

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
REQUEST FOR PROPOSAL

STATE FEDERAL AID PROJECT NO. SER-5-094(107)030 (PCN-20549)

0.134 Miles

GROUND ANCHORS, DRILLED SHAFTS, GRADING, & INCIDENTALS

I-94 AT RP 31

BILLINGS COUNTY

DBE Race Neutral Goal - 0%

BID OPENING: The bidder's proposal will be accepted via the Bid Express on-line bidding exchange at www.bidx.com until **09:30AM Central Time on April 10, 2015.**

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

Proposal Form of:

(Firm Name)

(Address, City, State, Zipcode)

(For official use only)

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Project: SER-5-094(107)030 (PCN-20549)

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: SER-5-094(107)030 (PCN-20549)

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

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

Explanation: _____

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

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

BID LIMITATION (Optional)

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

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

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

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

OR

that exceed a total number of _____ projects.

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

Project: SER-5-094(107)030 (PCN-20549)

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: SER-5-094(107)030 (PCN-20549)

RECEIPT OF ADDENDA ACKNOWLEDGEMENT

We hereby acknowledge receipt of the following addenda:

Addendum # _____ Dated _____

PROPOSAL GUARANTY

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

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

_____ Annual Bid Bond*

_____ Single Project Bid Bond

_____ Certified or Cashier's Check

*Annual Bid Bond is required when submitting proposals electronically

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION(RN)
North Dakota Department of Transportation, Civil Rights Division
 SFN 52012 (Rev. 07-2012)

FORM A

Contractor		Phone
Job No.	Project No.	Bid Opening Date

By noon (Central time) on the next work day following the bid opening, all apparent low bidders must provide a list of the DBE firms intended for use on this project to the NDDOT Civil Rights Division. The information provided may be submitted on this Form A or on a computer-generated form, giving the same information, attached to this Form A. If the prime contractor intends to use DBE quotes received from a subcontractor, the prime contractor **must** include the subcontractor's Form A information in the prime contractor's Form A.

PRINT ALL NUMBERS CLEARLY AND LEGIBLY.

1. For each DBE firm, list the specific bid item numbers to be performed and the total dollar value of the contract:
 - a. If the DBE firm will perform only a portion of a bid item (supply, haul, etc.), this **must** be so noted, in parenthesis, after the bid item number. **The bidder must state why the DBE was not used for the entire bid item.**
 - b. For DBE subcontractors, suppliers (regular dealers), and manufacturers, **list only the amount of work to be completed with each DBE's own employees and equipment.**
 - c. For DBE trucking firms, **list the amount of hauling to be performed by the DBE with its own trucks and employees;** or the fees or commissions earned on non-DBE leased trucks. However, if the DBE is leasing trucks from a non-DBE firm, including an owner-operator, you can count the total value of the services provided by the non-DBE, not to exceed the total value of the services provided by the DBE-owned trucks. (See page 9, number 4, of this special provision for more detailed information.)
2. DBE prime contractors **must** list the work they will perform with their **own forces** and any work subcontracted to or materials purchased from other DBEs.
3. If the information provided on Form C **differs** from the information provided on this Form A (bid item numbers, quantities, or dollar amounts), the apparent low bidder or subcontractor **must** provide, with the Form C, a written explanation for the difference.
4. The apparent low bidder or subcontractor **must** use the DBEs listed for the intended work indicated on Form C.
5. DBE bidders **must** list the work they will perform with their **own employees and equipment** and any work subcontracted to or materials purchased from other DBEs.

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied		Total Contract Dollar Value \$
Percent DBE will do with own equipment/forces =	%	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) =	%	

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied		Total Contract Dollar Value \$
Percent DBE will do with own equipment/forces =	%	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) =	%	

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied		Total Contract Dollar Value \$
Percent DBE will do with own equipment/forces =	%	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) =	%	

FORM A (continued)

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces = %	If Regular Dealer, X 60% = \$	
Percent Non-DBE will do (trucking only) = %		

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces = %	If Regular Dealer, X 60% = \$	
Percent Non-DBE will do (trucking only) = %		

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces = %	If Regular Dealer, X 60% = \$	
Percent Non-DBE will do (trucking only) = %		

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces = %	If Regular Dealer, X 60% = \$	
Percent Non-DBE will do (trucking only) = %		

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
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Percent Non-DBE will do (trucking only) = %		

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces = %	If Regular Dealer, X 60% = \$	
Percent Non-DBE will do (trucking only) = %		

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces = %	If Regular Dealer, X 60% = \$	
Percent Non-DBE will do (trucking only) = %		

Use additional pages, following the same format, if necessary.

The NDDOT DBE Liaison Officer can be contacted at: CIVIL RIGHTS DIVISION
 ND DEPARTMENT OF TRANSPORTATION
 608 E BOULEVARD AVE
 BISMARCK ND 58505-0700

dlaub@nd.gov
 phone (701) 328-2576
 fax (701) 328-1965, (701) 328-0343

BID ITEMS

Project: SER-5-094(107)030 (PCN-20549)

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

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						\$\$\$\$\$	000	\$\$\$\$\$	00
001	103	0100	CONTRACT BOND	L SUM	1.				
002	201	0330	CLEARING & GRUBBING	L SUM	1.				
003	210	0101	CLASS I EXCAVATION	L SUM	1.				
004	220	0100	PREPARE STOCKPILE SITE	L SUM	1.				
005	220	0200	RESTORE STOCKPILE SITE	L SUM	1.				
006	251	0200	SEEDING CLASS II	ACRE	3.				
007	251	2000	TEMPORARY COVER CROP	ACRE	2.500				
008	253	0101	STRAW MULCH	ACRE	5.500				
009	256	0701	REMOVE AND REPLACE RIPRAP	CY	75.				
010	260	0200	SILT FENCE SUPPORTED	LF	780.				
011	260	0201	REMOVE SILT FENCE SUPPORTED	LF	780.				
012	261	0112	FIBER ROLLS 12IN	LF	2,920.				
013	261	0113	REMOVE FIBER ROLLS 12IN	LF	770.				
014	265	0100	STABILIZED CONSTRUCTION ACCESS	EA	1.				
015	265	0101	REMOVE STABILIZED CONSTRUCTION ACCESS	EA	1.				
016	602	0130	CLASS AAE-3 CONCRETE	CY	350.900				

BID ITEMS

Project: SER-5-094(107)030 (PCN-20549)

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	612	0115	REINFORCING STEEL-GRADE 60	LBS	45,713.				
018	702	0100	MOBILIZATION	L SUM	1.				
019	704	1000	TRAFFIC CONTROL SIGNS	UNIT	837.				
020	704	1052	TYPE III BARRICADE	EA	3.				
021	704	1060	DELINEATOR DRUMS	EA	44.				
022	704	1067	TUBULAR MARKERS	EA	32.				
023	704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	1.				
024	708	5652	ECB TYPE 3	SY	62.				
025	714	7005	PIPE PVC 1.5IN SLOTTED DRAIN	LF	970.				
026	920	0900	SEDIMENT COLLECTION BAG	EA	30.				
027	930	3990	4.0FT DIAMETER DRILLED SHAFT	LF	4,200.				
028	930	4150	GROUND ANCHOR	LF	11,060.				
029	930	4155	SACRIFICIAL GROUND ANCHOR LOAD TEST	EA	2.				
030	930	4200	INSTRUMENTATION-INCLINOMETER	LF	290.				
031	930	4205	INSTRUMENTATION-LOAD CELL	EA	4.				
032	930	4210	INSTRUMENTATION-STRAIN GAUGE	EA	8.				

Project: SER-5-094(107)030 (PCN-20549)

Type of Work: GROUND ANCHORS, DRILLED SHAFTS, GRADING, & INCIDENTALS

County: BILLINGS

Length: 0.1340 Miles

TIME FOR COMPLETION:

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

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

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

COMPLETION DATE CONTRACT The project completion date is 12/19/2015 *. 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.

***A COMPLETION DATE OF 12/19/15 IS FOR ALL WORK NECESSARY TO MEET WINTER SUSPENSION REQUIREMENTS. THE HORIZONTAL DRAINS AND ALL OTHER REMAINING WORK SHALL BE COMPLETED BY 6/11/16. WINTER SUSPENSION REQUIREMENTS CONSIST OF COMPLETION OF THE DRILLED SHAFTS, GROUND ANCHORS, SITE STABILIZATION, AND FOR REMOVAL OF THE TEMPORARY TRAFFIC CONTROL. LIQUIDATED DAMAGES FOR FAILURE TO MEET WINTER SUSPENSION REQUIREMENTS SHALL BE CHARGED IN ACCORDANCE WITH SECTION 108.07B. LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE THE HORIZONTAL DRAINS AND ALL OTHER REMAINING WORK BY 6/11/16 SHALL BE CHARGED AT A RATE OF \$500 PER CALENDAR DAY UNTIL COMPLETED.**

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

Job #14, Project No. SER-5-094(107)030

Ground Anchors, Drilled Shafts, Grading, & Incidentals

INDEX OF PROVISIONS

Road Restriction Permits

Hot Line Notice

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

SP DBE Program - Race Neutral dated November 9, 2012

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

Appendix A of the Title VI Assurances dated October 1, 2014

Appendix E of the Title VI Assurances dated October 1, 2014

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

Labor Rates from U.S. Department of Labor dated January 2, 2015

On-The-Job Training Program dated November 1, 2013

SP 3(14) Temporary Erosion & Sediment Best Management Practices

SP 115(14) Crosshole Sonic Log Tests

SP 116(14) Drilled Shaft

SP 118(14) Ground Anchor

SP 119(14) Horizontal Drains

SP 120(14) Instrumentation

SP 134(14) Sediment Collection Bag

SP Fuel Cost Adjustment Clause dated September 8, 2006

NOTICE

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

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

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

ROAD RESTRICTION PERMITS

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

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

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

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

NOTICE

U.S. DEPARTMENT OF TRANSPORTATION

"HOT LINE"

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

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

CALL

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

WRITE

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

Email: hotline@oig.dot.gov

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

CHICAGO REGIONAL OFFICE

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

10/1/2014

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

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

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

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

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

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

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

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
 SPECIAL PROVISION: DISADVANTAGED BUSINESS ENTERPRISE PROGRAM
 PROJECT SER-5-094(107)030 (PCN-20549)**

Introduction	1	Award of Contract	6
Solicitation Efforts	2	Pre-Job Conference	6
Guidelines for Submitting Quotes to Bidders . 4		Contract Monitoring, Responsibilities and Reporting	6
Submitting Quotes to Dept. of Transportation 5		Maintaining Records & Tracking Payments . . .	7
Form A	5	Monitoring and Enforcement Mechanisms	7
Form B or Copies of Quotes	5	Counting DBE Participation	7
Form C	5	Sample Form A	13
Failure to Provide Required Documentation . 6		Sample Form B	15
List of DBE Participation	6	Sample Form C	17
Construction Progress Chart	6		

INTRODUCTION

49 Code of Federal Regulations Part 26 (CFR) states that the contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. Contractors shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT-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.

The paragraph above applies to every contractor on the project, including every tier of subcontractor. It is the prime contractor's or subcontractor's responsibility to include the above paragraph in every subcontract.

In this special provision:

"Apparent low bidder" means the bidder whose bid is read as low bid at the bid opening.

"Blanket Quote" means when a business provides the same quote, for all projects, at a bid opening, using the same price or when a business provides one quote for an entire season, at one rate, that is not project specific. Generally this is done by trucking firms.

"Contractor" means ALL DBE (including MBE and WBE) and non-DBE firms, including prime contractors, subcontractors (under/over \$500,000), suppliers, brokers, vendors, regular dealers, and manufacturers.

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

"Prime Contractor" means bidders or contractors who are submitting proposals on this project, regardless of the size of the project.

"Quoter" means a DBE or a non-DBE subcontractor (under/over \$500,000), supplier, broker, vendor, regular dealer, or manufacturer who submits quotes to another contractor.

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

“Aggregate providers” are considered subcontractors rather than suppliers, regardless of the amount of their quote.

When counting DBE participation the following definitions will apply as per 49 CFR Part 26:

“Broker” means an agent who negotiates contracts of purchase, work, lease, or sale; or buys and sells goods; or negotiates between buyers and sellers; but without having custody of the property. A broker may assist in the procurement of facilities, materials or supplies required for the performance of the contract. A broker is not regarded as a supplier, manufacturer, or regular dealer for the purposes of this program.

“Manufacturer” means a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

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

- To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.
- A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business as provided above if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers’ own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis.

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

- The firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.
- “Materials” is defined as aggregate, steel, petroleum products, concrete, asphalt, and other construction materials.

SOLICITATION EFFORTS

The following is a list of actions to be taken or documentation to be provided by all bidders (including DBE primes) to obtain DBE participation. Efforts shall include, but are not limited to, the following steps:

STEP 1: ADVERTISE

- The prime contractor may place an advertisement soliciting DBE participation in either general circulation media or the supportive services newsletter before the bid opening. "General circulation media" means a newspaper in the area of a project or a trade association publication such as the Construction Bulletin
- The ad should state a date and time by which all quotes may be submitted for consideration, and where quotes should be sent.
- The supportive services newsletter is published two weeks before each bid opening. Requests for ads in the newsletter must be received, in writing, by the Civil Rights Division no later than noon (Central time), 2 weeks before the bid opening date. Advertisements may be emailed to: subquotes@nd.gov or faxed to 701-328-0343, 701-328-1965, or mailed to the Civil Rights Division, 608 East Boulevard, Bismarck, ND 58505-0700. Bidders are also encouraged to publish an email address for their company where subcontractors and suppliers can email their quotes to.

STEP 2: SIGN IN

DBE and non-DBE prime contractors and subcontractors over \$500,000, (excluding suppliers, brokers, vendors, regular dealers, and manufacturers), are not required but are strongly encouraged to do the following:

- Prior to 11 a.m. (Central), the day before the bid opening date, may electronically sign-in at: <http://www.dot.nd.gov/dbebidinfo.html> and click on "**Sign-in for Prime Contractor and Subcontractor Quoting Over \$500,000,**" providing information (location, phone, email and/or fax number) where they can be contacted by businesses wishing to submit quotes, to them, between 11:00 a.m. and 8 p.m. that same day.
- Designate at that time which jobs they are bidding or quoting on.
- Between 11:00 a.m. and 8 p.m. (Central), the day before the bid opening the prime contractor and subcontractors over \$500,000 should have a representative available to receive and discuss quotes at the contact location, phone/fax numbers, or email, as required above.

NOTE: To facilitate the flow of information subcontractors quoting over \$500,000 are not required but are strongly encouraged to complete each phase in Step 1 above.

DBE and non-DBE suppliers, brokers, vendors, regular dealers, manufacturers, and subcontractors quoting either over/under \$500,000 are not required but are strongly encouraged to:

- After 11:00 a.m. (Central), the day before the bid opening, retrieve the "**Report for Prime Contractor and Subcontractor Quoting Over \$500,000,**" which will be posted electronically at <http://www.dot.nd.gov/dbebidinfo.html> A copy can be obtained by fax, by calling 701-328-3116, 701-328-2637, or 701-328-2576.

GUIDELINES FOR SUBMITTING QUOTES TO BIDDERS

All DBE and non-DBE businesses are **strongly encouraged** to follow these guidelines when quoting.

- The night before the bid opening,
 - By 2 p.m. (Central) all DBE and non-DBE suppliers, regular dealers, vendors, manufacturers, and brokers should cease quoting.
 - By 5 p.m. (Central) all subcontractors under \$500,000 should cease quoting.
 - By 8 p.m. (Central) all subcontractors over \$500,000 should cease quoting.
- Indicate the date of the bid opening, job number, and project number being quoted.
- Include bid item numbers and units or quantities.
- Use bid items and quantities from the proposal rather than from the Notice to Bidders.
- Show all calculations on the quote.
- Indicate whether mobilization is included, cost of bond if required, and any other special conditions.
- Indicate if a quote does not include something required by the specifications for a particular bid item.
- Include on all trucking quotes the type and number of units available and their capacity.
- Provide separate quotes for each project (each quote on a separate page).
- Indicate on all quotes for more than one bid item whether the bid items are tied or not tied.
- Subcontractors over \$500,000 should attach a copy of their Form A to their quote when submitting it to the prime contractor.
- DBEs should state on their quote the dollar value of the work to be actually performed by their own forces or other DBEs they intend to use.
- Blanket quotes for an entire bid opening or the construction season are not allowed (i.e. trucking, striping, signing, etc.)
- Faxed quotes must clearly indicate the date and time the fax was sent.

SUBMITTING QUOTES TO DEPARTMENT OF TRANSPORTATION

By the times listed in the chart below, the night before a bid opening, all DBE and non-DBE subcontractors (under/over \$500,000), suppliers, regular dealers, vendors, manufacturers, or brokers **should submit a copy** of all phone or paper quotes given for each project. Quotes may be emailed to subquotes@nd.gov or faxed to the DBE Liaison Officer, 701-328-1965, 701-328-0343, 701-328-4545.

DBE AND NON-DBE	SHOULD TURN IN QUOTES
Suppliers, brokers, vendors, regular dealers, and manufacturers	3:00 p.m. (Central)
Subcontractors under \$500,000	6:00 p.m. (Central)
Subcontractors over \$500,000	9:00 p.m. (Central)

FORM A

By noon (Central) on the next work day following the bid opening, the apparent low bidder **must** submit Form A to the DBE Liaison Officer. Form A is a list of all the DBEs intended for use on the project including DBE's intended to perform work in the first tier(or below) of subcontracting.

FORM B OR COPIES OF QUOTES

Within 5 working days after the bid opening, all bidders must either:

- Submit Form B to include all tiers of subcontracting on the project or
- Provide copies of all quotes received to include all tiers of subcontracting on the project to the DBE Liaison Officer, North Dakota Department of Transportation, 608 East Boulevard Avenue, Bismarck, ND 58505-0700. Copies may be faxed to: 701-328-1965, 701-328-0343 or emailed to subquotes@nd.gov

When submitting a Form B, copies of all quotes **must** be retained, by each bidder, for **45 days after the bid opening date**. If a quoter has not provided a copy of their quote to the Department, the bidder **must** provide a copy of the quote, upon request, by the Department.

FORM C

Within 10 working days after the bid opening, the apparent low bidder **must** submit a Form C for each DBE listed on Form A to the address below, unless NDDOT grants a time extension.

No award will be made on a project until all Form C's, for each DBE, are submitted to NDDOT. The contractor and DBE **must both** sign the form. Form C applies to all tiers of subcontractors working with DBEs.

Form Cs may be faxed to NDDOT's Civil Rights Division at 701-328-1965, 701-328-0343 or mailed to the DBE Liaison Officer, North Dakota Department of Transportation, 608 East Boulevard Avenue, Bismarck, ND 58505-0700.

Signatures need not be original; faxed signatures are acceptable.

If Form C contains additional pages or an attachment, each page or attachment must be signed by the intended DBE.

If Form A and Form C contain different information (e.g., bid items numbers, quantities, or dollar amounts), the prime contractor or subcontractor must explain the difference in writing to NDDOT when submitting Form C.

FAILURE TO PROVIDE REQUIRED DOCUMENTATION

Prime contractors and subcontractors are encouraged to discuss the requirements of this special provision with all businesses providing quotes on a specific project.

Apparent low bidders may be denied future quoting or bidding privileges for failure to submit Form A and Form C as required.

LIST OF DBE PARTICIPATION

Generally, two working days after the bid opening, the DBE Participation list is posted to the NDDOT website: <http://www.dot.nd.gov/dbebidinfo.html> To request a paper copy of the DBE participation web site listing, contact Civil Rights Division, North Dakota Department of Transportation, 608 East Boulevard Avenue, Bismarck, ND 58505-0700, fax 701-328-1965 or 701-328-0343, phone 701-328-2637 or 701-328-3116.

CONSTRUCTION PROGRESS CHART

Before the award of the contract, the apparent low bidder must create a construction progress chart for each DBE to be used on the contract (excluding oil haulers, suppliers, brokers, vendors, regular dealers, or manufacturers). The chart must state the type of work to be performed and when it will be performed.

The apparent low bidder must supply all charts to the Department and the appropriate chart to each DBE to be used on the contract. Any subsequent charts noting a change in schedule **must** also be provided to the Department and all DBEs.

AWARD OF CONTRACT

Contract award will be made to the bidder who submits the lowest responsive proposal meeting the pre-bid and pre-award requirements.

PRE-JOB CONFERENCE

It is the prime contractors' responsibility to invite all DBEs listed on Form C to the pre-job conference and to encourage attendance. If the DBE is unable to attend the pre-job conference **it is the prime contractors' responsibility to provide a copy of the pre-job conference minutes to each DBE.** In addition, it is the prime contractors' responsibility to discuss any project issues necessary for joint DBE program compliance on the part of the prime contractor, non-DBEs subcontractors and their DBE subcontractors, manufacturers, or regular dealers.

CONTRACT MONITORING, RESPONSIBILITIES, AND REPORTING

For the life of the project, the prime contractor is responsible for the DBEs listed on Form C and for the specific bid items or products that the bidder committed to during the pre-award process.

It is the prime contractors' responsibility to:

- monitor DBE performance on the project, to ensure that the DBE performs a commercially useful function, and
- to ensure both the prime contractor and their subcontractors, suppliers, manufacturers, and regular dealers comply with the requirements of this special provision.

DBEs are responsible for performing a commercially useful function. Should the DBE be unable to perform a commercially useful function or perform as stated on Form C it is their responsibility to **immediately notify** the prime contractor orally and in writing. See pages **8 through 10** of this special provision for information regarding commercially useful function.

The prime contractor must submit a completed copy of the DBE Participation Certification (SFN 14268), signed by the prime contractor and the DBE, to the project engineer upon completion of the contract to verify DBE participation. This includes DBEs used that were not included on Form A. The project will be monitored to ensure the DBE is performing a commercially useful function.

MAINTAINING RECORDS AND TRACKING PAYMENTS

The Department will require prime contractors and subcontractors to maintain records and documents of payments to DBEs for three years following the performance of the contract. The three year period will commence upon acceptance of the final payment from NDDOT. These records will be made available for inspection, upon request, by an authorized representative of the NDDOT or USDOT. This reporting requirement also applies to any certified DBE.

