3300	6.4	
748	0140	CURB & GUTTER-TYPE I	2100	5.11	
750	0030	PIGMENTED IMPRINTED CONCRETE	2300	5.13	
750	0115	SIDEWALK CONCRETE 4IN	2300	-	
750	0210	CONCRETE MEDIAN NOSE PAVING	2100	5.14	1
750	2115	DETECTABLE WARNING PANELS	2300	-	

CITY OF FARGO FIELD SAMPLING AND TESTING FREQUENCY TABLE

Material Type	Tests Required	Min. Frequency and Test Sections	Location of Sample	Passing Test Requirement
Section 1000 - Excavation, Trenching, and Backfilling for Underground Work				
Clay Backfill	Proctor Tests	• (1) test at beginning of project • (1) test per each change in clay properties or source location	Sample from site or source prior to or during placement	
	Nuclear Density & Moisture Tests	<u>New Development Projects:</u> • (1) test every 500 LF of trench per each four feet of depth <u>Rehab Projects:</u> • (1) test every 200 LF of trench per each three feet of depth • (1) test per every two service trenches	Random locations as determined by the Engineer in place after compaction	95% of Standard Proctor Density (Moisture content shall be between minus 3% and plus 6% of optimum at time of test)
Aggregate Backfill ND Class 3	Proctor Tests	• (1) test at beginning of project • (1) test per each change in material or source location	Sample from site or source prior to or during placement	
	Sieve Analysis of Aggregate	• (1) test at beginning of project • (1) test per each 2,000 ton or one day's production if that day's production is greater than 2,000 tons • (1) test per each change in material or source location	Sample from site or source prior to or during placement	ND Class 3 (See Section 816.02 of NDDOT Standard Specifications, the #200 sieve requirement shall be modified to be 3-15% passing) See Section 302 for calculating gradation deductions. If test fails, start (1) test per each 1,000 ton
	Nuclear Density & Moisture Tests	<u>New Development Projects:</u> • (1) test every 200 LF of trench per each four feet of depth <u>Rehab Projects:</u> • (1) test every 200 LF of trench per each three feet of depth • (1) test per every two service trenches	Random locations as determined by the Engineer in place after compaction	98% of Standard Proctor Density (Moisture content shall be at minus 4% and plus 1% of optimum at time of test)

CITY OF FARGO FIELD SAMPLING AND TESTING FREQUENCY TABLE

Material Type	Tests Required	Min. Frequency and Test Sections	Location of Sample	Passing Test Requirement
Section 2100 - Concrete Paving and Curbs & Gutters				
Fine & Coarse Aggregates	Material Properties Test	• (1) test at beginning of project • (1) test per every 15,000 SY • (1) test for each change in material or source location	Sample from site or source prior to or during placement	See Section 2100 - 2.2.2. of the Standard Specifications
Fine & Coarse Aggregates (continued)	Sieve Analysis of Aggregates	• (1) test at beginning of project • (1) test per every 3,000 SY of pavement • (1) test per every 10,000 LF of curb & gutter • (1) test for each change in material or source location	Sample from plant prior to or during placement	See Section 2100 - 2.2. of the Standard Specifications
Wet Concrete	Slump, Unit Weight / Yield, & Air Content	• (1) test at beginning of each pour and • (1) test per every 1,000 SY of pavement thereafter • (1) test per every 1,500 LF of curb & gutter thereafter Perform tests with each set of cylinders	Sample from point of placement Perform (1) air content test behind slip-form paver at start of project then every 5,000 SY of pavement and every 2,500 LF of curb & gutter to measure potential air loss after consolidation	See section 2100 - 2.5. of the Standard Specifications Minimum 1% air loss should be assumed in consolidated concrete behind slip-form pavers
	Cylinders	• (1) set of cylinders per every 500 SY of alley pavement or 2,000 SY of roadway pavement • (1) set of cylinders per every 3,000 LF of curb & gutter • (1) minimum set of cylinders per each day's pour • Or test at Engineer's discretion	Sample from point of placement per above requirements	One set is five cylinders: (1) 7 day (3) 28 day (average of 3) (1) spare Min. 4500 psi at 28 day (average of 3 cylinders)

CITY OF FARGO FIELD SAMPLING AND TESTING FREQUENCY TABLE

Material Type	Tests Required	Min. Frequency and Test Sections	Location of Sample	Passing Test Requirement
Section 2300 - Concrete Sidewalks & Driveways				
Fine & Coarse Aggregates	Material Properties Test	• (1) test per project	Sample from site or source prior to or during placement	See Section 2100 - 2.2.2. of the Standard Specifications
<i>Note: These tests are only required on standalone sidewalk projects or when conc. supplier is diff. than paving conc. supplier on same paving project</i>	Sieve Analysis of Aggregates	• (1) test at beginning of project • (1) test for each change in material or source location	Sample from site or source prior to or during placement	See Section 2100 - 2.2. of the Standard Specifications
Wet Concrete (continued)	Slump, Unit Weight / Yield, & Air Content	• (1) test at beginning of each pour • (1) test per every 50 CY of concrete placed thereafter • Or test at Engineer's discretion Perform tests with every set of cylinders	Sample from point of placement	See Section 2100 - 2.5. of the Standard Specifications
Wet Concrete	Cylinders	• (1) set of cylinders per every 150 CY of concrete placed • (1) minimum set of cylinders per each day's pour • Or test at Engineer's discretion	Sample from point of placement	One set is five cylinders: (1) 7 day (3) 28 day (average of 3) (1) spare Min. 4500 psi at 28 day (average of 3 cylinders)

CITY OF FARGO FIELD SAMPLING AND TESTING FREQUENCY TABLE

Material Type	Tests Required	Min. Frequency and Test Sections	Location of Sample	Passing Test Requirement
Section 4200 - Traffic Signals (concrete foundations) & Section 4400 - Street Lighting (concrete foundations)				
Fine & Coarse Aggregates <i>Note: These tests are only required on standalone traffic signal & street lighting projects or when conc. supplier is diff. than paving conc. supplier on same paving project</i>	Material Properties Test	• (1) test at beginning of project • (1) test for each change in material or source location	Sample from site or source prior to or during placement	See Section 2100 - 2.2.2. of the Standard Specifications
	Sieve Analysis of Aggregates	• (1) test at beginning of project • (1) test for each change in material or source location	Sample from plant prior to or during placement	See Section 2100 - 2.2. of the Standard Specifications
Wet Concrete	Slump, Unit Weight / Yield, & Air Content	• (1) test at beginning of each pour Perform tests with every set of cylinders	Sample from point of placement.	See Section 2100 - 2.5. of the Standard Specifications, unless otherwise specified
	Cylinders	<u>Street light foundations:</u> • (1) set of cylinders per every 20 foundations • (1) minimum set of cylinders per each day's pour <u>Traffic signal foundations:</u> • (1) set of cylinders per each foundation • (1) minimum set of cylinders per each day's pour	Sample from point of placement.	One set is five cylinders: (1) 7 day (3) 28 day (average of 3) (1) spare Min. 4500 psi at 28 day (average of 3 cylinders)

**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.

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. 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.

3.8.1. 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.

3.8.2. 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.

Gravel backfill shall be compacted to 98% of Standard Proctor Density with a moisture content between minus 4% and plus 1% of optimum at the time of compaction test. Earth backfill shall be compacted to 95% of Standard Proctor Density with a moisture content between minus 3% and plus 6%

optimum at the time of compaction test. 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.

3.4. 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. 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.

**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 Na_2O 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:

$$\text{Coarseness Factor} = \frac{\text{Cumulative Percent Retained on the } 3/8 \text{ Sieve}}{\text{Cumulative Percent on the No. 8 Sieve}} * 100$$

$$\text{Workability Factor} = \text{Percent Passing No. 8} + \frac{2.5 * (\text{Cementitious Content} - 564)}{94} * 100$$

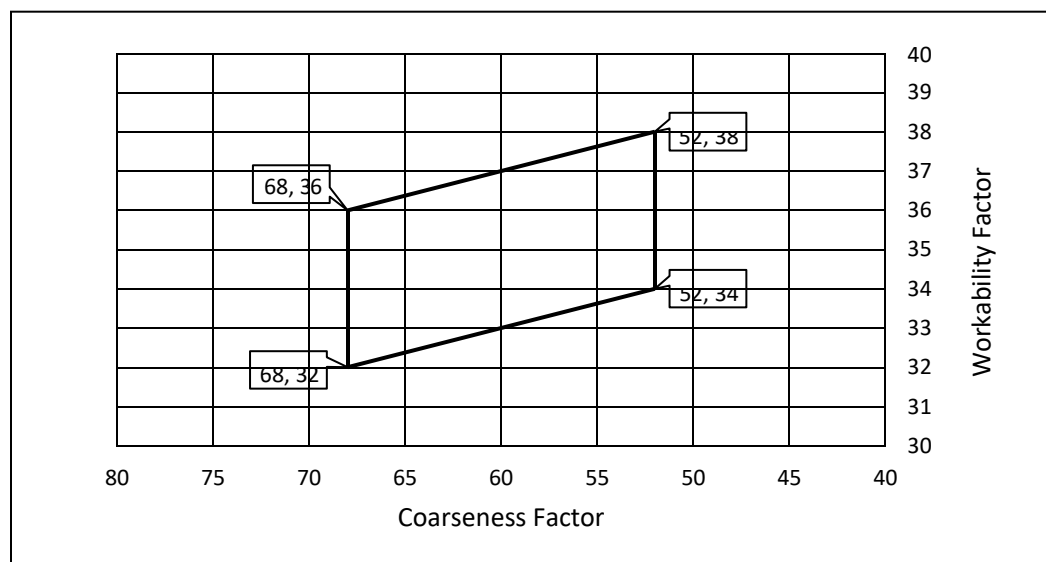


Figure 2.5.1 Coarseness and Workability

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 <u>one</u> 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 an 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, arylic-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, subgrade preparation, and filling of embankment material for construction of the roadway will be in accordance with the NDDOT Standard Specifications for Road and Bridge Construction.

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 $\pm 0.02'$ ($1/4''$) 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 Macrot texture 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 manufacturer's 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.

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:

Concrete Pavement Categories	Methods of Measuring Localized Roughness and Smoothness			
	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 AASHTOM 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. Turn lanes
- 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 daylighted 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.

3.2.2. 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 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

Excavation, Filling, and Subgrade preparation of embankment material should be paid under NDDOT contract bid items as specified within the Section 8 of the plans.

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 SIDEWALKS, DRIVEWAYS, AND IMPRESSIONED CONCRETE*

Sidewalks, driveways, and impressed concrete shall be in accordance with Section 2300 Concrete Sidewalks and Driveways.

4.2.6. *VALVE BOXES TO GRADE*

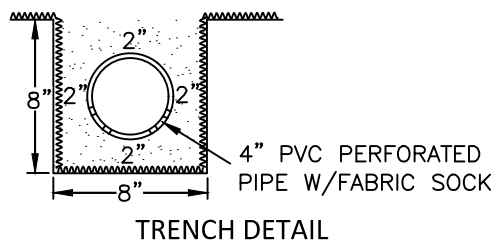
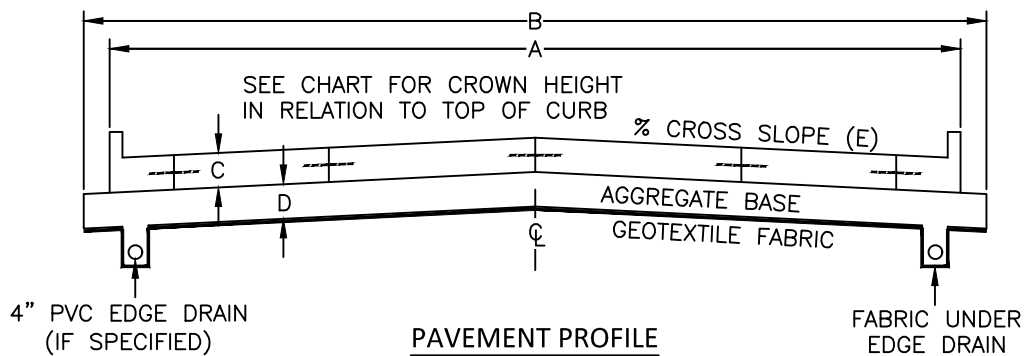
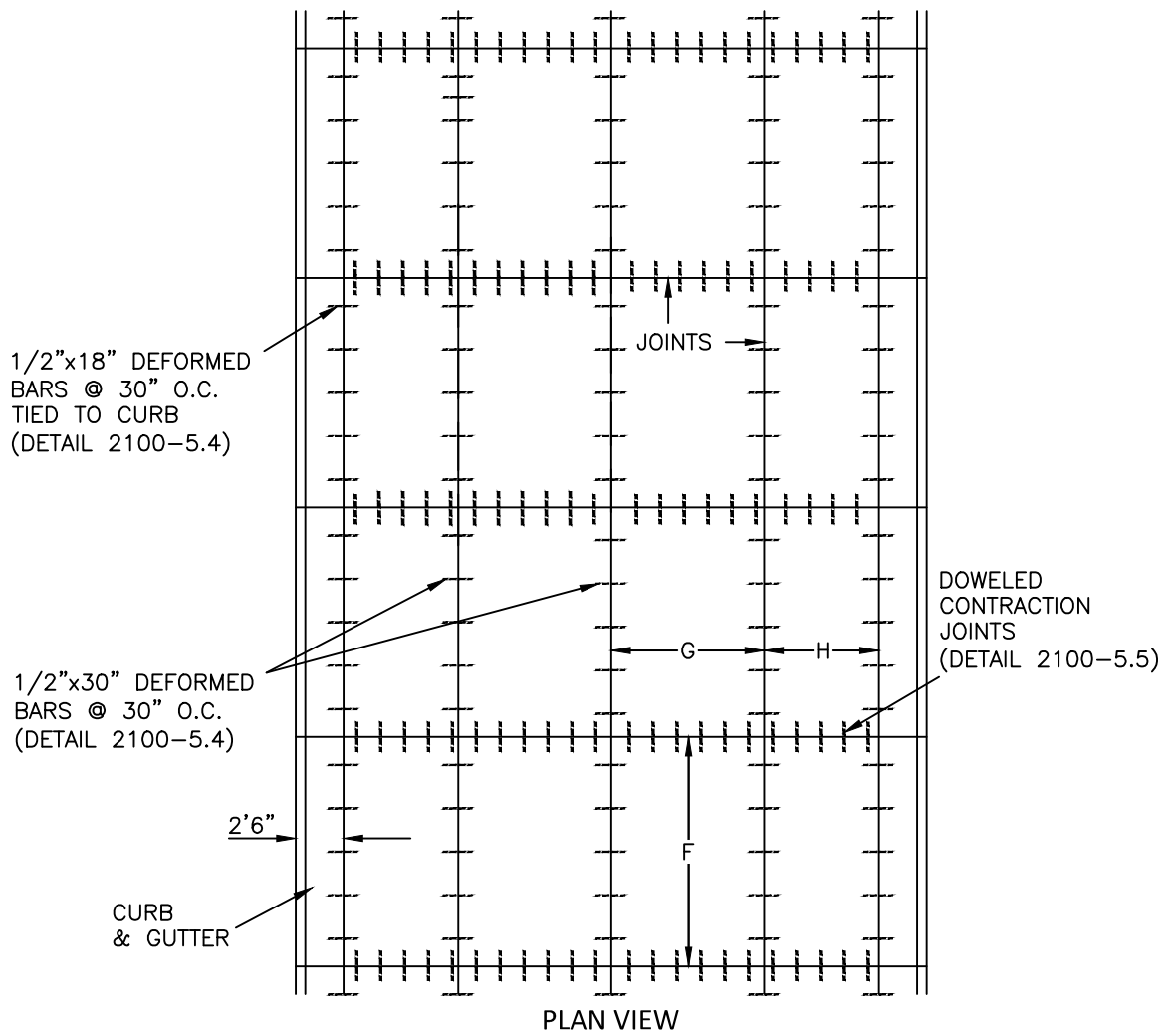
All costs associated with adjustments to gate valve boxes located in the pave or boulevard should be included in the price bid for “Gate Valve & Box <Size>IN”.

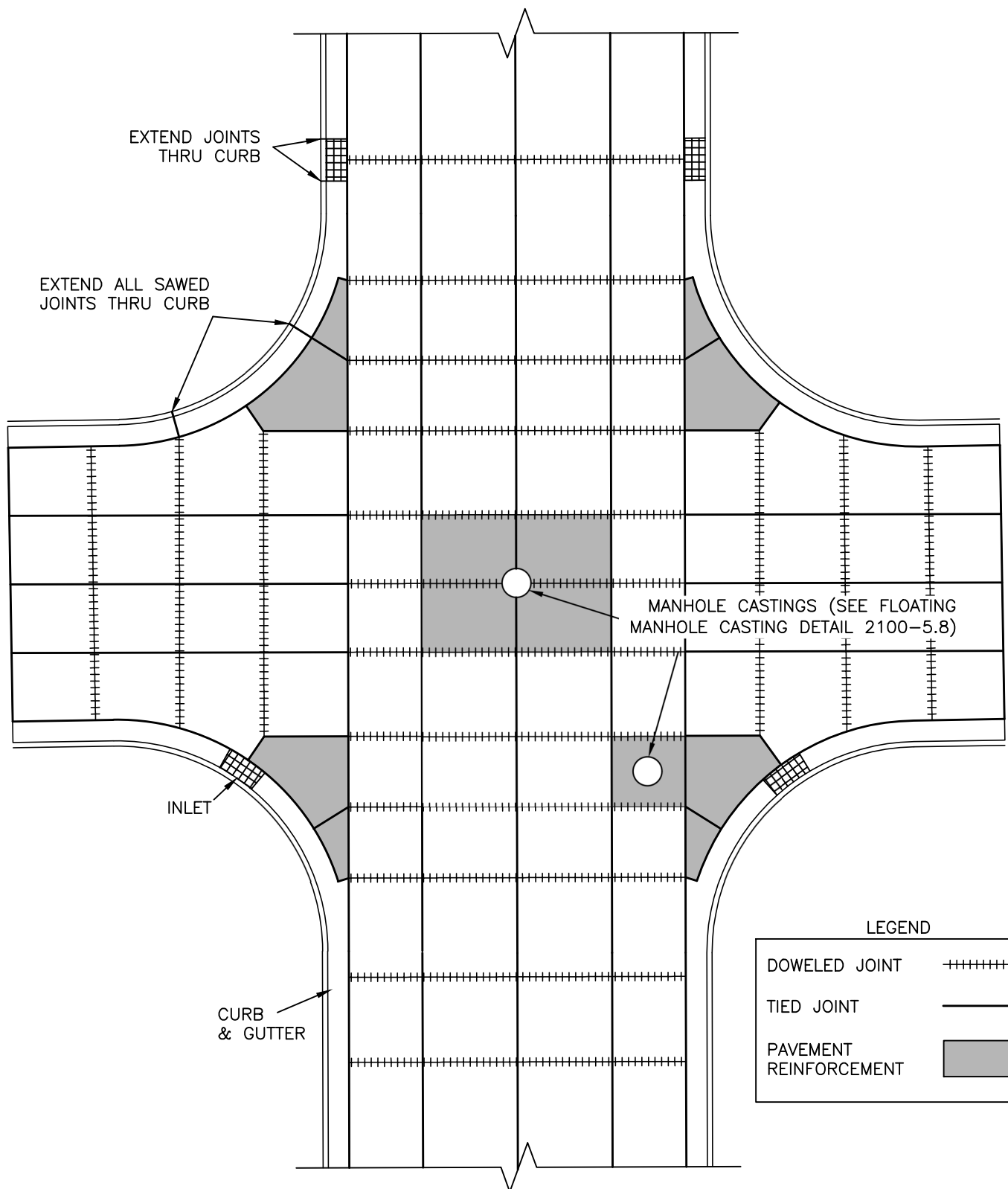
4.2.7. *OTHER COSTS*

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	F			
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" BELOW	1" ABOVE	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



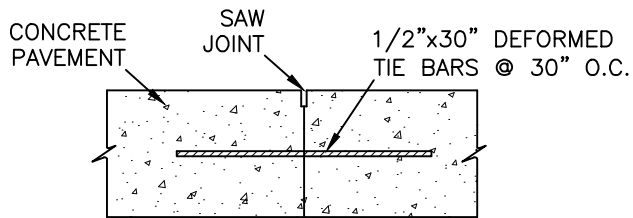
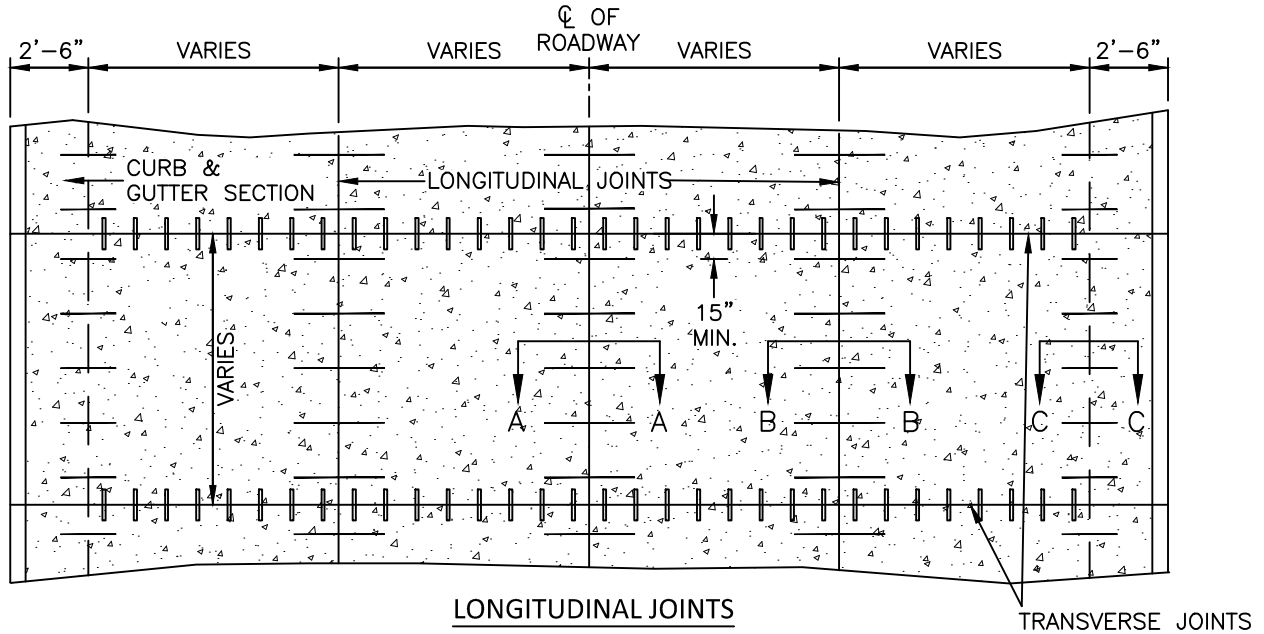


LEGEND

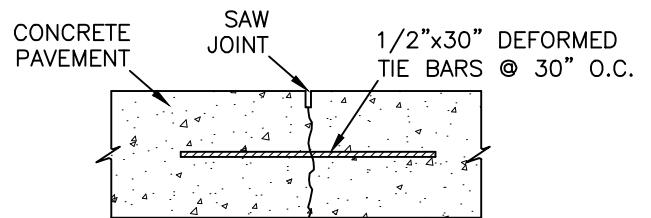
DOWELED JOINT	-----
TIED JOINT	—————
PAVEMENT REINFORCEMENT	

NOTES:

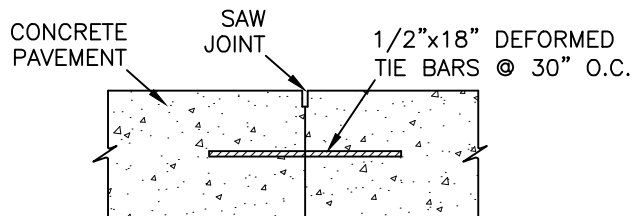
1. ALL DIMENSIONS ARE VARIABLE, SEE JOINTING PLANS AND CONCRETE PAVEMENT DETAILS FOR DIMENSIONS.
2. CURB AND GUTTER SHALL BE POURED SEPARATE FROM ADJACENT CONCRETE PAVEMENT.



SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT



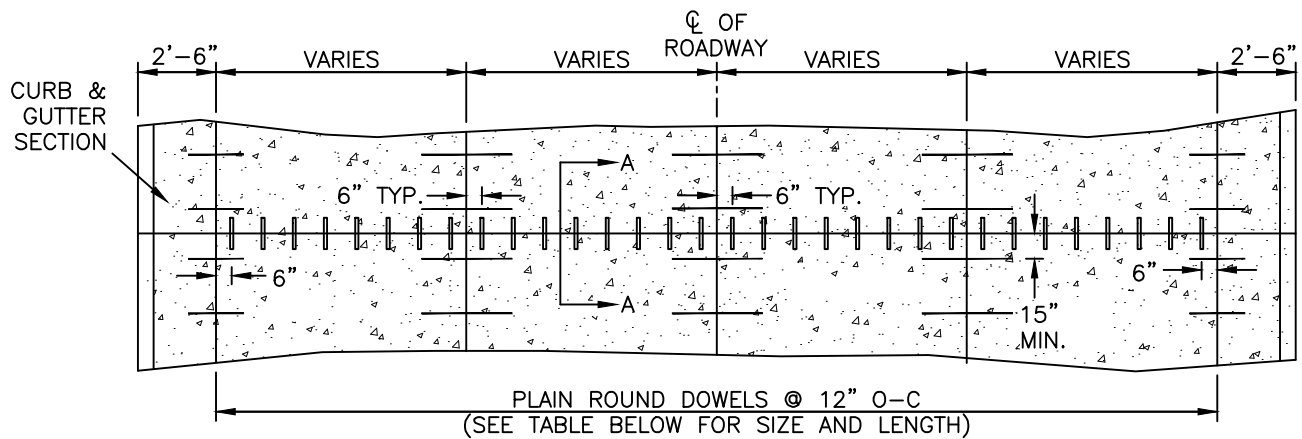
SECTION B-B
SAWED LONGITUDINAL JOINT



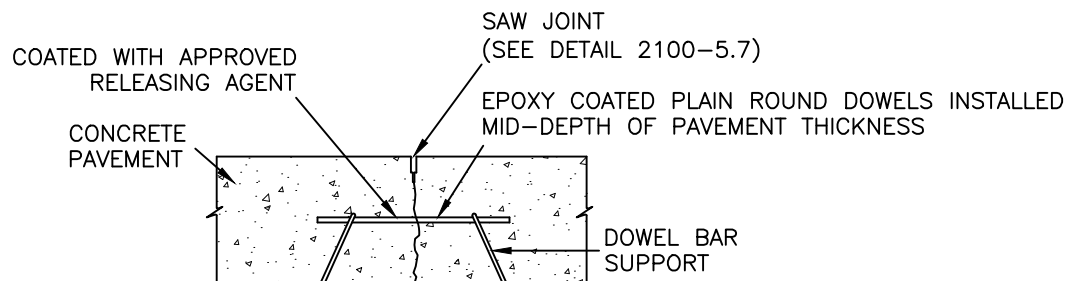
SECTION C-C
LONGITUDINAL CONSTRUCTION JOINT

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

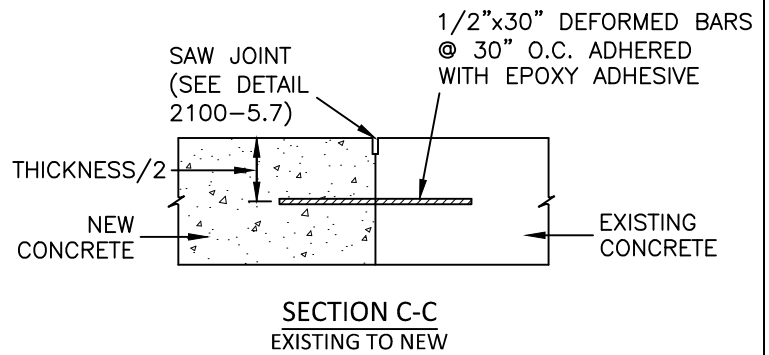
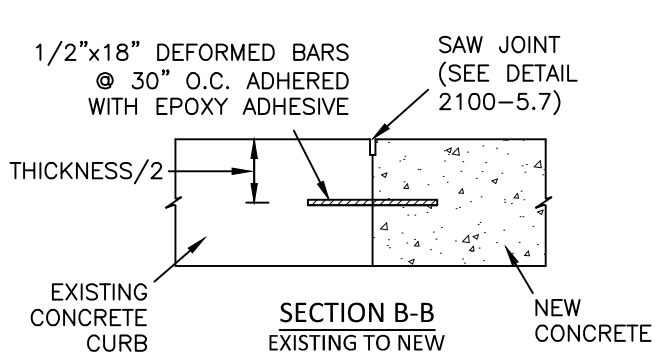
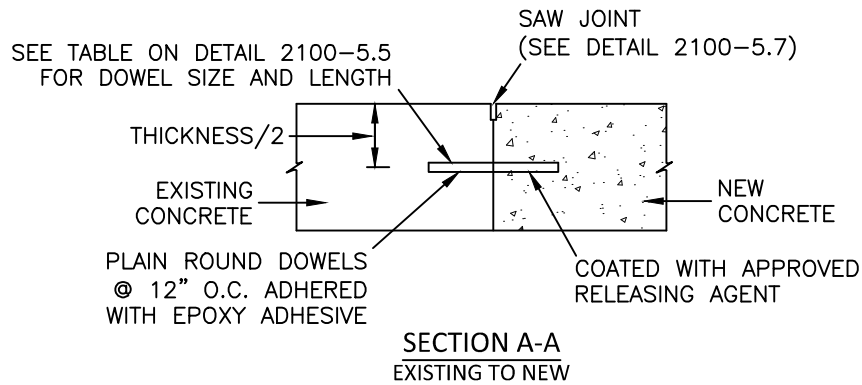
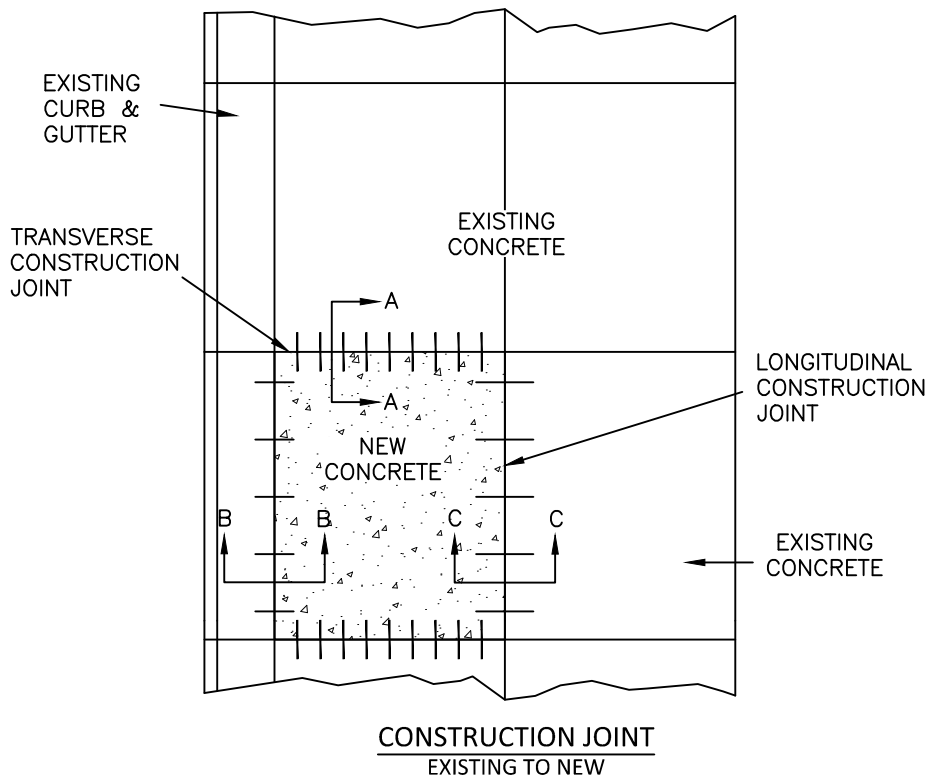


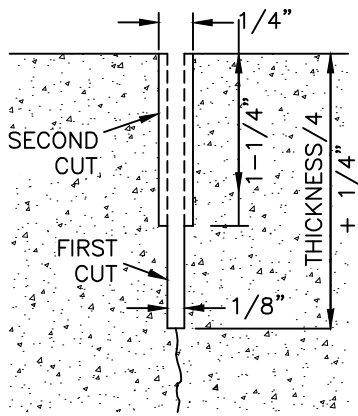
SECTION A-A DOWEL ASSEMBLY

NOTE:

1. ALL DOWELS SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A 775, EXCEPT EXPOSED ENDS RESULTING FROM SAW CUTTING OR SHEARING.

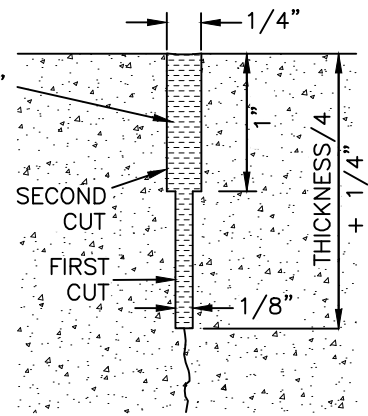
DOWELED JOINTS		
PAVEMENT THICKNESS	DOWEL BAR SIZE	TOTAL DOWEL LENGTH
7"	1"	18"
8 - 10"	1- $\frac{1}{4}$ "	18"
10.5 - 12"	1- $\frac{1}{2}$ "	18"
NOTE: ALL DOWELS ARE TO BE SPACED AT 12" O.C.		



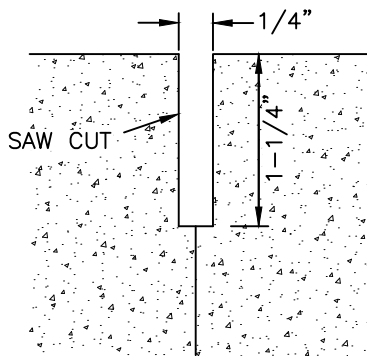


TRANSVERSE SAWED JOINT
(SEE JOINT SEALANT DETAIL)

HOT POUR JOINT SEALANT
INSTALLED FLUSH TO 1/8"
BELOW TOP OF CONCRETE
PAVEMENT

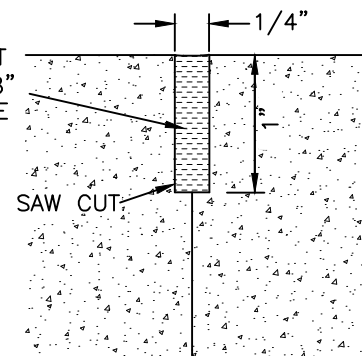


LONGITUDINAL SAWED JOINT



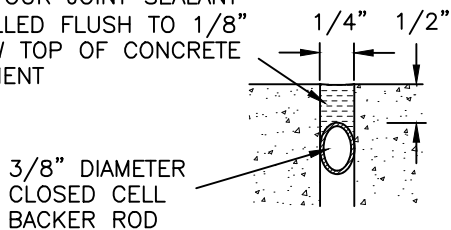
TRANSVERSE CONSTRUCTION JOINT
(SEE JOINT SEALANT DETAIL)

HOT POUR JOINT SEALANT
INSTALLED FLUSH TO 1/8"
BELOW TOP OF CONCRETE
PAVEMENT



LONGITUDINAL CONSTRUCTION JOINT

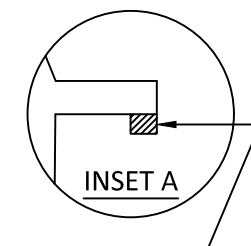
HOT POUR JOINT SEALANT
INSTALLED FLUSH TO 1/8"
BELOW TOP OF CONCRETE
PAVEMENT



JOINT SEALANT DETAIL
ALL TRANSVERSE JOINTS

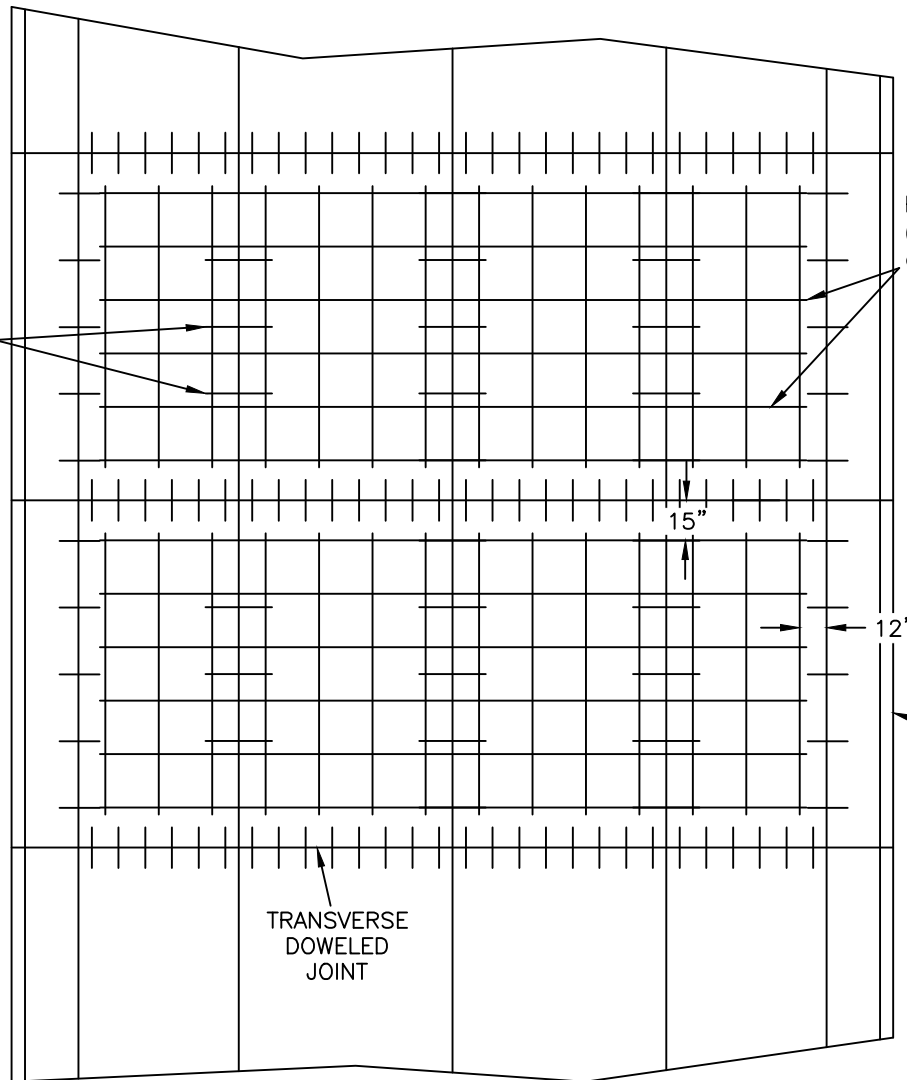
NOTES:

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.



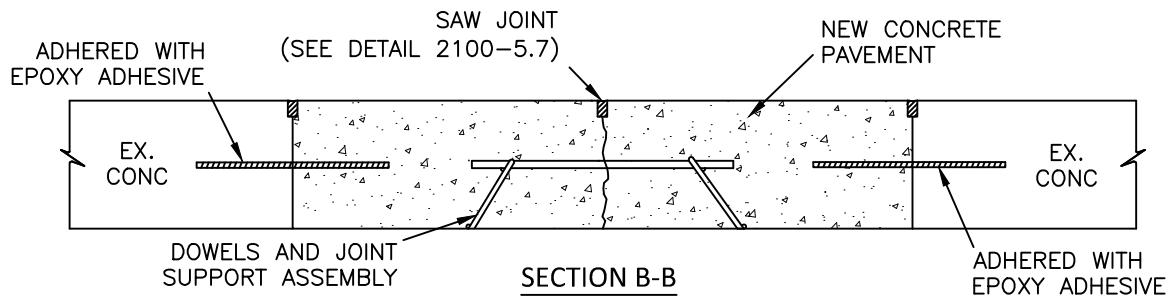
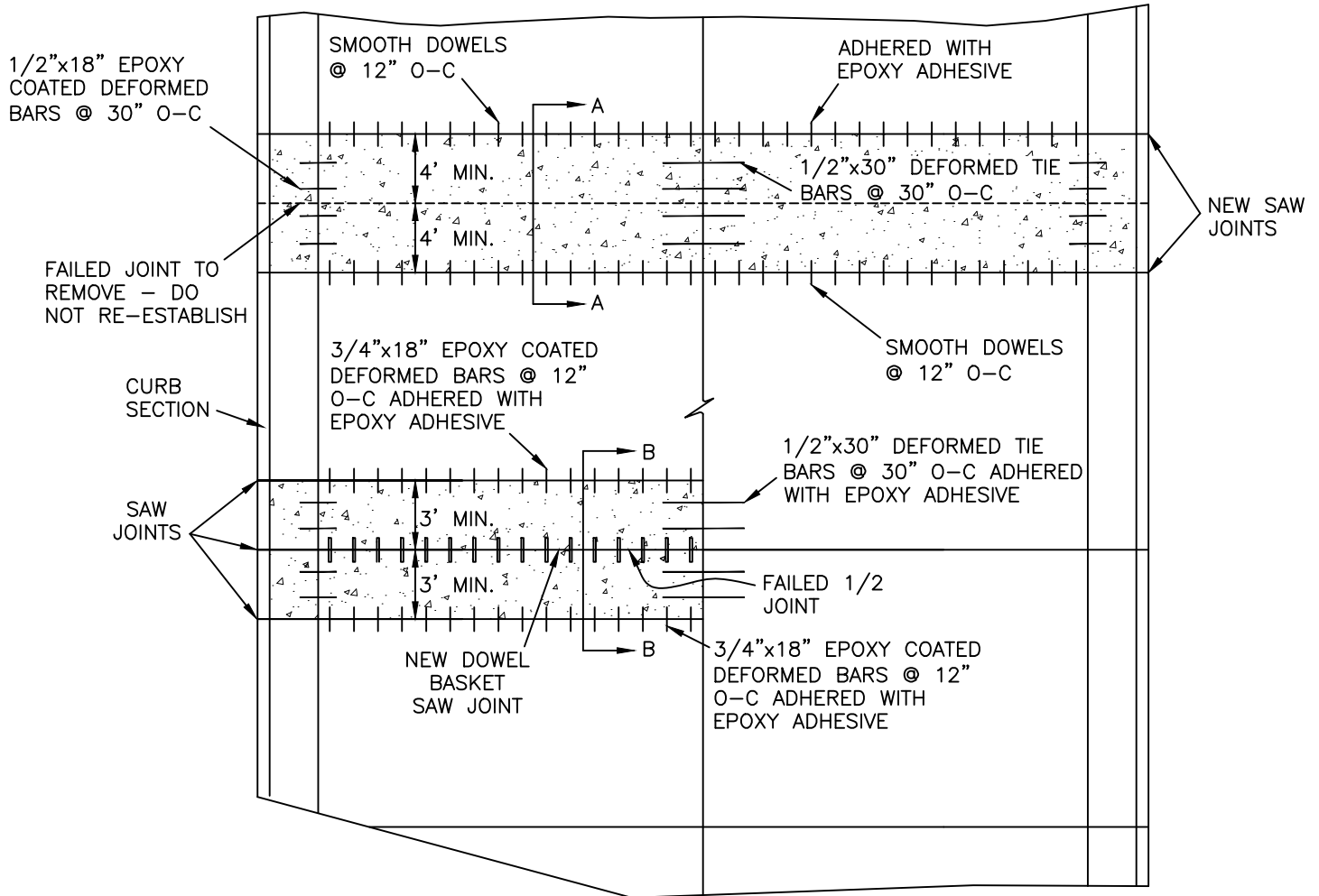
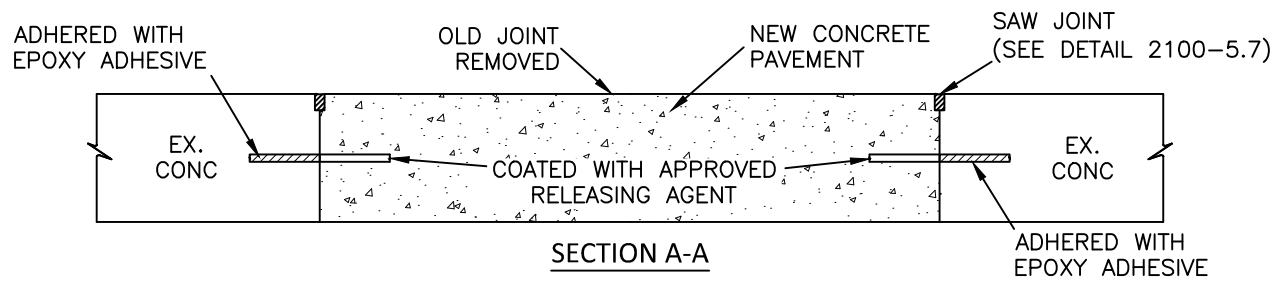
1/2"x30" #4
EPOXY COATED
DEFORMED BARS
@ 30" O.C. TIED
TO MATS

PANEL REINFORCEMENT
(#4 DEFORMED BAR
@ 24" O-C)



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:

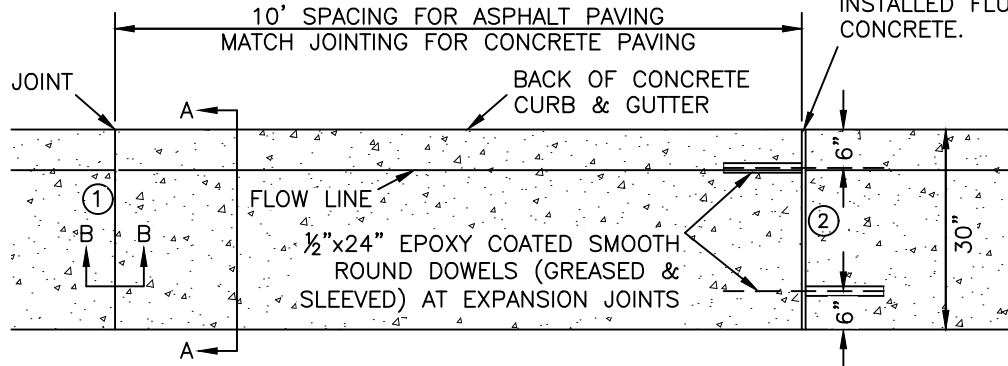
1. SMOOTH DOWELS - SEE CHART ON TRANSVERSE CONTRACTION JOINTS DETAIL 2100-5.5 FOR SIZE AND LENGTH.
2. SEE SAW JOINT DETAIL 2100-5.7.
3. THIS DETAIL SHALL ONLY APPLY TO REHABILITATION PROJECTS WHERE DESIGNATED ON THE PLANS.

- ① **ASPHALT PAVING:** SAW CUT OR TOOLED JOINTS AT 10' SPACINGS.

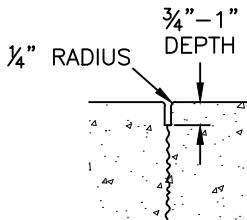
- ② PLACE 1" EXPANSION JOINTS AT P.C.'S AND AT 250' MAX. SPACINGS FOR ASPHALT PAVING

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.