Prime contractors and subcontractors must keep a running tally of actual payments to DBEs for work committed to them at any time during the life of the contract. Prime contractors and subcontractors will be required to complete the Record of DBE Project Payments (SFN 53664) on a semi-annual basis. The record must be submitted to the NDDOT by the tenth working day after the October-March period, and the tenth working day after the April-September period. The form must be signed by a company representative. Send the record to the Civil Rights Division, North Dakota Department of Transportation, 608 East Boulevard Avenue, Bismarck, ND 58505-0700 or fax to 701-328-0343 or 701-328-1965.

NDDOT may perform interim audits of contract payments to DBEs to ensure that the actual amount paid to DBEs equals or exceeds the dollar amount stated on Form C.

MONITORING AND ENFORCEMENT MECHANISMS

The Department will bring to the attention of the USDOT any false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take the steps (e.g., referral to the Department of Justice for criminal prosecution, or referral to the USDOT Inspector General for action under Suspension and debarment or Program Fraud and Civil Remedies rules) provided in subsection 26.107 of 49 CFR Part 26. The Department will also consider similar action under its own legal authorities, including responsibility determination in future contracts.

COUNTING DBE PARTICIPATION

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

1. When a DBE participates in a contract, the Department counts only the value of the work actually performed by the DBE toward DBE goals.
 - A. The Department counts the entire amount of that portion of a construction contract (or other contract not covered by paragraph 1B of this section) that is performed by the DBE's own forces. Included are the cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate).
 - B. The Department counts the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a USDOT-assisted contract, toward DBE goals, if the Department determines the fee to be reasonable and not excessive as compared with fees customarily allowed for similar services.
 - C. When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the DBE's subcontractor is also a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward DBE goals.
2. When a DBE performs as a participant in a joint venture, the Department counts a portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces toward DBE goals.
3. The Department counts expenditures to a DBE contractor toward DBE goals only if the DBE is performing a commercially useful function on that contract.
 - A. A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, the Department must evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.
 - B. A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, the Department must examine similar transactions, particularly those in which DBEs do not participate.
 - C. If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, the Department must presume that it is not performing a commercially useful function.

- D. When a DBE is presumed not to be performing a commercially useful function as provided in paragraph 3C of this section, the DBE may present evidence to rebut this presumption. The Department may determine that the firm is performing a commercially useful function given the type of work involved and normal industry practices.
 - E. The Department's decisions on commercially useful function matters are subject to review by the concerned operating administration, but are not administratively appealable to USDOT.
4. The Department will use the following factors in determining whether a DBE trucking company is performing a commercially useful function:
- A. The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.
 - B. The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
 - C. The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.
 - D. The DBE may lease trucks from another DBE firm, including an owner-operator certified as a DBE. The DBE leasing trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.
 - E. The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit for the total value of the transportation services provided by non-DBE lessees not to exceed the value of transportation services provided by DBE-owned trucks on the contract. Additional participation by non-DBE lessees receives credit only for the fee or commission it receives as a result of the lease arrangement.
- Example to this paragraph (d)(5):* DBE Firm X uses two of its own trucks on a contract. It leases two trucks from DBE Firm Y and six trucks from non-DBE Firm Z. DBE credit would be awarded for the total value of transportation services provided by Firm X and Firm Y, and may also be awarded for the total value of transportation services provided by four of the six trucks provided by Firm Z. In all, full credit would be allowed for the participation of eight trucks. With respect to the other two trucks provided by Firm Z, DBE credit could be awarded only for the fees or commissions pertaining to those trucks Firm X receives as a result of the lease with Firm Z.
- F. For purposes of this paragraph (4), a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.
5. The Department counts expenditures with DBEs for materials or supplies toward DBE goals as provided in the following:

- A. If the materials or supplies are obtained from a DBE manufacturer, count 100% of the cost of the materials or supplies toward DBE goals.
 - (1) For purposes of this paragraph (5A), a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.
 - B. If the materials or supplies are purchased from a DBE regular dealer, count 60 percent of the cost of the materials or supplies toward DBE goals.
 - (1) For purposes of this section, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.
 - a. To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.
 - b. A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business as provided in this paragraph (5B[1]) if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis.
 - c. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph (5B).
 - C. With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, if the Department determines the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services. Do not count any portion of the cost of the materials and supplies themselves toward DBE goals, however.
- 6. If a firm is not currently certified as a DBE in accordance with the standards of subpart D of this part at the time of the execution of the contract, the Department does not count the firm's participation toward any DBE goals, except as provided for in 26.87(i).
 - 7. The Department does not count the dollar value of work performed under a contract with a firm after it has ceased to be certified toward the Department's overall annual goal.

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

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DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (RN)

North Dakota Department of Transportation, Civil Rights Division
 SFN 52012 (Rev. 07-2012)

FORM A

Contractor		Phone
Job No.	Project No.	Bid Opening Date

By noon (Central time) on the next work day following the bid opening, all apparent low bidders must provide a list of the DBE firms intended for use on this project to the NDDOT Civil Rights Division. The information provided may be submitted on this Form A or on a computer-generated form, giving the same information, attached to this Form A. If the prime contractor intends to use DBE quotes received from a subcontractor, the prime contractor **must** include the subcontractor's Form A information in the prime contractor's Form A.

PRINT ALL NUMBERS CLEARLY AND LEGIBLY.

- For each DBE firm, list the specific bid item numbers to be performed and the total dollar value of the contract:
 - If the DBE firm is perform do only a portion of a bid item (supply, haul, etc.), this **must** be so noted, in parenthesis, after the bid item number **the bidder must state why the DBE was not used for the entire bid item..**
 - For DBE subcontractors, suppliers (regular dealers), and manufacturers, **list only the amount of work to be completed with each DBE's own employees and equipment.**
 - For DBE trucking firms, **list the amount of hauling to be performed by the DBE with its own trucks and employees;** or the fees or commissions earned on non-DBE leased trucks. However, if the DBE is leasing trucks from a non-DBE firm, including an owner-operator, you can count the total value of the services provided by the non-DBE, not to exceed the total value of the services provided by the DBE-owned trucks). (See page 9, number 4, of this special provision for more detailed information.)
- DBE prime contractors **must** list the work they will perform with their **own forces** and any work subcontracted to or materials purchased from other DBEs.
- If the information provided on Form C **differs** from the information provided on this Form A (bid item numbers, quantities, or dollar amounts), the apparent low bidder or subcontractor **must** provide, with the Form C, a written explanation for the difference.
- The apparent low bidder or subcontractor **must** use the DBEs listed for the intended work indicated on Form C.
- DBE bidders **must** list the work they will perform with their **own employees and equipment** and any work subcontracted to or materials purchased from other DBEs.

DBE Firm	
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$
Percent DBE will do with own equipment/forces = %	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) = %	

DBE Firm	
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$
Percent DBE will do with own equipment/forces = %	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) = %	

DBE Firm	
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$
Percent DBE will do with own equipment/forces = %	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) = %	

FORM A (continued)

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces =	%	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) =	%	

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces =	%	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) =	%	

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces =	%	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) =	%	

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces =	%	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) =	%	

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces =	%	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) =	%	

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces =	%	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) =	%	

DBE Firm		
List Specific Bid Item Numbers or Products to be Supplied	Total Contract Dollar Value \$	
Percent DBE will do with own equipment/forces =	%	If Regular Dealer, X 60% = \$
Percent Non-DBE will do (trucking only) =	%	

Use additional pages, following the same format, if necessary.

The NDDOT DBE Liaison Officer can be contacted at: CIVIL RIGHTS DIVISION
 ND DEPARTMENT OF TRANSPORTATION
 608 E BOULEVARD AVE
 BISMARCK ND 58505-0700

 dlaub@nd.gov
 phone (701) 328-2576
 fax (701) 328-1965, (701) 328-0343

FORM B

Contractor		Phone
Job No.	Project No.	Bid Opening Date

SUBMIT WITHIN 5 WORKING DAYS OF BID OPENING

Within 5 working days after the bid opening, all bidders must either:

- Submit Form B to include all tiers of subcontracting on the project or
- Provide copies of all quotes received to include all tiers of subcontracting on the project to the DBE Liaison Officer, North Dakota Department of Transportation, 608 E Boulevard Ave., Bismarck, ND 58505-0700. Copies may be faxed to (701) 328-0343 or emailed to subquotes @nd.gov

When submitting a Form B, copies of all quotes **must** be retained, by each bidder, for **45 days after the bid opening date**. If a quoter has not provided a copy of their quote to the Department, the bidder **must** provide a copy of the quote, upon request by the Department.

This includes information from all tiers of subcontractors for the project.

List below the names of all businesses, including subcontractors, suppliers, vendors, regular dealers, manufacturers, and brokers who provided you quotes for this project. This includes information from any large subcontractor who also provided you a quote on this project and their subcontractors, suppliers, vendors, regular dealers, manufactures, and brokers.

Name of Business	Contact Person	Phone
Mailing Address		Type of Work (See Reverse Side for Codes)
Name of Business	Contact Person	Phone
Mailing Address		Type of Work (See Reverse Side for Codes)
Name of Business	Contact Person	Phone
Mailing Address		Type of Work (See Reverse Side for Codes)
Name of Business	Contact Person	Phone
Mailing Address		Type of Work (See Reverse Side for Codes)
Name of Business	Contact Person	Phone
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Mailing Address		Type of Work (See Reverse Side for Codes)
Name of Business	Contact Person	Phone
Mailing Address		Type of Work (See Reverse Side for Codes)
Name of Business	Contact Person	Phone
Mailing Address		Type of Work (See Reverse Side for Codes)

Use additional pages, following the same format, if necessary.

FORM B (continued)

A-1	Engineering - Professional services such as design or construction inspections performed by an engineering firm.								
A-5	Other - Other professional services such as supportive services and research contracts.								
B-1	Grading/Drainage - Grading, drainage, clearing, and related construction items.								
B-2	Paving - Construction of base course, pavements, and related items.								
B-3	Structures/Buildings - Bridge construction operations, including piling, substructure, superstructure, etc.; and building construction, including plumbing, heating, electrical, etc.								
B-4	Trucking - Hauling of earthwork or other materials for a construction project.								
B-5	Traffic Control - Permanent traffic control items such as signs, signals, and markings; and temporary traffic control items such as barricades and flagging.								
B-6	Landscaping - Landscaping, seeding, sodding, erosion control, and related items.								
B-7	Other - Other construction activities such as lighting contracts and guardrail.								
C-	<p>Supplies - The packaging and shipment of a product (materials, goods, and supplies) and the furnishing of BULK ITEMS which are incorporated into a construction project.</p> <table border="0"> <tr> <td>C-1 Aggregate</td> <td>C-5 Petroleum Products</td> </tr> <tr> <td>C-2 Concrete</td> <td>C-6 Pipe</td> </tr> <tr> <td>C-3 Electrical</td> <td>C-7 Ready Mix</td> </tr> <tr> <td>C-4 General</td> <td></td> </tr> </table>	C-1 Aggregate	C-5 Petroleum Products	C-2 Concrete	C-6 Pipe	C-3 Electrical	C-7 Ready Mix	C-4 General	
C-1 Aggregate	C-5 Petroleum Products								
C-2 Concrete	C-6 Pipe								
C-3 Electrical	C-7 Ready Mix								
C-4 General									
D	Manufacturing - The physical production of materials and supplies through standard manufacturing processes obtained by a contractor for incorporation into a construction project.								
E	Equipment - Purchases and rental of equipment for use on a specific construction project.								

The DBE Liaison Officer can be contacted at:

CIVIL RIGHTS DIVISION
 ND DEPT OF TRANSPORTATION
 608 E BOULEVARD AVE
 BISMARCK ND 58505-0700

E-mail: dlaub@nd.gov
 Phone: (701) 328-2576
 Fax: (701)328-1965, (701) 328-0343

NOTIFICATION OF INTENT TO USE DBE (RN)

North Dakota Department of Transportation, Civil Rights Division
 SFN 52160 (Rev. 12-2011)

FORM C

1. The prime contractor and any subcontractors who listed DBE Participation on Form A **must** complete a Form C for each of their respective, intended DBEs. The prime contractor is responsible for the completion and submission of a Form C for each DBE commitment made by any lower-tier subcontractor.
2. If the information on a Form C **differs** from the information provided on Form A (bid item numbers, quantities, or dollar amounts), a written explanation for the difference **must** be provided by the prime contractor or subcontractor with the Form C.
3. The Form C **must be signed** by the prime contractor or subcontractor and their respective, intended DBE. If Form C contains additional pages or an attachment, each page **must** be signed by the intended DBE. Signatures do not have to be original (faxed signatures are acceptable).
4. The forms **must** be returned to the NDDOT Civil Rights Division **within ten working days** after the bid opening. Forms may be faxed to the Civil Rights Division at (701) 328-1965 or (701) 328-0343. **Award will not be made** until a Form C is received for each intended DBE listed on Form A.

This form is NOT a contract and does not take the place of any contract. It is an indication to NDDOT that all DBEs listed on Form A understand they will be used on this project.

Prime Contractor or Subcontractor	Project No.	
Intended DBE	Bid Opening Date	Job No.

Bid Item Nos.	Work Description	Units	Approx. Quantity	Unit Costs	Amount
Total					\$ 0.00

Comments

Prime Contractor/Subcontractor Signature	Title	Date
Intended DBE Signature	Title	Date

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

March 15, 2014

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

APPENDIX A

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

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

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

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

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

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

Notification should be sent to:

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

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

APPENDIX B

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

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

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

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

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

the sources compiled under 7b above.

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

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

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

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

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

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

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

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

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

Pertinent Non-Discrimination Authorities:

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

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

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

ATTACHMENTS

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

I. GENERAL

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

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

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

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

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

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

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

II. NONDISCRIMINATION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6. Training and Promotion:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

III. NONSEGREGATED FACILITIES

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

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

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

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

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

1. Minimum wages

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

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

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

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

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

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

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

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

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

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

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

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

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

2. Withholding

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

3. Payrolls and basic records

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

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

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

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

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

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

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

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

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

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

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

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

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

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

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

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

b. Trainees (programs of the USDOL).

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

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

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

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

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

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

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

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

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

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

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

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

10. Certification of eligibility.

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

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

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

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

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

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

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

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

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

VI. SUBLETTING OR ASSIGNING THE CONTRACT

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

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

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

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

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

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

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

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

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

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

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

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

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

VII. SAFETY: ACCIDENT PREVENTION

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

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

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

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

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1. Instructions for Certification – First Tier Participants:

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

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

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

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

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

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

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

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

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

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

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

* * * * *

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

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

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

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

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

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

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

2. Instructions for Certification - Lower Tier Participants:

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

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

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

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

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

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

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

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

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

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

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

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

* * * * *

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

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

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

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

LABOR RATES FROM U.S. DEPARTMENT OF LABOR

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

U.S. DEPARTMENT OF LABOR

STATE NORTH DAKOTA	COUNTY STATEWIDE	DECISION NO. ND150002	PAGE 1
		DATE OF DECISION 1-2-15	

	Basic Hourly Rates	Fringe Benefits Payments			
		H & W/Pensions	Vacation	App. Tr	Others
CARPENTERS	\$26.40	\$ 4.90			
CEMENT MASONS/FINISHERS	26.40	4.90			
LINE CONSTRUCTION:					
Lineman	34.15	5.00 + 29.5%			
Cable Splicer	34.15	5.00 + 29.5%			
Line Equipment Operator	30.74	5.00 + 29.5%			
Groundman	20.49	5.00 + 29.5%			
ELECTRICIANS:					
Electrician	34.06	5.00 + 29.5%			
Cable Splicer	34.46	5.00 + 29.5%			
(Adams, Billings, Bottineau, Bowman, Burke, Burleigh, Divide, Dunn, Emmons, Golden Valley, Grant, Hettinger, McHenry, McKenzie, McLean, Mercer, Morton, Mountrail, Oliver, Pierce, Renville, Rolette, Sheridan, Sioux, Slope, Stark, Ward, and Williams Counties)					
Electrician	27.59	11.37			
Cable Splicer	28.30	11.26			
(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 (Cass County)	14.72	3.40			
WELDERS:					
Receive rate prescribed for craft performing operation to which welding is incidental					
LABORERS:					
Group 1					
Drill Runner Tender; Flaggers and Pilot Car Drivers; General Construction Laborer; Light Truck and Pickup Driver; Pipe Handler; Sack Shaker (cement and mineral filler); Salamander Heater and Blower Tender					
	18.80	1.00			

LABOR RATES

Page 2 of 4

1-2-15

ND150002

Page 2

Basic Hourly Rates	Fringe Benefits Payments			
	H & W/Pensions	Vacation	App. Tr.	Others
LABORERS: (CONT.)				
Group 2				
Bituminous Worker (Shoveler, Dumper, Raker, and Floater); Brick and Mason Tender; Bulk Cement Handler; Carpenter Tender; Chain Saw Operator; Chipping Hammer, Grinders, and Paving Brakers (tamper-dirt); Concrete Bucket Signalman; Concrete Curing Man (not water); Concrete Saw Operator; Concrete Vibrator Operator; Conduit Layer, telephone or electrical; Culvert Pipe Layer; Form Setter (pavement); Gas, Electric, or Pneumatic Tool Operator; Kettleman (bitum. or lead); Multiplate Pipe Layer; Power Buggy Operator; Semi Skilled Laborer				
\$19.05	\$ 1.00			
Group 3				
Bottom Man (sanitary sewer, storm sewer, water, and gas lines); Caisson Worker; Concrete Mixer Operator (one bag capacity); Mortar Mixer				
19.20	1.00			
Group 4				
Drill Runner (includes Wagon Churn or Air Track); Pipe Layers (sanitary sewer, storm sewer, water, and gas lines); Powderman, gunite and sandblast; Nozzleman; Reinforcing Steel Setters/Tiers; Concrete Finisher Tender				
19.95	1.00			
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				
26.45	14.35			
Group 2				
All Cranes, 21 tons and up to 59 tons; Backhoe Operator, 3 cy and over; Creter Crane; Dredge Operator, 12" and over; Equipment Dispatcher; Finish Motor Grader; Front End Loader Operator, 8 cy and over; Master Mechanic (when super-vised 5 or more Mechanics); Mon-O-Rail Hoist Operator; Power Shovel, up to and including 3-1/2 cy; Tugboat				
25.55	14.35			

POWER EQUIP. OPERATORS: (CONT.)

Group 3

All Cranes, 20 tons and under; Asphalt Paving Machine Operator; Asphalt Plant Operator; Automated Grade Trimmer; Backhoe Operator, 1 cy up to and including 2-1/2 cy; Boom Truck, Hydraulic, 8 tons and over; Cableway Operator; Concrete Batch Plant Operator (electronic or manual); Concrete Mixer Paving Machine Operator; Concrete Paver, Bridge Decks; Concrete Pump; Concrete Spreader Operator and Belt Placer; Crushing Plant Operator; Dozer Operator; Dredge Operator or Engineer, 11" and under; Drill Rigs, Heavy Duty Rotary or Churn or Cable Drill; Front End Loader Operator, 3-1/2 cy up to and including 7-1/2 cy; Gravel Washing and Screening Plant Operator; Locomotive, all types; Mechanic or Welder, Heavy Duty; Motor Grader Operator; Pavement Breaker, Non-Hydro Hammer Type; Pipeline Wrapping, Cleaning, and Bending Machine Operator; Power Actuated Auger and Horizontal Boring Machine Operator, 6" and over; Refrigeration Plant Engineer; Roto Milling Machine (Surface Planer), 43" and over; Scraper Operator; Slip Form Concrete Paving Operator; Tandem Pushed Quad 9 or similar; Tractor with Boom Attachment; Trenching Machine Operator, 100 H.P. and over

\$25.30

\$14.35

Group 4

Articulated/Off Road Hauler; Asphalt Dump Person; Asphalt Paving Screed Operator; Backhoe, up to and including 1/2 cy; Boring Machine Locator; Con-sole Board Operator; Distributor Operator (Bituminous); Forklift Operator; Front End Loader, 1-1/2 cy up to and including 3 cy; Grade Person; Gravel Screening Plant Operator (not Crushing or Washing); Greaser; Lazer Screed Operator; longitudinal Float and Spray Operator; Micro Surfacer Machine; Motor Grader Operator (Haul Road); Paving Breaker, Hydro Hammer Type; Pugmill Operator; Push Tractor; Roller, Steel and Rubber on Hot Mix Asphalt Paving; Rotomill 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

Basic Hourly Rates	Fringe Benefits Payments			
	H & W/Pensions	Vacation	App. Tr.	Others
<p>POWER EQUIP. OPERATORS: (CONT.)</p> <p>Group 3 All Cranes, 20 tons and under; Asphalt Paving Machine Operator; Asphalt Plant Operator; Automated Grade Trimmer; Backhoe Operator, 1 cy up to and including 2-1/2 cy; Boom Truck, Hydraulic, 8 tons and over; Cableway Operator; Concrete Batch Plant Operator (electronic or manual); Concrete Mixer Paving Machine Operator; Concrete Paver, Bridge Decks; Concrete Pump; Concrete Spreader Operator and Belt Placer; Crushing Plant Operator; Dozer Operator; Dredge Operator or Engineer, 11" and under; Drill Rigs, Heavy Duty Rotary or Churn or Cable Drill; Front End Loader Operator, 3-1/2 cy up to and including 7-1/2 cy; Gravel Washing and Screening Plant Operator; Locomotive, all types; Mechanic or Welder, Heavy Duty; Motor Grader Operator; Pavement Breaker, Non-Hydro Hammer Type; Pipeline Wrapping, Cleaning, and Bending Machine Operator; Power Actuated Auger and Horizontal Boring Machine Operator, 6" and over; Refrigeration Plant Engineer; Roto Milling Machine (Surface Planer), 43" and over; Scraper Operator; Slip Form Concrete Paving Operator; Tandem Pushed Quad 9 or similar; Tractor with Boom Attachment; Trenching Machine Operator, 100 H.P. and over</p>				
\$25.30	\$14.35			
<p>Group 4 Articulated/Off Road Hauler; Asphalt Dump Person; Asphalt Paving Screed Operator; Backhoe, up to and including 1/2 cy; Boring Machine Locator; Con-sole Board Operator; Distributor Operator (Bituminous); Forklift Operator; Front End Loader, 1-1/2 cy up to and including 3 cy; Grade Person; Gravel Screening Plant Operator (not Crushing or Washing); Greaser; Lazer Screed Operator; longitudinal Float and Spray Operator; Micro Surfacer Machine; Motor Grader Operator (Haul Road); Paving Breaker, Hydro Hammer Type; Pugmill Operator; Push Tractor; Roller, Steel and Rubber on Hot Mix Asphalt Paving; Rotomill 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</p>				

LABOR RATES

Page 4 of 4

1-2-15

Nd150002

Page 4

	Basic Hourly Rates	Fringe Benefits Payments			
		H & W/Pensions	Vacation	App. Tr.	Others
POWER EQUIP. OPERATORS: (CONT.)					
Group 4 (cont.)					
Packer with Dozer Attachment, 100 H.P. and over; Shouldering Machine; Slip Form, Curb and Gutter Operator; Slurry Seal Machine; Tamping Machine Operator; Tie Tamper and Ballast Machine; Trenching Machine Operator, 46 H.P. up to and including 99 H.P.; Truck Mechanic; Tub Grinder; Well Points; Fuel/Lube Operator					
	\$25.15	\$14.35			
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; Oiler; Power Actuated Auger and Horizontal Boring Machine Operator, up to and including 5"; Roller (on other than hot mix asphalt paving); Vibrating Packer Operator (Pad Type) (Self-Propelled); Water Spraying Equipment, Self-Propelled; Skidsteer Operator with attachments					
	24.30	14.35			
Group 6					
Brakeman or Switchman; Curb Machine Operator (Manual); 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 and Blower; Stump Chipper Operator; Tractor Pulling Compaction or Areating Equipment; Trenching Machine Operator, up to and including 45 H.P.; Assistant/Apprentice Operator					
	23.00	14.35			
TRUCK DRIVERS:					
	25.67	11.20			
Single-Axle Truck					
Tandem- and Tri-Axle Truck	25.79	11.20			
Tandem- and Tri-Axle Semi	26.10	11.20			
Lowboy	26.10	11.20			
Off Road Heavy Duty End Dumps, 20 Yards and Under	26.10	11.20			
Euclid, Over 20 Yards	27.62	11.20			

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) (ii)].