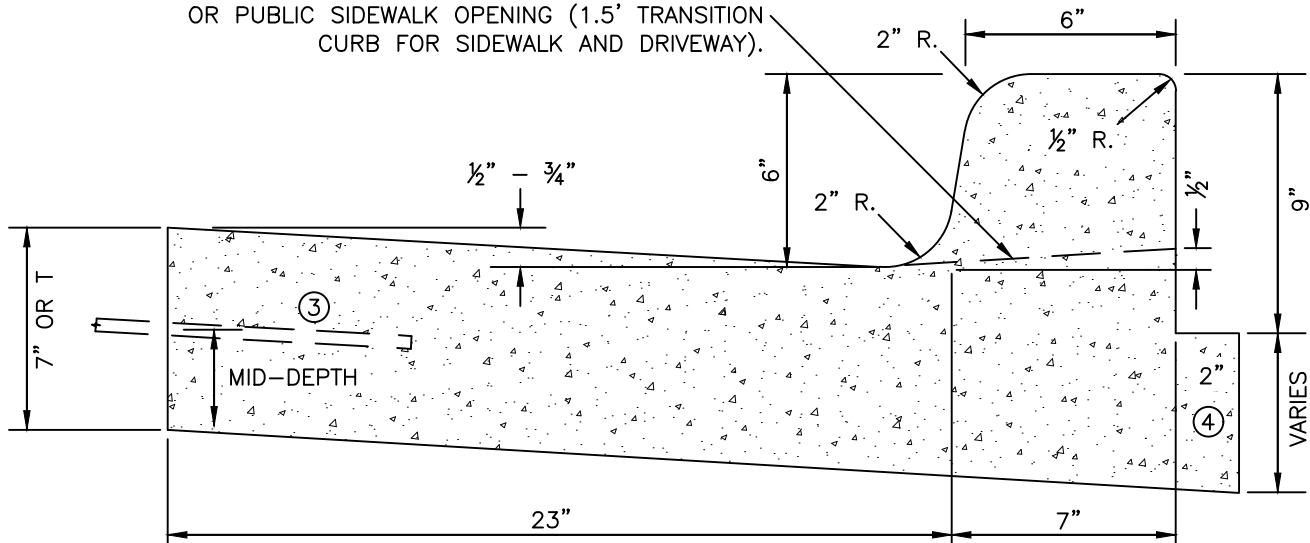


CURB & GUTTER PLAN



**TOOLED JOINT DETAIL
SECTION B-B**

CURB SECTION WHEN DROPPED FOR DRIVEWAY OR PUBLIC SIDEWALK OPENING (1.5' TRANSITION CURB FOR SIDEWALK AND DRIVEWAY).



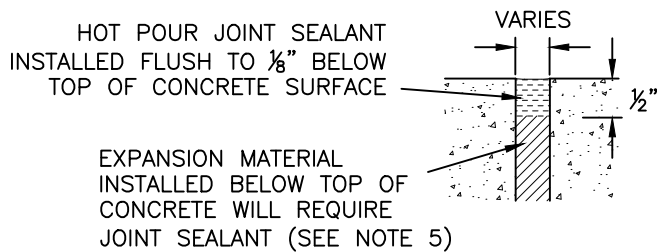
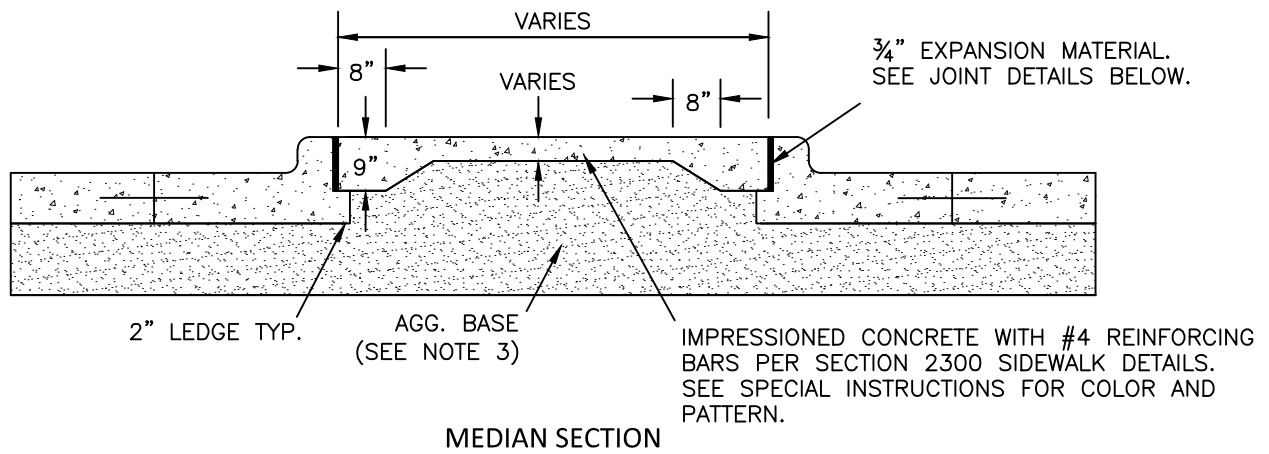
- ③ 1/2" x 18" DEFORMED BARS AT 30" O.C. REQUIRED WHEN ADJOINING CONCRETE PAVEMENT

- ④ 2" LEDGE REQUIRED WHEN ADJOINING DRIVEWAYS, MEDIAN CONCRETE, OR SIDEWALKS.

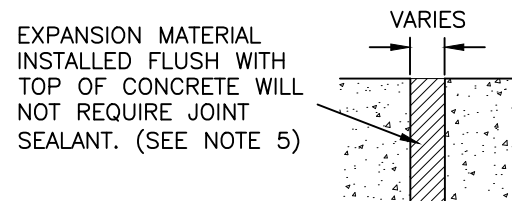
SECTION A-A

NOTES:

- DIMENSION "T" SHALL MATCH THE THICKNESS OF THE ADJOINING CONCRETE PAVEMENT
- WHEN OUTFLOW CURB IS SPECIFIED SLOPE SHALL BE 1/4" PER FOOT



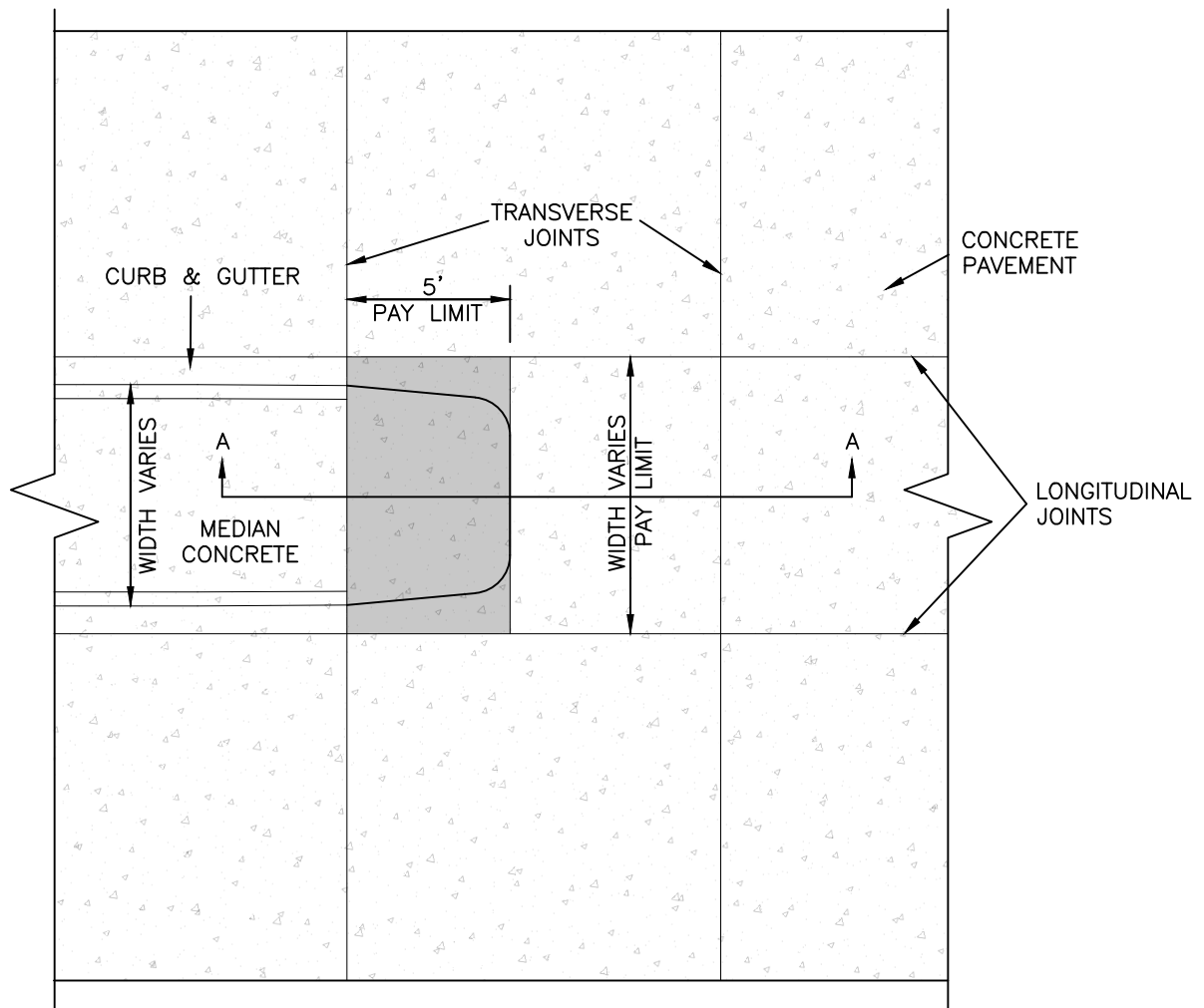
JOINT W/ SEALANT DETAIL
APPLICABLE TO ALL EXPANSION
JOINTS



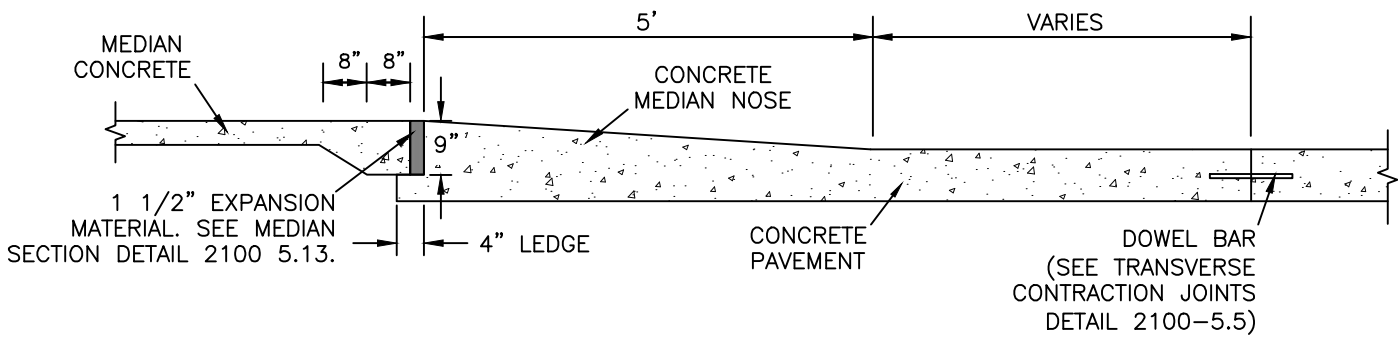
JOINT W/O SEALANT DETAIL
APPLICABLE TO ALL EXPANSION
JOINTS

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.



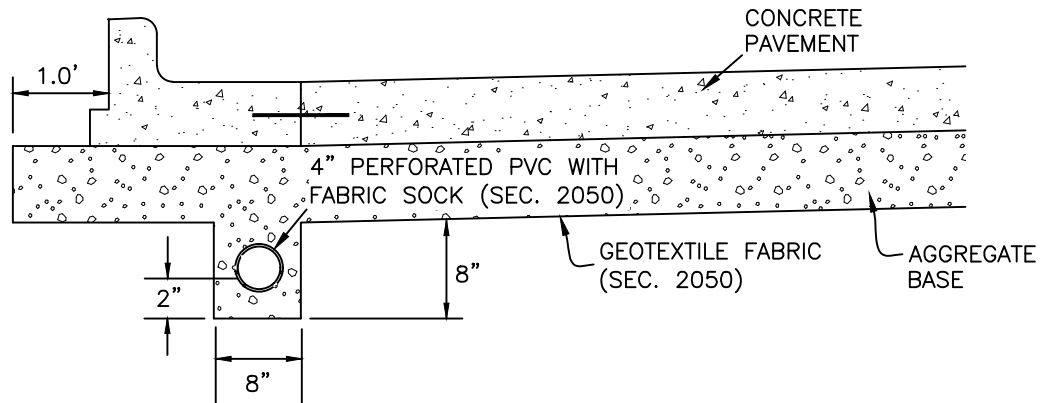
CONCRETE MEDIAN NOSE DETAIL



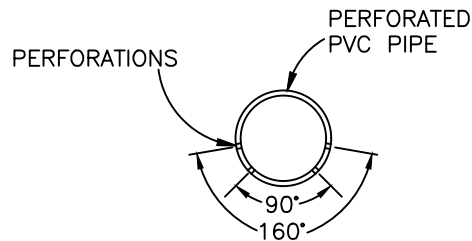
SECTION A-A

NOTE:

PAID AS "MEDIAN NOSE - CONCRETE"



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 $\pm 10^\circ$.
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 GEOTEXTILE 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.

**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

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

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 salvaged base course as outlined in NDDOT Standard Specifications for Road and Bridge Construction.

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 PANELS2.11.1. CAST IRON PANELS

Install unpainted, cast iron plates manufactured by EJ Iron Works, Neenah Foundry, or approved equal. Tuftile is not an approved equal for radial domes. Contractor shall verify the required radius size of warning panels needed to best fit each curb radius as shown on the plans.

2.11.2. *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. 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.

3.5. 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.

3.6. 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

Use a #4 deformed reinforcing bar placed a minimum of 24” o.c. both ways on all sidewalks. On the shared use path, a minimum of 5 longitudinal bars must be placed. The bar shall be six (6) inches shorter than the width of the slab, longitudinal bars spaced evenly, 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.

3.7. DIMENSIONS OF SLABS

Sidewalk shall be a minimum of 4 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.

3.8. 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.

3.9. CONTRACTION JOINTS

Saw contraction joints in a timely manner and construct per details. Saw longitudinal and transverse joints. Saw a centerline longitudinal joint on sidewalk 8' or wider per details. 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 4IN".

3.10. EXPANSION JOINTS

All expansion material shall be 1/2 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.

3.11. 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.

3.12. A.D.A. CURB RAMPS

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 is the responsibility of the Contractor to layout and construct all proposed ADA ramps in accordance with the details in Section 20 & 80 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 Contractor's 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 Contractor's expense. This layout work shall be incidental to sidewalk bid items.

Sidewalk and ADA curb ramps shall be constructed in accordance with details shown in Section 20 of these 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.

3.13. 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.

3.14. SIDE FILL REQUIRED

The Contractor will be required to backfill against the sides of the sidewalk 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.

3.15. 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.

3.16. 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.

3.17. COLD WEATHER POURING

When pouring concrete in cold weather, the provisions for cold weather pouring outlined in section 2100 of these Specifications shall apply.

3.18. 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 and impressed concrete in accordance with these Specifications.

4.2.1. SIDEWALKS

Sidewalks 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.

**CITY OF FARGO SPECIFICATIONS
SIGNING**

**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 and accessories necessary to complete the installation of signage in the City of Fargo.

PART 2

MATERIALS

All materials furnished and used for this project shall be new and shall meet the City of Fargo Details. The traffic control sign details not otherwise specified shall meet the current edition of the Manual of Uniform Traffic Control Devices, published by the FHWA. All sign faces shall be according to the detail drawings and the alphabets shown in the MUTCD, Standard Highway Signs, and Standard Alphabets, published by FHWA.

2.1. FLAT SHEET ALUMINUM

Flat sheet aluminum shall be an alloy meeting ASTM B 209 Alloy 6061 T6, or 5052-H38 with mill finish. Both mounting holes on the sign shall be 3/8" in diameter to fit a 3/8" bolt.

2.2. HARDWARE AND FITTINGS

2.2.1 Post Mounting Hardware

All steel bolts, nuts, U-bolts, lock washers, and washers shall be galvanized steel meeting ASTM A153.

1. Bolts

3/8" diameter steel panel bolts, machine bolts, etc., shall meet SAE J429 Grade 5 or ASTM A449.

2. Nuts

Steel hex nuts shall meet SAE J995 Grade 5 or ASTM A563.

3. Washers

Steel flat washers shall be fabricated of steel meeting ASTM F844. Plastic washers shall be fabricated to the sheeting manufacturer's specifications.

2.2.2. Light Standard Mounting Hardware

1. Bolts

Stainless Steel hex bolts, 1/4" diameter

2. Self-Tapping Screws

1/4" Self Tapping Screws with hex head and locking flange

3. Washers

Steel flat washers shall be fabricated of steel meeting ASTM F844. Plastic washers shall be fabricated to the sheeting manufacturer's specifications.

2.3. POSTS

Posts shall be Telespar 12 gauge brand.

Kleen Break surface mount applications shall use three Titan HD 1/2" x 4" anchor bolts or approved equal for installation.

The Contractor shall supply and install aluminum spacers with an inside hole diameter to accommodate a 3/8" rivet between back-to-back street designation signs. Street designation sign spacers shall be the same length as the outside dimension of the post. Spacers shall be installed at the midpoint for 9" signs and on the corners for signs taller than 9". All costs for spacers shall be included in the price bid for the sign panels.

PART 3

CONSTRUCTION

3.1. PRE-CONSTRUCTION SIGN RECONNAISSANCE

All existing sign posts shall be assumed to be straight and in good condition. The Contractor should verify all signage within the project limits is straight and in good condition. Before starting work, the Contractor will provide the project Engineer with a list of any damaged posts or signs. Upon substantial completion of the contract, the signs that were not on the list provided by the Contractor pre-construction but were damaged during the construction activity will be assumed to have been damaged by the Contractor and is his responsibility to replace any damaged signs to City of Fargo Standards and Specifications.

The Contractor has the responsibility of protecting all existing street signs and their supports from damage during the course of this project. The Contractor will replace and install with new all damaged signs and their supports at their own expense. In the event that they are temporarily removed during the project the City of Fargo will provide locations for them to be replaced in their original location.

3.2. LOCATING AND POSITIONING SIGNS

Each sign shall be located according to the plans. Installed signs will be inspected at night for maximum effect. If any sign is ineffective at night, the sign shall be replaced at the Contractor's expense.

3.3. SIGN FABRICATION, PACKAGING, LABELING, HANDLING, AND SHIPPING

All sign fabrication, packaging, labeling, handling, and shipping shall follow the latest version of the NDDOT Standard Specifications for Road and Bridge Construction.

3.4. ANCHOR FOR TELESCOPING PERFORATED TUBES SUPPORTS

3.4.1. Boulevard Sign Placement (Detail 5.2)

Anchors and Anchor Sleeves for telescoping perforated tubes supports shall be driven. The perforated tube anchor and sleeve shall be driven to a height of 5-6 inches above the ground. Anchors and Sleeves shall be installed per detail. Telescoping Tube posts will

not be a pay item; it will be incidental to the “Sign Assembly” bid items. It is the Contractor’s responsibility to install the sign assembly to the required height.

3.5. MOUNTING FLAT SHEET SIGNS

Flat sheet signs shall be bolted to the post or light standard, and shall have a nylon washer between the flat washer and the sign face.

3.6. REMOVING AND RESETTING SIGNS AND SIGN ASSEMBLIES

Existing signs and sign assemblies shall be removed or reset as specified. All signs and sign assemblies not to be reset shall be defaced and shall become property of the Contractor and Contractor shall be responsible for discarding items. Removed or reset signs and sign assemblies that become damaged during removing, resetting, or stockpiling shall be replaced at the Contractor’s expense. Existing signs and sign assemblies shall be removed as construction progresses, and shall be immediately reset or installed. The Contractor shall install new signs or reset signs as shown on the Plans. Any damaged signs or sign assemblies shall be replaced at the Contractor’s expense.

3.7. BREAKAWAY BASES

Breakaway bases for telescoping tubes will not be allowed on any City of Fargo construction projects for any STOP or YIELD sign installation or any other sign installed that is installed in a non-concrete/asphalt area. A Kleen Break model 425 sign post coupler will be required for all signing in concrete/asphalt surface areas excluding STOP/YIELD signs.

PART 4

GUARANTEE, MEASUREMENT & PAYMENT

4.1. GUARANTEE

The guarantee shall be per the contract.

4.2. MEASUREMENT & PAYMENT

4.2.1. SIGN PANELS

Flat sheets and panels will be paid to the closest 1/10 square foot, based on the largest measurement, horizontally and vertically as set forth in the latest edition of the Standard Highway Signs Manual published by the FHWA. All hardware, stringers, and brackets required to attach signs to the posts shall be included in the pay item.

4.2.1.1. EG Signs

This item shall be paid for at the contract unit price per square foot and shall include the cost to supply "Engineering Grade" sheeting and a aluminum panel. The size of each sign shall be as shown on the plans.

4.2.1.2. HIP Signs

This item shall be paid for at the contract unit price per square foot and shall include the cost to supply "High Intensity Prismatic" sheeting and a aluminum panel. The size of each sign shall be as shown on the plans.

4.2.1.3. DG3 Signs

This item shall be paid for at the contract unit price per square foot and shall include the cost to supply "DG Cubed" sheeting and aluminum panel. The size of each sign shall be as shown on the plans.

4.2.2. INSTALL SIGN ASSEMBLY (POST)

This item shall be paid for at the contract unit price per each, and shall include the cost to supply and install the sign support, reinforcement sleeve, and soil anchor in accordance

with the detailed drawings. The post and anchor shall be manufactured of Telespar 12 gauge square perforated tube of the size shown on the detail. The Contractor shall verify the proper length required to provide the required vertical clearance.

4.3. INSTALL SIGN ASSEMBLY (LIGHT STANDARD)

This item shall be paid for at the contract unit price per each, and shall include the cost to supply and install the sign hardware and drilling and using self tapping screws for the mounting of signs on new or existing light standards.

4.4. INSTALL TYPE III BARRICADE

This item shall be paid for at the contract unit price per each, and shall include the cost to supply and install (2) sign supports, (2) reinforcement sleeves, and (2) soil anchors in accordance with the detailed drawings. The post and anchor shall be manufactured of Telespar 12 gauge square perforated tube of the size shown on the detail. The Type III Barricade Rail is incidental to the installation of the Type III Barricade. Any sign mounted on the Type III Barricade shall be paid in accordance with section 4.2.1. The Contractor shall verify the proper length required to provide the required vertical clearance.

4.5. RELOCATE SIGN ASSEMBLY

This item shall be paid for at the contract unit price per each, and be measured by the number of locations at which a sign assembly has been reset. A sign assembly consists of the sign, post, sleeve, anchor and mounting hardware for post mounted signs. A sign assembly consists of mounting hardware and sign face for light standard mounted signs. Signs and assemblies will be counted in place and accepted by the Engineer.