2014 NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

ON-THE-JOB TRAINING SPECIAL PROVISION

I. PURPOSE

The purpose of the On-the-Job Training (OJT) Program is to provide training **in the highway construction industry** for minority, female, and economically disadvantaged individuals, hereafter 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 full journeyworkers in the type of trade or job classification involved.**

II. INTRODUCTION

- A. The OJT Program **was originally** prepared through the cooperative efforts of the Associated General Contractors of North Dakota (AGC); the Federal Highway Administration (FHWA); and the North Dakota Department of Transportation (Department).
- B. Successful operation of the OJT Program requires that contractors follow uniform and basic procedures in training, keeping records of trainee progress toward journeyworker status, and reporting each trainee's successful completion or termination from the OJT Program.
- C. The bidder's signature on the proposal sheet indicates the bidder agrees to take part in the OJT Program and to **follow** this On-the-Job Training (OJT) Program Special Provision. **Contractors that do not follow this special provision will be subject to sanctions up to and including revocation of bidding privileges.**
- D. Projects funded solely with county funds and emergency relief projects that are not included **in the Department's bid openings will not contain this OJT Program Special Provision (i.e., no training program hours will count toward completion of an approved training program or be eligible for reimbursement).**

III. DEFINITIONS

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

Carryover Trainee: Trainee scheduled to continue required training hours under an approved training program from a prior program year.

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

OJT Supportive Services (OJTSS) Consultant: A consultant under contract with the Department to provide in-person oversight, support, and guidance to contractors and trainees in an effort to increase the effectiveness of approved training programs.

Targeted Group: Individuals eligible to receive training under the OJT Program. For trainee

positions assigned by the Department, trainees must be minority, female, or economically disadvantaged as defined by Job Service North Dakota (JSND).

Trainee: A person who receives on-the-job training, whether through an apprenticeship program or other program approved or accepted by FHWA.

Trainer/Supervisor: Prime contractor employee assigned to mentor, train, supervise, and support an assigned OJT Program trainee.

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-aided projects will be allocated to a maximum of \$10,000.

V. ASSIGNED TRAINEE POSITIONS

- A. Trainee positions will be assigned to contractors and will not be project specific. The number of trainee positions assigned will be determined by applying a formula based on calculations involving specific project specification numbers on applicable projects funded with federal highway dollars awarded by the Department to a contractor from October 1 to September 30.
- B. The dollar value of projects subject to Tribal Employment Rights Ordinances (TERO), concrete pavement repair (CPR) projects, electrical projects, rest area projects, signing projects, striping projects, and state-aid highway projects will be excluded when determining the number of trainee positions assigned.
- C. In early March, a summary of the trainee positions required and links to the OJT Program package will be sent to prime contractors with assigned positions. The links to the OJT Program package are also provided to prime contractors and subcontractors upon request. In addition, the summary and links are sent to prime contractors as they become eligible for trainee positions throughout the remainder of the year.

The number of trainee positions assigned to each contractor will increase proportionately, as shown in the following table, for any applicable federally funded projects awarded to them. Projects awarded after September 30 will be included in the following year's OJT Program.

- D. The number of trainee **positions** will be assigned and will increase as follows:

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

\$ 4,500,000	- 8,000,000	= 1 trainee
\$ 8,000,001	- 15,000,000	= 2 trainees
\$15,000,001	- 23,000,000	= 3 trainees
\$23,000,001	- and above	= 4 trainees

A maximum of four (4) trainee positions in a federal fiscal year will be assigned to any prime contractor regardless of dollar amount. Carryover positions from a prior

program year are not included in the four trainee maximum, e.g., a contractor with one carryover and four assigned positions will have a total five trainees.

- E. 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 journeyworkers (generally considered to be one trainee or apprentice to every three to five journeyworkers).
- F. 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 and receive hourly reimbursement for those individuals.

VI. APPROVALS REQUIRED

- A. Training Programs: Contractors must have training programs approved by the Civil Rights Division in order to pay the trainees less than the appropriate Davis-Bacon wage established for the job classification concerned and to be eligible for reimbursement under the OJT Program. 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. The contractor will notify the Civil Rights Division using the *Request for On-the-Job Training Program Approval SFN 9762*. This form is available on the Department's website at:

<http://www.dot.nd.gov/forms/sfn09762.pdf>
 - 2. A completed request form and the training curriculum must be submitted for each trainee in the OJT Program. Requests must be submitted by April 1 or within fifteen (15) calendar days of notification of additional trainee assignments.
- B. Trainees: Contractors must have trainees approved by the Civil Rights Division in order to pay the trainees less than the appropriate Davis-Bacon wage established for the job classification concerned and to be eligible for reimbursement under the OJT Program. No training program hours will count toward completion of an approved training program or be eligible for reimbursement without prior trainee approval. **No retroactive approval will be granted.**
 - 1. The contractor will notify the Civil Rights Division using the *Request for On-the-Job Trainee Approval SFN 60226*. This form is available on the Department's website at:

<http://www.dot.nd.gov/forms/sfn60226.pdf>
 - 2. A completed request form and the trainee's employment application must be submitted for each trainee employed under the OJT Program.
 - 3. Written JSND certification of an individual as economically disadvantaged

must also be provided to the Civil Rights Division as part of the approval process for trainees.

- C. The contractor may request to train an individual in a classification not included in this OJT Program package. The request must be submitted, in its entirety, for approval by the Department and FHWA before the trainee begins work under the OJT Program. **No retroactive approval will be granted.**

Training programs for classifications not covered by the Davis-Bacon and Related Acts (DBRA) will be considered on a limited basis. **Customized training curricula will not necessarily be added to the OJT Program; however, previously approved programs are available to contractors upon request; for example, in 2013 the Department approved programs for GPS Survey Technician and Project Management.**

If approved, each new classification must comply with the provisions specified in this OJT Program package. The request must include:

1. A training curriculum, including the classification requested, minimum number of hours required, and type of training the individual will receive to achieve journeyworker status.
 2. A minimum wage scale.
- D. Union apprenticeship and on-the-job training programs registered with the Bureau of Apprenticeship and Training (BAT), U.S. Department of Labor, are recognized by the Department. These programs 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 be used when the contractor has requested and received approval, from the Department, for additional trainee positions. However, contractors must produce indenture papers to be eligible for reimbursement, to pay the trainees or apprentices less than the appropriate Davis-Bacon wage established for the job classification concerned, and to receive credit for fulfilling assigned trainee positions.
- E. 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 Davis-Bacon 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.
- F. 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."

VII. DEPARTMENT'S RESPONSIBILITIES

- A. Once the trainees have been approved, the Department's OJT supportive services (OJTSS) consultant will monitor the excerpts from the weekly certified payrolls submitted with the monthly vouchers for reimbursement. This includes weekly payrolls from contractors working on state funded only projects. The OJTSS consultant will assure that when the trainees have completed the specified number of hours, their wages are increased accordingly. The OJTSS consultant will also assure that applicable fringe benefits are paid either directly to the trainees or into approved plans, funds, or programs on their behalf.
- B. **The OJTSS consultant will also be visiting the targeted group 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.

VIII. CONTRACTOR'S RESPONSIBILITIES

The contractor:

- A. Will appoint an individual within their company who will be available to respond to weekly contacts by the OJTSS consultant in order to monitor the status of assigned trainee positions (e.g., program and trainee approvals, trainees' progress, etc.). Upon assignment of a trainee position, the OJTSS consultant will immediately send a Request for On-the-Job Trainee Approval (SFN 60226) to the contractor to obtain the name, direct phone number, and email address of the individual. The individual must reply to communications from the Department and the OJTSS consultant in a timely manner.
- B. **Will ensure trainees are aware they are in a training program and what that means to the contractor and the trainee.**
- C. **Will make trainees available to the OJTSS consultant for on-site visits at least twice each construction season.**
- D. Will identify all approved trainees on the payrolls, for example: "grp. 4 roller operator trainee." This includes trainees in job classifications not covered by DBRA.
- E. Will assign each trainee to a particular person—either a supervisor or an employee proficient in the skill—who shall see that timely, instructional experience is received by the trainee. This person will **be familiar with the OJT Program**, ensure proper records are kept, and **ensure** the required training hours are completed **in accordance with** the training curriculum.
- F. **Will make the trainer and project superintendent available to the OJTSS consultant for on-site visits at least twice each construction season.**
- G. May terminate the training period of a trainee who has completed 90% or more of their hours and advance the trainee to journeyworker status after providing notice to the Department.
- H. Will notify the Department when a trainee completes the OJT Program. The Department will issue a certificate of completion to the trainee.

- I. May upgrade trainees from one power equipment operator group or truck driver group to another, with the approval of the Civil Rights Division. Trainees upgraded will not be required to complete the entire number of hours assigned to the new training curriculum. The minimum number of hours required will be:

Power Equipment Operator Groups 4-6 to Groups 1-3 = 400 hrs.
Class C Truck Driver to Class B = 200 hrs.
Class B Truck Driver to Class A = 200 hrs.

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

- J. Commercial driver's license (CDL) holders 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 the Civil Rights Division.
- K. May transfer trainees from one project to another in order to complete the OJT Program. If transfers are made, the Civil Rights Division must be notified and provided with the name of the trainer. The training hours will count toward overall OJT Program completion.
- L. May use trainees on municipal, private, or other non-highway work and work performed out of state. The training hours will count toward overall OJT Program completion; however, no program reimbursement will be made for those hours. In addition, the hours will be limited to no more than 25% of the total hours required under the training curriculum.
- M. Contractors may delegate or reassign trainee positions to subcontractors, with the acceptance of the subcontractors and the approval of the Civil Rights Division. 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 the Civil Rights Division 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.
- N. May use trainees on projects subject to TERO requirements as part of the core crew or as part of the skilled labor supplied by the contractor.
- O. Contractors may not use one trainee to fill multiple trainee positions. For instance, a subcontractor may not use the same trainee in the same training program to simultaneously fill two or more trainee positions reassigned to them by prime contractors.
- P. 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. The contractor will submit a proposed classroom training curriculum to the Civil Rights Division for approval. The classroom training curriculum must define the type of training the individual will receive and the minimum number of hours required. The Department will determine the number of hours of credit each trainee will receive toward their training. Each classroom training curriculum must be pre-approved by the Civil Rights Division if the contractor wishes to count the classroom hours as training hours. **No retroactive approval will be granted.**
- B. Contractors will be reimbursed for classroom training hours after the trainee has completed 80 hours of work on highway construction projects.
- C. Reimbursement for classroom training will be limited to 60 hours per trainee per construction season. **Qualified testing technicians and concrete testing technicians/inspectors will not be included in the 60-hour limit.** Reimbursement for classroom training required under the Department's Transportation Technician Qualification Program will be at the Department's discretion.
- D. The minimum wage scale to be used for classroom training will be that of the first federal-aid highway construction project on which the trainee will be employed. If the trainee is already employed on a federal-aid highway construction project, the trainee will be paid in accordance with the minimum wage scale applicable to that project. However, if the first project on which the trainee will be employed is a state funded only contract, the minimum wage scale to be used for the classroom training will be that of the appropriate Davis-Bacon wage in effect at the time of award of the state funded contract.

X. WAGE RATES

- A. The minimum wage rates shall not be less than 80% of the journeyworker rate for the first two quarters of training, 85% of the journeyworker rate for the third quarter, and 90% of the journeyworker rate for the fourth quarter. In no case shall the minimum wage be less than that of the group 1 laborer classification in the federal Davis-Bacon wage rates contained in the contract proposal. Trainees shall be paid full fringe benefit amounts, where applicable. The contractor has the option of paying the fringe benefits into approved plans, funds, or programs or directly to their employees. A trainee working on a state funded only project, must be paid the Davis-Bacon wage rate in effect at the time of award of the state funded project for the type of work the trainee is performing.
- B. 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 second program shall not be less than 85% of the journeyworker rate for the first two quarters of training, 90% of the journeyworker rate for the third quarter, and 95% of the journeyworker rate for the fourth quarter.
- C. At the completion of the OJT Program, the trainee shall receive the wages of a skilled journeyworker.

- D. For the purpose of the OJT Program, a quarter is 25% of the hours worked by each trainee and does not represent three months of the year. 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.

XI. RECRUITMENT AND SELECTION PROCEDURES

A. Prerequisite for Trainees:

To be qualified for enrollment in the OJT Program, trainees must possess basic physical fitness for the work to be performed, dependability, willingness to learn, ability to follow instructions, and an aptitude to maintain a safe work environment.

B. Licenses:

Truck driver trainees must possess appropriate driver permits or licenses for the operation of Class A, B, and C trucks. When an instructional permit is used in lieu of a license, the trainee must be accompanied by an operator who:

1. Holds a license corresponding to the vehicle being operated;
2. Has had at least one year of driving experience; and
3. Is occupying the seat next to the driver.

C. Recruitment:

1. Notices and posters setting forth the contractor's Equal Employment Opportunity Policy and the availability of the OJT Program will be placed in areas readily accessible to employees, applicants for employment, and potential employees.
2. The contractor must 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. The contractor will conduct systematic and direct recruitment through public and private employee referral sources.
4. Present employees will be screened for upgrading. 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 the Civil Rights Division.

D. Selection:

1. The selection and employment of a person, meeting the aforementioned criteria, by a participating contractor shall qualify the person for the OJT Program.

2. Employment of trainees will be in accordance with the workforce requirements of the contractor. Each contractor will hire and train the trainees for use in their own organization.
3. A contractor may not employ an individual as a trainee in a job classification in which that individual has successfully completed a training course leading to journeyworker status or in which the individual has been previously employed as a journeyworker.
4. Contractors must submit the *Request for On-the-Job Trainee Approval (SFN 60226)* and the trainee's employment application to the Civil Rights Division for review and approval. Approval must be obtained before the trainee may begin work under the OJT Program. **No retroactive approval will be granted.**
5. The economically disadvantaged certification can only be obtained from **JSND**. Written certification of individuals under this category can be provided to the contractor at the time of the interview if the applicant is referred by **JSND**. Any person wishing to obtain this certification must apply to **JSND** and complete the Application for Eligibility (SFN 7857). This certification must be provided to the Civil Rights Division with the other required information as part of the approval process for trainees. A contractor that has an individual who may qualify must contact the Workforce Investment Act Program Manager at **JSND**. **JSND** contacts **are also** available on the Department's website at:

<http://www.dot.nd.gov/divisions/civilrights/docs/jobservice-workforce-invest-contacts.pdf>
6. Nonminority males used to fill additional trainee positions approved by the Department do not have to be certified as economically disadvantaged.

XII. BASIS OF PAYMENT

- A. Contractors will be paid \$4.00 for each hour of training provided in accordance with the OJT Program.
- B. Program reimbursement will be made directly to the prime contractor. To request reimbursement, prime contractors must complete the *Voucher for On-the-Job Training Program Hourly Reimbursement (SFN 51023)* for each trainee employed under the OJT Program. Attached to each voucher must be excerpts from the weekly certified payrolls showing the trainee's hours, rate of pay, and how applicable fringe benefits are paid. This includes excerpts from weekly payrolls for state funded only projects. Vouchers without excerpts from payrolls will not be paid until the excerpts are provided. If the excerpts from the payrolls are not provided within one week, the voucher will not be approved. The voucher is available on the Department's website at:

<http://www.dot.nd.gov/forms/sfn51023.pdf>
- C. The completed vouchers must be submitted to the Civil Rights Division 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 the Civil Rights Division 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 the Civil Rights Division 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 REQUIRED TRAINING OR HIRE THE TRAINEE AS A JOURNEYWORKER

- A. No payment shall be made to a contractor for failure to provide the required training or failure to hire the trainee as a journeyworker 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.
- B. If payments have been made, the Department will withhold the amount paid from the contractor's progress payment.
- C. It is normally expected that a trainee will begin his or her training as soon as feasible after start of work utilizing the skill involved and remain employed as long as training opportunities exist in his or her work classification or until he or she has completed his or her training program.
- D. 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 Program Special Provision if it has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled for a significant period.

XIV. UNFULFILLED TRAINEE POSITIONS

- A. For a variety of reasons, a contractor may be unable to fulfill the assigned number of trainee positions during a construction season. Any contractor that has not completed the assigned number of trainee positions must contact the Civil Rights Division by October 1 of the current construction season and provide documentation as to why the assigned trainee positions were not fulfilled. The Civil Rights Division will decide, on a case-by-case basis, whether to carry the trainee positions over to the next construction season.
- B. Carryover trainee positions should be among the first positions filled at season startup. Contractors must notify the Department of the trainee's rehiring and submit *Request for On-the-Job Trainee Approval (SFN 60226)*, marking 'Check if Carryover Trainee' in the Approved Training Program section of the form, See Attachment 2.**
- C. Sanctions, up to and including revocation of bidding privileges, may be imposed by the Department for failure on the part of the contractor to provide sufficient documentation as to why assigned trainee positions were not fulfilled.**

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

TEMPORARY EROSION AND SEDIMENT BEST MANAGEMENT PRACTICES

1. GENERAL

Install, maintain and remove appropriate Temporary Best Management Practices (BMPs).

Definitions:

- A. Temporary Erosion and Sediment BMPs** are to be installed and maintained before and during the term of the land disturbance activity. These items are removed when permanent erosion and sediment BMPs are installed.
- B. Permanent Erosion and Sediment BMPs** are to be installed and maintained once the project is completed so that the applicable permits can be terminated.

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

1. The BMP was installed correctly,
 2. Is in a functional condition,
 3. Has had all accumulated sediment removed.
- C. The Stormwater Pollution Prevention Plan (SWPPP)** is the document that identifies potential sources of sediment or other pollution from construction activity and ensures practices are used to reduce the contribution of pollutants from construction site runoff.
 - D. Contractor Controlled Areas** are areas not included in the contract, but are obtained and solely controlled by the Contractor (e.g., concrete or asphalt batch plants, concrete washout areas, equipment staging yards, material storage areas, excavated material disposal areas, Contractor furnished borrow areas, etc.).
 - E. Maintenance** is any action taken to keep a BMP in working condition. These actions may consist of repairing failures of the BMP itself.

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

2. CONSTRUCTION REQUIREMENTS

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

Obtain appropriate permit coverage for the activities conducted in Contractor Controlled Areas. A permit will be required for these areas regardless of their size. The NDDOT will have no responsibility for these areas.

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

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

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

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

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

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

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

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

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

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

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

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

3. Erosion and Sediment Control Supervisor.

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

B. Qualifications. The supervisor shall be:

1. An employee of the Prime Contractor;

2. Familiar with installation, maintenance and removal of BMPs and the requirements of the erosion and sediment control plans, applicable permit requirements, specifications, plans and this provision; and
3. Competent to supervise personnel in erosion and sediment control operations.

C. Duties. The supervisor shall:

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

3. PERFORMANCE

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

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

These actions will be applied until deficiencies have been corrected.

4. BASIS OF PAYMENT

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

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

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

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

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

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

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

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

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

CROSSHOLE SONIC LOG TESTS

Project SER-5-094(107)030 – PCN 20549

1. DESCRIPTION

This work consists of furnishing adequate equipment, materials and experienced labor to complete crosshole sonic log (CSL) testing of completed drilled shafts. Repair drilled shafts defects reported by the CSL tests at no additional cost to the Department.

2. MATERIALS

A. CSL Access Tubes and Caps

Access tubes for CSL testing consist of non-galvanized, standard weight, schedule 40 steel tubes with an inside diameter of 1½ inches to 2 inches as appropriate for compatibility with the CSL probe sizes. The access tubes shall be round with a uniform regular inside diameter free of defects and obstructions, including all tube joints, in order to permit the free, unobstructed passage of source and receiver probes used for the crosshole sonic log tests. The access tubes shall be watertight and free from corrosion, with clean internal and external faces to ensure a good bond with the drilled shaft concrete and CSL grout. The access tubes shall be fitted with watertight, threaded caps on the bottom and removable watertight caps on the top.

B. Grout for CSL Access Tubes

Grout for filling the access tubes at the completion of the CSL tests shall be a homogeneous mixture of neat cement grout and potable water. The grout shall be produced using Portland cement Type I/II. The water to cementitious material ratio shall not exceed 0.45 and water-reducing admixtures may be used. The minimum compressive strength shall be 4,000 psi at 28 days when tested in conformance to ASTM C 1107.

3. CONSTRUCTION REQUIREMENTS

A. CSL Testing Consultant

Submit a resume of the CSL Consultant retained by the Contractor, for approval by the Engineer. List a minimum of 5 projects over the past 3 years consisting of similar sized drilled shafts (diameter and length) constructed in similar conditions. Describe the overall results of the testing including problems discovered during testing and remediation. The CSL Consultant shall have a ND licensed Professional Engineer supervising the testing and interpretation of the results.