4.6. REMOVE SIGN ASSEMBLY

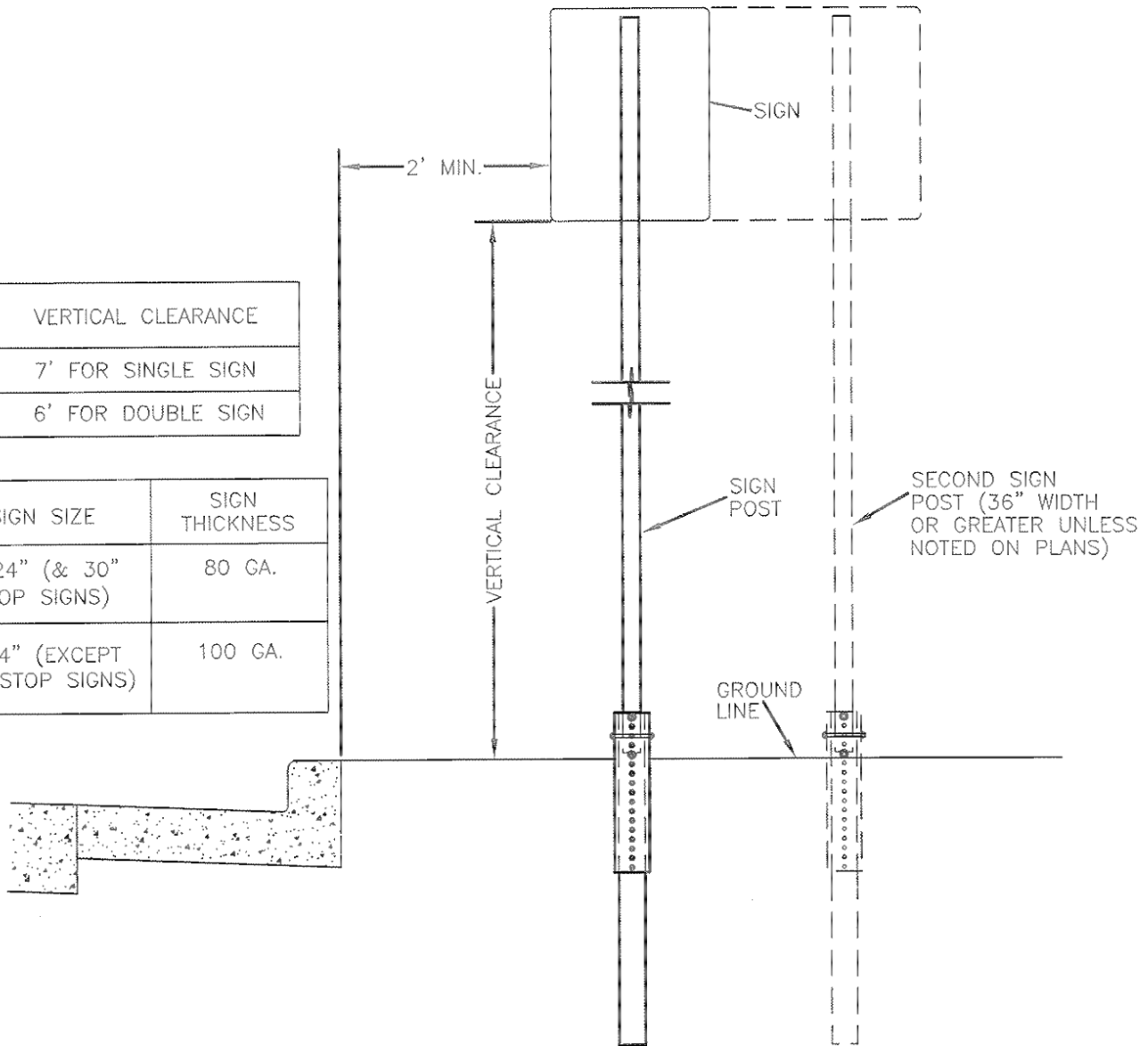
Removed signs and sign assemblies will not be measured for payment as they are incidental to the project.

4.7. *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.

VERTICAL CLEARANCE	
7' FOR SINGLE SIGN	
6' FOR DOUBLE SIGN	

SIGN SIZE	SIGN THICKNESS
≤ 24" (& 30" STOP SIGNS)	80 GA.
> 24" (EXCEPT 30" STOP SIGNS)	100 GA.



DATED SIGN TAGS ALL NEW SIGNS THAT ARE INSTALLED SHALL HAVE A DATED TAG INSTALLED ON THE BACK OF THE SIGN, SHOWING THE CONTRACTORS LOGO, MONTH AND THE YEAR THAT THE SIGN WAS INSTALLED. THE DATE SHALL BE SHOWN BY REMOVING THE CORRECT MONTH AND YEAR WITH A HOLE PUNCHER. THIS SHALL BE INCIDENTAL TO THE COST OF THE SIGN.

SECTION NO. 4300	DRAWING NO. 5.1
REV.D.	
<i>SIGN ASSEMBLY</i>	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED JAD	DATE 1/2/2013



SECTION NO.	4300	DRAWING NO.	5.2
REV,D.			
<i>SIGN ANCHOR BLVD INSTALLATION</i>			
CITY OF FARGO ENGINEERING DEPARTMENT			
APPROVED <i>BEO</i>		DATE <i>2-21-2012</i>	

SIGN SIZE	POST	ANCHOR	SLEEVE
12" WIDTH SIGNS	1.50"	1.75"	2.00"
18" WIDTH SIGNS & 24"x24" SIGNS	1.75"	2.00"	2.25"
LARGER THAN 24"x24"	2.00"	2.25"	2.50"

CITY OF FARGO SPECIFICATIONS
LANDSCAPING

PART 1
DESCRIPTION OF WORK

The work to be done under this section of the Specifications and the accompanying plans consists of furnishing and installing nursery-grown trees, shrubs, perennials, edging, benches, concrete paving, and other related material in the City of Fargo.

Certified Arborist Required:

Trees must be planted by a firm having an International Society of Arboriculture Certified Arborist on staff (not contracted nor consultant). A copy of the current and valid certificate shall be submitted to the Engineer prior to tree planting work (in the case of subcontracted tree planting work, attach the certificate to the Sublet Request Form G6 for the tree planting subcontractor).

PART 2
MATERIAL

All materials shall be obtained from sources approved by City Forestry or Project Manager. The plant material used in connection with this work shall conform to the latest edition of the “American Standard for Nursery Stock”, sponsored by American Association of Nurserymen, Inc.

2.1. PLANT MATERIALS

2.1.1. GENERAL

All plant material shall comply with all applicable State and Federal laws, including inspection certificates, which shall include the project number and plant material that the certification covers. All plant material is subject to inspection by representatives of the State and Federal Government.

All plant materials and specified shall conform to the sizing and grading standards as developed by the American Association of Nurseryman.

All plant material furnished shall be true to name and type and legible labels shall be furnished to insure that all species, varieties, boxes, bundles, bales or other containers are identified. The information on the label shall cover the botanical genus, species, common name and size of each species.

All plant material shall be sound, healthy specimens and first class representatives of their species or variety, and shall have well-formed tops and healthy root systems.

If a Contractor is unable to locate sufficient plant material in specified sizes, negotiation for unit price reduction shall be concluded prior to planting.

No substitutions of specified sizes, grades, species, qualities or forms shall be made without written permission of the City Forester or Project Manager.

2.2. MULCH

City of Fargo mulch shall be used and is available at the compost site at no cost to the Contractor. Contractor to load and haul. If applicable, in all common planting beds the existing lawn is to be 'weed-killed' with a chemical herbicide suitable for use for killing lawn, prior to the placement of mulch. The cost for this item shall be included in the contract price per planting.

2.3. STAKES

Stakes shall be steel and will be notched or drilled to retain guy wires. Steel post will be placed outside of the planting pit. The Contractor shall be responsible for the removal of the stakes after the plant material has adjusted to its site conditions (typically 2 full growing seasons). Contact the City Forester in advance for approval. The cost for this item shall be included in the contract price per tree.

2.4. WIRE

The minimum size of wire used for guying shall be 12 gauge. Substitution requests for standard hose and wire guying will not be approved. Wire should be level from stake to tree tie. The cost for this item shall be included in the contract price per tree.

2.5. BACKFILL FOR PLANT MATERIAL

The backfill shall be a suitable loam/clay mixture. When possible, use existing soil as backfill. In heavy clay soils amendments may need to be added to improve soil structure. Mix amendments prior to filling the hole to prevent stratification. The cost for this item shall be included in the contract price per tree.

2.6. LANDSCAPING EDGING

Edging shall be 'bullet' style commercial grade precast concrete edging where shown on plans and as indicated on details. Concrete shall be 3,500 minimum PSI, natural gray (without integral color). Contractor installing edging must have a minimum of 3 years experience installing 'bullet' style concrete edging and shall provide documentation of such experience.

2.7. BIO-BARRIER LANDSCAPE WEED BARRIER

Weed barrier shall be Bio-Barrier II weed barrier or approved equal. Place in perennial, shrub, and ornamental grass planting areas as indicated on plans.

2.8. TOPSOIL

All topsoil required to be imported shall meet the requirements set forth for TOPSOIL – IMPORT SPECIAL specified in Section 2000 of these Specifications.

PART 3
CONSTRUCTION

3.1. GENERAL

The Contractor shall furnish all necessary machinery, tools, labor and materials required and shall fully complete the work in accordance with the contract.

Contractor shall provide all necessary means and measures to protect storm drain inlets from erosion caused by their activities.

The entire work to be performed under the agreement is to be at the Contractor's risk, and the Contractor is to assume responsibility for all damages to the work or to contiguous property.

The Contractor shall have charge of and be responsible for the entire project until its completion and acceptance. It shall be the Contractor's responsibility to maintain all stages of work in a safe and suitable condition at all times including nights, weekends and holidays.

The Contractor shall make observations of their work during such periods as are necessary to ensure proper performance thereof.

The Contractor shall designate one person who shall have charge of the job and to whom the City Forester or Project Manager shall give directions and communicate with.

The Contractor shall be insured against liability for injury to employees in accordance with the laws of the State of North Dakota pertaining thereto.

Precautions shall be exercised at all times for the protection of persons (including employees) and property. The safety provision of applicable laws shall be observed.

The project is to be completed under the direction of the City Forester, Project Manager or designated representative, and all material used and the method of performing the work shall, at all times, be subject to review. This individual shall have the authority to decide questions, which arise as to quality and acceptability of material furnished and work performed.

3.2. 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.

PART 4
GUARANTEE, MEASUREMENT & PAYMENT

4.1. GUARANTEE

The guarantee shall be per the contract, and shall extend beyond the date of Final Completion, which is defined as the date of completion of the Establishment Period. During the warranty period, the Contractor shall replace all unacceptable plant material in the spring planting season or as directed by the City Forester or Project Manager. Replacement trees shall be guaranteed for 1 year.

4.2. ESTABLISHMENT PERIOD

The Establishment Period shall extend 1-year from the date of Substantial Completion, which is the date all other contract items are completed and accepted by the City. During the Establishment Period, the Contractor shall properly maintain all plantings included in the work. The maintenance procedures shall include: protective measures against pests and diseases (including rabbit and/or other rodent protection); watering as often as required by necessity or direction of the City Forester/Project Manager or both; repairing damage to the watering basins; and other maintenance procedures as deemed necessary by the City Forester or Project Manager including the removal of any dead plant material from the project. A DETAILED INSPECTION FORM INCLUDING WORK PERFORMED WILL NEED TO BE INCLUDED WITH ALL BILLING STATEMENTS. If these duties are not satisfactorily performed, the City Forester or Project Manager will find means for the work to be completed and the cost deducted from the retainage.

Watering trees and related plant material must be completed in a timely fashion.

All plant material shall be watered each week unless soil moisture is adequate or excessive.

It is the Contractor's responsibility to determine when to apply water and when to refrain from applying water. Watering frequency is dependent upon weather and soil conditions.

When watering plants, application rate and pressure must be sufficient to allow water to soak into the soil to the full root depth without washing away any mulch, plants, seed or soil.

- 4.2.1. The City Forester or Project Manager will make an inspection of the plant material and establishment procedures. Establishment procedures that have not been performed shall be brought to the Contractor's attention and may cause the establishment period to be extended.
- 4.2.2. Upon completion of the establishment period the City Forester or Project Manager will make an inspection of the plant material for acceptability. The inspection will normally be made during the week that the establishment period terminates.
- 4.2.3. Any plant material that is 25% dead or more shall be considered dead and must be replaced by the Contractor. Trees shall be considered dead when the main leader has died back, or 25% of the crown is dead. Shrubs shall be considered dead when 25% of the branching is dead. Removal of dead plant material shall occur right away with replacement taking place immediately or as soon as possible during the next planting season.

4.3. INSPECTION AND ACCEPTANCE

The tree-planting Contractor shall be responsible for all inspections and approval of plant materials that may be required by state, federal and/or other authorities and shall secure permits and certificates as may be required.

Each item furnished shall be within specified size, grade, species, height, form, spread, uniformity, health, condition, and free from damage, dehydration, and disease. The rejection of plant materials may take place at any time during the execution of the contract. The rejected plants or materials shall be removed immediately from the project site. All replacements of rejected plants and materials shall be subject to approval by the City Forester or Project Manager prior to use on the project.

4.4. COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall secure plant materials upon receiving the notice to proceed to guarantee specified species and sizes. Planting operations shall be conducted under favorable weather conditions during the planting seasons herein defined:

Spring May 1 to June 15

Fall September 1 to October 15

All plant installation work shall be completed by the last day of the season.

All plantings shall be maintained, watered and be in a healthy condition for the duration of the Establishment Period as defined above.

4.5. MEASUREMENT AND PAYMENT

Payment will not be made for work covered under this Section of the Specifications, whether performed by the Contractor or a subcontractor, unless the certification requirements described in PART 1 of this Section of the Specifications are met.

Payment for each contract item shall be full compensation for furnishing and applying water, and for all materials, equipment, tools, labor, and incidentals necessary to complete the work as specified herein.

Payment shall be made on the following basis:

- 1) At the discretion of the City Forester or Project Manager, contract items will be paid less 5% retainage as they are completed during the project.
- 2) Upon Substantial Completion, all contract items will be paid less 5% retainage except "Establishment Period" which will not yet be paid.
- 3) Final payment will be made upon Final Completion, defined as the completion of the Establishment Period, which will include payment for all contract items and release all retainage.
- 4) Contractor is responsible for notifying City Forester and/or Project Manager prior to scheduled watering. A detailed inspection form including work performed and watering dates shall be included with all billing statements. If these duties are not satisfactorily performed, the City Forester or Project Manager will find means for the work to be completed and the cost deducted from the retainage.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
CITY LIGHTING AND TRAFFIC SIGNAL SPECIFICATIONS
HEU-8-984(179) – PCN 24053

I hereby certify that this specification was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of North Dakota.

1.0 SUMMARY

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

<u>Section</u>	<u>Title</u>
4200	Traffic Signals
4400	Street Lighting

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

2.0 GENERAL

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.

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

Spec	Code	NDDOT Pay Item Name	City of Fargo Specification Number	Plan Section
770	0001	LIGHTING SYSTEM	4400	140
770	0100	PULL BOX	4400	140
770	4567	REMOVE LIGHTING SYSTEM	4400	140
770	4579	REMOVE PULL BOX	4400	140
772	0001	TRAFFIC SIGNAL SYSTEM	4200	150

STREET LIGHTING SPECIFICATIONS

PART 1

DESCRIPTION OF WORK

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

PART 2
MATERIALS

2.1. GENERAL

Furnish the specified material unless substitute materials are approved in writing by the Engineer.

2.2. CONDUIT

2.2.1 CONDUIT

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

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.

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. Above ground PVC conduit shall be schedule 80.

2.3. CONDUCTORS

2.3.1 UNDERGROUND CONDUCTORS

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 conductors shall be Triplex and continuously color coded (red, black and green). Conductors shall be of the size shown on the plans.

2.3.2 *STREET LIGHT STANDARD CONDUCTOR*

The conductor required for the street light standards between distribution conductors and luminaire shall consist of No. 12 AWG stranded copper, Type “USE”, rated 600 volts and be color coded “Black/Red/Green”.

Provide ground conductor from the luminaire to the hand hole.

2.4. *SPLICE CONNECTIONS*

Splice connections in street light bases and feed points shall be a Panduit PCSB4-__-12Y or Burndy BIBS4__, clear insulated aluminum multi-tap connector. Splice connections in pull boxes shall be a NSI Industries Easy-Splice Gel Tap splice kit model ESGTS-2 or a Burndy DSR-2K splice kit. All other conductor splice connections shall be UL listed, with PowerGel sealant type connections meeting all codes for desired applications and be preapproved by the engineer before using.

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

2.5. *PULL BOX*

2.5.1 *HDPE PULL BOX*

Pull boxes shall be 24” Nominal Diameter HDPE pipe that complies with ASTM F679T-1 specifications and have metal frames and covers and shall have “Street Lighting” stamped on the cover and conform to the detail included in the plans. All pull boxes in concrete areas shall have a bell end on the bottom of the pull box to prevent frost heaving.

2.5.2 *COMPOSITE PULL BOX*

The composite pull box shall be manufactured by Channell, model BULKU243636J061003, all composite pull boxes will be 24” x 36” x 36” in size unless otherwise noted on the plans. The cover shall be composite and be rated for 33,750 pounds of proof load, be gray in color and have “Street Lighting” stamped on the cover.

2.6 STREET LIGHTING STANDARDS

2.6.1 *Mouse Proofing*

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

2.6.2 *Grounding*

Grounding rod and pole grounding lugs shall be copper, and the wire to connect the lugs shall be #6 bare copper.

2.6.3 *Mounting arms for straight non-Davit Poles*

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

2.6.4 *Wire Strain Relief*

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

2.7 STREET LIGHTING LUMINAIRES

All lamps shall be a LED corn cob lamp as specified in the plans. Supply and install all lamps with an Eaton Crouse-Hinds weatherproof lamp holder gasket, model TP7170.

PART 3
INSTALLATION / REMOVALS

3.0 **GENERAL**

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.

3.0.1 **SHOP DRAWINGS**

Provide an electronic PDF file of shop drawings. Submit shop drawings on the following listed items for approval:

1. Conductors, underground and inside pole.
2. Pull Boxes
3. Street Light Standards, including all necessary calculations and drawings used in designing these poles.
4. Street Light Luminares and bulbs
5. Splice materials
6. Items requested by Engineer

3.1. **OVERHEAD LINES CLEARANCE**

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

3.1 **CONSTRUCTION REQUIREMENTS**

3.1.1 **CONCRETE BASE**

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

Column forms 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. Street light base shall have the anchor bolts, ground rod and conduits installed before concrete is poured. Concrete shall be vibrated around anchor bolts and base.

Within 3 days of street light bases being poured, install well pipe covers to protect the street light base and conduits. The well pipe cover shall remain in place until the street light standard is installed. Any bases that have live conductors going in and out of the base shall have 37" traffic drum installed and secured to the base to protect the live wires and be marked with red electrical caution tape.

Concrete shall be in accordance with Section 2100 of specifications.

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

3.1.2 CONDUIT

Install innerduct at the location shown on the plans and connect to stubbed out 1.5" conduit at all concrete base and feed point locations. Installation of innerduct shall be at a depth of 24 to 32" below finished grade. The innerduct shall be placed in line with bases. Bore innerduct 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 other locations shown on plans. All innerduct/conduits entering a pull box shall extend between 2-3" into the box. Any trench under sidewalks needs to be backfilled with Class 5.

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 and with Xcluder at pull boxes and 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 and the plug shall be labeled with the direction the conduit is stubbed out.

3.1.3 CONDUCTORS

Route distribution circuits as shown on plans. Any deviation in routing of circuits must be approved by the project Engineer.

Fuse luminaire or outlet circuits in the base of each lighting standard. Heat-shrink fuse holders for a distance of 4" on each side of the fuse holder. Fuse holders to be complete with proper fuse to protect the luminaire. If required for an outlet circuit the neutral conductor shall be solidly connected and unfused throughout the system.

Provide each luminaire with its own set of conductors and fuse holders. Install a wire strain relief for the luminaire conductors by drilling a 1/2" hole

on the bottom part of the tenon, exactly 1/2" away from the end of the tenon and use a wire tie to secure the three luminaire conductors that run down the pole to the base.

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

3.1.4 ADDITIONAL CONDUCTOR LENGTHS AND SPLICING

1. Splices and conductors in street light standard. Splices and fuse holders shall have sufficient slack to separately extend 18-24" outside of the street light standard hand hole, meaning the fuse holder shall be able to extend 18-24" outside of the standard hand hole while the 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. Contractor shall use the correct multi-tap connector that meets the NEC allowing only one wire under each lug. Strip wires according to manufacturer's specifications before inserting them into the connector and wrap the conductors together with electrical tape approximately 6- 8"

below the connector. All connectors shall be torqued according to the manufacturer's specifications using an approved torque tool. Torque specification is 50inch LBS for #4-8 wire and 45inch LBS for #10-14 wire. When finished torquing the connector, re-install the protective dust caps and then wrap the caps with electrical tape three times, only wrapping the cap area and not the bottom half of the connector so the terminations can be clearly seen. If any existing conductors need to be extended, extend the wire with the same existing gauge wire and install 3" of heat shrink on both sides of the splice.

2. Splices and conductors in pull box. Splices shall extend a minimum of four feet above finished grade. Splices in pull boxes shall have the splice connection secured to a length of 1" PVC with electrical tape such that the splice is secured in the upper 1/3 of the pull box. If any existing conductors need to be extended,, extend the wire with the same existing gauge wire and install 3" of heat shrink on both sides of the splice.

3.1.5 *PULL BOX*

HDPE Pull Box. Pull boxes in landscaped areas shall have the top of the box level with the 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. Two feet of pea rock shall be installed for drainage below the pull box and will extend 6" beyond the outside edge of pull box. The top of box shall be at final grade and sloped to match.

Composite Pull Box. Two feet of pea rock shall be installed for drainage below the pull box and will extend 6" beyond the outside edge of pull box. The top of box shall be at final grade and sloped to match.

3.1.6 *STREET LIGHT STANDARDS*

Refer to Plans for information on size and type of standards. 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 the standard's finish. Anti-seize shall be applied on all anchor bolts and nuts, and on all other fasteners attached to the street light standard and mounting arm. Standards shall be installed level and be grounded. Mouse proofing shall be installed according to the manufacturer's instructions and recommendations.

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

3.1.7 *STREET LIGHT LUMINAIRES*

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

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

3.1.8 INSTALL STANDARDS AND LUMINAIRES

Refer to Plans for information on size and type of standards and luminaires. 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, assume the standard one year warranty typically associated with Contractor provided materials.

3.1.9 REMOVE LIGHT STANDARD

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

3.1.10 REMOVE BASE

Remove the concrete base as shown on the plans or as directed by the project Engineer. Backfill with at least 6" of topsoil and properly compact the location of the removed base and any adjacent disturbed area and then seed the disturbed area.

3.1.11 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, dispose of properly. No materials will be allowed to be buried on project site. 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.

Return all salvaged materials to the City of Fargo. Fill out a City of Fargo Street Light Salvage sheet and sign with the returned materials.

*3.1.12 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 completing the installation of the street lighting system and any clean up items, 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 all deficiencies have been corrected. Forward the completed check list to the project Engineer along with the request for an initial inspection. The Engineer will set a date and time for the inspection. The Contractor will be present at this inspection and is required to open and close all pull boxes, street light standard hand holes and remove and hold wiring to allow for inspection of splices, fuse holders and anchor bolt nut tightness.

All items requiring additional work after the initial inspection will be noted by the City on the checklist. Final inspection can only be requested after completing any deficiencies. The project will not be classified as final until the City accepts the project and assigns a final acceptance date. The contractor is responsible for all maintenance of the street lighting system until the date of final acceptance.

Initial and final inspections will not be performed between November 1st and April 1st. Inspections will not be done if there is rain or snow or wind greater than 15mph or if the temperature is less than 50° F. The City of Fargo will perform one final inspection at no cost to the Contractor. The Contractor will be assessed a fee of \$500 for each additional final inspection performed by the City.

PART 4
MEASUREMENT & PAYMENT

4.0 **GUARANTEE**

The guarantee shall be per the contract with the following additions. All manufacturer warranties and guarantees with respect to materials, parts, workmanship, or performance which the products covered by the proposal shall be secured and included with the shop drawing submittal. All LED fixtures supplied shall have a 10-year manufacturer warranty. All HPS fixtures and LED corn cob bulbs shall have a 5-year manufacturer warranty.

4.1 **MEASUREMENT**

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 will be measured and paid by each:

- A. Lighting System
- B. Pull Box
- C. Remove Lighting System
- D. Remove Pull Box

4.2 **PAYMENT**

The Contractor may submit a schedule of values for each lighting signal system detailing the individual component costs. The Engineer will review the schedule of values and if acceptable, will make progressive payments based on the schedule and as the work is completed. The Engineer will not make payment beyond 80 percent of the contract unit price until the initial inspection is completed or beyond 95 percent until the lighting system is accepted.

If no schedule of values is submitted, the Engineer determine overall lighting system construction progress and make progressive payments up to 80 percent of the contract unit price until the initial inspection and then up to 95 percent until the lighting system is accepted.

Such payment is full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

**FIBER CITY OF FARGO SPECIFICATIONS
TRAFFIC SIGNALS**

**PART 1
DESCRIPTION OF WORK**

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

PART 2 MATERIALS

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

2.1 SHOP DRAWINGS

- 2.1.1. The Contractor will provide an electronic PDF file of shop drawings and certifications required by the City of Fargo within 15 days after the contracts have been signed by the City Commission. All shop drawings and certifications need to be approved prior to any work being started. The Contractor will be responsible for the accuracy of the shop drawings. The Engineer's review does not relieve the Contractor of full responsibility for providing a quality product that meets Specifications.
- 2.1.2. All manufacturer warranties and guarantees with respect to materials, parts, workmanship, or performance which the products covered by the proposal will be secured and included with the shop drawing submittal.
- 2.1.3. The Contractor will submit shop drawings on the following listed items for approval:
 - Traffic Signal Controller Cabinet
 - Galvanized Anchors
 - Load Bay
 - Controller
 - MMU
 - BIU's
 - Voltage Surge Suppression
 - Flash Transfer Power Relay
 - Solid State Flasher
 - Solid State Load Switches with Input and Output Indicators
 - Power Supply
 - Vehicle Detector Rack Card
 - MioVison GTT Model 764 Opticom Phase Selector
 - Managed Ethernet Switch
 - Jumper Cables CAT 6
 - Audible Pedestrian Push Button System
 - Video Detection System
 - IP Addressable Power Strip
 - Any other relays or extra equipment in cabinet not listed above

- Battery Backup Cabinet
 - UPS Power Module
 - Batteries
 - Battery Charge Management System
 - Maintenance Bypass Switch
 - Signal Cabinet Circuit Breaker
- Feed Point Cabinet
 - Galvanized Anchors
 - Anchor Epoxy
 - Surge Protection
 - Load Center Breaker Panel
 - Circuit Breaker
 - Power Wire USE/RHW
 - Meter Socket
 - Contactors
 - Photo eye
 - All other outlets, switches, connectors, or misc parts.
- EVP System
 - Opticom Detector
 - EVP Confirmation Light
 - EVP Mounting Hardware
 - Opticom Cable
- Fiber Communication
 - Fiber Optic Cable
 - Fiber Optic Pigtail
 - Fiber Optic Connectors
 - Fiber Optic Jumper Cables
 - Fiber Optic Distribution Panel
 - Fiber Optic Splice Cabinet
 - Fiber Optic Splice Enclosure
 - Fiber Vault/Pull Box
- Vehicle Heads
 - Housing
 - Back Plate (including screws and washers)
 - LED Sections
 - Mounting Hardware-Must include complete installation instructions
 - Visors-Cup or Cutaway

- Pedestrian Heads
 - Housing
 - Visor
 - LED section
 - Mounting Hardware-Must include complete installation instructions
- Signal Standards
 - Standard
 - Mast Arm
 - Transformer Base
 - Anchor Bolts
 - Bolts, Nuts, & Washers
 - Luminaire Extension & Fixture
 - Mouse Proofing
 - Paint, Primer, Galvanizing Coatings
- Pull Box/Vault
 - Frame-Non Concrete and In Concrete
 - Cover
 - Pull Box
- Pedestrian Push Buttons
 - Button
 - Housing
 - Sign
 - Post
 - No.16 AWG 3(Polara APS)
 - APS Ped Head Module
- Detection Loops
 - Loop Wire
 - Loop Sealant
 - Loop Lead-in
 - Splice Kits
- Conduit & Innerduct (HDPE)
 - All sizes
- Signal Control Cables
 - No.14 AWG 20
 - No.14 AWG 12
 - No.14 AWG 7
 - No.14 AWG 5

- No.14 AWG 3
- No.14 AWG 2
- Labeling Tape
- Camera Equipment
 - Camera
 - Mounting Hardware
 - Power Supply
 - POE Surge Protection Device
 - Cables CAT 6 & No.16 AWG 3
 - Managed Ethernet Switch
 - All stainless steel banding and buckles
- Interim Traffic Signal
 - Wood Service Poles
 - Vehicle Head Hardware
 - Pedestrian Head Hardware
 - Span Wire
 - Guy Wire Anchors & Hardware
 - Junction Boxes on Poles
 - Weather Entrance Heads
 - Span, Stabilization, & Guy Wire I-Bolts and Hardware
 - 1" Ultratite-Type UL Liquid Tight Flexible Metal Conduit

2.2 SERVICE MANUALS

- 2.2.1. The Contractor will furnish the Engineer/Project Manager with one service/operational manual, for all traffic signal parts and equipment.
- 2.2.2. Each service/operational manual will include the following minimum information:
- Detailed description of operation and instructions for initial set-up
 - All schematics and wiring diagrams of the unit
 - Recommended servicing and service troubleshooting
 - Complete parts list
 - Recommended spare parts list

2.3 TRAFFIC SIGNAL CABINET

2.3.1 CABINET TYPE:

- HAWK - Cabinet will be a pole-mounted Econolite size M49 (49" H x 30" W x 18.75" D) with a Plug-N-Go 8-phase panel.

- TYPE B - Cabinet will be a pad-mounted Econolite size P65 (65"H x 44"W x 25.5"D)-Plug-N-Go 16 phase panel.

2.3.2 *TYPE B/HAWK TS2 CABINET BOTH WILL INCLUDE:*

- Econolite Cobalt TS2/Type 2 Controller with full ATC compliance, with A, B, C, and D harness connectors, and the most recent software will be installed, unless not compatible with current central system. Supplier/manufacturer will provide an additional four-year warranty, for a total of five years on the Econolite Cobalt controller.
- Cabinet will include an installed and wired FC6482 Pedestrian Interface Block by TCC.
- RENO Model MMU2-1600GE MMU
- Econolite PS-250 TS2 Cabinet Power Supply
- *Econolite BIU-64 Bus Interface Unit (two spare required)
- *Reno Model LS-200-SS or EDI equal Solid State Load Switch (one spare required)
- *Reno TR-200 or EDI equal Flash Transfer Relay
- *Reno Model G-200 or EDI equal Loop Detector Card (two spare required) (Not required for HAWK cabinet)
- Digital Loggers PRO Remote IP Power Strip
- Model 764 Multimode Phase Selector Opticom card by MioVision/Global Traffic Technologies (Not required for HAWK cabinet)
- An Advantech EKI-7720G-4FPI-AE managed ethernet switch, with a NVVV NDR-240-48 Power supply, or approved equal.
- (4) SFP(s) SFP-GSM-20K (Extended Temp) -IE-SFP/1250-ED, SM1310-LC
- (2) SFP(s) SFP-GMM-2K (Extended Temp) Industrial Grade
- (2) SFP(s) SFP-FMM-2K (Extended Temp) Industrial Grade
- (6) Belden DataTuff® CAT 6 RJ45 cord set, part number E601002
- *OCC ZDMB6B Fiber distribution enclosure with a 6112DLC adapter plate or approved equal
- * Fiber jumper(s) with minimum outside diameter of 3.0 mm
- 6x6x6 lockable, galvanized and painted metal, waterproof, NEMA 4 rated splice box for locate wires. Lock will be furnished by City of Fargo.
- Fully wired with UL and NEMA compliance
- ALL components WILL have minimum temperature rating range from -40 degrees F to +160 degrees F

**See plan sheets for quantity to be included.*

2.3.3 CABINET FOUNDATION

- Concrete will be in accordance with Section 2100 of Fargo Standard Specifications
- Each Anchor will include; a ¾" by 17" with a 3" hook bolt, an ASTM F844 Type A Wide flat washer, lock washer, and Grade DH nut, all hardware will be ASTM, Class C & F2329 galvanizing. Bolts will meet ASTM F1554-07 Gr55 &/or AASTO M314-90(200) Gr55.

2.3.4 BATTERY BACKUP SYSTEM WILL INCLUDE:

- 41H24W16D Southern Manufacturing Cabinet with fan and thermostat or approved equal
- All battery shelves will slide out to fully access battery connections
- Alpha-FXM HP1100 with SNMP Ethernet Interface-Part # 0170024-001
- Universal Automatic Transfer switch with status dry contact terminal blocks 120 volt with all accessories-Part # 020-165-22
- Wall mount kit for UATS- Part # 740-756-21
- (4) Alpha Cell 195 XTV - 5 Yr Warranty - 100Ah- Part # 1810228
- Remote Battery Management System/RMBS Plus- Part # 0370260-002
- 30A Circuit breaker and mounting hardware

2.3.5 PROTECTIVE BOLLARDS

- Minimum of four are required, see plans
- Bollard will be schedule 80 carbon steel, that conforms to ASTM-A53, with O.D. 6.625" with .432" wall thickness
- Each bollard will include a HDPE cover that is 52" tall, yellow in color, a minimum 1/8" thick, and has (2) recessed reflective strips.

2.4 TRAFFIC SIGNAL STANDARDS

2.4.1 TYPE IV TRAFFIC SIGNAL STANDARD

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

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

2.4.2 TYPE V TRAFFIC SIGNAL STANDARD

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

2.5 SIGNAL AND SIGNAL/STREETLIGHT COMBINATION FEED POINTS

2.5.1 TRAFFIC SIGNAL ONLY FEED POINT

- Will be NEMA 3R rating with lock drip shield and a 10-gauge galvanized steel or aluminum back panel with ½" spacer behind the panel.
- Will be constructed of welded, anodized Duranodiz 311 finished aluminum or stainless steel, minimum .125 thick, with non-corroding hardware.
- The minimum size will be 48" high, 16" wide, 14" deep, with a 3-point latch pad lockable handle.
- Will be weatherproof and **ALL** seams will be completely welded, no holes or gaps.
- Padlock can be obtained from the City of Fargo Engineering Department.
- All equipment will be UL listed, meet local temperate rating, and be rated for damp locations.
- Will include a surge protection device that meets the following; 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 will certify that the suppressor meets ANSI C 621.1/IEEE, Standard 28, paragraphs 7.1 and 7.6. The suppressor peak voltage will not exceed 3 KV when tested according to paragraphs 7.3 and

7.5 of the ANSI/IEEE Specification. The operating temperature will be at minimum -40C(-40F) to +60C(140F).

2.5.2 COMBO SIGNAL AND STREETLIGHTING FEED POINT

- All cabinets will be NEMA 3R rating with lock drip shield and a 10-gauge galvanized steel or aluminum back panel with ½” spacer behind the panel.
- The cabinet will be constructed of welded, anodized Duranodiz 311 finished aluminum or stainless steel, minimum .125 thick, with non-corroding hardware.
- The minimum size will be 60” high, 27” wide, 14” deep, (larger size may be required based on number of street light circuits) with a 3-point latch pad lockable handle.
- Cabinet will be weatherproof and ALL seams will be completely welded, no holes or gaps.
- Padlock will be obtained from the City of Fargo Engineering Department.
- The Electrical Company may require 2 electrical meters; 1 for traffic signals and 1 for street lights.
- Will include a surge protection device that meets the following; 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 will certify that the suppressor meets ANSI C 621.1/IEEE, Standard 28, paragraphs 7.1 and 7.6. The suppressor peak voltage will not exceed 3 KV when tested according to paragraphs 7.3 and 7.5 of the ANSI/IEEE Specification. The operating temperature will be at minimum -40C(-40F) to +60C(140F).
- Photo eye lighting control will be a Tyco Electronics, model SST-PV-IES, with 20-40 second on/off delay, or an equal that matches specifications, and is approved.

2.6 PEDESTION PUSH BUTTON

2.6.1 PEDESTRIAN PUSH BUTTON POST

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

2.6.2 APS SYSTEM

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

2.7 VEHICLE/PEDESTRIAN INDICATION HEADS

2.7.1 VEHICLE INDICATION HEADS

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

on all screws. Washers will be stainless steel #10 fender washers. Screws used to attach the back plates to the signal head will be highest quality stainless steel ½" #10 pan head tap screws, if a magnet sticks to either they will be rejected.

2.7.2 PEDESTRIAN INDICATION HEADS

- All pedestrian head mounting hardware will be iron. ALL hub plates/shoes will be aluminum. Color WILL be black unless noted in plans.
- All pedestrian heads will be 16"x18" countdown pedestrian signals. Approved pedestrian countdown signals are GE "VLA" series part number PS7-CFF1-VLA, or Dialight ITE Compliant pedestrian countdown signal part number 430-7773-001X or approved equal.
- All pedestrian heads will be SG polycarbonate.
- All pedestrian heads will be manufactured by Siemens Eagle, McCain, or approved equal. All pedestrian heads will include a 16" aluminum tunnel visor, a aluminum door, and aluminum frame.

2.8 PULLBOXES AND VAULTS

2.8.1 TRAFFIC SIGNAL AND FIBER (NON-SPLICE) PULLBOXES

- Pull boxes will be 24" diameter by 48" deep, PVC that meets ASTM F679 standards. The casting will be either Neenah R-1733 or EJ V1600-3, and covers will be Part # 17335045 from Sanders Metal Products, and have "Electric" on it. All PVC pullboxes installed in concrete areas will have a bell end installed on the bottom to prevent frost heaving.

2.8.2 FIBER SPLICE VAULT

- All fiber splice vaults will be manufactured by Hubbell (DT304836C2H00), or Channell Grade Level box BULK 7 (part number BULKU304836J061010). The size will be 30" x 48" x 36" deep,. The cover will be Composite and be rated for 33,750 lbs. of proof load. Cover will be secured with stainless or galvanized steel bolts, and have a logo of "Traffic Signals", and color will be gray. All vault covers will be "Tier 22" rated.

2.9 CONDUIT

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

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

2.10 TRAFFIC SIGNAL CONDUCTORS/CONTROL CABLES*2.10.1 MULTI-CONDUCTOR CONTROL CABLES IMSA 20-1*

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

2.10.2 LOOP LEAD-IN CABLE IMSA 50-2

- The Loop Lead-in cables will be #14AWG stranded tinned copper, and meet ISMA 50-2 specifications, including:
 - Conductors: Stranded annealed tinned copper per ASTM B33 and B8
 - 600V Rated
 - Insulation: High Molecular Weight Polyethylene HMWPE
 - Rip Cord: High strength rip cord for ease of jacket removal
 - Drain Wire: #16AWG Tinned copper
 - Overall Shield: 100% coverage aluminum/polyester foil shield
 - Jacket: Black polyethylene PE jacket

2.10.3 MIOVISION (GTT) OPTICOM™ IR SYSTEM - MODEL 138 DETECTOR CABLE

- The Opticom™ Model 138 Detector Cable will be designed and manufactured explicitly for use with Opticom™ Detectors by Miovision (GTT), no other cables are approved.

2.10.4 IN GROUND LOOP CABLE IMSA 51-7

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

2.10.5 CATEGORY 6 DATA CABLE

- Cable will be an industrial grade, 4 bonded pair #23AWG solid bare copper, and meet the following specifications:
 - 600V Rated

- Pair Insulation: PO-Polyolefin or PP-Polypropylene
- Color Code: White/Blue Stripe & Blue, White/Orange Stripe & Orange, White/Green Stripe & Green, White/Brown Stripe & Brown
- NEMA WC-63.1
- Drain Wire: #24AWG Tinned copper
- Overall Shield: 100% coverage aluminum/polyester foil shield
- Operating Temperature rating: -40°C To +75°C
- Environmental Suitability: Outdoor, Sunlight Resistance, Oil Resistance

2.10.6 SERVICE/FEEDER WIRE

- The wire will be 600V rated Type RHH, RHW-2, or USE-2 copper. Install size according to NEC specifications. The wire will be annealed (soft) copper; insulation will be abrasion, moisture, and sunlight resistant cross-linked polyethylene (XLP).

2.10.7 LOCATE/TRACE WIRE

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

2.10.8 CABLE LABELS

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

2.11 FIBER/COMMUNICATION CABLE, SPLICE PIGTAILS, JUMPERS, AND ENCLOSURE

2.11.1 SINGLE MODE INTERCONNECT CABLE

- The cable will be a 144-strand single mode fiber optic cable manufactured by OCC Fiber, Corning, Superior Essex, or approved equal. All cables will meet the following specifications:
 - The cable will either be a loose tube, single jacket, all dielectric cable design, or non-gel filled with a dielectric central strength member, and a dry water blocking system. No metallic material will be allowed in the cable.
 - Dual Window for 1310 and 1550 nm wavelengths
 - Cables will follow ANSI/TIA/EIA 598B color-coding standards

- Jacket: UV and moisture resistant Polyethylene PE jacket with sequential footage markings
- Core Diameter (μm) – 8.0 to 10.0
- Clad Diameter (μm) – 125
- Max. Attenuation (db/km) – 0.35 @ wavelength 1310 nm and 0.25 @ wavelength 1550 nm and will meet or exceed Ethernet transmission standard IEEE 802.3ae
- Max. Tensile Loading (N) – 2700 Short Term and 600 Long Term

2.11.2 CABINET FIBER JUMPERS

- The fiber jumper cables will be:
 - Minimum outside diameter of 3.0mm
 - Made with flexible insulation in cold temperatures-NO PVC
 - Minimum of 24" in length, long enough to support neatly, with slack.

2.11.3 FIBER PIGTAIL FROM ENCLOSURE TO CABINET

- Fiber optic pigtail will be an OCC LC12XBX8D18-XXX SM ASSEMBLY W/BX 12F with yellow outer jacket for single-mode, and LC12XBX6D18-XXX MM ASSEMBLY W/BX 12F with orange outer jacket for multi-mode, with a 3.0mm sub-cable around each fiber strand or approved equal. All ends of the pigtail will be factory installed.

2.11.4 CABINET FIBER PATCH PANEL ENCLOSURE

- Fiber patch panel enclosures will be an OCC part # ZDMB6B with a part # 6112DLC adaptor plate, or approved equal. Adapter plate may vary depending on the number of fibers landed in the signal cabinet. See fiber splice diagrams for details.

2.11.5 FIBER SEALED SPLICE ENCLOSURE

- Fiber splice enclosures will be either, Commscope FOSC 450 D6 or AFL Apex X-2, and meet the following specifications
 - Minimum of 6 cable ports
 - Minimum of 6 splice trays
 - See plans for other specified Enclosure sizes.

2.11.6 FIBER SCALABILITY CABINET/HUB

- Fiber scalability cabinet will be manufactured by Clearfield, and meet the following specifications:
 - Pad Mounted
 - Minimum of 576 LC cable ports

- Minimum of 6 cable entrances
- Will have a 12” basement riser
- Will meet NEMA 4 specifications.
- Powder Coated Aluminum

2.12 EMERGENCY VEHICLE PRE-EMPTION

2.12.1 EMERGENCY VEHICLE PRE-EMPTION SYSTEM WILL INCLUDE:

- Model 764 Multimode Phase Selector Opticom™ Card by MioVision Global Traffic Technologies
- Model 722 Opticom™ Infrared System Detectors by MioVision Global Traffic Technologies
- Approved LED Bulb include:
 - Archipelago LED par38 Model number LPAR38C39048K1
 - Dialight TB1-7401-101 (apply bead of sika flex on all seams)
- Lamp Holder and Splice Box include:
 - RAB H101B Lamp Holder
 - Crouse Hinds FDCT2 splice box with DS100G aluminum cover (F&I stainless steel screws for cover)
- Miovision (GTT) Opticom™ IR System Model 138 Detector Cable-see plans for footage

2.13 VEHICLE DETECTION

2.13.1 PREFORMED LOOPS

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

2.13.2 SAWED VEHICLE LOOPS

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

2.13.3 SEALANT MATERIAL

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

2.13.4 SPLICING MATERIAL

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

2.13.5 VIDEO DETECTION

- Will be specified in plans if needed.
- System will required remote viewing, and remote adjusting of detection zones.

*2.14 PTZ CAMERA**2.14.1 LOCATIONS CALLING FOR A PTZ CAMERA SYSTEM WILL INCLUDE:*

- Specified managed Ethernet switch (if specified on plan).
- Belden 7953A CAT 6, 600 volt cable
- AXIS TQ5001-E Wall/Pole Mount
- AXIS TU8002-E 90W POE Injector
- Couple: RJ45 IP67
- AXIS P5655-E PTZ Camera
- 20 AMP four receptacle outlet with surge protection
- Fiber optic jumpers
- CAT6 field end OCC part #OCCUFP6A or approved equal
- (2) Axis T8061 Ethernet Surge Protection Devices
- All required stainless steel or galvanized hardware
- PermaBand Type 201 .075" x .030" stainless steel banding and buckles, or approved equal
- #12 USE-2 Green Ground wire

*2.15 SCHOOL ZONE FLASHING BEACON**2.15.1 SOLAR TYPE*

- School flashing beacon will be a solar school zone flasher manufactured by RTC Manufacturing, Inc. Each solar school zone flasher will include the following items:
 - Combination flasher/battery cabinet with #2 Corbin lock and Uni-Strut mounting system.
 - Wired back panel w/toggle switch and a Morningstar Prostar or SunSaver solar charge controller.
 - DCF2 two circuit 12 VDC flasher
 - AP22 pager programmable time switch with minimum of a 4G modem and includes a minimum of 5 years of data service

- 3 EA- 12" yellow 12 VDC LED's
- 50-watt solar panel
- 1 EA 100-amp hour Deep Cycle Gel cell battery
- 17.5' Type V, the standards will meet the specifications in section - 2.4.2 - TYPE V TRAFFIC SIGNAL STANDARD.
- 3 EA- 12" federal yellow SG Polycarbonate signals with visors and mounting brackets
- All signs shown on Section 4200 Detail Drawing 5.17

2.15.2 120V WIRED TYPE

- TS1 Cabinet furnish Mobotrex approved Auxiliary School Flasher Relay Board.
- TS2 Cabinet furnish TCC approved A68715-DUAL LOADSWITCH INTERFACE PANEL.
- 3 EA- 12" yellow 120 VAC LED's
- 17.5' Type V, the standards will meet the specifications in section - 2.4.2 - TYPE V TRAFFIC SIGNAL STANDARD.
- 3 EA- 12" federal yellow SG Polycarbonate signals with visors and mounting brackets
- NEMA flasher
- All signs shown on Section 4200 Detail Drawing 5.17.

2.16 PEDESTRIAN FLASHING BEACON ASSEMBLY

2.16.1 CONTROLLER CABINET AND ASSEMBLY 120 VOLT SYSTEM

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

2.16.2 SOLAR 12 VDC PEDESTRIAN PUSH BUTTON ACTIVATED SYSTEM

- Pedestrian flashing beacon will be a solar pedestrian flasher manufactured by RTC Manufacturing, Inc. Each solar flasher will include the following items:
 - Combination flasher/battery cabinet with #2 Corbin lock and Uni-Strut mounting system.
 - Wired back panel w/toggle switch and a MorningStar Prostar or SunSaver solar charge controller.
 - 2-circuit 12 VDC flasher
 - Programmable Timer Relay for adjusting flash time to cross roadway
 - Master/Remote wireless communication for pedestrian button activation between both

flashers

- 3 EA- 12" yellow 12 VDC LED's
- 50-watt solar panel
- 1 EA 100-amp hour Deep Cycle Gel cell battery
- 17.5' Type V, the standards will meet the specifications in section - 2.4.2 - TYPE V TRAFFIC SIGNAL STANDARD.
- 3 EA- 12" federal yellow SG Polycarbonate signals with visors and mounting brackets
- All signs shown on Section 4200 Detail Drawing 5.21

2.16.3 *FLASHER EQUIPMENT*

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

2.16.4 *PEDESTRIAN FLASHING BEACON UPRIGHT STANDARD*

- The Contractor will provide all new 17.5' Type V pedestrian flasher standards. The standards will meet the specifications in section - 2.4.2 - TYPE V TRAFFIC SIGNAL STANDARD

2.16.5 *PEDESTRIAN PUSH BUTTONS AND SIGNS*

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

2.17 DRIVER FEEDBACK SIGN (DFB)

2.17.1 *STANDALONE DFB SYSTEM*

- Standalone DFB systems will be a solar system manufactured by RTC Manufacturing, Inc. Part# DFS-DC11. Each solar DFB will include the following items:
 - Complete black & yellow, 12" Display, D/C Stand Alone Power Enclosure Driver Feedback Sign.
 - Wired back panel w/toggle switch and a Morningstar or SunSaver solar charge controller.
 - AP22 pager programmable time switch, Guardian Monitoring System, and 4G minimum Communications Gateway with a 5yr data plan.
 - 100-watt solar panel.