B. Access Tubes for CSL Testing

1. Drilled Shafts Requiring CSL Access Tubes

Equip drilled shafts with CSL access tubes prior to CSL testing. If, in the opinion of the Engineer, the condition of the drilled shaft excavation permits drilled shaft construction in the dry, the Engineer may specify that the access tubes be omitted for that shaft and designate another drilled shaft for CSL testing.

2. Orientation and Assembly of the CSL Access Tubes

Securely attach the access tubes to the interior of the reinforcement cage of the shaft. Furnish and install four access tubes in each drilled shaft per Section B.1. and as shown on the Plans. Place the access tubes equally spaced around the shaft, inside the spiral or hoop reinforcement and bundled with the vertical reinforcement as shown in the Plans. Where circumferential components of the rebar cage bracing system prevent bundling the access tubes directly to the vertical reinforcement, place the access tubes inside the circumferential components of the rebar cage bracing system as close as possible to the nearest vertical steel reinforcement bar.

Install the access tubes in straight alignment and as near to parallel to the vertical axis of the reinforcement cage as possible. Extend the access tubes from 0.5 feet from the bottom of the drilled shaft to at least 2 feet above the top of the shaft. Splice watertight joints in the access tubes to achieve full length access tubes, as required. Clear the access tubes of all debris and extraneous materials before installing the access tubes. Debur the tops of access tubes. Prevent damage to access tubes by carefully installing and placing the reinforcement cage and concrete in the shaft excavation.

3. Care for CSL Access Tubes

Fill the access tubes with potable water before concrete placement and securely install the top, watertight caps. Do not allow any other material to enter the access tubes during construction of the drilled shaft. Keep access tubes full of water through the completion of CSL testing of that

shaft. When temperatures below freezing are possible, protect the access tubes against freezing by wrapping the exposed tubes with insulating material, adding antifreeze to the water in the tubes, or other methods as approved by the Engineer.

C. CSL Testing of Drilled Shaft

1. Inspection of CSL Access Tubes

Inspect the access tubes after placing the shaft concrete and before beginning the CSL testing to verify that the CSL test probes can travel easily to the bottom of the access tubes without encountering obstructions or snags. Each access tube that a test probe cannot pass through shall be replaced, at no additional cost to the Department, with a 2-inch diameter hole cored through the concrete for the entire length of the shaft in accordance with Section 3.H. *Coring Drilled Shafts and Remedial Action Plan* of the Drilled Shaft Special Provision. Unless directed otherwise by the Engineer, locate cored holes approximately 6 inches inside the reinforcement without damaging the drilled shaft reinforcement. Log descriptions of inclusions and voids encountered in the cored holes and submit a copy of the log to the Engineer. Preserve the core from the holes in wooden core boxes, identified as to location and depth, and make available for inspection by the Engineer.

2. Conduct CSL Testing

Perform CSL testing and analysis, except as otherwise noted, on each of the first four drilled shafts completed. Perform additional CSL testing on any of the remaining drilled shafts as designated by the Engineer. Conduct CSL testing in accordance with ASTM D 6760. Notify the Engineer of the date and time of each CSL test at least 48 hours prior to the scheduled test. Perform CSL testing after the drilled shaft concrete has cured at least 72 hours and after the concrete compressive strength reaches or exceeds 2,500 psi.

Pull the CSL probes simultaneously, starting from the bottoms of the access tubes, over an electronic depth measuring device. Perform the CSL tests with the source and received probes in the same horizontal plane. Continuously record CSL signals at depth intervals of 2.5 inches or less from the bottom of the tubes to the top of each shaft. Perform CSL testing on every possible tube combination (a total of six combinations). Submit a report stamped by a ND Professional Engineer to the Engineer for review and acceptance. The report shall contain at a minimum, a description of the testing equipment, date and location of test, the number of days between concrete placement and CSL testing, the results of concrete compressive strength tests and the date tested, the CSL ultrasonic profiles with analyses of first pulse arrival time (FAT) versus depth and relative pulse energy / amplitude versus depth for each tube pair tested with any defect zones identified on the profiles and discussed in the test report, a presentation of the nested signal peak (e.g. "waterfall") diagram as a function of time plotted

versus depth, an assessment of the data quality, and integrity condition of the tested drilled shaft. (An ultrasonic profile or profile is the record of a complete investigation from bottom to top between two pairs of access tubes.)

Evaluate the concrete in the shaft using the following classification on each CSL profile:

Satisfactory	(G) Good	FAT increase 0 to 10% and Energy Reduction < 6 decibels
Anomaly	(Q) Questionable	FAT increase 11 to 20% and Energy Reduction < 9 decibels
Flaw	(P/F) Poor/Flaw	FAT increase 21 to 30% or Energy Reduction between 9 and 12 decibels
Defect	(P/D) Poor/Defect	FAT increase > 31% or Energy Reduction > 12 decibels

The rating of the drilled shaft concrete considers the increases in FAT and the energy reduction relative to the arrival time or energy in a nearby zone of good concrete.

Within the report, indicate the Flaw or Defect zones, if any, on the CSL profiles for each tube pair tested and list them in a table with their magnitude (horizontal and vertical extent) and location on the shaft. Flaws must be addressed if they occur in 3 or more profiles at the same elevation. Defects must be addressed if they occur in more than one profile at the same elevation. Flaws or Defects covering the entire cross section require repair.

“Addressing” a Flaw or Defect means providing an additional CSL test for all tube combinations after a longer waiting time to verify the CSL test results or in the case of localized (e.g. not a full cross section), completing an additional offset CSL test between all tube pair combinations and an 3-D tomographic evaluation of all CSL data. Depending on the results of the additional CSL tests and the depths of the Flaws or Defects, additional measures such as core drilling, repair or drilled shaft replacement may be required.

3. Engineer’s Final Acceptance of CSL Tested Drilled Shafts

The Engineer will determine final acceptance of each drilled shaft tested, based on the CSL test report(s) received for the tested shafts, and will

provide a response to the Contractor within 5 working days after receiving the test report. Contractor's Investigation and Remedial Action Plan

For all drilled shafts determined to be unacceptable, submit a plan for further investigation or remedial action to the Engineer for approval in accordance with Section 3.H. *Coring Drilled Shafts and Remedial Action Plan* of the Drilled Shaft Special Provision. Submit supporting calculations and work drawings for all proposed modifications to the drilled shafts, required by the investigation and remedial action plan. Submit all investigation and remedial correction procedures and designs to the Engineer for approval. Do not begin repair operations until receiving the Engineer's approval of the investigation and remedial action plan. Include CSL testing in the remedial action plan to verify the effectiveness of the proposed remediation.

4. Requirements for CSL Access Tubes and Cored Holes after CSL Testing

Dewater and fill all CSL access tubes and cored holes with grout conforming to this Special Provision after CSL tests are completed and final acceptance of the drilled shaft is obtained. Fill the access tubes and cored holes using tremie tubes that extend to the bottom of the tube, cored hole or into the grout already placed.

4. METHOD OF MEASUREMENT

Drilled shafts will be measured in accordance with the Special Provision for Drilled Shafts.

CSL Testing will be measured by each drilled shaft tested and accepted by the Engineer (e.g. does not require further testing or remediation).

All CSL tests, including initial CSL tests and subsequent CSL tests conducted to verify Flaws and Defects found in the initial testing and conducted to verify the effectiveness of proposed remediation, as well as related 3-D tomographic evaluations will not be measured for payment and are provided at no additional cost to the Department.

5. BASIS OF PAYMENT

Drilled shafts will be paid for in accordance with the Special Provision for Drilled Shafts.

The unit price of CSL testing shall be full compensation for each drilled shaft tested including, but not limited to: furnishing the four steel access tubes, end caps and installing the access tubes to the steel reinforcement cage; filling tubes with water; providing experienced personnel to conduct the CSL testing; furnishing adequate equipment to complete the tests; preparation of the CSL report that includes presentation of the CSL data, interpretation of the CSL data and assessment of drilled shaft's integrity; submittal of report; removing the water and filling the access tubes with the specified grout; and for furnishing all tools, labor, equipment, materials and incidentals necessary to complete the CSL testing work.

The accepted quantities for CSL testing will be paid for at the Contract unit price per each tested drilled shaft tested and reported to be free of addressable flaws and defects.

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
930-4250	Crosshole sonic log test	Each

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
DRILLED SHAFT
Project SER-5-094(107)030 – PCN 20549

- 1. DESCRIPTION**
- 2. MATERIALS**
 - A. Concrete for Drilled Shafts**
 - B. Reinforcing Steel**
 - C. Temporary Casing**
 - D. Mineral Slurry**
 - E. Synthetic Slurry**
 - F. Water Slurry**
 - G. Steel Reinforcing Bar Cage Centralizers, Boots and Base Plates**
- 3. CONSTRUCTION REQUIREMENTS**
 - A. Quality Assurance**
 - B. Shaft Construction Submittal**
 - C. Shaft Excavation**
 - D. Slurry Installation Requirements**
 - E. Assembly and Placement of Reinforcing Steel**
 - F. Access Tubes for Crosshole Sonic Log Testing and Inclinator Casing**
 - G. Placing Concrete**
 - H. Coring Drilled Shafts and Remedial Action Plan**
- 4. METHOD OF MEASUREMENT**
- 5. BASIS OF PAYMENT**

1. DESCRIPTION

This work consists of furnishing adequate equipment, materials and experienced labor to complete drilled excavations filled with steel reinforcement bars and concrete.

2. MATERIALS

A. Concrete for Drilled Shafts

Provide a mix design for AA-5 Portland Cement Concrete conforming to Section 802 of the Standard Specifications with the following revisions:

1. Attain a compressive strength of 4,000 psi at 28 days.
2. Maintain a concrete slump equal to or greater than 7 inches throughout placement of concrete for the entire drilled shaft.

3. Provide water reducing and/or retarding concrete admixtures Types A, B or D, as classified under ASTM C 494 that meet the requirements of AASHTO M 194 to achieve the required concrete workability and slump throughout concrete placement.

In addition to other standard concrete sampling and testing procedures conducted by the Department the following tests and frequencies will occur as follows:

Concrete Slump, AASHTO T 119, 1 test per truck at point of discharge

Concrete Compressive Strength, AASHTO T 23 & T 22, 1 set of cylinders per Drilled Shaft at point of discharge (cast at least four cylinders for 6x12 inch specimens or six cylinders if 4 x 8 inch and carefully transport the cylinders to the job site curing facility).

B. Reinforcing Steel

Provide steel reinforcement bars in conformance with Section 612 of the Standard Specifications.

C. Temporary Casing

Temporary casing consists of a clean, watertight, smooth wall, steel cylinder of ample strength to resist damage and deformation from transportation and handling, installation and extraction stresses, and all pressures and forces acting on the casing.

D. Mineral Slurry

A manufactured product consisting predominantly of clay minerals and water prepared and maintained in conformance with the manufacturer's recommendations, the following table and the quality control plan specified in the Shaft Installation Narrative Submittal.

Property	Test	Requirement
Density (pcf)	Mud Weight (Density) API 13B-1 Section 1	63 to 75
Viscosity (seconds/quart) Bentonite Attapulgite	Marsh Funnel and Cup API 13b-1, Section 2.2	28 to 50 28 to 40
pH	Glass Electrode, pH Meter, or pH Paper	8 to 11
<u>Sand Content (percent)</u> <ul style="list-style-type: none"> • Prior to final cleaning • Immediately prior to placing concrete 	Sand Content API 13B-1, Section 5	4.0 max

Maintain slurry temperature at 40 degrees Fahrenheit or greater when tested.

E. Synthetic Slurry

Use synthetic slurries prepared and maintained in conformance with the manufacturer's recommendations, the following tables and the quality control plan specified in the Shaft Installation Narrative Submittal.

The synthetic slurry must be one of the materials shown in the following table:

Synthetic Slurry Product Name	Manufacturer
SlurryPro CDP	KB INTERNATIONAL LLC 735 BOARD ST STE 209 CHATTANOOGA TN 37402 (423) 266-6964
Super Mud	PDS CO INC 105 W SHARP ST EL DORADO AR 71731 (870) 863-5707
Shore Pac GCV	CETCO CONSTRUCTION DRILLING PRODUCTS 2870 FORBS AVE HOFFMAN ESTATES IL 60192 (800) 527-9948
Terragel or Novagel Polymer	GEO-TECH SERVICES LLC 220 N. ZAPATA HWY STE 11A-449A LAREDO TX 78043 (210) 259-6386

Use synthetic slurries in compliance with the manufacturer's instructions. Provide certification of compliance from slurry manufacturer in accordance with Section 106.01 C. that indicates their product meets the requirements of this Special Provision and is suitable to the known subsurface site conditions indicated in the plans.

SlurryPro CDP synthetic slurry must comply with the requirements shown in the following table:

SLURRYPRO CDP		
Property	Test	Value
Density During drilling	Mud Weight (density), API 13B-1, section 1	≤ 67.0 pcf
Before final cleaning and immediately before placing concrete		≤ 64.0 pcf
Viscosity During drilling	Marsh Funnel and Cup. API 13B-1, section 2.2	50–120 sec/qt
Before final cleaning and immediately before placing concrete		≤ 70 sec/qt
pH	Glass electrode pH meter or pH paper	6.0–11.5
Sand content, percent by volume Before final cleaning and immediately before placing concrete	Sand, API 13B-1, section 5	≤ 0.5 percent

Slurry temperature must be at least 40 degrees F when tested.

Super Mud synthetic slurry must comply with the requirements shown in the following table:

SUPER MUD		
Property	Test	Value
Density During drilling	Mud Weight (Density), API 13B-1, section 1	≤ 64.0 pcf
Before final cleaning and immediately before placing concrete		≤ 64.0 pcf
Viscosity During drilling	Marsh Funnel and Cup. API 13B-1, section 2.2	32–60 sec/qt
Before final cleaning and immediately before placing concrete		≤ 60 sec/qt
pH	Glass electrode pH meter or pH paper	8.0–10.0
Sand content, percent by volume Before final cleaning and immediately before placing concrete	Sand, API 13B-1, section 5	≤ 0.5 percent

Slurry temperature must be at least 40 degrees F when tested.

Shore Pac GCV synthetic slurry must comply with the requirements shown in the following table:

SHORE PAC GCV		
Property	Test	Value
Density During drilling	Mud Weight (Density), API 13B-1, section 1	≤ 64.0 pcf
Before final cleaning and immediately before placing concrete		≤ 64.0 pcf
Viscosity During drilling	Marsh Funnel and Cup. API 13B-1, section 2.2	33–74 sec/qt
Before final cleaning and immediately before placing concrete		≤ 57 sec/qt
pH	Glass electrode pH meter or pH paper	8.0–11.0
Sand content, percent by volume Before final cleaning and immediately before placing concrete	Sand, API 13B-1, section 5	≤ 0.5 percent

Slurry temperature must be at least 40 degrees F when tested.

Terragel or Novagel Polymer synthetic slurry must comply with the requirements shown in the following table:

TERRAGEL OR NOVAGEL POLYMER		
Property	Test	Value
Density During drilling	Mud Weight (Density), API 13B-1, section 1	≤ 67.0 pcf
Before final cleaning and immediately before placing concrete		≤ 64.0 pcf
Viscosity During drilling	Marsh Funnel and Cup. API 13B-1, section 2.2	45–104 sec/qt
Before final cleaning and immediately before placing concrete		≤ 104 sec/qt
pH	Glass electrode pH meter or pH paper	6.0–11.5
Sand content, percent by volume Before final cleaning and immediately before placing concrete	Sand, API 13B-1, section 5	≤ 0.5 percent

Slurry temperature must be at least 40 degrees F when tested.

F. Water Slurry

Water without site soils may be used as slurry when casing is used for the entire length of the drilled hole. Prepare and maintain water slurry in conformance to the following requirements:

Property	Test	Requirement
Density (pcf)	Mud Weight (Density) API 13B-1 Section 1	65 max.
Sand Content (percent)	Sand API 13B-1, Section 5	1.0 max

Maintain slurry temperature at 40 degrees Fahrenheit or greater when tested.

G. Steel Reinforcing Bar Cage Centralizers, Boots and Base Plates

Provide devices manufactured commercially for properly aligning, centering and supporting steel rebar cages in drilled shaft excavations that will maintain the concrete cover specified in the Plans.

3. CONSTRUCTION REQUIREMENTS

A. Quality Assurance

1. Shaft Construction Tolerances

Excavate shafts within a 3 inch horizontal tolerance of plan location (center at the top of the shaft) and within 2 percent plumb.

Frequently check the plumbness, alignment and dimensions of the shaft during drilling or excavation of the shaft. Correct any deviation exceeding the allowable tolerances with a procedure approved by the Engineer.

2. Shaft Preconstruction Conference

At least 5 working days prior to beginning the drilled shaft construction work at the site, convene a shaft preconstruction conference to discuss construction procedures, personnel, and equipment to be used, and the other elements of the approved Shaft Construction Submittal. Those attending shall include the Engineer, the Contractor's Superintendent, on-site supervisors, and all foremen in charge of excavating the shaft, placing the casing and slurry as applicable, placing the steel reinforcing bars, and placing the concrete. If mineral or synthetic slurry will be used to construct the shafts, the slurry manufacturer's representative and approved Contractor's employees trained in the use of the mineral or synthetic slurry shall also attend.

During drilled shaft construction operations, the Contractor shall promptly notify the conference attendees listed above of significant variations, changes, revisions and updates to the Shaft Construction Submittal, as they are approved by the Engineer.

B. Shaft Construction Submittal

Furnish a shaft construction submittal, for Engineer approval, comprised of the following three components: construction experience; shaft installation narrative; and shaft slurry technical assistance. Submit the document in a PDF format to the Engineer a minimum of 14 calendar days prior to the Shaft Preconstruction Conference. The Engineer will evaluate the shaft construction submittal for conformance to the project within 10 working days and approve or reject the submittal. If rejected, resubmit the submittal with adjustments, clarifications, and changes as requested by the Engineer. Once approved, the Engineer will suspend drilled shaft construction if personnel, equipment or methods, listed and described on the approved Shaft Construction Submittal are substituted or changed on the project without pre-approval by the Engineer. The Contractor shall be fully liable for the additional costs resulting from the suspension of work, and no adjustments in contract time resulting from the suspension of work will be allowed.

1. Construction Experience

a. List of Qualifying Projects.

Provide a list containing at least five successful projects on which the company has installed drilled shafts of similar size and depth using similar installation methods in similar ground conditions. Briefly describe each project and include a reference for each project listed. Include an individual's name and current phone number for the reference. Use no more than five total pages for the complete list.

b. On-Site Personnel Resumes

Provide one-page resumes for the supervisor(s) and drill rig operator(s) that will perform their duties on the project site.

(1) **Supervisor(s) Qualifications**

Provide on-site supervisors with at least 3 years of working experience in supervising construction of drilled shafts of similar size (diameter and depth) and scope to those shown in the Plans, and in similar geotechnical conditions to those described in the geotechnical data report. Show only work experience that consists of direct supervisory responsibility for the on-site drilled shaft construction operations including but not limited to: drilled shaft excavations; preparation and placement of steel reinforcement cages in the drilled shaft excavation; and placing concrete in the drilled shaft excavation within. Project management level positions indirectly supervising on-site shaft construction operations are not acceptable for this experience requirement.

(2) **Drill Rig Operator(s) Qualifications**

Provide drill rig operators that have a minimum of 1 year experience in construction of shaft foundations on the equipment proposed for this project using the methods proposed for this project (wet method drilled shaft construction, etc.).

2. Shaft Installation Narrative

Submit a Shaft Installation Narrative referencing the available subsurface data for the project. Account for potential ground movement due to the active landslide and drilling through the existing horizontal drains in the selection of drilling equipment, drill tooling, stabilization of the drilled shaft excavation and steel reinforcement cage placement and concrete placement operations. . At a minimum, include the following information in the Shaft Installation Narrative:

- a. Proposed overall construction operation sequence.
- b. Provide the description, size, and capacities of proposed drilling equipment, including but not limited to, cranes, drills, auger, bailing buckets, final cleaning equipment, and drilling unit. Describe why the equipment was selected and describe equipment suitability to the anticipated site conditions and work methods. Include a project history of the drilling equipment demonstrating the successful use of the equipment on drilled shafts of equal or greater hole size in similar soil/rock conditions. Include specific details of drilled shaft excavation and cleanout methods.
- c. Provide a list of potential problems that could occur during construction of the drilled shafts and proposed solutions. Include equipment breakdowns and related contingency plans. Include potential problems related to the

subsurface conditions at the site, the rate of ground movement measured at the active landslide and conflicts with the existing horizontal drains.

- d. Provide details of method(s) proposed to ensure drilled shaft stability (i.e., prevention of caving, bottom heave, using temporary casing, slurry, or other means) during excavation (including pauses and stoppages during excavation) and concrete placement.
- e. Provide a slurry mix design (if slurry is proposed), listing and describing all additives and their specific purpose in the slurry mix, with a discussion of their suitability to the anticipated subsurface conditions along with the procedures for mixing, using, and maintaining the slurry.
- f. Provide a detailed plan for quality control of the selected slurry (if slurry is proposed), listing the tests to be performed, test methods to be followed, testor's name and qualifications, and minimum and/or maximum slurry material property requirements to achieve that ensures the slurry functions as intended with consideration of the anticipated subsurface conditions and shaft construction methods, in accordance with the slurry manufacturer's recommendations and these Special Provisions. At a minimum, include the following tests in the slurry quality control plan:

Property	Test Method
Density	Mud Weight (Density), API 13B-1, Section 1
Viscosity	Marsh Funnel and Cup, API 13B-1, Section 2.2
pH	Glass Electrode, pH Meter, or pH Paper
Sand Content	Sand, API 13B-1, Section 5

- g. Provide a complete copy of the test methods listed in the slurry quality control plan.
- h. Provide a description and details of the storage and disposal plan for excavated material and drilling slurry (if applicable). Include permit applications and approved permits required for slurry storage and disposal.
- i. Describe the details of concrete placement, including proposed operational procedures for pumping methods, and a sample uniform yield form for plotting the approximate volume of concrete placed versus the depth of shaft for all shaft concrete placement (except concrete placement in the dry).
- j. Provide reinforcing steel work drawings with reinforcement placement details, bracing, centering and lifting methods, and the method to ensure the reinforcing cage position is maintained during construction, including use of bar boots and/or rebar cage base plates.