- 2– 22-amp hour gel cell battery.
- 17.5' Type V pole, the standards will meet the specifications in section - 2.4.2 - TYPE V TRAFFIC SIGNAL STANDARD. Pole will have 1" threaded hub 7 feet up from top of T-base.
- All required mounting hardware to mount DFB sign to manufactures specifications.

2.18 COMPACT MODE FLASHING YELLOW ARROW

2.18.1 MODIFICATION TO AN EXISTING TS1 TRAFFIC SIGNAL CABINET

- FYA Compact Mode Modification
 - The contractor shall provide an emergency vehicle confirmation relay board manufactured by Mobotrex, part # PA-1138 or approved equal.
 - Contractor shall provide a new Reno Model MMU2-1600EG MMU and a fully soldered MMU card to match the new FYA compact mode modification at the intersection.

**PART 3
INSTALLATION / REMOVALS**

3.1 TRAFFIC SIGNAL CABINET(S)

All new cabinet(s) and required equipment will be delivered to the City of Fargo Traffic and Lighting Shop @ 4630 15th Ave N, Fargo ND 58102 before installation. Contractor is responsible for picking up and installing at required intersections. Contractor will drop off all required equipment a minimum of **ONE** month before installation. After programming and documenting is complete, Contractor will pick up all cabinets and equipment within **ONE** week of being notified programming is complete.

Equipment required to be delivered to the City of Fargo Traffic and Lighting Shop for programming and inspection, includes the following:

- Controller
- MMU2
- Managed Ethernet Switch w/ all accessories
- PTZ Camera (Camera only)
- EVP Card
- APS CCU
- UPS Power Inverter
- UPS Battery Management System
- IP Addressable Power Strip
- Cabinet

3.1.1. TYPE B CABINET FOUNDATION

- Concrete will be in accordance with Section 2100 of Fargo Standard Specifications.
- Foundations will be installed in accordance to Section 4200 Detail Drawing 5.9
- Controller foundations will be 48"W by 30"D and 48"T with 14" above finished grade.
- Anchor bolts will be set into controller foundation to manufactures specifications when poured.
- Controller foundations WILL be level in all directions, if not; foundation will be remove and replace level at contractor expense.
- Contractor will install two additional 2-inch diameter conduits in each new controller foundation, direction of these conduits will be determined in the field by the Engineer, spare conduits will be plugged with an expanding rubber pipe plug and labeled with the direction they exit the foundation at the cabinet and signal standard foundations.

3.1.2. TYPE B CABINET INSTALLATION

- When installing the cabinet on the concrete foundation, a bead of SikaFlex 15LM construction sealant will 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 will be placed continuously around the outside of the cabinet at the seam between the cabinet and the foundation. All exposed outer cabinet seams will be sealed with a bead of SikaFlex 15LM construction sealant.
- Controller cabinet working slab will be 6 feet wide and extend a minimum of 4 feet from the face of the controller foundation. The slab will be 4 inches thick, reinforced with #3 rebar, 18" OC, and will be tied to the controller foundation with 18-inch long #3 epoxy coated rebar, spaced 18 inches on center. The controller working slab will 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 will be 2 inches above grade, except where matched to sidewalk grade. Working slab will be incidental to pouring the controller cabinet foundation. If working slab is within 3' of sidewalk, contractor will connect working slab to sidewalk.
- All conduits containing conductor/cables will be sealed with duct seal at the controller cabinet
- All new controller cabinets WILL have a minimum of four protective bollards, see engineer for locations. Bollards will be minimum 4.5 feet from the controller cabinet, and maximum of 5.5 feet apart. Section 4200 Detail Drawing 5.8
- All cabinets will have a splice box mounted on the outside of the cabinet for locating personnel. All trace wires will be clearly labeled, and a ½" of insulation will be removed at the end of each wire and wires will be grounded. Box will be installed toward grass area, and not toward sidewalk.

3.1.3. TYPE HAWK CABINET INSTALLATION

- Cabinet will be mounted to the pole with supplied brackets and hardware, using Permaband Type 201, 0.75" x 0.030" stainless steel banding or approved equal. Two banding straps per bracket required, each with a banding buckle, each strap will be single wrapped around the pole, clipped, and tightened independently in accordance with the manufacturer's instructions.
- Cabinet will have (2) 2" cable entrances knocked on the left side of cabinet. Contractor will furnish and install (2) 2" galvanized close nipples, and (2) 2" galvanized Myers Hubs to mount to factory welded hubs see Section 4200 Detail Drawing 5.20.
- Cabinet seams will be sealed with a bead of SikaFlex 15LM construction sealant.
- All cabinets will have a splice box mounted on the outside of the cabinet for locating personnel. All trace wires will be clearly labeled, and a ½" of insulation will be removed at

the end of each wire and wires will be grounded. Box will be installed toward grass area, and not toward sidewalk.

- Controller cabinet working slab will be 6 feet wide and extend a minimum of 4 feet from the face of the controller door. The slab will be 4 inches thick, reinforced with #3 rebar, 18" OC. If working slab is within 3' of sidewalk, contractor will connect working slab to sidewalk.

3.1.4. BATTERY BACKUP SYSTEM

- Deliver UPS controller to the City of Fargo to program, and then pick up when done.
- 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 3/4" from the cabinet sides. Sika Flex the top and sides of the UPS cabinet where it meets the signal cabinet.
- 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 WILL be pullout type.
- Install a 2" steel chase nipple and plastic bushing directly below the top shelf of the UPS cabinet into the signal cabinet.
- Install the following equipment in the UPS cabinet and wire per the plan wiring instructions and drawings:
 - Place the UPS control and Remote Battery Management System (RBMS) unit on the top shelf.
 - Place left to right batteries #1 & #2 on the middle shelf.
 - Place left to right of the RBMS and batteries #3 & #4 on the bottom shelf.
- Install and wire the UPS transfer switch in the signal cabinet on the mounting channels above the power panel.
- All existing traffic signal cabinet power panel will need modifications to comply with the plan's wiring drawing. Below is a written description for installing the transfer switch into an existing TS1 cabinet:
 - Install circuit breaker CP4.
 - Remove feed wire from CP3 and install to CP4.
 - Remove feed jumper from between CP1 and CP2
 - Remove feed wire from CP2 and install to CP1.
 - Install Jumper between CP2 and CP3.
- Remote Battery Management System/RBMS Plus WILL be installed, and all Ethernet and Battery cables will be long enough to fully open all slide out drawers.
- 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. Contractor will also verify the battery string voltage while the intersection is running in UPS mode for a minimum of 15 minutes.

- City of Fargo will supply a typical wiring diagram showing how the battery backup system will 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 Traffic and Lighting Shop. All costs associated with this will be included in the cost bid for “Battery Backup System”.
- Contractor will provide all traffic control for projects that need intersection shutdowns.
- Contractor will furnish and supply the following parts, these are incidental to the cost of the battery backup system:

Qty.	Part Number & Description	
4	3/8” x 2” bolts with nuts and lock washers	used to mount UPS cabinet
8	3/8” X 1 5/8”x 1/4” heavy square washers	used to mount UPS cabinet
4	1/4” springnuts and 1/4” X 1/2” screws	used to mount Bypass Transfer Switch
1	2” chase nipple, lock nut and plastic bushing	
2	1 1/2” x 23” Telespar	used to space up the lower shelf
varies	#10AWG solid blue, white and green power wires	
varies	#16 AWG stranded black for logic common, yellow and orange control wires	
3	#16 AWG #8 stud crimp lugs	
varies	Sika Flex 15LM construction sealant used to seal around entire cabinet	

3.1.5. FLASHING YELLOW ARROW- COMPACT MODE

- Contractor will modify an existing Fargo Type B, Eagle 12-Bay signal cabinet to run the intersection in FYA compact mode according to City of Fargo standards using a Mobotrex PA-1138 flasher board with 2 new load switches, labelled LS17 & LS18. The City of Fargo will modify all the controller settings.
 - Contractor will install cabinet jumpers on the back panel for the MMU to monitor the Green arrows. Install factory metal jumpers from 332-333, 354-355, 376-377, and 398-399.
 - Contractor will relocate all 4 confirmation beacon wires on the back panel.
 - Relocate D7B from Terminal 205 to Terminal 210.
 - Relocate D4B from Terminal 227 to Terminal 232.

- Relocate D6B from Terminal 249 to Terminal 254.
- Relocate D8B from Terminal 271 to Terminal 276.
- Contractor will wire inputs from load switches 17 & 18 to Confirmation Light driver wires.
 - LS17-8 to Terminal 210 PE2.
 - LS18-8 to Terminal 232 PE4.
 - LS17-6 to Terminal 254 PE1.
 - LS18-6 to Terminal 276 PE3.
 - LS17-10 to Terminal 166 (Spare).
 - LS18-10 to Terminal 188 (Spare).
- Mobotrex PA-1138 Load Switch Panel with Terminal Board
 - Pre-emption Confirmation Beacons will be landed from Left to Right in order PE1 - PE4
 - PE1 LS17-3 (17R)
 - PE2 LS17-5 (17Y)
 - PE3 LS18-3 (18R)
 - PE4 LS18-5 (18Y)
 - Spare 1 LS17-7 (17G)
 - Spare 2 LS18-7 (18G)
- Contractor will jumper the following connections on the cabinet wiring back panel to drive the Green arrows on 9Y-10Y-11Y-12Y.
 - Jumper Terminal 205 to 209 (OLA).
 - Jumper Terminal 227 to 231 (OLB).
 - Jumper Terminal 249 to 253 (OLC).
 - Jumper Terminal 271 to 275 (OLD).

3.1.6. PROTECTIVE BOLLARDS

- All bollards will be installed in accordance to Section 4200 Detail Drawing 5.8
- All bollards will be 7 feet long, 3 feet in the ground and 4 feet above ground.
- All bollards will be minimum 4.5 feet from the controller cabinet, and maximum of 5.5 feet apart.
- All bollards will be filled with concrete, and centered in a 24" diameter x 36" deep footing filled with concrete.
- Install HDPE reflective cover.

3.2 TRAFFIC SIGNAL STANDARDS

3.2.1. *FURNISH AND INSTALL TYPE IV TRAFFIC SIGNAL STANDARD*

- All signal standards will be installed in accordance to Section 4200 Detail Drawing 5.3
- Contractor is responsible for verifying and following minimum horizontal and vertical clearance between light and/or signal standards and overhead power lines.
- All signal poles will be Contractor provided unless otherwise noted on the signal plan
- The packing material will be removed from standards when stored outside and as per manufacturer's requirements to prevent damage to the standard's finish.
- The City will inspect the standards upon delivery from the manufacturer, and any damage to the signal standards, transformer bases, hardware, luminaire extension, or anchor bolts. After the date of delivery and acceptance by the City will be the Contractor's responsibility to repair or replace as directed by the Engineer.
- Furnishing and installing mast arm and signal standard signs on new signal standards is incidental to the bid price for all types of combo and signal standards for which no direct compensation will be made.
- The Contractor will provide Mastarm wire entrance fittings. Fittings will be a 1 ½" 45 degree galvanized steel elbow on each signal standard upright, cost incidental to the price bid for the signal standard.
- Round T-base bottom openings will use the Halek Solutions mouse guard or approved equal and must be installed according the manufacturer's instructions. If the bottom of the T-base is an octagon opening then, the signal standard transformer bases will have Xcluder double stacked 1.5" Fill BLOCKS continuously around the inside of the lower plate to prevent rodents from accessing the transformer base through space between concrete foundation and the lower plate.
- All standards will be plumbed with leveling nuts. The hand hole will be located away from traffic and the mast arms will be perpendicular to the roadway centerline.
- All hardware will be galvanized, and all treads will have a covering of anti-seize.
- Spliced or pulled through conductors will have sufficient slack to extend a minimum of 24 inches outside of the enclosure.
- All transformer base terminations will be made using a Wago Lever Nut (Series 222), installed and labeled as per Section 4200 Detail Drawing 5.13. Contractor will install Atom Lube or approved equal dielectric grease in all used or unused entrances of the Lever Nut.
- Signal standard anchor bolt nuts WILL be torqued according to NDDOT Standard Specification 770.04-G, excluding the 10am deadline, **with a City of Fargo representative present**, to the following foot-pounds:

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

3.2.2. FURNISH AND INSTALL TYPE V TRAFFIC SIGNAL STANDARD

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

3.2.3. PAINT TRAFFIC SIGNAL STANDARD

- If signal standard needs to be removed, all signal standards will be reinstalled in accordance to Section - 3.2.1 FURNISH AND INSTALL TYPE IV TRAFFIC SIGNAL STANDARD
- Contractor will warranty/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 will be included with the price bid for "Paint Signal Standard".
- All existing signs will be salvaged, and reinstalled, unless specified in the plans to install new.
- Contractor will follow these steps if touch up painting is required:
 - Completely remove all rust and loose paint.
 - Sand all painted areas with 40 to 100-grit paper, depending on conditions.
 - Wash down with "no rinse prepaint cleaner" manufactured by Great Lakes Laboratories.

- Prime bare metal with Devran 205 Primer manufactured by Devoe high performance coatings, or an approved equal.
- Topcoat and clear coat with products supplied by the original pole manufacturer.
- If the galvanize is removed, complete the same steps above and, apply five coats of one on the following products: CRC Zinc-IT, CRC Zinc Re-Nu, Aerovoe Crown #7008 galvanize coating, or ZRC Galviline.
- Contractor will follow these steps if re-painting existing standards when required on the plan:
 - Remove all bandit mounting material, signs and pedestrian buttons.
 - Completely remove all rust and paint by White Metal Blasting the signal standard.
 - 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 will 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.
 - Sandblasting material will be a steel grit angular carbon steel.
 - Sandblasting will be done on site with the signal standards in place and operational. All pedestrians and the traveling public will be protected from all debris. All sandblasting material and removed pole paint/debris will 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 will be responsible for containing and cleaning up, along with protecting pedestrians and the traveling public from these hazardous contaminants.
 - 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 contaminants. 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 will be used.
 - Mask all areas that are not required to be painted, any overspray will be removed.
 - Prime bare metal with Devoe Devran 205 Primer.
 - Apply two top coats of Devthane 379UVA manufactured by Devoe high performance coatings, and one coat of clear coat as recommended by the topcoat manufacturer.
*Yellow color will be No.13538 of Federal Standard No. 595 B.
 - Thickness of all coats applied will be according to the manufacturer's recommended film thickness. Application of all materials will follow the manufacturer's directions for use.
 - Re-install all pedestrian push buttons and signs. Re-install pole plates for vehicle heads, and remove all masking.
 - After sandblasting has been approved, splice all conductors in transformer base with lever nuts and splice according to City of Fargo splice as per Section 4200 Detail Drawing 5.13.

- Remove and replace ALL post mount plugs on standard before painting.

3.3 SIGNAL/STEETLIGHT COMBINATION FEED POINTS

3.3.1. TRAFFIC SIGNAL ONLY FEED POINT FOUNDATION

- Concrete will be in accordance with Section 2100 of Fargo Standard Specifications.
- Foundations will be installed in accordance to Section 4200 Detail Drawing 5.5
- All components including, but not limited to; conduits, cabinets, service conductor, pole risers, service entrance heads, meter sockets (if required), ground rods, concrete foundation, and working slab. All components WILL BE NEW, NOT USED, and will be furnished by the Contractor, unless noted otherwise on plans.
- The local utility company will 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, and removing all existing equipment if needed.
- Cabinet foundations will be 30"W by 24"D and 48"T with 14" above finished grade.
- Anchor bolts will be set into foundation with epoxy to manufactures specifications.
- Cabinet foundations WILL be level in all directions, if not; foundation will be remove and replace level, at contractor expense.
- Contractor will install two additional 2" diameter conduits in each new controller foundation. Spare conduits will be labeled with direction stubbed out, and plugged with a proper sized expanding rubber pipe plug.
- Feed points require two ground rods that are spaced minimum of 6' apart.
- Install 6' wide by 4' deep working slab. This will be incidental to cost of feed point.
- Padlock will be obtained from the City of Fargo Engineering Department.

3.3.2. COMBO SIGNAL AND STEETLIGHTING FEED POINT

- Concrete will be in accordance with Section 2100 of Fargo Standard Specifications.
- Foundations will be installed in accordance to Section 4200 Detail Drawing 5.7
- All components including, but not limited to; conduits, cabinets, service conductor, pole risers, service entrance heads, meter sockets (if required), ground rods, concrete foundation, and working slab. All components WILL BE NEW, NOT USED, and will be furnished by the Contractor, unless noted otherwise on plans.
- The local utility company will 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, and removing all existing equipment if needed.
- Controller foundations will be 44"W by 30"D and 48"T with 14" above finished grade.
- Anchor bolts will be set into foundation with epoxy to manufactures specifications.
- Controller foundations WILL be level in all directions, if not; foundation will be remove and replace level at contractor expense.
- Contractor will install 3 additional 2" diameter conduits(1 signal, and 2 street lighting) in each new controller foundation. Spare conduits will be labeled with direction stubbed out, and plugged with a proper sized expanding rubber pipe plug.
- Feed points require two ground rods that are spaced minimum of 6' apart.
- Install 6' wide by 4' deep working slab. This will be incidental to cost of feed point.
- The Electrical Company may require two electrical meters; 1 for traffic signals and 1 for street lights. This will be incidental to the price bid for "F&I Combo Feed Point".
- Padlock will be obtained from the City of Fargo Engineering Department.

3.3.3. FEED POINT LIGHTNING/SURGE PROTECTION DEVICE

- The lightning protection device will 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 will be a two-pole, three-wire device designed for single-phase 120/240 volt three-wire grounded neutral service. The protector will be mounted in the knockout in the switch box. All leads will be tinned copper No. 14 AWG.
- The AC line surge protector will be installed on the load side of the circuit breaker. If the protector should fail and short the circuit, the circuit breaker will open to give maximum protection. The AC neutral will have the same protection as the AC load. The arrester leads will be kept as short as possible. Grounds will 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 and conduit is metallic, it will be connected to the ground rod as shown on the Plans. Connections from the ground rod to the objects inside will be made with AWG No. 8 (or larger) copper wire.

3.3.4. FEED POINT UTILITY RISER

- All Utility Risers will be installed in accordance to Section 4200 Detail Drawing 5.6.2.
- All material WILL BE NEW, NOT USED, and be furnished by the Contractor unless noted otherwise on plans.
- The local utility company will be contacted for specific locations of Utility riser.
- The utility company will furnish and install the required service connection.

- The contractor is responsible for ALL coordination and costs involved with getting power to the feed point, and removing all existing equipment if needed.
- Pole riser will include the following:
 - 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.
 - PVC weather head entrance.
 - 5' galvanized steel conduit guard, 6" below ground, and 4'6" above ground.
 - All straps, conduit guards, feed points, disconnects, etc. must be galvanized and use 3" long, galvanized, fully threaded 5/16" lag screws for mounting/securing.
 - Riser will not face toward sidewalks or streets, consult with Project Engineer if needed.

3.4 PEDESTION PUSH BUTTON

3.4.1. PEDESTRIAN PUSH BUTTON POST

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

3.4.2. APS PEDESTRIAN PUSH BUTTON

- Pedestrian push buttons will be bolted directly to the traffic signal standards. Do not use bandit for this purpose.
- Pushbutton will be mounted at 42" from top of ground directly in front of button.
- All APS push buttons will be BLACK in color, or will match the color of the signal standards if installed at an existing intersection.
- All pushbutton cable runs from the push button to the controller cabinet, and push button to pedestrian head, will not be spliced.
- The field termination wires inside the button will be protected by the power gel from a Tyco Electronics GelCap-SL-2/0 Street light splice kit.

3.5 VEHICLE AND PEDESTRIAN INDICATION HEADS

3.5.1. VEHICLE INDICATION HEADS

- All vehicle heads will be installed accordance with Section 4200 Detail Drawing 5.4.
- All housings and mounting arms will be BLACK in color, or will match the color of the signal standards if installed at an existing intersection.

- All vehicle heads alignment for post and pedestal vehicle heads mounted on signal standards, will be leveled on all 4-sides, and aimed to the center of the oncoming traffic lane 200 feet from the stop bar. Left turn heads that are post, and pedestal mounted, will be aimed to the center of the left turn lane, 200 feet from the stop bar. Mast arm heads will be parallel to oncoming traffic.
- All vehicle heads will include furnishing and installing 12-inch L.E.D. vehicle signals existing signal head housing for the existing red, yellow, and green vehicle indications. The price bid will include all materials and labor for each L.E.D. vehicle signal installed.
- Contractor will install Wago 222-series Lever Nuts on all splices in vehicle heads. Contractor will install Atom Lube or approved equal dielectric grease in all used or unused entrances of the Lever Nut.
- The mounting arms of vehicle heads must be threaded into plate/shoes/elbows/etc, to a minimum 1/8" past through the setscrew hole. All mounting hardware will be galvanized and Anti-Seize WILL be applied to all treads. When securing post mounted vehicle heads to mounting arms the following use of the rubber gasket WILL 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.
- Outside jacket/insulation of the multi-conductor wire entering into signal head, will extend a minimum of 1" and maximum of 2" before removing.
- All conductor from the signal heads to the splice in transformer base will be included in the cost of furnishing and installing of signal head. ALL incoming conductors will extend a minimum of 2 feet out of each vehicle housing.
- Astro/Sky brackets are approved for use on mast arm mounted 5-section heads. Astro/Sky brackets may also be used to mount new heads on existing mast arms that do not have an existing tendon on the mast arm. Shop drawings for signal heads will indicate the type of mounting.
- Contractor will complete the "Signal Head Height" sheet, after they measure the height of all signal heads after installation and road is at final grade. Heads should be 18' to 19' (to the bottom of the back plate) of height at completion.

3.5.2. PEDESTRIAN INDICATION HEADS

- All pedestrian heads will be installed accordance with Section 4200 Detail Drawing 5.4.
- All pedestrian heads will be installed level on all sides.
- All housings and mounting arms will be BLACK in color, or will match the color of the signal standards if installed at an existing intersection.

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

3.6 PULLBOX/VAULTS

3.6.1. FURNISH AND INSTALL PULLBOX

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

3.6.2. FURNISH AND INSTALL FIBER VAULT

- All vehicle heads will be installed accordance with Section 4200 Detail Drawing 5.16.2
- Two feet of pea rock will be installed for drainage below the pull box, and will extend 6" beyond the outside edge of pull box.
- Backfill around pullboxes will be a Class 3 gravel with 95% compaction.

- Vault will be a minimum of 4' from the back of curb, and the top of box will be at final grade and sloped to match.
- Install a 6' x 6' concrete pad will be installed around the IT-Pull box. The concrete pad will be 6" thick, reinforced with #3 rebar, 18" OC, and will be incidental to the price bid for IT-Pull Box.

3.7 CONDUIT

3.7.1. FURNISH AND INSTALL CONDUIT ALL SIZES

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

3.8 TRAFFIC SIGNAL CONDUCTORS/CONTROL CABLES/WIRE*3.8.1. MULTI-CONDUCTOR CONTROL CABLES IMSA 20-1*

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

3.8.2. LOOP LEAD-IN CABLE IMSA 50-2

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

3.8.3. *Miovision (GTT) OPTICOM™ IR SYSTEM - MODEL 138 DETECTOR CABLE*

- All systems will be spliced accordance with Section 4200 Detail Drawing 5.12, along with manufactures specifications. Bare wire will be completely insulated with heat shrink tube.
- All cables will be installed in an approved conduit, NO direct buried allowed.
- Any cables damaged during installation, will be removed completely, and replaced at Contractors expense.
- All cables will be un-spliced from controller cabinet to Infrared System Detector.
- Pulled through cables will have sufficient slack to extend a minimum of 18 inches above the pullbox opening.
- Additional cable may be required when setting the standard, any extra cable will be pulled back to nearest pullbox, and coiled neatly and labeled.