At a minimum include the following items on the reinforcing steel work drawings:

- (1) Procedure and sequence of steel reinforcing bar cage assembly.
- (2) The tie pattern, tie types, and tie wire gages for all ties on permanent reinforcing and temporary bracing.
- (3) Number and location of primary handling steel reinforcing bars used during lifting operations.
- (4) Type and location of all steel reinforcing bar splices.
- (5) Details and orientation of all internal cross-bracing, including a description of connections to the steel reinforcing bar cage.
- (6) Description of how temporary bracing is to be removed.
- (7) Location of support points during transportation.
- (8) Cage weight and location of the center of gravity.
- (9) Number and location of pick points used for lifting for installation and for transport (if assembled off-site).
- (10) Crane charts and a description and/or catalog cuts for all spreaders, blocks, sheaves, and chokers used to equalize or control lifting loads.
- (11) The sequence and minimum inclination angle at which intermediate belly rigging lines (if used) are released.
- (12) Pick point loads at 0, 45, 60, and 90 degrees and at all intermediate stages of inclination where rigging lines are engaged or slackened.
- (13) Methods and temporary supports required for cage splicing.
- (14) For picks involving multiple cranes, the relative locations of the boom tips at various stages of lifting, along with corresponding net horizontal forces imposed on each crane.

3. Shaft Slurry Technical Assistance

If slurry other than water slurry is used to construct the shafts, provide or arrange for technical assistance in the use of the slurry as specified in Section 3.D.3. *Slurry Sampling and Testing*. Submit the following to the Engineer:

- a. The name and current phone number of the slurry manufacturer's technical representative assigned to the project, and the frequency of scheduled visits to the project site by the synthetic slurry manufacturer's representative.
- b. The name(s) of the Contractor's personnel assigned to the project and trained by the slurry manufacturer in the proper use of the slurry. Include a copy of a signed training certification letter from the slurry manufacturer for each trained Contractor's employee listed, including the date of the training.

C. Shaft Excavation

Excavate the shafts to the required depth as shown in the Plans. Shaft excavation operations shall conform to this Section and the Shaft Installation Narrative as approved by the Engineer.

1. Conduct of Shaft Excavation Operations

Conduct shaft excavation operations, including casing installation and removal, such that the soil adjacent to the shaft for the full height of the shaft is not disturbed. Disturbed soil is defined as soil whose geotechnical properties have been changed from those of the original in situ soil, and whose altered condition adversely affects the structural integrity of the drilled shaft or the interface between the drilled shaft and the soil.

Conduct the excavation in a continuous operation until the excavation of the shaft is completed, except for pauses and stops as noted, using approved equipment capable of excavating through the types of material indicated on the boring logs. Pauses during this excavation operation, except for casing splicing, tooling changes, slurry maintenance, and removal of obstructions, are not allowed. Stops are shaft excavation operation interruptions not conforming to this definition. Stops for uncased excavations (including partially cased excavations) shall not exceed 16 hours duration. Stops for fully cased excavations, excavations in rock, and excavations with casing seated into rock, shall not exceed 65 hours duration. For stops exceeding the time durations specified above in excavations where mineral or synthetic slurry is not present, stabilize the excavation using one or both of the following methods:

- a. For an uncased excavation, before the end of the work day, install casing in the hole to the depth of the excavation. The outside diameter of the casing shall not be smaller than 6 inches less than either the plan diameter of the shaft or the actual excavated diameter of the hole, whichever is greater. Sound the annular space between the casing and the excavation prior to removing the casing and resuming shaft excavation. If the sounding operation indicates that caving has occurred, do not remove the casing nor resume shaft excavation until stabilizing the excavation in conformance with the approved Shaft Installation Narrative Submittal.
- b. For both a cased and uncased excavation, backfill the hole with granular material. Backfill the hole to the ground surface, if the excavation is not cased, or to a minimum of 5 feet above the bottom of temporary casing, if the excavation is cased.

During stops, stabilize the shaft excavation to prevent bottom heave, caving, head loss, and loss of ground. The Contractor bears full responsibility for selection and execution of the method(s) of stabilizing and maintaining the

shaft excavation. Stabilize the shaft in conformance to the approved Shaft Installation Narrative Submittal.

If slurry is present in the shaft excavation, conform to the requirements of Section 3.D.2. *Minimum Level of Slurry in the Excavation* regarding the maintenance of the slurry. Maintain the minimum level of drilling slurry throughout the stoppage of the shaft excavation operation, and recondition the slurry to the required slurry properties prior to recommencing shaft excavation operations.

Collect and dispose of excavated soil and drilled shaft spoils without allowing erosion or runoff to disperse soil into the existing water collection basin near the outlet of the existing horizontal drains or onto the nearby National Park property. Follow all local, state and federal laws and regulations for handling, collecting, storage, transporting and disposing of the drilled shaft spoils. Completely remove the drilled shaft excavated soil from the landslide area before beginning the excavation for the next drilled shaft. Stockpile the excavated soil away from the landslide to the northwest of the stabilization work area, as designated by the Engineer.

Contain all water, including water slurry, for disposal away from the landslide area. Do not allow water from the excavation to enter the nearby National Park.

Clean excavation soil (no slurry contamination) may be used as borrow and placed along the cap beam using compaction control Type C in accordance with Section 203 after all permanent ground anchors have been locked-off

2. Temporary Drilled Shaft Casing

If applicable, furnish temporary drilled shaft casing in conformance to Section 3.B.2. *Shaft Installation Narrative*, item c and in conformance with these Special Provisions.

Temporary casing is installed to facilitate shaft construction only and is not designed as part of the drilled shaft structure. To maintain stable excavations and to facilitate construction, the Contractor may furnish and install temporary casing. If so, provide temporary casing at the site in sufficient quantities to meet the needs of the anticipated construction method. Provide a casing with an outside diameter that is equal to or greater than the specified diameter of the shaft. Completely remove temporary casing after shaft construction is complete without deforming and causing damage to the completed shaft and without disturbing the surrounding soil. As the temporary casing is withdrawn, maintain the concrete and slurry inside the casing at a level sufficient to balance the hydrostatic pressure outside the casing.

3. Bottom of Shaft Excavation

Use appropriate means such as a cleanout bucket or air lift to clean the bottom of the excavation of all shafts. Ensure that no more than 2 inches of

loose or disturbed material is present at the bottom of the shaft just prior to placing concrete.

Sound the bottom of the excavated shaft with an airlift pipe, a steel tape with a heavy weight of at least 1 pound attached to the end of the tape, or other means acceptable to the Engineer to determine that the shaft bottom is at the depth shown in the plans.

After observing the Contractor inspecting each shaft for acceptable cleanliness and depth, the Engineer will approve each shaft prior to the Contractor proceeding with construction.

4. Required Use of Slurry in Shaft Excavation

Use slurry, in accordance with this Special Provision, to maintain a stable excavation during excavation and concrete placement operations once water begins to enter the shaft excavation at an infiltration rate of 12 inches of depth or more in 1 hour. If concrete is to be placed in the dry, pump all accumulated water in the shaft excavation down to a 3-inch maximum depth prior to beginning concrete placement operations.

D. Slurry Installation Requirements

1. Slurry Technical Assistance

If slurry other than water slurry is used, the manufacturer's representative, as identified to the Engineer in accordance with Section 3.B.3. *Shaft Slurry Technical Assistance* shall:

- a. Provide technical assistance for the use of the slurry,
- b. Be at the site prior to introduction of the slurry into the first drilled hole requiring slurry.
- c. Remain at the site during the construction of at least the first shaft excavated to adjust the slurry mix to the specific site conditions.

After the manufacturer's representative is no longer present at the site, the Contractor's employee trained in the use of the slurry, as identified to the Engineer in accordance with Section 3.B.3. *Shaft Slurry Technical Assistance*, shall provide technical assistance for testing, mixing, maintaining and adjusting the slurry mix in accordance with the manufacturer's requirements and this Special Provision throughout the remainder of shaft slurry operations.

2. Minimum Level of Slurry in the Excavation

Use of slurry in a shaft excavation requires the following:

- a. Sustain the height of the slurry as required to provide and maintain a stable hole to prevent bottom heave, caving, or sloughing of all unstable zones.
- b. Provide casing, or other means, as necessary to meet these requirements.
- c. Maintain a slurry level in the shaft above the groundwater level equal to or greater than the following:
 - (1) 5 feet or more for mineral slurries.
 - (2) 10 feet or more for water slurries.
 - (3) 10 feet or more for synthetic slurries.

3. Slurry Sampling and Testing

When synthetic slurry is used, keep a written record of all additives and concentrations of the additives in the synthetic slurry. Provide these records to the Engineer once the slurry system has been established in the first drilled shaft on the project. Provide revised data to the Engineer if changes are made to the type or concentration of additives during construction.

Sample and test all slurry in the presence of the Engineer, unless otherwise directed. Record the date, time, names of the persons sampling and testing the slurry, and the results of the tests. Submit a copy of the recorded slurry test results to the Engineer at the completion of each shaft. Provide a copy of the recorded slurry test results during construction of each shaft when requested by the Engineer.

To verify that the slurry conforms to the specified slurry material properties, collect and test slurry sample sets, at the beginning of drilling operations, every 4 hours during drilling shifts and prior to cleaning the bottom of the drilled shaft excavation. A slurry sample set is composed of slurry samples taken at the mid-height and within 2 feet of the bottom of the storage area; and, at mid-height and within 2 feet of the bottom of the drilled shaft excavation, for a total of 4 slurry samples. Collect and test slurry sample sets at least once every 2 hours if the previous slurry sample set was non-conforming with the specified slurry material properties. Recirculate or agitate all slurry within the drilled shaft excavation with the drilling equipment, when tests show that the slurry sample sets are non-conforming with the specified slurry material properties.

Collect and test slurry sample sets, as specified, to verify control of the specified slurry material properties after final cleaning of the bottom of the

drilled shaft excavation just prior to placing concrete. Do not place concrete until the slurry samples taken at mid-height and within 2 feet of the bottom of the drilled shaft excavation conform to the specified slurry material properties.

The table below summarizes the slurry sampling and testing requirements at different stages of drilled shaft construction.

Shaft Construction Stage	Slurry Sample Locations	Results
Prior to placing slurry in excavation	At mid-height and within 2 feet of the bottom of the Slurry Storage Area	Test results within Specified Range for the Slurry Product
During Drilling: At beginning of drill shift and every 4 hours during drilling. Increase testing frequency to every 2 hours if test results are nonconforming.	At mid-height and within 2 feet of the bottom of the Slurry Storage Area and the Drilled Shaft	If test results are nonconforming with the Specified Range for the Slurry Product adjust slurry mix, agitate, re-circulate and clean; as required, to bring the slurry into conformance.
After cleaning the bottom of the hole and immediately prior to placing the rebar cage	At mid-height and within 2 feet of the bottom of Drilled Shaft.	Adjust slurry mix, agitate, circulate and clean as required to bring slurry into conformance prior to placing rebar cage in the excavation.
Immediately prior to placing concrete	At mid-height and within 2 feet of the bottom of Drilled Shaft	Adjust slurry mix, agitate, re-circulate and clean as required to bring slurry into conformance prior to placing concrete in the excavation.

4. Maintenance of Required Slurry Properties

Clean, recirculate, de-sand, or replace the slurry to maintain the required slurry properties.

5. Maintenance of a Stable Drilled Shaft Excavation

Demonstrate to the satisfaction of the Engineer that stable conditions are being maintained. If the Engineer determines that stable conditions are not being maintained, take immediate action to stabilize the shaft. Submit a revised Shaft Installation Narrative that addresses the problem and prevents future instability. Do not continue with shaft construction until the damage that has occurred is repaired in accordance with the specifications and until receiving the Engineer's approval of the revised Shaft Installation Narrative.

6. Disposal of Slurry and Slurry Contaminated Spoils

Dispose of the slurry and slurry-contaminated spoils off-site as specified in the Shaft Installation Narrative Submittal, in accordance with Section 107.17 of the Standard Specifications, and in accordance with all applicable local, state and federal regulations. Provide copies of all permits, agreements and manifests to the Engineer documenting the transport and final disposal of the slurry and slurry-contaminated spoils.

Water slurry must be disposed of off-site and shall not be allowed to enter the stabilization area.

E. Assembly and Placement of Reinforcing Steel

1. Steel Reinforcing Bar Cage Assembly

Rigidly brace the reinforcing cage to retain its configuration during handling and construction. Individual or loose bars will not be permitted. Show bracing and any extra reinforcing steel required for fabrication of the cage on the work drawings. Support shaft reinforcing bar cages on a continuous surface to the extent possible. Locate all rigging connections at primary handling bars, as identified in the reinforcing steel assembly and installation plan as approved by the Engineer. Internal bracing is required at each support and lift point.

Carefully position and securely fasten the reinforcement to provide the minimum clearances as shown on the Plans, and to ensure no displacement of the reinforcing steel bars occurs during placement of the concrete. Securely hold the steel reinforcing bars in position throughout the concrete placement operation.

2. Steel Reinforcing Bar Cage Centralizers

Submit details of the proposed reinforcing cage centralizers with the work drawings. Provide products that are manufactured specifically for centralizing steel reinforcing cages in drilled shaft excavations. Place reinforcing steel centralizers at each longitudinal space plane at the quarter points around the circumference of the steel reinforcing bar cage, and at a maximum longitudinal spacing of either 2.5 times the shaft diameter or 20 feet, whichever is less. Carefully position and securely fasten the centralizers to

provide the minimum concrete cover as shown on the Plans, and to ensure proper positioning of the cage is maintained during placement of the concrete.

3. Steel Reinforcing Cage Bottom Supports

Provide cylindrical concrete feet (bottom supports) approved by the Engineer, to ensure that the bottom of the cage is maintained the proper distance above the base of the shaft as shown on the Plans. Skids, or chairs constructed of steel or other electrical conductor material shall not be allowed.

F. Access Tubes for Crosshole Sonic Log Testing and Inclinometer Casing

Furnish and install access tubes for Crosshole Sonic Log (CSL) testing and provide CSL testing in accordance with the Special Provision for Crosshole Sonic Log Tests.

Furnish and install inclinometer casing in accordance with the Special Provision for Instrumentation.

G. Placing Concrete

1. Concrete Class for Shaft Concrete

Provide AA-5 concrete for the drilled shaft in accordance with Section 802 of the Standard Specifications as revised in this Special Provision.

2. Concrete Placement Requirements

Commence concrete placement immediately after inspection by the Engineer and placement of the reinforcing steel cage. Immediately prior to commencing concrete placement, the shaft excavation and the properties of the slurry (if used) shall conform to Section 3.C.3. *Bottom of Shaft Excavation* and Section 3.D *Slurry Installation Requirements*, respectively, of these Special Provisions. Place concrete in one continuous operation to the top of the shaft.

During concrete placement, monitor and minimize the difference in the level of concrete inside and outside of the steel reinforcing bar cage. Conduct concrete placement operations to maintain the differential concrete head at a 1-foot maximum.

If water is not present, deposit the concrete through the center of the reinforcement cage by a method that prevents segregation of aggregates and splashing of concrete on the reinforcement cage. Place the concrete such that the free-fall is vertical down the center of the shaft without hitting the sides of the excavation, the steel reinforcing bars, or the steel reinforcing bar cage bracing.

When placing concrete underwater, including when water in a shaft excavation exceeds 3 inches in depth, place the concrete at the bottom of the shaft by pressure feed using a concrete pump and a watertight tremie pipe having a minimum diameter of 4 inches. The discharge end of the tremie pipe must extend to the bottom of the shaft during placement of the concrete until the concrete level is at least 5 feet above the discharge end of the tremie pipe. Include a device to seal out water from the discharge end of the tube on the tremie pipe while it is first filled with concrete. Alternatively, use a plug or pig manufactured for use in concrete tremie pipes that is inserted at the top of the tremie pipe and travels through the tremie to keep the concrete separated from the water and slurry. Completely fill the tremie pipe and hopper with concrete prior to allowing the plug or pig to discharge from the end of the tremie pipe. Concrete placement by gravity feed without a tremie is not allowed.

Throughout the underwater concrete placement operation, the discharge end of the tube shall remain submerged in the concrete at least 5 feet and the tube shall always contain enough concrete to prevent water from entering. The concrete placement shall be continuous until the work is completed, resulting in a shaft composed of seamless, uniform concrete. Overpump the concrete in the shaft until uniform concrete visually free from slurry, soil and laitance reaches the top elevation of the shaft. Remove excess concrete and contaminated concrete above the top elevation of the shaft.

3. Concrete Vibration Requirements

When placing concrete in the dry, remove all contaminated concrete, laitance, loose gravel, and sediment on the upper surface of the drilled shaft concrete and vibrate the upper 5 feet of the drilled shaft concrete in accordance with Section 602.04 C.2. of the Standard Specifications. If a temporary casing is used, remove it before vibration. This requirement may be waived if a temporary casing is used and removed with a vibratory hammer during the concrete placement operation. Requirements for Placing Concrete Underwater

4. Testing and Repair of Shaft Concrete Placed Underwater

If the underwater concrete placement operation is interrupted, the Engineer may require the Contractor to prove by core drilling or other tests that the shaft contains no voids or horizontal joints. If testing reveals voids or joints, the Contractor shall repair them or replace the shaft at no expense to the Department. Responsibility for coring costs, and calculation of time extension, shall be in accordance with Section 109.03 of the Standard Specifications.

5. Cleaning and Removal of Placed Drilled Shaft Concrete

Thoroughly clean the projecting reinforcing steel and other tubes attached to the reinforcing cage of all accumulations of splashed concrete, slurry and other debris immediately following concrete placement and removal of casing and slurry. Remove all accumulations of soil, loose aggregate, contaminated concrete or other debris on the surface of the drilled shaft concrete to expose fresh concrete and smooth any high spots on the upper surface of the exposed fresh concrete that would prevent the cap beam steel reinforcing bar cage from being placed in the position required by the Plans. Verify that the top of the drilled shaft is in conformance with the planned elevation.

6. Protection of Fresh and Curing Concrete From Vibration

Do not subject freshly placed concrete to excessive vibration and shock waves during the curing period until it has reached at least 2,000 psi minimum compressive strength for structural concrete. Maintain all vibration producing operations a safe horizontal distance from the freshly placed concrete for the first 5 hours from the time the concrete has been placed.

7. Uniform Yield Form

Except for shafts where the shaft concrete is placed in the dry, complete a uniform yield form, consistent with the sample form submitted to the Engineer as part of the shaft installation narrative as specified in Section 3.B.2, item i, for each shaft and submit the completed form to the Engineer within 24 hours of completing the concrete placement in the shaft.

8. Requirements for Placing Concrete Above the Top of Shaft

Do not place concrete above the top of shaft (for cap beam splice zones) until Engineer acceptance of the CSL testing is received, if performed at that shaft, and Engineer acceptance of the shaft.

9. Rejection of Shafts and Revisions to Concrete Placement Operations

If the Engineer determines that the concrete placed under slurry for a given shaft is structurally inadequate, that shaft will be rejected. Suspend subsequent placement of concrete under slurry until submitting written changes to the methods of shaft construction needed to prevent future structurally inadequate shafts to the Engineer, and receiving the Engineer's written approval of the submittal.

H. Coring Drilled Shafts and Remedial Action Plan

At the Engineer's request, drill a corehole in any questionable quality shaft, as determined from CSL testing and analysis or by observation of the Engineer, to explore the shaft condition. Coring is also required to replace an unusable CSL access tube per the Crosshole Sonic Log Test Special Provision.

Prior to beginning coring, submit the method and equipment used to drill and remove cores from the shaft concrete and provide to the Engineer and receive the Engineer's written approval. Use either a conventional double-tube, swivel-type core barrel with split liners or a wireline barrel with split inner liners. Use a new diamond coring bit. Replace the coring bit and core barrel as necessary to achieve a high percentage of core recovery. Obtain core samples in accordance with ASTM D 2113 to 5 feet below the bottom elevation of the possible defect or as directed by the Engineer. Obtain core samples with a minimum diameter of 3.0 inches except that coring to replace an unusable CSL access tube can be 2.0 inches in diameter. Preserve all core in wooden core boxes, identified as to location and depth and make available for inspection by the Engineer.

If a flaw or defect is confirmed, submit a proposed remedial action plan with supporting calculations and work drawings for correcting the shafts. Submit all remedial correction procedures and designs to the Engineer for approval. Do not begin repair operations until receiving the Engineer's approval of the remedial action plan. Include CSL testing in the remedial action plan to verify the effectiveness of the proposed remediation.

If no defect is encountered, the Department will pay for all coring and grouting costs.

Grout the core holes in accordance with the Crosshole Sonic Log Test Special Provision.

All materials and work necessary, including engineering analysis, testing, evaluations and redesign, to investigate and effect corrections for shaft flaws, defects or to replace the shaft shall be furnished to the Engineer's satisfaction at no additional cost to the Department.

4. METHOD OF MEASUREMENT

Drilled shafts will be measured by the linear foot from the top drilled shaft elevation shown on the Plans to the bottom depth of the drilled shaft excavation as indicated on the Plans. Access tubes for CSL testing and CSL testing will be measured in accordance with the Special Provision for Crosshole Sonic Log Tests. Inclinometer casing will be measured in accordance with the Special Provision for Instrumentation.

5. BASIS OF PAYMENT

The unit price of drilled shafts shall be full compensation for making all excavations; hauling, stockpiling and disposal of excavated material; performing all necessary pumping; furnishing and placing required concrete and reinforcement steel, including the reinforcement blocking, splices, chairs and the reinforcement projecting above the tops of the drilled shaft concrete necessary for splicing; all backfilling; placement and removal of temporary casings; permits, placement, maintenance, testing, storage, removal and disposal of slurry; and for furnishing all tools, labor, equipment, materials and incidentals necessary to complete the work.

CSL Testing will be paid for in accordance with the Special Provision for Crosshole Sonic Log Tests.

The accepted quantities for drilled shafts will be paid for at the contract bid price for:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
930-3990	4.0 ft diameter drilled shaft	Linear Feet

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

GROUND ANCHOR

Project SER-5-094(107)030 – PCN 20549

1. DESCRIPTION

This work consists of furnishing adequate equipment, materials, work drawings and experienced labor to install, test, stress and complete the permanent grouted ground anchors as specified. Grouted ground anchors, also referred to as ground anchors, consist of multi-strand wire tendons installed in grout-filled holes drilled in soil or rock. The tendons transfer tensile forces from an attached structure to the ground.

Select the drilling method, grout mix, drill hole diameter, post-grouting injection pressures, and number of post-grouting cycles to achieve the specified acceptance criteria for every permanent ground anchor.

2. DEFINITIONS

For this specification, these terms are defined as follows:

- A. Alignment load:** A nominal load applied to the ground anchor during testing to keep the testing equipment in the correct position.
- B. Anchorage:** The combined system of the anchor head, bearing plate, and trumpet that transfers the force in the tendon to the ground surface or supported structure.
- C. Anchor grout:** Grout that is injected into the drill hole just before or just after the Contractor installs the tendon. The anchor grout within the bond length transfers the applied tensile force from the tendon to the surrounding soil or rock.
- D. Bearing Plate:** A steel plate that evenly distributes the ground anchor force to the cap beam.
- E. Bond length:** The length of the tendon that is bonded to the grout and transfers the applied tensile force to the surrounding soil or rock.
- F. Ground Anchor:** A system, referred to as a tieback or as an anchor, used to transfer tensile loads to soil or rock. A ground anchor includes all prestressing steel, anchorage devices, grout, coatings, sheathings, and couplers if used.

- G. Lock-off load:** The tensile force or load in a ground anchor immediately after transferring the load from the jack to the anchorage after testing is complete.
- H. Maintaining Consistency of Load:** Maintaining the test load within 5 percent of the specified value.
- I. Maximum test load:** The maximum load applied to the ground anchor during testing. The maximum test load is equal to the factored design load (FDL) for load and resistance factor design (LRFD) and to 1.33 times the design load (DL) for allowable stress design (ASD).
- J. Minimum Ultimate Tensile Strength (MUTS):** The minimum specified breaking load of the prestressing steel as defined by the specified standard.
- K. Post-grouting:** The injection of grout along the anchor bond length after the primary grout has set. Post-grouting is performed to increase the pullout resistance of the anchor.
- L. Tendon and Tendon Steel:** The tendon includes the steel strands, the corrosion protection, the sheaths, centralizers, and spacers, but specifically excludes the grout and anchorage. The tendon steel consists of the high strength, steel strands.
- M. Unbonded length:** The length of the tendon that is not bonded to the grout and surrounding ground.

3. MATERIALS

A. General

Provide materials meeting the requirements in the following sections. Do not deliver the materials to the site until the Engineer has approved the contractor experience and ground anchor work drawing submittals. Protect the designated storage location or locations from theft, vandalism, passage of vehicles, and other sources of damage to materials delivered to the site. Store and handle ground anchors in accordance with the manufacturer's recommendation and in such a manner that no damage to the component parts occur. Store cement and additives for grout under cover and protect against moisture.

B. Tendons

Furnish multi-strand, high strength, steel wire tendons for ground anchor tendons conforming to the ASTM A416 including S1.

C. Centralizers and spacers

Furnish centralizers and spacers made from plastic or steel. Centralizers must support the tendon in the hole and position it to provide at least 0.5 inch of grout

cover over the encapsulation. Centralizers and spacers used inside the encapsulation must position the tendon steel to provide at least 0.2 inch of grout cover between the tendon steel and the inside surface of the encapsulation. Centralizers must permit grout to flow freely around the tendon and along the drill hole. Furnish spacers to separate multiple strands or bars within the bond length.

D. Sheath, bond breaker, and encapsulation

Furnish plastic tubing or pipe with the following properties:

1. Resistant to chemical attack from aggressive environments, grout, or corrosion inhibiting compounds.
2. Resistant to aging by ultraviolet light.
3. Fabricated from material that is not detrimental to the tendon.
4. Capable of withstanding abrasion, impact, and bending during handling and installation.
5. Allow the tendon to elongate during testing and stressing.

For the sheath, furnish plastic tubing or pipe, corrugated or smooth. A smooth sheath may also function as a bond breaker. Furnish a separate bond breaker with a corrugated sheath.

For the bond breaker, furnish smooth plastic tubing or pipe that allows the tendon to elongate with minimal friction during testing and stressing.

Furnish high density polyethylene corrugated pipe and end caps conforming to AASHTO M 252, Type C, for tendon bond length encapsulation.

E. Corrosion inhibiting compound

Furnish either grease, wax, or gel with corrosion inhibiting additives that conform with Section 4.6 of Recommendations for Prestressed Rock and Soil Anchors by the Post-Tensioning Institute (2014).

F. Heat shrink sleeves and tape

Furnish heat shrink sleeves and tape fabricated from radiation cross-linked polyolefin coated with an adhesive sealant.

G. Wax tape

Furnish petrolatum (wax) tape consisting of synthetic fabric saturated with a stable composition of petrolatum compound (wax) with inert fillers.

H. Cement Grout

Furnish materials for grout conforming to the following:

Portland cement804.01

Furnish water conforming to Subsection 812. If using fine aggregate in the grout mix, furnish natural sand with 100 percent passing the No. 16 sieve (1.18 mm) and no more than 5 percent passing the No. 200 sieve (75 µm).

Provide a pumpable, stable fluid, grout mix that exhibits less than 2 percent bleed in accordance with ASTM C 940. The compressive strength of two-inch cubes, molded, cured, and tested in accordance with ASTM C 942, to be a minimum of 3,000 psi at the time of stressing. Admixtures which control bleed, improve flowability, and reduce water content, conforming to ASTM C 494, Types A or F, may be used in the grout subject to the approval of the Engineer. Admixtures, if used, are to be compatible with prestressing steels and mixed in accordance with the manufacturer's recommendations. Expansive admixtures may only be used for filling sealed encapsulations, trumpet and anchorage covers. Do not use accelerating admixtures.

Provide compressive strength test results of two-inch cubes, molded, cured and tested in accordance with ASTM C 942 for each proposed grout mix design prior to installing the first ground anchor. Provide 3 additional compressive strength test results on samples randomly selected by the Engineer. Demonstrate that the grout achieves a 3,000 psi compressive strength at the time of stressing.

I. Anchorages

Furnish anchor heads conforming to either ASTM A36, ASTM A108 Grades 1040 or 1045, ASTM A536 Grade 80-55-06, or ASTM A576 Grade 1045.

For strand tendons, furnish three-part wedges conforming to ASTM A108 Grade 12L14, case hardened from 0.012 to 0.015 inches thick to Rockwell C 59 to 65. For strand tendons, furnish the anchor heads and wedges from the same supplier.

Furnish bearing plates conforming to ASTM A36, ASTM A529, ASTM A536, ASTM A572, or ASTM A588.

Furnish trumpets fabricated from steel pipe conforming to ASTM A53 or steel tubing conforming to ASTM A500. Furnish trumpets with a minimum wall thickness of 0.20 inch. Provide a watertight seal between the trumpet and bearing plate by welding the two together.

Furnish anchorage covers, also referred to as end caps, that completely cover the anchor head and provide a permanent watertight joint between the cover and the bearing plate. Furnish anchorage covers with a minimum thickness of 0.20

inch and fabricated from either steel pipe conforming to ASTM A53, steel tubing conforming to ASTM A500, or steel conforming to either ASTM A36, ASTM A529, ASTM A572, or ASTM A588.

Provide certificates of compliance for the anchorages, anchorage components and corrosion protection requirements described herein in accordance with Section 106.01 C. of the Standard Specification.

4. CONSTRUCTION REQUIREMENTS

Account for potential ground movement due to the active landslide and drilling through the existing horizontal drains in the selection of drilling equipment, drill tooling, stabilization of the ground anchor borehole and grout placement operations.

A. Ground Anchor Pre-Construction Conference

At least 5 working days prior to beginning ground anchor construction work at the site, convene a ground anchor preconstruction conference to discuss construction procedures, personnel, and equipment to be used, and the other elements work. Those attending shall include the Engineer, the Contractor's Superintendent, on-site supervisors, and all foremen in charge of ground anchor construction, constructing the sacrificial anchor reaction block and conducting the ground anchor testing.

B. Contractor Experience Requirements

Prior to the beginning of construction, submit proof that the Contractor performing the work described in this special provision has successfully installed similar sized and length ground anchors in comparable ground conditions using post-grouting pressure injection techniques. Provide a list describing at least 5 projects completed over the past 5 years. Include a brief description of each project, the project's location, project date, owner, and a reference for each project. At the minimum, include an individual's name, relationship to the project and current phone number for each reference.

The Contractor shall assign an engineer to supervise the Work with at least 3 years of experience in the design and construction of permanently anchored structures. The Contractor shall not use consultants or manufacturer's representatives in order to meet the requirements of this Section.

Submit a list of projects for each of the drill operators and on-site supervisors demonstrating at least 1 year of experience installing permanent, post-grouted, ground anchors.

Allow up to 10 calendar days for the Engineer's review of the qualifications and staff as noted above. Do not start on any anchored wall system or order materials until approval of the Contractor's qualifications and other submittals are given.

C. Ground Anchor Work Drawing

The pullout capacity of a ground anchor depends on many factors in addition to the soil or rock conditions at the site. Furnish the ground anchor tendon size, unbonded free stressing lengths and bond lengths as specified in the Plans. Select the drilling method, grout mix, post-grouting pressures and hole diameter appropriate for the soil and rock conditions at the site, so that every ground anchor meets the specified acceptance criteria.

Prepare the Ground Anchor Work Drawings, including the following listed items, under the supervision and direction of a North Dakota Registered Engineer and have the Registered Engineer sign and seal the work drawings. Submit the sealed Ground Anchor Work Drawings to the Engineer for acceptance prior to ordering the permanent ground anchors. Department acceptance of any submittal does not relieve the Contractor of the responsibility for obtaining the required results.

1. Permanent Ground Anchor Tendon. Furnish details of a 5-strand, high strength steel wire tendon as indicated in the Plans in accordance with these specifications. Show locations of centralizers and spacers. Show locations and type of grout tubes for initial grouting and pressurized post-grouting.
2. Instrumented Permanent Ground Anchor Tendon. Furnish separate details of the ground anchor tendon in item 1 above showing locations of strand anchor strain gauge and permanent load cell instruments. Show adjustments to corrosion protection of strand at gage locations and the signal cable wiring plan extending from gages through anchor heads and end caps with descriptions, locations and details of any and all weatherproof duct ports located in the end caps. Modify dimensions of end caps to accommodate load cells and platens. Show locations of extra centralizers and spacers to protect gages, as needed. Show locations and type of grout tubes for initial grouting and pressurized post-grouting.
3. Sacrificial Instrumented Ground Anchor Tendon. Furnish details of a 7-strand, high strength steel wire tendon in accordance with these specifications. Show locations of centralizers and spacers. Show locations and type of grout tubes for initial grouting and pressurized post-grouting. Show details of strand anchor strain gauges installed in the ground anchor bond zone as follows: one at 5 feet, one at 20 feet and one at 40 feet from the transition between the free stressing length and the bond length.

4. Bond length. Use the bond length that is equal to the bond length shown in the plans for all of the ground anchors.
5. Unbonded length. Use an unbonded length for each ground anchor that is equal to or greater than the unbonded length shown on the Plans. Do not extend the ground anchor beyond Right-of-Way or easement boundaries.
6. Tail length. Show lengths of tail extensions at front of ground anchor that is necessary to accommodate pre-stressing chairs, hydraulic jacks, stressing anchor heads and load cell instrumentation where appropriate.
7. Centralizers and Spacers. Place a centralizer within 1 foot of the bottom of the tendon. Place additional centralizers along the length of the tendon at a maximum spacing of 10 feet, measured center-to-center. Also place a centralizer within 5 feet of the top of the bond length. Place spacers for strand tendon no more than 10 feet apart within the bond length, with one each located within 5 feet of the top and bottom of the bond length.
8. Blockout Pipe. Show dimensions of blockout pipe located in cap beam at primary and secondary ground anchor locations. Size blockout pipe to allow easy passage of drill steel and drill tooling.
9. Bearing Plate and Trumpet. Show dimensions of a bearing plate and trumpet, sized for safely supporting minimum ultimate tensile strength of the permanent ground anchor tendons on the concrete cap beam around the blockout pipe and for a trumpeted bearing plate, sized for safely supporting the minimum ultimate tensile strength of the sacrificial ground anchor tendons on a reinforced concrete reaction block designed by the Contractor. Provide calculations in accordance with *AASHTO LRFD Bridge Design Specifications*, demonstrating sufficiency of the bearing plate dimensions. The trumpet provides a transition from the bearing plate to the anchor tendon corrosion protection. Provide a watertight seal between the trumpet and bearing plate by welding the two together. Provide a trumpet long enough to overlap the corrosion protection in the unbonded length of the tendon by at least 4 inches with a seal between the trumpet and the corrosion protection, or by at least 12 inches without a seal.
10. Ground Anchor Reaction Block. Design a Ground Anchor Reaction Block capable for safely supporting the minimum ultimate tensile strength of the sacrificial 7-strand ground anchors. Provide sufficient details, dimensions and calculations that demonstrate the reaction block shall exert a maximum ground pressure of 3500 psf or less when the sacrificial ground anchor is tested to 80 percent of the minimum ultimate tensile strength. Provide details of the anchor block's composition, size, fasteners, spacing and orientations. Provide details of the material strength and individual component dimensions. Show the size and location of the opening (blockout) on the ground anchor

- reaction block and the position of the sacrificial ground anchor and bearing plate.
11. Anchorage Head and End Cap. Provide details and dimensions of anchorage head wedge plate and end cap. Show details of waterproof end cap seal at bearing plate.
 12. Permanent Ground Anchor Corrosion Protection. Provide Class I corrosion protection for permanent, encapsulated strand, ground anchors as described in *Recommendations for Prestressed Rock and Soil Anchors by the Post-Tensioning Institute, 2014*.
 13. Corrosion protection is not required for the sacrificial ground anchors.
 14. Provide continuous corrosion protection at the transition from the bond length to the unbonded length of the anchor tendon.
 15. Hot dip galvanize the bearing plates and anchorage end cap covers in accordance with ASTM A-153.
 16. Electro zinc plate anchorage head wedge plates in accordance with ASTM B-633.
 17. Sacrificial Ground Anchor Corrosion Protection. For use with the sacrificial ground anchors only. Corrosion protection is not required for the sacrificial ground anchors, bearing plates or the anchorage head wedge plates. Trumpets are required to protect the strain gage signal cables and anchor strands. End caps are not required for the sacrificial ground anchors.
 18. Hole diameter. Size the hole diameter for the ground anchor to provide sufficient surface area along the grout-ground interface to hold the factored design load and at least 0.5 inch grout cover over the encapsulation. Ensure that the area of the steel strands does not exceed 15 percent of the total area of the hole. Provide separate calculations demonstrating sufficiency of drill hole diameter with bond length for the anticipated subsurface materials shown on the plans and the proposed post-grouting pressures.
 19. Anchor inclination. Incline the ground anchor as shown on the plans. Do not modify the anchor inclination shown on the plans.

D. Anchor Installation Plan and Anchor Testing Plan

Submit the Anchor Installation and Testing Plans to the Engineer at least 14 Calendar days before the Ground Anchor Preconstruction Conference . Use the results of the Ground Anchor Testing program on the two sacrificial ground anchors to develop or verify the details of the Anchor Installation Plan and Anchor Testing Plan submitted at least 30 Calendar days prior to installing the permanent ground anchors. Use the same or similar drilling procedures and equipment from the sacrificial Ground Anchor Testing program. Obtain the Engineer's approval for each set of submittals before beginning ground anchor installation. The Anchor Installation and Testing Plans do not need to be signed and sealed by a Registered Engineer.

1. Anchor installation plan

- a. Drilling procedure and equipment
- b. Hole diameter
- c. Initial grout mix design
- d. Grouting methods and equipment
- e. Post-grouting procedure, including grout mix, post-grouting pressures and range of elapsed time between grouting stages.

2. Anchor testing plan

- a. Testing equipment, including hydraulic jack, pump, pressure gage, load cell and displacement gages
- b. Calibration certificates for jack, gages, and load cell
- c. Sample testing forms
- d. Test load Schedule (provide the factored design load at all test load increments in both force and pressure gage units)
- e. Lengths of tendon extensions, jack, load cell, and jacking chair

Follow the Sacrificial Ground Anchor Test Load Schedule in Table 1 for the sacrificial ground anchor testing and the Performance, Proof and Extended Creep Test Load Schedule in Tables 2-4 for the permanent ground anchors.

E. Investigative Ground Anchor Testing.

Perform investigative pullout tests on two, nonproduction (sacrificial) ground anchors to verify minimum factor of safety and creep characteristics of the production ground anchors design load. Install the investigative sacrificial ground anchors, perform the testing and submit the test results before beginning installation of the permanent ground anchors.

Select the site location of the investigative test anchors so that the ground conditions are similar to the production anchors. Obtain the Engineer's approval of the site location before installing and testing the investigative test anchors. Excavate and grade the approved site location for the test and construct or place

the ground anchor reaction block. Drill and install the investigative test anchors at the same length, inclination and orientation as the permanent ground anchors shown in the Plans. Do not apply a test load to the investigative test anchors that is greater than 80 percent of the ultimate tensile strength of the tendon steel.

If the Contractor makes any modifications to the work drawings, ground anchor schedule, design calculations, or anchor installation plan after the results of investigative pullout testing, submit the revisions and obtain the Engineer's approval before beginning or resuming ground anchor installation.

F. Ground Anchor Installation.

Select the drilling method, drill hole diameter and post grouting pressures so that every permanent ground anchor meets the specified acceptance criteria. Perform all work according to the work drawings and anchor installation plans approved by the Engineer.

1. Drilling for Permanent Ground Anchor. Drill the hole for the ground anchor through the blackout pipe in the cap beam at the location shown on the Plans for primary ground anchor location. Locate the top of the hole so that the anchor tendon fits within the cap beam as shown on the Plans. Ensure the inclination of the drill hole is within 3 degrees of the inclination shown on the Plans. Provide casing when required to maintain an open hole in unstable soil or rock formations.
2. Drilling for Sacrificial Ground Anchor. Drill the hole for the ground anchor at the approved site location and properly aligned with the ground anchor reaction block. Locate the top of the hole so that the anchor tendon fits within the ground anchor reaction block, but not more than 6 inches (150 mm) in any direction from the plan location. Ensure the inclination of the drill hole is within 3 degrees of the inclination shown on the work drawings. Provide casing when required to maintain an open hole in unstable soil or rock formations
3. Anchor Installation and Grouting. Inspect the permanent and sacrificial anchor tendon for signs of damage or corrosion before installation. Anchor tendons with a light coating of rust are acceptable, but do not use anchor tendons that show signs of heavy corrosion or pitting. Clean open holes, blackout pipe and cased holes before inserting the anchor tendon and grouting. Insert the anchor tendon in the drill hole without damaging the tendon, corrosion protection, grout tubes, strain gages or signal cables connected to strain gages. Begin grouting no more than 18 hours after completing the drilling for the bond length. Do not drive or force the tendon into the drill hole. If the tendon cannot easily reach to the design length, then remove the tendon and clean or redrill the hole to allow insertion. Insert the tendon after initial grouting. Inject grout at the lowest point of the drill hole by pumping through grout tubes, casing, hollow-stem augers, or drill rods. Either

- leave the grout tube in place or withdraw the grout tube during grouting, but ensure that the discharge end of the tube remains below the top of the grout during grout placement. If leaving the grout tube in place, ensure that it is filled with grout at the completion of grouting.
4. Fill the hole with grout in one continuous operation. Do not pressure grout the unbonded length. Do not allow grout near the top of the hole to reach the portion of the hole to be occupied by the trumpet; otherwise remove grout in this area before it hardens.
 5. Post-grouting. Install the ground anchor with a post-grouting system. Inject grout under pressure in the bond zone through the post-grouting tube after the initial grout has set in accordance with the appropriate Anchor Installation Plan. Repeat the post-grouting pressure injection procedure as needed to achieve the required bond capacity.
 6. Anchorage Installation. Install the trumpeted anchor bearing plate and the anchor head wedge plate perpendicular to the anchor tendon with a tolerance of ± 3 degrees. Do not bend or kink the anchor tendon or damage signal cables from the instrumentation. Ensure that the wedges and wedge holes are free of rust, grout, and dirt.
 7. Ensure the trumpet overlaps the corrosion protection in the unbonded length of the permanent ground anchor tendon by at least 4 inches when a seal is provided between the trumpet and the corrosion protection. When a seal is not provided, ensure the trumpet overlaps the corrosion protection in the unbonded length by at least 12 inches. Also ensure the corrosion protection in the unbonded length does not contact the anchor bearing plate or anchor head wedge plate. If necessary, trim the corrosion protection to prevent contact.

G. Ground Anchor Testing.

Test each permanent ground anchor to demonstrate that it meets the specified acceptance criteria. Conduct a minimum of three performance tests and two extended creep tests on the permanent ground anchors as indicated in the plans. Conduct proof tests on all ground anchors that are not subject to performance testing or extended creep testing. Performance test the first production ground anchor and then evenly distribute the rest of the performance tests (and extended creep tests) among the remaining ground anchors, or as directed by the Engineer. During the hold periods for all types of tests, maintain a constant load by adjusting the jack pressure as necessary. Do not allow the jack pressure to drop more than 50 psi during a hold period. Measure and record anchor movement to the nearest 0.001 inch. Avoid regripping strands or creating wedge bite marks on the strand below the anchor head. Consider the effect of seating losses from the wedges when analyzing displacement measurements.