3.8.4. *IN GROUND LOOP WIRE IMSA 51-7*

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

3.8.5. *CATEGORY 6 DATA CABLE*

- All cables will be un-spliced from controller cabinet to the field device it is communicating with.
- All cables will be installed in an approved conduit, NO direct buried allowed.
- Any cables damaged during installation, will be removed completely, and replaced at Contractors expense.
- Pulled through conductors will have sufficient slack to extend a minimum of 18 inches above the pull box opening.
- All CAT6 field ends will be an OCC part #OCCUFP6A, Cable Matters Model 180086/180078, or approved equal.

3.8.6. *SERVICE/FEEDER CABLE/WIRE*

- All cables/wires will be un-spliced from feedpoint cabinet to utility power source.
- All cables/wires will be installed in an approved conduit, NO direct buried allowed.
- Unfused service cable/wires will not pass through pullboxes.
- All Cable/wires will not be spliced.

- Any cables/wire damaged during installation, will be removed completely, and replaced at Contractors expense.
- Pulled through conductors will have sufficient slack to extend a minimum of 18 inches above the pull box opening.

3.8.7. LOCATE/TRACE WIRE

- All trace wires will be clearly labeled, and remove a 1/2" of insulation at the end of each wire.
- All conduits will have a trace wire installed, including spare.
- All runs will be grounded.
- If needed, splice trace wire with an approved underground splice connector, splice must be done in pullbox.

3.8.8. CABLE LABELS

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

TYPE	LABEL	LABEL LOCATION
Fiber cable	Comm./intersection address of other end	Within 12" of conduit
Fiber Splice Case, Jumper(s) & box(s)	Fiber Jumper-Fiber #, fiber panel-Fiber #	See fiber Detail Sheet 5.21
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
Transformer Base Cables	Head # & Cable # and label individual head wires, (i.e. phase 2R, 2Y, 2G, 2W, 2DW, OLA-R i.e. head# P1, P2, V1, V2, V10, V10A, Neutral+each head #)	See Photo Detail <u>Section 4200 Detail Drawing 5.12</u>
Head Cabinet Controller Wires	Tie the RED-YELLOW-GREEN wires together with electrical tape for each cable head and	Within 6" of terminal

	label with the plan head number (i.e. Head #1, Head #2, P1, P2)	
--	--	--

3.9FIBER/COMMUNICATION CABLE, SPLICE PIGTAILS, JUMPERS, AND ENCLOSURE*3.9.1. SINGLE MODE INTERCONNECT CABLE*

- All Fiber optic cable insulation will have a maximum tensile load of 600 lbs. for installation and 200 lbs. for in-service load.
- Contractor will use a break-away swivel rated for 600 lb. break load for pulling all fiber optic cables.
- Minimum bends of small radii and twists that might damage cable or wire will be avoided.
- During the placement operation, fiber optic cable will not be bent in a radius less than 20 times the outside diameter of the cable, 10 times for fiber that is in service.
- Cables will be carefully inspected by the Contractor during the placement operation, to be certain that the fiber optic cable and inner duct are free from damage before placement.
- All instance of damaged cable or wire observed at any time whether prior to installation, occurring during construction, or discovered by test of observation subsequent to installation in plant, will be immediately called to the attention of the Engineer. The method of repair or correction of such damage will be in accordance with the written instructions of the Engineer. The Contractor will promptly repair such damage or make such corrections in accordance with such written instruction of the Engineer.
- Contractor will 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 will 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.
- All fiber optic cables will have an orange No. 12 Copper Clad trace wire, including empty/spare. All runs will be grounded.

3.9.2. FIBER OPTIC TERMINATIONS/SPLICING

- All Fiber will be fusion spliced.
- After 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 will be labeled inside the splice enclosure.

3.9.3. FIBER OPTIC CUTTING

- All Fiber will be tested for active fibers before cutting.
- Contractor will contact the City of Fargo to ensure that the fiber has been deactivated or rerouted to prevent emergency outages.
- Any active City of Fargo fiber that is cut, will be spliced and active within 12 hours of cut, or a timeline that is approved by a City of Fargo representative.

3.9.4. CABINET FIBER JUMPERS

- 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.
- Fiber jumpers will be neatly installed, with strain relief.

3.9.5. FIBER PIGTAIL FROM ENCLOSURE TO CABINET

- Fiber optic pigtail attached to the back of distribution panel should be labeled with the fiber direction/intersection it is connected to for each port group.
- Fiber optic pigtail will be neatly installed, with strain relief.

3.9.6. CABINET FIBER PATCH PANEL ENCLOSURE

- Fiber panel will be labeled with the intersection address of that cables destination, the port group as shown on the detail, the number of the fiber strand terminated. Label will be placed on the face of the distribution panel adjacent to the cable's fiber ports.
- Fiber panel will be securely fastened to the cabinet strut, the door will be able to opened a full 90 degrees, and will not come into contact with any electrical connections.

3.9.7. SEALED FIBER OPTIC SPLICE ENCLOSURE (FOSC)

- FOSC label will be on the tail and readable without moving the cables. See Section 4200 Detail Drawing 5.18.
- 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 and cassettes will be labeled inside the splice enclosure.
- FOSC will be sealed to manufactures specification, to ensure no water infiltration will occur.

3.9.8. FIBER TERMINATION SPECIFICATIONS AND TESTING

The Contractor shall test all terminated fibers at both ends with an OTDR tester and light meter, and

record the results and provide a computer printout from the OTDR of each fiber tested.

Approved single-mode fiber tests at 1310 NM and 1550 NM and need to be within the following standards:

- .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

If these tests results are not met, the fiber will be repaired/replaced at the Contractors expense. The Contractor will need to re-test the fiber with Engineer/Owner present, to confirm all issues have been fixed. If a fiber cable is damaged or broken between connections the entire cable will be replaced at the Contractors expense.

When all terminations are complete, the Engineer/Owner will inspect all splices inside the FOSC enclosures before the fiber optic communication system can be put into use. The Contractor will 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/Owner in the field. All fiber tubes will be inspected for correct labeling inside the splice enclosure.

All existing 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 cables will be considered good and meet 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 at Contractors expense. 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 ensure that the existing cable is good and meets specification tolerances.

3.10 EMERGENCY VEHICLE PRE-EMPTION

3.10.1. MODEL 722 OPTICOM™ INFRARED SYSTEM DETECTOR

- All emergency vehicle pre-emption will be installed accordance with Section 4200 Detail Drawing 5.12.
- Install assembly 6 feet from end on existing mast arm poles unless otherwise shown on the mast arm detail sheet. Each detector tube will be aimed at a point 1800' from the intersection towards the associated on-coming traffic. The indicator lamp will be angled downward one notch from level and aimed at a point 1800 feet from the intersection.
- Contractor will follow Mio Vision/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.
- EVP system will be wired with an approved cable recommended by the Manufacturer, and wire to the detector as per manufactures diagram on cover of detector.

3.10.2. MULTIMODE PHASE SELECTOR OPTICOM™ CARD & CABINET WIRING

- All emergency vehicle pre-emption will be installed accordance with Section 4200 Detail Drawing 5.12.
- Install phase selector card in correct location in detector rack.
- Contractor will setup and verify the EVP detector operation within one week of the signal being operational to traffic. Contractor will test range with a Contractor supplied EVP emitter at a distance of 1800' from the intersection. City will check the EVP range at the initial inspection.
- Contractor will notify the Fargo Fire Department @ 701-241-1540 when EVP is taken out of service and returned to service.

3.11 VEHICLE DETECTION

3.11.1. PREFORMED LOOPS

- All preformed loops will be installed accordance with Section 4200 Detail Drawing 5.10.
- Preformed loops will be installed on all new pavement replacements.
- Each loop will have its own conduit, installed a minimum of 4" below grade, and will be installed from the pull box to the same panel in which the loop is installed.
- All preformed loops will be installed on bolster chairs and secured down with (3) 7" stakes per section.
- All loop conduits WILL enter the pull box directly perpendicular from under the curb, NO running conduits parallel under curb or sidewalk.

3.11.2. SAWED VEHICLE LOOPS IN CONCRETE

- All sawed loops will be installed accordance with Section 4200 Detail Drawing 5.11.
- All sawed loops will have 3 turns of approved IMSA 51-7 loop wire.
- Sawed loops will be shown on the plans and the Loop Detector Detail Sheet. The loop location will be marked on the pavement. The loop will be placed in the lane for which it was intended, perpendicular to the lane, and to the size shown in the Contract. The Engineer may move the loop location longitudinally to avoid joints, pavement cracks, manholes, and other obstructions.
- Loops installed on an existing roadway surface will have conduit installed from the pull box to the gutter or roadway edge as specified on Section 4200 Detail Drawing 5.11. The excavation from the saw slot at the gutter or roadway edge will be made by means of a punch or drill type tool, rather than by usual excavating methods. The visible portion of the gutter will not be cut for conduit installation. The conduit will be installed to directly receive the loop wire in line and not at an angle. The hole to receive the conduit will be at a depth below the roadway surface so there is a minimum of 2 inches of cover on top of the conduit when

installed. Duct Seal will be inserted into the loop pipe to prevent any sealant from entering the pipe and the top 2 inches of the cover over the conduit hole will be sealed with the same sealant used to close the saw slot. The conduit and the pull box will be installed at the same time.

- Loop saw slot cut will be 2" in concrete.
- Pavement slot will be sawed with a self-propelled power saw equipped with a depth gauge and alignment guide. The pavement slot will be cut cleanly and well defined. The saw slot will be overlapped at all corners and right-angle corners will be cored as shown on the Standard Drawings. The saw slot may be made at any time before installation of the wire. Slots will be cleaned immediately after the cutting operation.
- Saw slots will be sealed with 3M Detector Loop Sealant 5000. Before sealing the saw slot, each saw slot will be thoroughly dried, cleaned of all dust, dirt, concrete scale, and other foreign matter. Sandblast all sealed areas, then blow out with a jet of compressed air to remove sandblaster material. The joint faces will be clean and dry when the joints are sealed. Joints will not be sealed when air temperature is above 100 degrees or below 40 degrees F.
- Failure of the saw slot material in either adhesion or cohesion in the first year after the final acceptance date will be cause for rejection and will be repaired at the Contractor's expense.
- Any interruption of the normal flow of traffic will be the minimum time necessary for installation of the road loop. Work will not begin until all material, equipment, and personnel are at the site. Type III Barricades, warning signs, arrow board, and flag persons will be placed to protect the workers and the traveling public.

3.11.3. SAWED VEHICLE LOOPS IN ASPHALT

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

remove sandblaster material. The joint faces will be clean and dry when the joints are sealed. Joints will not be sealed when air temperature is above 100 degrees or below 40 degrees F.

3.11.4. TESTING DETECTION LOOPS

- Before installing the URASEAL loop splice kit, the loop will be checked for continuity, inductance, and insulation resistance. The test will be made in the Engineer's presence, and the necessary equipment needed to perform these tests will be furnished by the Contractor. The City reserves the right to retest, and these test results will govern the acceptance or rejection of the loop installation. Tests will be made as follows:
 - Continuity- test each loop detector circuit will be tested for continuity at two locations:
 - Each individual loop detector at the pull box before splicing with the loop detector lead-in cable will have a value less than 0.5 ohms.
 - Loop detector and lead-in cable system at the traffic signal controller cabinet or detector cabinet after splicing in the pull box will have a value less than 5 ohms. The continuity test ohm reading at the traffic signal controller cabinet or detector cabinet will be greater than the ohm reading measured at the loop detector at the pull box.
 - Inductance- test each loop detector and lead-in cable system will have an inductance test measured at the traffic signal controller cabinet or detector cabinet. The inductance will be in the range of 50 to 700 microhenrys.
 - Insulation Resistance- test insulation resistance by applying 500 volts DC at the traffic signal controller cabinet or at the detector cabinet between one loop detector lead-in conductor and the cabinet ground rod. The insulation resistance will have a value of 500 mega ohms or greater.
- A vehicle loop detector test will be performed and recorded before the initial inspection using a City provided form. This form will be used for rechecking the loops at the final inspection.
- The City will retest all loops at the Final Inspection.

3.11.5. SPLICING DETECTION LOOPS

- All splicing will be done in accordance with Section 4200 Detail Drawing 5.10 or 5.11.
- Loop lead-in conductors will be lightly sanded, cleaned with an approved electrical cable cleaner, and wiped clean with a clean towel. Wires **WILL BE SOLDERED**, then wire nut or crimp connected (levnnuts are not allowed).
- Loop conductors in the splice kit will not be taped together. Splice will be installed in approved URASEAL splice kit, according to manufactures specifications. No part of the splice should be touching outside of kit.

- Loop lead-in and loop wires will have sufficient slack to extend a minimum of 6', and a maximum of 10' feet above the pull box opening and installed in the 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.

3.12 CAMERA SYSTEM(S)

3.12.1. PTZ CAMERA

- All PTZ camera systems will 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 will be installed within 24" from the top on pole. Camera will be mounted to the pole with Permaband Type 201, 0.75" x 0.030", or approved equal stainless steel banding. Install one banding strap around the pole under the top part of the bracket, this will level the bracket. Then install (2) banding straps, each with a banding buckle, each strap will be single wrapped around the pole, clipped, and tightened independently in accordance with the manufacturer's instructions. Install a grounding wire from the camera to the concrete base ground rod.

3.12.2. VIDEO DETECTION CAMERA

- All video detection camera systems will 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 will be installed on the mast arm between the left turn lane and the adjacent straight lane.

3.13 SCHOOL ZONE FLASHER

3.13.1. SOLAR TYPE

- School zone flashers will be installed in accordance with Section 4200 Detail Drawing 5.17.
- All type V signal standards will be installed in accordance to Section 4200 Detail Drawing 5.2.
- This bid item will include all of the items shown on the solar school zone detail sheet, any miscellaneous hardware, 24" diameter foundations 6' in depth, and installation of the school flashing beacon.
- Beacon heads mounted on the school zone flashers will be leveled on all 4-sides and aimed to the center of the oncoming traffic lane 200 feet from the School Flasher.

3.13.2. 120V WIRED TYPE

- School zone flashers will be installed in accordance with Section 4200 Detail Drawing 5.17.
- All type V signal standards will be installed in accordance to Section 4200 Detail Drawing 5.2.

- Furnishing and installing a Mobotrex Auxiliary School Flasher Board in a TS1, or a TCC Dual Loadswitch Interface Panel in a TS2 cabinet, and neatly wire to City of Fargo specifications. Any miscellaneous hardware, 24" diameter foundations 6' in depth, and installation of the school flashing beacon is included.
- Beacon heads mounted on the school zone flashers will be leveled on all 4-sides and aimed to the center of the oncoming traffic lane 200 feet from the School Flasher.

3.14 PEDESTRIAN FLASHING BEACON ASSEMBLY

3.14.1. CONTROLLER CABINET AND ASSEMBLY 120 VOLT SYSTEM

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

3.14.2. FLASHER EQUIPMENT

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

3.15 DRIVER FEEDBACK SIGN (DFB)

3.15.1 STANDALONE DFB SYSTEM

- Install DFB using all RTC provided brackets and hardware. Contractor will use (3) Perma-band Type 2010.75" x 0.030" stainless steel banding or approved equal to band the sign to the pole.
- The bottom of the DFB sign will be mounted 7 feet above foundation.
- Install solar panel using RTC provided brackets and hardware. Solar panel will face straight south at 55 degrees.

3.16 REMOVAL OF TRAFFIC SIGNAL EQUIPMENT

3.16.1. REMOVE AND SALVAGE TRAFFIC SIGNAL EQUIPMENT

- The item includes the removal and salvage of all equipment and wiring, and removal and disposal of all unused below ground conduit and foundations. All salvaged material will be

documented on the “Salvaged Checklist Sheet” with a detailed description and item count, and delivered by the Contractor to a City storage facility, or disposed of, as directed by the Engineer. The Contractor will protect all salvage material. Materials that are damaged by the Contractor’s removal process or mishandling will be replaced with new equipment at the Contractor’s expense.

- Before removing existing equipment, arrangements will be made for the local utility company to disconnect the power source. When the meter is no longer needed, the local utility will remove it. The Contractor will disconnect all wiring to the equipment and completely remove the item from its foundation.
- The traffic signal heads, mounting brackets, and pedestrian buttons and signs will be removed from the standards, and the signal heads will be removed from the mounting brackets.
- Removal and disposal of traffic control cabinet concrete foundation will be disposed properly at Contractors expense.

3.16.2. REMOVE AND SALVAGE SIGNAL STANDARD

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

3.17 INSTALL INTERIM SIGNAL SYSTEM

3.17.1. INSTALLATION

- All interim signals will be installed in accordance with Section 4200 Detail Drawing 5.19.
- All equipment supplied by the Contractor will meet the City of Fargo Specifications. The Contractor will install a pole mounted feed point and is responsible for arranging electrical service to the interim signals. All costs associated with the feed point will be incidental to the price bid for interim signal.
- The Contractor will be responsible for the maintenance and electricity costs for the interim signal until the date of final acceptance.

3.18 SUBSTANTIAL AND FINAL COMPLETION

3.18.1. SUBSTANTIAL

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

3.18.2. FINAL

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

3.19 INSPECTIONS/WARRANTY

3.19.1. INITIAL INSPECTION

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

3.19.2. FINAL INSPECTION

- A final inspection can be scheduled a minimum of 30 days after the initial inspection date. The Contractor will submit, in writing to the Engineer, that all punch list items have been completed, and request a final inspection on the form provided by the City.

- The Engineer or Inspector may stop the final inspection if items from the initial inspection are not completed, and require the Contractor to resubmit their request for final inspection after completing the required work.
- The City of Fargo will perform one initial inspection, and one final inspection at no cost to the Contractor. If additional initial or final inspections need to be performed, the Prime Contractor will be assessed a fee of \$250 for each time an additional initial or final inspection.
- The project will not be final until the City accepts the project and assigns a final acceptance date. The date of final acceptance will be 30 days without failure for the City to accept the system. If the system fails during the 30-day 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 an accident, vandalism, or road/sidewalk maintenance of the signal system until the date of final acceptance, which includes being responsible for the system 24 hours a day, 365 days a year, until the project has qualified for final acceptance.

3.19.3. WARRANTY

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

PART 4
MEASUREMENT & PAYMENT

4.1 MEASUREMENT AND PAYMENT

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

4.1.1 F&I EQUIPMENT FARGO TYPE B/HAWK CABINET

- This cost will include furnishing and installing all items in accordance to Section 4200 2.3 and 3.1. Payment will be made for each (EA) Type B/HAWK cabinet installed and operational. Cabinet and other miscellaneous items needed to have a complete and operational controller cabinet will be incidental to item. The Contractor is responsible for all coordination and costs involved with getting cabinet fully functional.

4.1.2 F&I BATTERY BACKUP SYSTEM

- This cost will include furnishing and installing all items in accordance to Section 4200 2.3.4 and 3.1.4. Payment will be made for each (EA) Battery Backup System installed and operational. Cabinet and other miscellaneous items needed to have a complete and operational battery backup cabinet will be incidental to item. The Contractor is responsible for all coordination and costs involved with supplying a fully functional system.

4.1.3 F&I EQUIPMENT TRAFFIC SIGNAL/STREET LIGHT COMBO FEEDPOINT

- This cost will include furnishing and installing all items in accordance to Section 4200 2.5 and 3.3. Measurement and payment will be made for each (EA) feed point installed and operational. Cabinet, concrete foundation and pad, conduit, meter trim, riser with weather head (if needed), ground rods, conductor and conduit between feed point and transformer (for Xcel Energy areas, sized as per Xcel Energy requirements) and other miscellaneous items needed to have a complete and operational feed point shall be incidental to item. Additional conductor lengths at splices and feed points will be incidental. The Contractor is responsible for all coordination and costs involved with getting power to the feed point and setting up the meter service. This shall be incidental to the bid price.

4.1.4 INNERDUCT/CONDUIT

- This cost will include furnishing and installing all items in accordance to Section 4200 2.9 and 3.7. Payment will be made for each size of innerduct/conduit, and measured by the linear foot (LF). The measurement for payment will be the length of innerduct/conduit installed from center of concrete foundation to center of concrete foundation, pull box or feed point. The method used to install innerduct/conduit (such as boring, jacking or trenching) will not be measured separately, but will be incidental to innerduct/conduit. Couplings/fittings used at

concrete foundation, and the method of innerduct installation, will not be measured for payment but will be included in the price bid for conduit.

4.1.5 CONDUCTOR CABLE(S)/WIRE(S)

- This cost will include furnishing and installing all items in accordance to Section 4200 2.10 and 3.8. Payment made for ALL size/type of conductors, will be measured by the linear foot (LF). The measurement for payment will be the length of conductor installed from center of concrete foundation to center of concrete foundation, pull box, post, feed point or cable/wire endpoint. Additional quantities required will not be measured for payment, but will be included according to Section 3.8 Traffic Signal Conductors/Control Cable/Wire.

4.1.6 FIBER OPTIC CABLE

- This cost will include furnishing and installing all items in accordance to Section 4200 2.11 and 3.9. Payment made for ALL size fiber optic cable, will be measured by the linear foot (LF). The measurement for payment will be the length of cable installed from visible footage on both ends of the cable. Lengths that are broke out in splice trays will be incidental to the splice.

4.1.7 F&I FOUNDATION SIGNAL CABINET

- This cost will include furnishing and installing all items in accordance to Section 4200 2.3.3 and 5.9. The cost for all foundations will be for each (EA) size of concrete foundation installed (Type IV, Type V, Controller, etc.). Drilling of base hole or 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 foundation, and will not be measured for payment.

4.1.8 F&I SIGNAL FOUNDATIONS

- This cost will include furnishing and installing all items in accordance to Section 4200 5.1. The measurement for payment will be for each (EA) size of concrete foundation installed. Drilling of foundation hole or hand digging where required, concrete, column forms, anchor bolts, reinforcing rods, conduit, ground rod, and any miscellaneous items necessary for the concrete foundation will be incidental to the foundation, and will not be measured for payment.

4.1.9 F&I SIGNAL STANDARD/COMBO TYPE IV VARIOUS LENTH MAST ARM

- This cost will include furnishing and installing all items in accordance to Section 4200 2.4.1 and 3.2.1. The measurement for payment will be for each (EA) signal standard. Refer to

Plans for information on size of signal standards and luminaire extension (if applicable). All costs for this item will include but not limited to; furnishing a new standard, unloading, storing, transporting, and installing.

4.1.10 F&I SIGNAL STANDARD TYPE V

- This cost will include furnishing and installing all items in accordance to Section 4200 2.4.2 and 3.2.2. The measurement for payment will be for each (EA) signal standard. Refer to Plans for information on size of signal standards. All costs for this item will include but not limited to; furnishing a new standard, unloading, storing, transporting, and installing.

4.1.11 INSTALL SIGNAL STANDARD/COMBO TYPE IV VARIOUS LENGTH MAST ARM

- This cost will include furnishing and installing all items in accordance to Section 4200 3.2.1 and 5.3. The measurement for payment will be for each (EA) signal standard. Refer to Plans for information on size of City of Fargo supplied signal standards. All cost for the supplied signal standard will include but not limited to; loading, unloading, storing, transporting, and installing.

4.1.12 INSTALL SIGNAL STANDARD TYPE V

- This cost will include furnishing and installing all items in accordance to Section 4200 3.2.2 and 5.2. The measurement for payment will be for each (EA) signal standard. Refer to Plans for information on size of City of Fargo supplied signal standards. All cost for the supplied signal standard will include but not limited to; loading, unloading, storing, transporting, and installing.

4.1.13 F&I PED PUSH BUTTON & SIGN

- The measurement for payment will be for each (EA) button furnished and installed according to Section 4200 2.6 and 3.4.