1. Testing Equipment. Provide testing equipment conforming to the following.
 - a. Provide a hydraulic jack and pump with a rated capacity greater than the factored design test load. Provide a hydraulic jack with a stroke length at least 1 inch greater than the theoretical elastic elongation of the tendon steel at the factored design test load.
 - b. Provide two pressure gages to measure the pressure in the hydraulic jack, a production gage and a reference gage. Provide pressure gages with graduations of 50 psi or smaller. Ensure the hydraulic jack and the pressure gages have been calibrated as a unit within 9 months of the beginning of anchor testing. Ensure the calibration is traceable to the National Institute of Standards and Technology (NIST). Use the reference gage to check the production gage at least once per day when testing.
 - c. Provide a load cell and readout with a rated capacity greater than the factored design test load for extended creep tests. Ensure the load cell and readout have been calibrated as a unit within 9 months of the beginning of anchor testing. Ensure the calibration is traceable to NIST.
 - d. Provide a displacement gage that can measure movement in increments of 0.001 inch or less. Provide a displacement gage with a 4.0 inch minimum range of travel. If the anticipated elongation of the tendon steel at the factored design test load will exceed 4.0 inches, provide displacement gages with a sufficient range of travel, or provide multiple displacement gages that can be arranged in series to allow the continuous measurement of the displacement of the anchor head.
 - e. Provide a jack chair that can transfer 100 percent of the ultimate tensile strength of the tendon steel.
2. Testing Equipment Setup. Position the hydraulic jack, load cell (for extended creep tests), and other necessary items (such as bar extensions, stressing anchorages, and jack chair) over the anchor tendon and parallel to its axis. Apply the alignment load to hold the jack in place.

Set the displacement gage after applying the alignment load. Support the displacement gage on a tripod or other support device that is independent of the ground anchor and the structure. Position the displacement gage so that its axis is parallel to the axis of the anchor tendon within 5 degrees. Check that the stem of the displacement gage is free to move over its entire measurement range.

3. Sacrificial Ground Anchor Test. Perform a sacrificial ground anchor load test by incrementally loading the sacrificial ground anchor according to the following schedule shown in Table 1. Use a load cell to monitor the load during hold periods.

TABLE 1 SACRIFICIAL GROUND ANCHOR LOAD TEST SCHEDULE

Load Increment	Load Increment for LRFD	Hold Period (minutes)	Time for Displacement and Strain Gauge Reading (minutes)
1	AL (0.05 MUTS) 0.10 MUTS	--- 10	Initial Reading 1, 2, 3, 4, 5, 6, 10
2	0.20 MUTS	60	*
3	0.30 MUTS	60	*
4	0.40 MUTS	60	*
5	0.50 MUTS	60	*
6	0.60 MUTS	60	*
7	0.70 MUTS	60	*
8	0.80 MUTS	60	*
9	AL (0.05 MUTS)	1	Final Reading

* - Record Displacement Readings and Strain Gauge Readings at 1,2,5,10,20,30 and 60 minutes.

AL = Alignment Load;

MUTS = Minimum Ultimate Tensile Strength

Conduct the sacrificial ground anchor load tests until completion or until reaching a pullout failure. Submit copies of all the test data to the Engineer.

After completing both tests on the sacrificial ground anchors and after receiving approval from the Engineer, remove and dispose of the reinforced concrete anchor block in accordance with the Project Specifications. Remove and dispose of the ground anchor end hardware, cut the ground anchors and restore the grading to the pre-testing condition to the satisfaction of the Engineer.

4. Proof Test. Complete a proof test by incrementally loading and unloading the ground anchor according to the following schedule shown in Table 2.

TABLE 2 PROOF TEST LOAD SCHEDULE

Load Increment for	Hold Period	Time for Displacement
AL (0.10 FDL)	---	Initial Reading
0.20 FDL	*	*
0.40 FDL	*	*
0.60 FDL	*	*
0.75 FDL	*	*
0.90 FDL	*	*
1.0 FDL	10	1, 2, 3, 4, 5, 6, 10
0.40*FDL	*	*
AL (0.10 FDL)	---	1

* Hold load just long enough to read displacement, but not longer than one minute

^[1] If the amount of movement between the 1 minute and 10 minute displacement readings exceeds 0.04 inch, then hold the load for 60 minutes and take additional displacement readings at the times shown in parentheses.

AL = Alignment Load

FDL = Factored Design Load

5. Performance Test. Complete a performance test by incrementally loading and unloading the ground anchor according to the following schedule shown in Table 3.

TABLE 3 PERFORMANCE LOAD TEST SCHEDULE

Load Cycle	Load Increment for LRFD	Hold Period (minutes)	Time for Displacement, Load Cell and Strain Gauge Readings (minutes)
1	AL (0.10 FDL)	---	Initial Reading
	0.20 FDL	*	*
2	AL (0.10 FDL)	---	1
	0.20 FDL	*	*
	0.40 FDL	*	*
3	AL (0.10 FDL)	---	1
	0.20 FDL	*	*
	0.40 FDL	*	*
	0.60 FDL	*	*
4	AL (0.10 FDL)	---	1
	0.20 FDL	*	*
	0.40 FDL	*	*
	0.60 FDL	*	*
	0.75 FDL	*	*
5	AL (0.10 FDL)	---	1
	0.20 FDL	*	*
	0.40 FDL	*	*
	0.60 FDL	*	*
	0.75 FDL	*	*
6	0.90 FDL	*	*
	AL (0.10 FDL)	---	1
	0.20 FDL	*	*
	0.40 FDL	*	*
	0.60 FDL	*	*
	0.75 FDL	*	*
1.0 FDL		10	1, 2, 3, 4, 5, 6, 10
		(60) ^[1]	(20, 30, 40, 50, 60) [1]
	AL (0.10 FDL)	---	1

* Hold load just long enough to read displacement, but not longer than one minute

^[1] If the amount of movement between the 1 minute and 10 minute displacement readings

exceeds 0.04 inch, then hold the load for 60 minutes and take additional displacement readings at the times shown in parentheses.

AL = Alignment Load FDL = Factored Design Load

6. Extended Creep Test. Perform an extended creep test on permanent ground anchors indicated in the Plans, by incrementally loading and unloading the ground anchor according to the following schedule shown in Table 4. Use a load cell to monitor the load during hold periods. Record displacement and

TABLE 4 EXTENDED CREEP LOAD TEST SCHEDULE

Load Cycle	Load Increment for LRFD	Hold Period (minute)	Time for Displacement, Load Cell and Strain Gauge Readings (minutes)
1	AL (0.10 FDL)	---	Initial Reading
	0.20 FDL	10	1, 2, 3, 4, 5, 6, 10
2	AL (0.10 FDL)	---	1
	0.20 FDL	*	*
	0.40 FDL	30	1, 2, 3, 4, 5, 6, 10, 15, 20, 25, 30
3	AL (0.10 FDL)	---	1
	0.20 FDL	*	*
	0.40 FDL	*	*
	0.60 FDL	30	1, 2, 3, 4, 5, 6, 10, 15, 20, 25, 30
4	AL (0.10 FDL)	---	1
	0.20 FDL	*	*
	0.40 FDL	*	*
	0.60 FDL	*	*
	0.75 FDL	45	1, 2, 3, 4, 5, 6, 10, 15, 20, 25, 30, 45
5	AL (0.10 FDL)	---	1
	0.20 FDL	*	*
	0.40 FDL	*	*
	0.60 FDL	*	*
	0.75 FDL	*	*
	0.90 FDL	60	1, 2, 3, 4, 5, 6, 10, 15, 20, 25, 30, 45, 60
6	AL (0.10 FDL)	---	1
	0.20 FDL	*	*
	0.40 FDL	*	*
	0.60 FDL	*	*
	0.75 FDL	*	*
	0.90 FDL	*	*
	1.0 FDL	300	1, 2, 3, 4, 5, 6, 10, 15, 20, 25, 30, 45, 60, 75, 90, 100, 120, 150, 180, 210, 240, 270, 300
AL (0.10 FDL)	---	1	

* - Hold load just long enough to read displacement, but not longer than one minute
AL = Alignment Load FDL = Factored Design Load

7. Acceptance Criteria for Permanent Ground Anchors. A ground anchor is acceptable when it holds the maximum test load and it meets the acceptance criteria for creep movement and apparent free length during testing.
- a. Creep movement. Creep movement of a ground anchor is the displacement of the anchor head under a relatively constant load during the hold period of the test due to relaxation of the bond in the bond zone. However, some time dependent movement or creep of wire strand tendons may complicate the creep measurements.

The acceptance criteria for ground anchors subject to proof or performance testing is 0.04 inches of creep movement or less between the 1 and 10 minute displacement readings, or 0.08 inches of creep movement or less between the 6 and 60 minute displacement readings.

The acceptance criteria for ground anchors subject to extended creep testing is 0.08 inches or less of creep movement in the last log cycle of time for each hold period. A log cycle of time is the time between 2 displacement readings where the second reading is at a time 10 times longer than the time of the first reading (for example, 1 minute to 10 minutes, 6 to 60 minutes, and 30 to 300 minutes are each one log cycle of time).

Tendons which have not been proof stretched may require adjustments to the creep displacement readings to account for the creep of the wire strand tendons. Determine necessary adjustments from test results furnished by the tendon supplier.

- b. Apparent Free Length. The apparent free length of a ground anchor is the equivalent length of the tendon steel that has the same elongation as the measured elastic movement under the same net load (the test load minus the alignment load). Calculate the apparent free length at the maximum test load in a proof test and at the maximum test load in each load cycle in a performance test or extended creep test. Use the following equation to calculate the apparent free length.

$$\text{Apparent Free Length} = \frac{A \times E \times d}{TL - AL}$$

Where:

- A = cross-section area of the tendon steel
E = modulus of elasticity of the tendon steel
d = elastic movement (displacement reading at the test load minus the subsequent displacement reading at the alignment load)
TL = test load
AL = alignment load

An acceptable apparent free length is equal to or greater than the theoretical elastic elongation of 80 percent of the unbonded free stressing length of the ground anchor plus the jack length. If movement measured during a ground anchor test does not meet this acceptance criterion, but can hold the factored design test load and it meets the acceptance criteria for creep movement, then repeat the test load cycle by reducing the test load to the alignment load and then incrementally increasing the test load to the factored design test load according to the proof test schedule. If the ground anchor fails to meet the apparent free length acceptance criteria on the second attempt, repeat the test load cycle a third time. If after three attempts the ground anchor still fails to meet the apparent free length acceptance criteria, replace the ground anchor.

8. Permanent Ground Anchors Not Meeting Acceptance Criteria. When a ground anchor does not meet the acceptance criteria, correct the problem at no additional expense to the Department. The corrections may include, but are not limited to, completing additional post-grouting cycles on the ground anchor, replacing the unacceptable ground anchor, reducing the ground anchor design load and installing additional ground anchors in an adjacent secondary ground anchor location, changing installation methods, or increasing anchor total length or anchor bond length.

Ground anchors that do not meet one of the acceptance criteria may still be incorporated into the Work under the following conditions.

- a. If the ground anchor cannot hold the factored design test load and the post-grouting system is still intact, then conduct additional post-grouting cycle(s) on the ground anchor and repeat the testing using the original acceptance criteria.
- b. If the ground anchor holds the factored design test load but does not meet the acceptance criteria for creep movement at the factored design test load and the post-grouting system is still intact, then conduct additional post-grouting cycle(s) on the ground anchor and repeat the testing using an enhanced acceptance criterion for creep movement. The enhanced acceptance criterion consists of no more than 0.04 inches of creep movement between the 1 and 60 minute displacement readings at the factored design load.
- c. If the ground anchor does not meet the acceptance criteria for creep movement or if it cannot hold the factored design load, the ground anchor may be incorporated into the Work at a reduced load. Lock off the ground anchor at no more than 50 percent of the stabilization load (the load that the anchor holds without detectable movement at the end of testing). To determine the stabilization load, stop adjusting the jack pressure, wait until the displacement reading has not changed for 10 minutes, and then measure the load in the anchor. When incorporating a ground anchor into the Work in this manner, install additional ground anchors or use some other corrective procedure to compensate for the reduced anchor load.

Except for items a and b above (post-grouting), submit the proposed corrective work to the Engineer in writing before beginning corrective work.

9. Permanent Ground Anchor Lock-off. After successful testing of a ground anchor is complete, adjust the load on the ground anchor to the specified lock-off load shown in the plans, but not less than the minimum seating load which is 50 percent of the minimum ultimate tensile strength of the strand tendons. Increase the load as necessary to compensate for seating losses. Transfer the load from the jack to the anchorage device. Before removing the jack, perform a lift-off test to confirm the load in the anchor tendon. Perform the lift-off test by re-applying load to the anchor tendon until the wedge plate lifts off the bearing plate or the wedges lift. The lift-off reading must be within 5 percent of the specified lock-off load. If the lift-off reading is more than 5 percent below the specified lock-off load, increase the lock-off load by lifting the anchor head and placing shims under the anchor head. If the lift-off reading is more than 5 percent above the specified lock-off load, notify the Engineer and adjust the procedures to ensure this does not occur on subsequent ground anchors.

Cut off excess tendon steel leaving at least 0.5 inch extending above the wedges or anchor nut and completely fill the trumpet with grout. Take adequate precautions to prevent grout from freezing. For permanent anchors that require an anchorage cover, ensure the cover fits over the anchor head and seals against the bearing plate. Completely fill the cover with grout.

5. METHOD OF MEASUREMENT.

Permanent ground anchors that are installed, tested and accepted will be measured from the base of the bearing plate (in contact with the cap beam) to the end of the installed anchor as shown in the Plans. Additional permanent ground anchors installed by the contractor in secondary ground anchor locations to achieve the acceptance criteria are considered corrective measures and will not be measured for payment.

Sacrificial ground anchor testing will be measured by each test completed and submitted to the Engineer.

6. BASIS OF PAYMENT.

The unit price of a permanent ground anchor is for full compensation of the work including but not limited to completing the drill hole for the permanent ground anchor; hauling and disposal of drill cuttings; furnishing the multi-strand ground anchor tendon with Class I corrosion protection; furnishing end hardware including the bearing plate with trumpet, anchorage heads with wedge grips and end caps; furnishing and placing initial grout through grout tubes; completing pressurized post-grouting cycles through grout tubes; placement and removal of temporary drill casing; all costs associated with performance, proof and extended creep testing;

costs of submittals and test reports; and for furnishing all tools, labor, equipment, materials and incidentals necessary to complete the work. Costs associated with instrumenting the permanent ground anchors will be measured and paid for under the Instrumentation Pay Items in accordance with the Special Provision for Instrumentation.

The unit price of sacrificial ground anchor testing is for full compensation of the work including but not limited to design, construction and disposal of the ground anchor reaction block, furnishing the 7-strand sacrificial ground anchors, completing the drill hole for the sacrificial anchors, hauling and disposal of drill cuttings; furnishing end hardware including the bearing plate with trumpet, anchorage heads with wedge grips and end caps; furnishing and placing initial grout through grout tubes; completing pressurized post-grouting cycles through grout tubes; placement and removal of temporary drill casing; all costs associated with sacrificial ground anchor load testing; costs for instrumenting the sacrificial ground anchors; costs of submittals and test reports; and for furnishing all tools, labor, equipment, materials and incidentals necessary to complete the work.

The Department will pay for accepted quantities at the contract price as follows:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
930-4150	Ground Anchor	Linear Feet
930-4155	Sacrificial Ground Anchor Testing	Each

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

HORIZONTAL DRAINS

Project SER-5-094(107)030 – PCN 20549

1. DESCRIPTION

This work consists of furnishing and installing horizontal drains and associated outlet pipes, casings, pipe fittings, grout plugs and riprap. Maintain and restore existing grading, riprap fills and other improvements including access roads, if utilized, during construction. Condition of existing grading and riprap fills to be returned to pre-construction condition or as approved by Engineer.

2. MATERIALS

A. Slotted Horizontal Drain Assembly.

A slotted horizontal drain assembly consisting of nominal 1½ -inch I.D., Schedule 80 poly-vinyl chloride (PVC) pipe conforming to ASTM designation D1785 with the type, grade, and design stress designation of the pipe either 1120, 1220, 2110, 2112, 2116, or 2120.

The perforated portion of the horizontal drain pipe shall have two rows of slots. The rows shall be in the longitudinal direction of the pipe and the slots shall be cut in the circumferential direction of the pipe. Orient the rows 120 degrees apart from the center of the pipe. Each row of slots shall have 22 slots per linear foot, each with a 0.020-inch opening providing a minimum opening per linear foot of 0.46 square inches. Slots shall be spaced uniformly along the pipe. The minimum opening will be measured on the inner surface of the pipe.

Fittings for the horizontal drain pipe shall be Schedule 80 Type II PVC solvent weld type fittings. Machined male and female ends may be used in lieu of couplings. Fittings shall be flush, providing a smooth exterior pipe surface.

B. Outlet Sleeve

Provide an outlet sleeve consisting of a 5-inch diameter unslotted, steel drill casing.

C. Grout Seal

Provide a grout seal consisting of a Portland Type II cement grout, with 5% by volume bentonite powder mixed with clean water, free of turbidity, strong acids, alkalis, oils and organic material. Mix the grout to a uniform, fluid consistency, without segregation of the constituent parts. Portion the grout mixture (by volume) of 1 part Portland cement and 1 part water, or as approved by the Engineer. Mix the bentonite with the water prior to adding cement.

D. Air relief pipe and grout pipe

Provide an air relief pipe and the grout pipe consisting of a maximum ½ -inch I.D. polyethylene pipe conforming to ASTM D1785.

E. Centralizer/grout Plug

Provide a water well type packer to center the horizontal drain pipe in the bore-hole and provide a barrier for water and grout.

3. CONSTRUCTION REQUIREMENTS

A. Work Force Experience

The work shall be performed by a qualified Contractor with at least five years of experience in drilled horizontal drain installation of similar drains of more than 300 feet in length in similar soils and site access conditions.

Provide a full-time superintendent or foreman who is experienced in the use of the materials and equipment being used at this site for installations similar to those proposed. Do not perform horizontal drain drilling and installation unless the supervisor or foremen meeting the above experience requirements is onsite and in actual supervision of this portion of the work.

B. Submittals

Submit the following at least 45 days before the planned early start of horizontal drilling. Do not begin horizontal drain installation until written approval of the submittals is provided by the Engineer.

1. Contractor Experience

Provide resumes of the Contractor and any subcontractors, as well as the supervisors and foremen assigned to construct the horizontal drains. At a minimum, provide the names, address, and telephone numbers of three references for the Contractor, and any subcontractors, as well as the supervisors and foremen assigned to the project.

2. Horizontal Drain Construction Plan

Provide a horizontal drain construction plan consisting of the proposed method for horizontal drain drilling. Include a description of the drill rigs and equipment including type, size, weight and proposed drill rig operators to be used. Include descriptions of the proposed drill tooling including borehole diameter, types and sizes of drill bits and drill rods, water or drilling mud requirements, and space required for drill rig and drilling operations, including methods and means of access and moves between holes.

3. Material Descriptions

Provide a description of the horizontal drain materials, including manufacturer, method of joining segments, method of creating slots and slot dimensions, and the open area per linear foot.

4. Drill Heading Methods

Provide a description of the equipment and proposed methods for establishing the required inclination and azimuth for the drilled horizontal drains.

5. Grout Seal Design

Provide the bore hole grout seal mix design and descriptions of equipment used for proportioning, mixing, pumping and placing the grout seal. Describe the procedures for installing centralizer/grout plug packer and seal around the outlet sleeve.

C. Horizontal Drain Construction

Drill each hole at the azimuth and inclination as shown on the Plans, or as approved by the Engineer. The exact location and sequence of placing horizontal drains shall be approved by the Engineer.

Provide a reference point and establish the horizontal drain outlet position for each drain. In addition, two reference points per horizontal drain will be set at the required azimuth for Contractor use in establishing each drains alignment. No more than two site visits by the surveyor will be provided. Collar location and slope stakes forward and back of the drill rig will be established for each drain for alignment purposes.

Do not begin horizontal drain construction until the temporary surface water collection system and erosion control measures are installed and approved by the Engineer. Additional horizontal drains beyond those shown on the Drawings may be directed by the Engineer during construction.

Drill the horizontal drains with rotary equipment capable of drilling 3-inch minimum diameter holes up to 300 feet in length through the anticipated subsurface formations and at the inclinations and azimuths shown on the Plans.

Install the horizontal drain pipe by inserting the pipe inside the drill rod or casing and then retracting the drill rod or casing so that the drilled hole is protected from collapse for the full depth during drain installation. Tightly plug the inner tip of the perforated horizontal drain pipe with a rounded or pointed extension that extends less than 0.5-foot beyond the end of the pipe. The nonperforated portion of the horizontal drain pipe shall extend a minimum of 18-inches from the exposed outface or ground surface, and 20 feet into the borehole as shown on the Plans.

Install an outlet sleeve in each drilled hole to protect the outlet of the horizontal drains. The outlet sleeve is grouted in the borehole as shown on the Plans. Ex-

tend the outlet sleeve a distance of 1 foot beyond the existing ground surface adjacent to the bore hole.

Equip the outlet ends of all horizontal drains with an outlet assembly consisting of a tee, threaded plug, and a length of flexible HDPE pipe. Extend the flexible HDPE pipe into a riprap fill that matches the nearby riprap.

D. Grout Seal Construction

A detail of the borehole containing the outlet sleeve, the horizontal drain pipe, the grout pipe, the air relief pipe, and the grout seal is shown on the Plans. Grout the annular space between the bore hole, the outlet sleeve, and the horizontal drain pipe to form a grout seal as shown. Place two centralizers/grout plugs of contractor design to centralize the drain pipe and to confine the grout seal. Place the grout placement pipe and an air relief pipe in the annular space inside the outlet sleeve between the grout plugs. Locate the grout pipe at the bottom of the bore, below the unslotted drain pipe, and extend into the bore hole beyond the soil face to within 1 foot of the upslope centralizer/grout plug. Locate the air relief pipe at the top of the bore and extend into the bore hole to the highest elevation point beyond the inner edge of the grout plug. The grout seal direct all water into the drain pipe. Check the air relief pipe prior to grouting to determine that it is not blocked.

Inject grout into the annular space in a single uninterrupted placement with grout pressures limited to a maximum 30 psi. Continue grout placement until a steady flow of undiluted grout is observed coming out of the air relief pipe. Seal the air relief pipe after 30 seconds of continuous grout flow while grouting continues. Continue grouting for another 30 seconds then seal the grout pipe. Upon initial set of the grout, the air relief and grout lines will be observed to disclose any water leakage. If leakage through these lines is observed, additional grout will be injected through the leaking lines to complete the permanent grout seal. Following completion of grouting, approval of the Engineer, and setting of the grout, all grout and air relief pipes will be cut flush with the finished grade at the ground surface. Dispose of any grout not used within 30 minutes after mixing water has been introduced.

Wash out the horizontal drain pipe after completing the grout seal by inserting a hose a minimum of 30 feet into the drain and flushing the drain until the drain flow consists of clear water.