4.1.14 F&I PED PUSH BUTTON POST

- The measurement for payment will be for each (EA) button furnished and installed according to Section 4200 2.6 and 3.4.

4.1.5 F&I PULL BOX

- The measurement for payment will be to furnish and install each (EA) pull box including a cover, according to Section 4200 2.8.1 and 3.6.1. Cost will include backfill and restoration of surrounding area to original conditions.

4.1.16 F&I FIBER VAULT

- The measurement for payment will be for each (EA) button furnished and installed according to Section 4200 2.8.2 and 3.6.2.

4.1.17 F&I DETECTION SAWED-IN LOOP

- The measurement for payment will be to furnish and install each (EA) sawed-in loop according to Section 2.13 and 3.11. Cost will include all splicing, testing, labeling, cleanup, and restoration of surrounding area to original conditions.

4.1.18 F&I DETECTION PREFORMED LOOP

- The measurement for payment will be to furnish and install each (EA) sawed-in loop according to Section 2.13 and 3.11. Cost will include all splicing, testing, labeling, cleanup, and restoration of surrounding area to original conditions.

4.1.19 F&I PED/VEHICLE HEAD VARIOUS SECTION MAST ARM/POST MOUNT

- The measurement for payment will be for each (EA) Ped/Vehicle head, Contractor will furnish materials according to Section 2.7 and installed according to Section 3.5. Cost will include all splicing, waterproofing, aiming, and adjusts at inspection(s).

4.1.20 F&I FIBER/ETHERNET SWITCH

- The measurement for payment will be to furnish and install each (EA) switch. Cost will include all mounting DIN rail, hardware to mount to cabinet, power supply, fiber jumpers, required small form-factor pluggable(s) (SFP), labels, and tie wraps to ensure a neat installation. Switch will be fully functional before payment.

4.1.21 F&I FIBER OPTIC TERMINATION & EQUIPMENT

- The measurement for payment will be to furnish and install as a lump sum (LS) furnishing materials according to Section 2.11, and installation according to Section 3.9. Cost will include testing, and any miscellaneous parts required for a complete sealed splice enclosure.

4.1.22 F&I ELECTRIC SIGN DRIVER FEED BACK (DFB) SOLAR

- The measurement for payment will be to furnish and install each (EA) sign according to Section 2.17 and 3.15. Cost will include all software, mounting hardware, solar panels and electrical connectors/connections to provide a fully functional DFB sign. Cost does NOT include Type V signal standard.

4.2. F&I FURNISH AND INSTALL

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

- Sandblast Signal Standards
- Remove Traffic Signal Foundation
- Remove Street Light
- Relocate Street Light Standard
- Traffic Signal Standards
- Install Pedestrian Push Button & Sign
- Relocate Pedestrian Post & Button
- Pedestrian Push Button Post
- Install LED Vehicle Section
- Install LED Pedestrian Section
- Pedestrian Head
- Vehicle Heads
- Electronic Signal Sign
- School Flashing Beacon
- Pedestrian Flashing Beacon Assembly
- Relocate Signal Head
- Install Cabinet & Controller
- Relocate Pull Box
- Remove Pull Box
- Install Fiber Pull Box
- Install PVC Pull Box
- Install Frame and Cover
- Traffic Signal Detector Loop
- Replace Traffic Signal Detector Loop
- Install Micro Loop Probe
- Install Preformed Loop
- Furnish & Install Luminaire Extension
- Revise Controller and Cabinet
- Fargo Type B Cabinet
- Emergency Vehicle Pre-emption System
- Feed Point

- Battery Backup System
- Install Interim Signal System
- Install Driver Feed Back Sign

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

- Traffic Signals System
- Modify Traffic Signal System
- Remove & Salvage Traffic Signal Equipment
- Install Flasher Cabinet
- Modify Existing Traffic Controller Cabinet
- Fiber Optic Terminations and Equipment
- Video Detection System
- Camera System
- Controller & Cabinet Assembly
- Temporary Signal Service

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

UTILITY COORDINATION

HEU-8-984(179) – PCN 24053

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

Abandon Utility (AU): Utility Encounter that was originally a Conflict but relocated before bidding. The line is still represented in the Exhibits to make the Contractor aware of its location. See the Utility Coordination Table for final details.

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.

Proposed Resolution (PR): A proposed location of a future Utility Encounter. The Utility Owner is in the process of moving the Utility to this Proposed location. PIP activities may still be required in the proposed location.

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

UTILITY COMPANY CONTACTS

UTILITY COMPANY	CONTACT NAME	PHONE NUMBER	EMAIL
Lumen	Trevor Christensen	701.415.7058	Trevor.a.christensen@lumen.com
Xcel Energy (Gas)	Tom Berseth	701.640.1406	Thomas.M.Berseth@xcelenergy.com
Xcel Energy	Josh Meissner	701.271.3241	josh.e.meissner@xcelenergy.com
702 Communications	Kirt Liedahl	218.284.5767	kliedahl@702Communications.com
Dakota Carrier Network	Ross Branstner	701.364.1310	rbranstner@dakotacarrier.com
Windstream Communications	Kelly Wingfield	515.559.4031	Kelly.Wingfield@windstream.com
Consolidated Communications	Noah Cressell	206.999.7169	Noah.Cressell@consolidated.com
Midcontinent Communications	Corey Wixo	701.212.5682	Corey.Wixo@Midco.com

CONTRACTOR RESPONSIBILITIES

A. Responsibilities.

The responsibilities for utility coordination include the following:

- Conduct the preconstruction utility coordination meeting;
- Main 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. The locations of utility lines that require potholing are available at the specific locations included in Section 140.

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 Appendix A of SP 236(24)

HEU-8-984(179) PCN 24053

UE ID# UR ID# PR ID#	Utility Coordination Exhibit Page Number	Beginning Point				Ending Point			Type: Linear (RT/LT), Crossing, or Point Location	Roadway (Alignment/Ch ain)	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. If you use D = Working Day, W = Week, H = Hours; then it represents the amount of time for this utility conflict only. Or You can utilize estimated Production Rates for Completion. Example: 1,000 FT/D, etc	UE TYPE	
		Sta.	Offset (FT)	RT or LT		Sta.	Offset (FT)	RT or LT												Protect in Place	Conflict
MUNICIPAL-PR1	1	1+65	5.3	LT	to	2+10	3.9	LT	LT		45.2	FT	2	Proposed Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	City of Fargo		-	-	X	
LUMEN-1	1	1+71	0.5	LT	to	1+71	9.6	LT	LT		9	FT	-	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: DO NOT IMPACT Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Lumen		-	-	X	
MUNICIPAL-PR2	1	2+10	4.2	LT	to	-	-	-	Point		1	EA	2	Proposed Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	City of Fargo		-	-	X	
MUNICIPAL-1	1	2+10	4.2	LT	to	2+18	3.5	RT	Crossing		10.9	FT	2	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:						
XCEENE-1	1	2+11	42.4	Lt	to	2+32	43.5	Lt	LT		10.4	FT	<1	Abandoned	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Xcel Energy		-	-		X
MUNICIPAL-2	1	2+18	56.1	RT	to	-	-	-	Point		1.0	EA	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	City of Fargo		-	-	X	
XCEENE-2	1	2+22	50.4	RT	to	2+50	53.2	RT	RT		28.0	FT	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Xcel Energy		-	-	X	
CONCOM-1	1	2+25	32.0	LT	to	2+25	46.9	LT	LT		14.9	FT	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Consolidated Communications		-	-	X	
CONCOM-2	1	2+26	9.4	LT	to	2+26	3.5	RT	Crossing		13.0	FT	3	Level 2	Construction Activities: Pole is 3+ feet deep	Consolidated Communications		-	-	X	
CONCOM-3	1	2+26	47.2	RT	to	2+26	71.9	RT	RT		24.7	FT	<1	Level 2	Utility Company Responsibilities: Reset after sidewalk is completed. NDDOT/Contractor's Responsibilities: Notify Consolidated Communications two weeks prior to work beginning on the sidewalk.	Consolidated Communications		-	-	X	
CONCOM-4	1	2+27	66.1	RT	to	-	-	-	Point		1.0	EA	<1	Level 3	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Consolidated Communications		-	-		X
XCEENE-3	1	2+35	55.3	LT	to	2+48	54.4	LT	LT		12.9	FT	<1	Abandoned	Construction Activities: De-energized line	Xcel Energy		-	-		X
XCEENE-4	1	2+35	55.2	LT	to	2+48	53.5	LT	LT		13.4	FT	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Xcel Energy		-	-	X	

Utility Coordination Table Appendix A of SP 236(24)

HEU-8-984(179) PCN 24053

UE ID# UR ID# PR ID#	Utility Coordination Exhibit Page Number	Beginning Point				Ending Point			Type: Linear (RT/LT), Crossing, or Point Location	Roadway (Alignment/Ch ain)	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. If you use D = Working Day, W = Week, H = Hours; then it represents the amount of time for this utility conflict only. Or You can utilize estimated Production Rates for Completion. Example: 1,000 FT/D, etc	UE TYPE	
		Sta.	Offset (FT)	RT or LT		Sta.	Offset (FT)	RT or LT												Protect in Place	Conflict
LUMEN-2	1	2+36	55.9	LT	to	2+43	56.5	LT	LT		7.7	FT	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Lumen		-	-	X	
LUMEN-3	1	2+43	56.5	LT	to	2+44	69.2	LT	LT		12.7	FT	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Lumen		-	-	X	
DACANE-1	1	2+36	61.8	LT	to	2+49	62.8	LT	LT		13.5	FT	<1	Level 2	Construction Activities: DCN 2" empty conduit placed jointly with Midco	Dakota Carrier Network		-	-	X	
DACANE-2	1	3+22	62.6	LT	to	3+31	62.5	LT	LT		8.9	FT	<1	Level 2	Construction Activities: DCN 2" empty conduit placed jointly with Midco	Dakota Carrier Network		-	-	X	
XCEENE-5	1	3+23	50.5	RT	to	3+31	49.4	RT	RT		8.8	FT	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Xcel Energy		-	-	X	
MUNICIPAL- PR3	1	3+24	56.5	RT	to	3+28	43.5	RT	RT		13.6	FT	6	Proposed Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	City of Fargo		-	-	X	
LUMEN-5	1	3+25	41.1	RT	to	5+44	39.6	RT	RT		218.8	FT	-	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: DO NOT IMPACT Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Lumen		-	-	X	
MUNICIPAL- PR4	1	3+28	43.5	RT	to	5+39	41.2	RT	RT		210.9	FT	6	Proposed Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	City of Fargo		-	-	X	
XCEENE-6	1	3+31	48.1	RT	to	-	-	-	Point		1.0	EA	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Xcel Energy		-	-	X	
XCEENE-7	1	3+31	49.4	RT	to	3+31	38.4	RT	RT		11.0	FT	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Xcel Energy		-	-	X	
XCEENE-8	1	3+34	41.6	LT	to	3+45	39.9	LT	LT		11.5	FT	<1	Abandoned	Construction Activities: De-energized line	Xcel Energy		-	-		X
WINCOM-1	1	3+37	38.9	LT	to	3+41	38.8	LT	LT		3.6	FT	3	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Windstream Communications		-	-	X	
MUNICIPAL-3	1	3+44	44.5	RT	to	-	-	-	Point		1.0	EA	<1	Level 2	Construction Activities: 3-4' deep throughout; deeper under roadway	City of Fargo		-	-	X	
DACANE-3	1	3+56	47.0	LT	to	3+59	45.3	LT	LT		3.8	FT	<1	Level 2	Construction Activities: DCN 2" empty conduit placed jointly with Midco	Dakota Carrier Network		-	-	X	

Utility Coordination Table Appendix A of SP 236(24)

HEU-8-984(179) PCN 24053

UE ID# UR ID# PR ID#	Utility Coordination Exhibit Page Number	Beginning Point				Ending Point			Type: Linear (RT/LT), Crossing, or Point Location	Roadway (Alignment/Ch ain)	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. If you use D = Working Day, W = Week, H = Hours; then it represents the amount of time for this utility conflict only. Or You can utilize estimated Production Rates for Completion. Example: 1,000 FT/D, etc	UE TYPE	
		Sta.	Offset (FT)	RT or LT		Sta.	Offset (FT)	RT or LT												Protect in Place	Conflict
DACANE-4	1	5+32	42.2	LT	to	5+37	42.2	LT	LT		5.0	FT	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: DO NOT IMPACT Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Dakota Carrier Network		-	-	X	
WINCOM-2	1	5+35	37.0	LT	to	5+42	36.9	LT	LT		7.5	FT	3	Level 2	Construction Activities: 3-4' deep throughout; deeper under roadway	Windstream Communications		-	-	X	
DACANE-5	1	5+37	42.2	LT	to	5+49	39.2	LT	LT		12.7	FT	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: DO NOT IMPACT Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Dakota Carrier Network		-	-	X	
DACANE-6	1	5+39	40.7	RT	to	-	-	-	Point		1.0	EA	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: DO NOT IMPACT Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Dakota Carrier Network		-	-	X	
MUNICIPAL-PR5	1	5+39	42.4	RT	to	-	-	-	Point		1.0	EA	6	Proposed Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	City of Fargo		-	-	X	
MUNICIPAL-PR6	1	5+39	43.2	LT	to	5+39	41.2	RT	Crossing		84.7	FT	2	Proposed Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	City of Fargo		-	-	X	
DACANE-7	1	5+49	39.2	LT	to	5+60	39.5	LT	LT		10.5	FT	<1	Level 2	Information Outlining Understanding Between Utility Company & NDDOT On Conflict information, and/or Resolution Expectations. Including: Construction Activities: DO NOT IMPACT Utility Company Responsibilities: NDDOT/Contractor's Responsibilities: Environmental Commitments the NDDOT Contractor need follow:	Dakota Carrier Network		-	-	X	

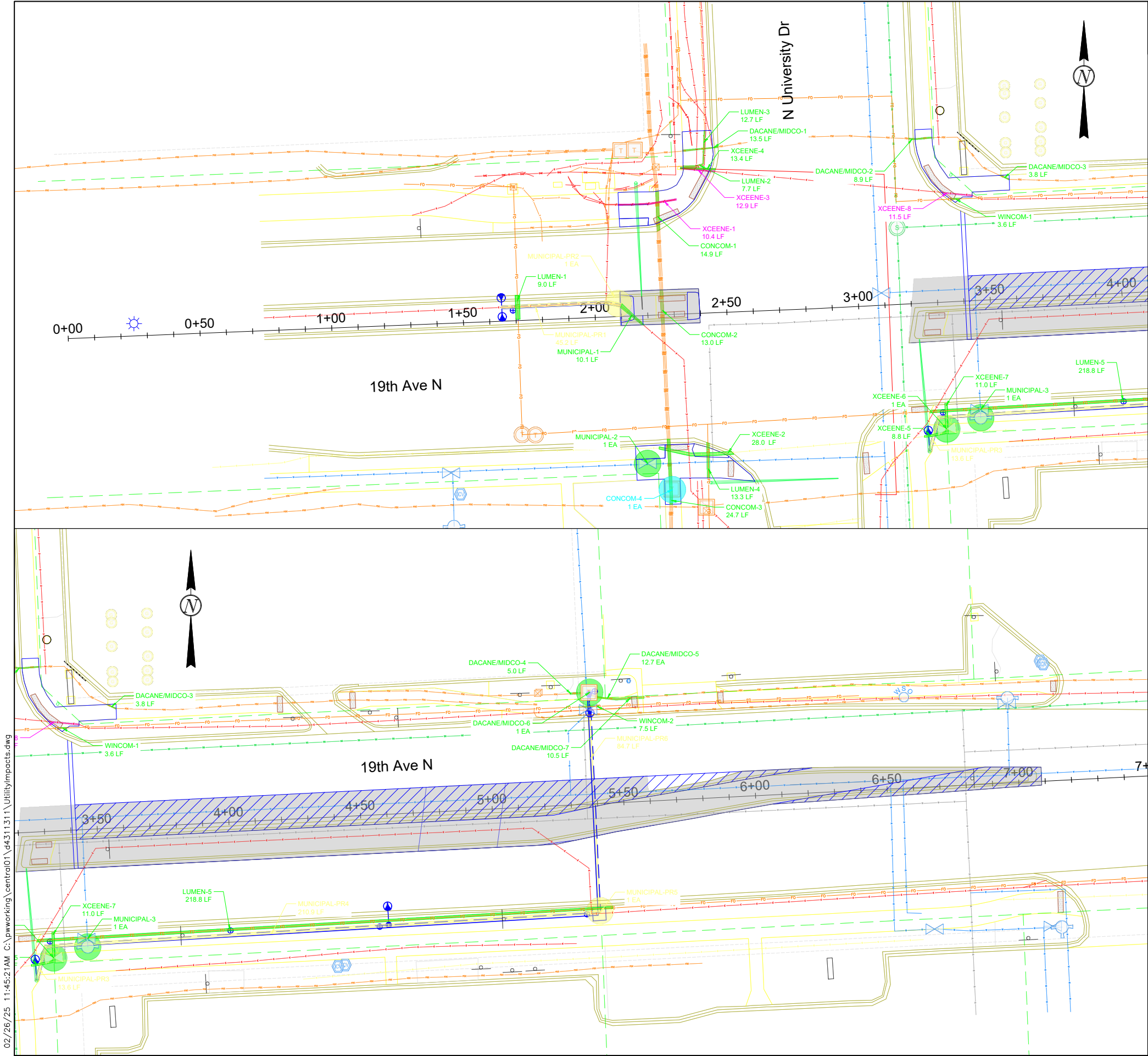
UTILITY COMPANY INFORMATION

UTILITY COMPANY	CONTACT NAME	PHONE NUMBER	EMAIL
Lumen	Trevor Christensen	701.415.7058	Trevor.a.christensen@lumen.com
Xcel Energy (Gas)	Tom Berseth	701.640.1406	Thomas.M.Berseth@xcelenergy.com
Xcel Energy	Josh Meissner	701.271.3241	josh.e.meissner@xcelenergy.com
702 Communications	Kirt Liedahl	218.284.5767	kliedahl@702Communications.com
DCN	Ross Branstner	701.364.1310	rbranstner@dakotacarrier.com
Windstream	Kelly Wingfield	515.559.4031	Kelly.Wingfield@windstream.com
Consolidated	Noah Cressell	206.999.7169	Noah.Cressell@consolidated.com
Midcontinent	Corey Wixo	701.212.5682	Corey.Wixo@Midco.com

UTILITY ENCOUNTER LEVEL DESIGNATIONS

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

Appendix B



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	HEU-8-984(179)	UTIL	1

LEGEND

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

Fargo Intersection Safety
Utility Coordination

This document is preliminary and not for construction or implementation purposes.

02/26/25 11:45:21AM C:\pwworking\central01\d4311311\UtilityImpacts.dwg

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

TEMPORARY PEDESTRIAN FACILITIES

PROJECT 8-984(179) – PCN 24053

DESCRIPTION

This work consists of constructing temporary pedestrian facilities for use while permanent facilities are impacted by the project work.

MATERIALS

A. Pedestrian Channelization.

Provide pedestrian channelization that meets the following requirements:

- Interlocked with a 1" maximum gap between devices;
- Upper rail with a smooth continuous guide handrail positioned 32 to 38 inches above the walkway;
- A smooth lower edge on the pedestrian side of the wall to allow sight impaired cane tapping positioned based on the following requirements:
 - The bottom edge is less than 2 inches above the walkway; and
 - The top edge a minimum of 6 inches above the walkway
- Openings in the bottom of the wall to allow for water passage;
- Support legs that do not impede the clear walkway;
- In compliance with NCHRP Report 350 or MASH Test Level 3 (TL3);
- Channelization portions are orange or white, or a combination of orange and white, in color.

B. Temporary Pedestrian Surfacing.

Compacted aggregate is not an acceptable surface.

CONSTRUCTION REQUIREMENTS

A. General.

Provide surfaces for temporary pedestrian facilities with the following characteristics:

- Stable;
- Firm;
- Weather resistant; and
- Non-slip.

B. Pedestrian Walkway.

1. General

Pedestrian walkways consist of two components; pedestrian channelization and temporary pedestrian surfacing.

Move and reset the pedestrian walkway as needed for multiple phases of construction.

2. Pedestrian Channelization.

Install pedestrian channelization as follows:

- Place pedestrian channelization to delineate a clear, temporary pedestrian walkway directing pedestrians through the work area;
- Provide a minimum, continuous, clear width of 48 inches;
- Where the clear width of a temporary pedestrian walkway is less than 60 inches, provide passing spaces at maximum intervals of 200 feet that have minimum dimension of 60 × 60 inches.

3. Temporary Pedestrian Surfacing.

Place temporary surfacing to match the widths detailed in Section 2, "Pedestrian Channelization" in the Construction Requirements portion of this special provision.

Place temporary surfacing with a maximum cross slope of 2 percent and maximum running slope of 5 percent. Construct and maintain the surface with no vertical discontinuities greater than 0.25 inches, and free of barriers to wheelchair use.

C. Temporary Curb Ramp.

Construct curb ramps with a clear width of 48 inches. Construct ramps with a slope of 12:1 or flatter. Maintain a clear turning platform above and below the ramp of at least 48 × 48 inches.

Maintain a maximum curb ramp and turning platform cross-slope of 50:1 (2%) on parallel curb ramps.

Maintain 0.5-inch maximum width lateral joints or gaps between surfaces and maximum 0.5-inch surface height changes.

Maintain water flow in the gutter system.

METHOD OF MEASUREMENT

A. Pedestrian Walkway.

The Engineer will measure "Pedestrian Walkway" along the centerline of the walkway and make 90 degree turns when measuring around corners. If multiple phases of construction cause the walkway to be moved or reset, the Engineer will pay for the greatest length of walkway used at one time.

B. Temporary Curb Ramp.

The Engineer will measure "Temporary Curb Ramp" based on each curb ramp installed and will pay for the maximum number of curb ramps in place at one time.

BASIS OF PAYMENT

The contract item "Temporary Curb Ramp" includes both parallel and perpendicular curb ramps.

Pay Item	Pay Unit
Pedestrian Walkway	Linear Foot
Temporary Curb Ramp	Each

Include all costs to furnish, install, maintain, relocate, replace, and remove pedestrian channelization and temporary pedestrian surfacing in the contract unit price for "Pedestrian Walkway."

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

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:

$FCA_{(x, y, z)} = \text{Fuel Ratio}_{(x, y, z)} \times \text{Estimate}_{(x, y, z)} \times (\text{Cost Change}_{(x, y, z)} - 0.10)$		
(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 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

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. ☐ Diesel ☐ Unleaded ☐ 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. ☐ Yes ☐ No	
If yes, provide the total dollars for each of the applicable fuels:	
Diesel (D)	
Unleaded (U)	
Burner Fuel (B)	
Sum (D+U+B)	% of Original Contract Amount *
*The sum of the D, U, and B may not exceed 15% of the original contract amount.	
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 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 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 of 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.)

INDIVIDUAL ACKNOWLEDGEMENT

STATE OF _____)
COUNTY OF _____) ss

On this _____ day of _____ in the year _____
before me, _____, a Notary Public, personally appeared _____, known to me (or proved to me
on the oath of _____) to be the person who is described in and who
executed the within instrument and acknowledged to me that is executed the same.

(SEAL)

Notary Public

CORPORATION ACKNOWLEDGEMENT

STATE OF _____)
COUNTY OF _____) ss

On this _____ day of _____ in the year _____
before me, _____, a Notary Public, personally appeared _____, known to me (or proved to me
on the oath of _____) to be the president (or other officer or person)
of the corporation that is described in and that executed the within instrument, and acknowledged to me that
such corporation executed the same.

(SEAL)

Notary Public

ACKNOWLEDGEMENT OF SURETY

STATE OF _____)
COUNTY OF _____) ss

On this _____ day of _____ in the year _____
before me, _____, a Notary Public, personally appeared _____, known to me (or proved to me
on the oath of _____) to be the person who is described in and
whose name is subscribed to the within instrument as the attorney-in-fact of _____
and acknowledged to me that they subscribed the
name of _____ thereto as surety and their own name as attorney-in-fact.

(SEAL)

Notary Public