The grout may be placed in the horizontal drain outlet assembly as soon as it is installed to design depth. Do not leave more than five drains ungrouted at any time. If drilling operations at a drilling pad cease for more than five days, grout the completed drains at that drilling pad and connect the drains to the surface collector system. Repair surface erosion from the drain outflow that occurs prior to the drain being grouted and connected with the surface collector system, at no expense to the Department.

Replace horizontal drains which cannot be successfully grouted due to mechanical failure of the equipment, inadequacy of the grout supply, or improper injection procedures at no expense to the Department. As an alternative, the Contractor may redrill the drain, remove the inadequate grout plug, replace the drain pipe, and regrout the drain.

E. Inclination Measurements

Measure the inclination of the drain bore by determining the elevation difference of the bore tip elevation versus the bore collar elevation at a minimum of 3 depth increments during the drilling process. Submit the details of the proposed inclination measurement equipment and measurement procedures to the Engineer for review and approval prior to use. The Engineer may want to be onsite during collection of the measurements to confirm results.

F. Site Restoration

After completing the horizontal drains, restore the grading at the drill rig access site to pre-construction conditions and place riprap matching the nearby riprap to cover the flexible pipe to the satisfaction of the Engineer.

4. METHOD OF MEASUREMENT

Horizontal drains will be measured by the linear foot from the outlet end of the non-perforated Schedule 80 pipe to the tip end of the perforated Schedule 80 pipe.

5. BASIS OF PAYMENT

The unit price of horizontal drains shall be full compensation for preparing the drill rig access, drilling the length of the drain; furnishing and installing the outlet sleeve and grout seal; hauling and disposal of excavated material; furnishing, preparing and pumping the grout mix, determining the inclination and azimuth of the horizontal drain, restoring the access site to pre-construction conditions, providing riprap cover over the flexible drain pipe; and for furnishing all tools, labor, equipment, materials and incidentals necessary to complete the work.

The accepted quantities for Horizontal Drains will be paid for at the contract bid price for:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
714-7005	Pipe PVC 1.5 in Slotted Drains	Linear Feet

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

INSTRUMENTATION

Project SER-5-094(107)030 – PCN 20549

- 1. DESCRIPTION**
- 2. DEFINITIONS**
 - A. Instrumentation
 - B. Inclinometers
 - C. Load cells
 - D. Anchor strain gages
- 3. MATERIALS**
 - A. Drilled Shaft Inclinator Casing
 - B. Ground Anchor Load Cells
 - C. Ground Anchor Strain Gages
- 4. CONSTRUCTION REQUIREMENTS**
 - A. Quality Assurance
 - B. Submittals
 - C. Existing Instrumentation
 - D. Instrumentation Locations
 - E. Installing Instrumentation
 - F. Maintenance
 - G. Instrument Monitoring
- 5. METHOD OF MEASUREMENT**
- 6. BASIS OF PAYMENT**

1. DESCRIPTION

This work consists of procuring, installing, and measuring geotechnical instrumentation pertaining to loads and deformations of selected structural components within the project in accordance with these specifications.

2. DEFINITIONS

- A. Instrumentation.** Inclinometers, load cells and anchor strand gages.
- B. Inclinometers.** Vertical casings installed in drilled shafts to measure horizontal displacements.
- C. Load cells.** Instruments installed at cap beam to measure applied load at head of ground anchors.

D. Anchor strain gages. Instruments installed on ground anchor strands within the bonded and unbonded zone to measure distribution of load along anchor.

3. MATERIALS

A. Drilled Shaft Inclinometer Casing

Furnish inclinometer casings as supplied by Slope Indicator Company (SINCO), Geokon, or approved equal.

Provide casing with:

1. A minimum 1.9-inch outside diameter, ABS plastic pipe with internal longitudinal grooves (SINCO model 51150210, Geokon Model 6400).
2. Self-aligning couplings, caps, and fittings compatible with casing.
3. All necessary installation tools and accessories.

Provide lockable metal protective cover for installing above the top of the inclinometer. Install the cover flush with the concrete at the top of the cap beam. Select the cover from the inclinometer manufacturer's list of standard commercial products produced for this application. Furnish a lockable cover with at least 8 inches of internal diameter, and coated or otherwise protected from corrosion.

B. Ground Anchor Load Cells

Furnish hollow center vibrating wire load cells, such as Geokon Model 4900, RST Model VWA-600-3.0, or approved equal.

Measurement requirements:

1. Resolution: 0.025 percent of Full Scale
2. Accuracy: ± 0.5 percent of Full Scale
3. Range: 500 kips (500,000 pounds)

Provide ancillary equipment including bearing plates, angle washers, spherical seats, and other equipment in accordance with the manufacturer's recommendations as required for a complete and functional, weatherproof monitoring system.

Provide portable readout capable of reading the vibrating wire load cell instruments, such as Geokon GK-404, RST VW 2106, or approved equal.

Ensure that readout is compatible with new load cells and existing vibrating wire piezometers.

Provide a stand-alone datalogger capable of monitoring the 4 load cells, such as Geokon Model 8002-4, RST DT 2055B, or approved equal.

Provide a lockable metal protective box to house and protect the datalogger from the same manufacturer as the datalogger. Install the protective box on the cap beam at a location near the four load cells.

Provide signal cable from the same source as the load cell and integrally connected into the instrument. Provide cables of sufficient length to reach stand-alone datalogger locations from each load cell (approximately 320 total feet).

4. Ensure datalogger is battery powered with a D-cell or similar.
5. Ensure datalogger is compatible with load cells.

C. Ground Anchor Strain Gages.

Furnish elasto-magnetic anchor strand gages for measuring loads, such as DYNA Force Sensors, from Dywidag-Systems International, EM Sensor from Intelligent Instrument Systems Inc., or approved equal.

Install gages in conjunction with fabrication of ground anchors at manufacturer's plant, prior to corrosion protection installation. Complete corrosion protection after strand gage is attached to strand without damage to gage, gage cable, strand anchor or compromising corrosion protection of strand anchor.

Size gages appropriately for the anticipated range of load in the strand anchors.

Provide sufficient length of signal cable from each gage to extend from gage, out through head, and to portable readout unit.

Provide portable readout unit, compatible with anchor strand gages and from the same manufacturer as the elasto-magnetic anchor strand gages.

4. CONSTRUCTION REQUIREMENTS

Provide and install all new instruments indicated on the Plans and as described herein.

Perform readings and data collection, for all new instruments as described herein, during the term of the Contract. Perform readings as frequently as necessary in accordance with this Special Provision.

Collect data from the ground anchor load cells and anchor strand gages during stressing and lock-off.

All instruments, reading devices, fixtures, cables, recorded data, data transfer and reduction software, and data templates become the property of the Department upon completion of the Contract. Transfer all hardware, recorded data, instrumentation warranties, calibration certificates and software in good working condition and within calibration to the Department upon completion of the Contract.

A. Quality Assurance

Install the instrumentation systems in strict conformance to the manufacturer's requirements and these specifications.

Instrument calibration:

1. The instrumentation systems shall, at all times during the duration of the Contract, meet the manufacturer's minimum calibration requirements.
2. In the cases of instrument failure or other reasons of nonperformance during the term of the Contract, replace those instruments with acceptable instruments at no additional cost to the Department.

B. Submittals

1. Instrumentation Specialist Qualifications:

Submit resume listing experience and qualifications of the instrumentation specialist. At a minimum, submit at least 4 projects that demonstrate the individual performing this work has procured, installed and monitored similar geotechnical instruments on similar projects over the last 3 years. Include a brief description of each project, instruments used, the project's location, date of project, owner, and a reference for each project listed. At the minimum, include an individual's name and current phone number for each reference.

2. Instrumentation Plan.

Submit an instrumentation plan and detailed drawings containing the following:

- a. Schedule and outline of procedures for instrument installation.
- b. Comprehensive list and description of each type of instrument, readout device, length of cabling and software. Include name of manufacturer and model number, as appropriate. Include operating manuals, specifications and installation procedures for each type of instrument.

- c. Detailed plan of instrumentation locations and proposed readout stations.
- d. Details including casing, covers, protection of signal cables and backfill.
- e. Documentation of calibration on instruments and readout devices.

C. Existing Instrumentation

Existing on-site instrumentation include several inclinometer casings. Protect these casings and provide access for the Department to perform periodic monitoring. Repair or replace damaged inclinometers within 2 weeks of occurrence, at no additional cost to the Department.

Vibrating wire piezometers (Geokon Model 4500) are installed with existing inclinometer casings at several locations at the site. The piezometers are monitored with stand-alone dataloggers. Repair or replace any component damaged by the Contractor within 2 weeks of occurrence at no additional cost to the Department.

D. Instrumentation Locations

- 1. Install the instrumentation as close as practicable to the locations indicated on the Plans. Adjust for actual conditions in the field.
- 2. Install instruments in accordance with manufacturer's recommendations and as described herein.

E. Installing Instrumentation

- 1. Inclinometer casing:
 - (1) Assemble the inclinometer casing in accordance with the manufacturer's recommendations. Seal all joints with duct tape and cap the bottom of the casing. Attach casing to the drilled shaft rebar cage at the locations and to the depths shown on the Plans. .
 - (2) Extend the top of inclinometer casing to 4-inches below the design elevation of the cap beam top.
 - (3) Prior to placement of concrete for cap beam, construct blockouts for flush-mount protective cover to be installed at top of inclinometer casing.
 - (4) Prevent concrete inflow into top of inclinometer casing.

- (5) After placement of concrete for cap beam, remove blackout and install flush-mount protective cover. Center over inclinometer casing and secure to cap beam with concrete.

2. Strand anchor gage installations:

- (1) Install strand anchor gages and signal cables at the strand anchor manufacturer's shop location per gage manufacturer's recommendations.
- (2) Ensure strand anchor corrosion protection is intact after gage and signal cables are attached.
- (3) Protect instrument signal cables and gages during transportation and installation of instrumented anchor.
- (4) Provide access to signal cables at least six feet beyond the head of the strand anchor by threading the cables through sealed duct ports on the strand anchor end caps and openings on the strand anchor wedge plate without compromising the strand anchor's corrosion protection.

3. Load cell installation:

- (1) Install load cells during construction of the instrumented ground anchor at locations indicated on the Plans.
- (2) Install load cells with machined platens (bearing plates) on either side of load cell using hardware as recommended by the load cell manufacturer, to ensure that load is transmitted evenly and concentrically through the cell, and that bending or eccentric loading is minimized.
- (3) Do not weld load cells to bearing plates or structural members.
- (4) Extend load cell signal cables beyond the head of the strand anchor to the datalogger by threading the cables through sealed duct port(s) on the strand anchor end caps and openings on the strand anchor wedge plate without compromising the strand anchors corrosion protection

F. Maintenance

During the Contract term, protect and maintain all instruments in accordance with manufacturer's recommended procedures, or as directed by the Engineer.

Report all damaged or non-functional instrumentation to the Engineer immediately. Repair or replace damaged instrumentation, as a result of construction activities, at no additional cost to Department.

G. Instrument Monitoring

The Engineer will monitor existing and newly installed instrumentation during the Contract term. Provide access and necessary assistance to enable the Engineer to perform these periodic measurements. This may include, but not limited to, removing obstacles, equipment or obstructions.

The Engineer will perform initial measurements of the inclinometer casings in the drilled shafts, and periodic measurements of ground anchor instruments after they are loaded.

Record measurements of load cells and strand anchor strain gages during each hold point of the ground anchor performance tests and ground anchor extended creep tests schedule in accordance with the Ground Anchor Special Provision unless otherwise directed by the Engineer. Record ground anchor gage measurements at lock-off, 24 hours after lock off, and 7 days after lock-off for each instrumented ground anchor. Provide the data to the Engineer with the performance test and extended creep test data in accordance with the Ground Anchor Special Provision.

5. METHOD OF MEASUREMENT

Furnishing and installing instruments will be measured as follows:

1. Inclinometer casing, by linear foot, from tip of casing to top of cap beam.
2. Load cell, by each.
3. Strand anchor strain gages, by each.

6. BASIS OF PAYMENT

The unit price of the installed instruments is for full compensation of the work including but not limited to inclinometer casing tied to the drilled shaft reinforcement cage; costs associated with the inclinometer protective cover; costs associated with the instrumentation specialist's labor, per diem and travel costs; costs associated with installing gages onto ground anchor including travel expenses to the manufacturer's plant for strand anchor gage attachment; costs associated with manufacturer's preparation of strand for gage installation and restoration of Class 1 corrosion protection onto strand anchor; costs of submittals, instrumentation monitoring; maintenance of instruments and data reports; acquisition of instrumentation; calibration of instrumentation; costs for data collection, readout devices, data cables and for furnishing all tools, labor, equipment, materials and incidentals necessary to complete the work.

Costs associated with the datalogger and protective box to house the datalogger will be included in the Load Cell cost.

The Department will pay for accepted quantities at the contract price as follows:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
930-4200	Instrumentation – Inclinator	Linear Feet
930-4205	Instrumentation – Load Cell	Each
930-4210	Instrumentation – Strain Gage	Each

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION
SEDIMENT COLLECTION BAG
Project SER-5-094(107)030 – PCN 20549

1. DESCRIPTION

This work will consist of filtering water coming out of the existing and new horizontal drains. The water from the horizontal drains will be discharged with a sediment collection bag as a control measure at the discharge point.

2. MATERIALS

The materials will conform to the following requirements:

- A.** The sediment collection bag fabric will be a non-woven geotextile conforming to the following properties:

Property Method	Minimum Value	Test
Weight	8 oz/sy	ASTM D 3776
Tensile strength (minimum average of 5 specimens)	200 lb	ASTM D 4632
Puncture Resistance	120 lb	ASTM D 4833
Initial Flowrate	75 gal/min-sf	ASTM D 4491
Bursting Strength	350 psi	ASTM D 3786
Permittivity	1.00 sec-1	ASTM D 4991
UV Stability, % of Initial Tensile Strength after 500 hrs	70%	ASTM D 4355
Apparent Opening Size	100 Sieve =0.15 mm	ASTM D 4751

B. The Geotextile sediment collection bag will be sewn with a high strength thread; the seams will have a minimum average wide-width strength of 100 lb/in when tested according to ASTM D 4884.

C. Bags will be a minimum size of 10 feet by 15 feet and will have:

1. Sewn in spout.
2. Strapping for holding hose in place.
3. Hose opening to accommodate up to a 6 inch hose.

3. CONSTRUCTION REQUIREMENTS

Sediment collection bags will be installed in accordance with the manufacturer's instructions and the contract documents.

Sediment collection bags will be removed and replaced under any of the following conditions:

1. When sediment collection bags are full.
2. When sediment collection bags have been in place for more than 30 days.
3. When sediment collection bags are damaged.

Sediment collection bags will be disposed of as specified in Section 107.17. Care will be taken to minimize loss of entrapped sediment during removal and disposal.

4. METHOD OF MEASUREMENT

The quantity will be the number of sediment bags installed and used.

5. BASIS OF PAYMENT

The unit price bid for this work will include the cost of furnishing all labor, equipment, and materials necessary to complete the work, including earthwork for placement of bag, installation, maintenance, removal and disposal of each sediment collection bag.

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
920-0900	Sediment Collection Bag	Each

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION

FUEL COST ADJUSTMENT CLAUSE

Revision Date: 9/8/2006

Introduction

This Special Provision provides for price adjustments to the Contract when significant changes in the cost of motor fuels and burner fuels occur while completing the Contract work. Participation in fuel cost adjustment program is not mandatory. A Contractor is not required to notify the Department at the time of submitting bids whether the Contractor will or will not participate in the fuel cost adjustment provision.

The North Dakota Department of Transportation (NDDOT) will send the low responsible bidder a "Fuel Cost Adjustment Affidavit" (SFN 58393) with the proposed Contract. The Contractor shall return a completed Fuel Adjustment Affidavit with the signed Contract as specified in Standard Specification Section 103.06, Execution and Approval of the Contract. The affidavit shall be returned on all Contracts with this provision even if the Contractor elects not to participate in the provision.

Compensation adjustments for motor fuels and burner fuels consumed in prosecuting the Contract shall be determined by the Engineer in accordance with the provisions set forth herein. Compensation adjustments will be assessed monthly for the cost of the motor fuels and burner fuels whenever the Current Fuel Index (CFI) is outside the given threshold of the Base Fuel Index (BFI) for the Contract.

If the Contractor has a fixed price for fuel for motor or burner fuels to complete the work, no fuel cost adjustments will be made for that fuel type. If there is no fixed fuel price for motor or burner fuels, participation in the Fuel Adjustment provision is the decision of the prime Contractor.

If the prime Contractor decides not to participate, no fuel cost adjustments will be made to the Contract for the Contractor or any subcontractors. If the prime Contractor elects to participate in the fuel cost adjustment provision, the prime Contractor shall include the anticipated fuel cost of subcontractors who wish to participate. If fuel cost adjustments are made to the Contract, the prime Contractor shall ensure that participating subcontractors including second and lower tier, are included in the adjustments in proportion to the percentage of work and anticipated fuel cost by that subcontractor.

Fuel Indexes

Each month, NDDOT will record the average wholesale price for No. 2 diesel fuel and the average wholesale price for unleaded gasoline (87 octane). The monthly average will be the average of the daily rack prices for the month as reported by DTN Energy for Fargo ND.

The burner fuel index will be the No. 2 diesel fuel index regardless of the type of burner fuel actually used.

The Base Fuel Index (BFI) price for motor fuels and burner fuel to be used in the Contract will be the average wholesale price for the month prior to the bid opening.

The Current Fuel Index (CFI) price for motor fuels and burner fuel to be used for each monthly adjustment will be the average wholesale price for the month prior to the adjustment month.

Fuel Ratio

For motor fuels diesel and unleaded gas, the fuel ratio of the Contract will be determined by dividing the Contractor's affidavit costs for each motor fuel by the original Contract amount.

For burner fuels, the fuel ratio of the contract will be determined by dividing the Contractor's affidavit cost for burner fuels by the original Contract amount of plant-mixed hot bituminous pavement paid by the ton. Asphalt cement, binders and other miscellaneous bituminous items shall not be included.

The fuel ratio of the contract for motor and burner fuels will remain the same throughout the length of the contract. The sum of the affidavit fuel costs shall not exceed 15% of the original Contract amount.

The fuel ratio for the three fuel types will be determined by the following equation:

Fuel Ratio_(x, y, z) = Affidavit Cost_(x, y, z) / Original Contract Amount_(x, y, z)		
(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel
Fuel Ratio _(x, y, z)	=	Fuel ratio of the contract for each respective fuel type
Affidavit Cost _(x, y, z)	=	Fuel costs from Fuel Adjustment Affidavit (SFN 58393)
Original Contract Amount _(x, y)	=	Total of the original contract amount excluding lane rental, and Part B of the bid (when A+B bidding is used), if applicable.
Original Contract Amount _(z)	=	Total original contract amount for all hot bituminous pavement bid items combined, excluding bid items for asphalt cement, sawing and sealing joints, coring, etc. Only hot bituminous pavement bid items measured by the Ton will be included in the calculation.

Cost Change

The monthly change in fuel costs will be determined by the following equation:

Cost Change_(x, y, z) = (CFI_(x, y, z) - BFI_(x, y, z)) / BFI_(x, y, z)		
(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel (use diesel prices)
Cost Change _(x, y, z)	=	The relative change in the current CFI and the BFI for each fuel type
CFI _(x, y, z)	=	Current Fuel Index for each fuel type
BFI _(x, y, z)	=	Base Fuel Index for each fuel type

Contract Adjustments

Contract adjustments will be made for the cost of motor and burner fuels whenever the cost change exceeds a ±0.10 threshold. No fuel cost adjustment will be made for work done under liquidated damages. Adjustments will be determined for Motor Fuel (diesel), Motor Fuel (unleaded), and Burner Fuel (burner) separately and shall be computed on a monthly basis.

When the cost change is greater than 0.10, the rebate to the Contractor for each fuel type shall be computed according to the following formulas:

$FCA_{(x, y, z)} = Fuel\ Ratio_{(x, y, z)} \times Estimate_{(x, y, z)} \times (Cost\ Change_{(x, y, z)} - 0.10)$		
(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel
$FCA_{(x, y, z)}$	=	Fuel Cost Adjustment for each of the fuel types
Fuel Ratio $_{(x, y, z)}$	=	Fuel Ratio for each of the fuel types
Estimate $_{(x, y)}$	=	The monthly total of work done on estimates issued in the current month excluding incentive or disincentive payments, pay factor adjustments and any work completed under liquidated damages.
Estimate $_{(z)}$	=	The monthly total of hot bituminous pavement work done on estimates issued in the current month, excluding bid items for asphalt cement, sawing and sealing joints, coring, etc. Only hot bituminous pavement bid items measured by the Ton will be included in the calculation. Hot bituminous pavement work completed under liquidated damages will not be included.
Cost Change $_{(x, y, z)}$	=	The monthly change in fuel costs for each of the fuel types

When the cost change is less than -0.10, the credit to the Department for each fuel type shall be computed according to the following formulas:

$FCA_{(x, y, z)} = \text{Fuel Ratio}_{(x, y, z)} \times \text{Estimate}_{(x, y, z)} \times (\text{Cost Change}_{(x, y, z)} + 0.10)$		
(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel
$FCA_{(x, y, z)}$	=	Fuel Cost Adjustment for each of the fuel types
$\text{Fuel Ratio}_{(x, y, z)}$	=	Fuel Ratio for each of the fuel types
$\text{Estimate}_{(x, y)}$	=	The monthly total of work done on estimates issued in the current month excluding any incentive or disincentive payments, pay factor adjustments and any work completed under liquidated damages.
$\text{Estimate}_{(z)}$	=	The monthly total of hot bituminous pavement work done on estimates issued in the current month, excluding bid items for asphalt cement, sawing and sealing joints, coring, etc. Only hot bituminous pavement bid items measured by the Ton will be included in the calculation. Hot bituminous pavement work completed under liquidated damages will not be included.
$\text{Cost Change}_{(x, y, z)}$	=	The monthly change in fuel costs for each of the fuel types

Payments

Adjustments will be determined by the Engineer monthly. Adjustments will be made under the following spec and code for each fuel type:

- 109 0100 Motor Fuels (Diesel)
- 109 0200 Motor Fuels (Unleaded)
- 109 0300 Burner Fuel

When significant payment adjustments are made on final estimates to account for final in-place measured quantities, the Engineer may prorate the adjustments back to the months when the work was done.

Attachments

For informational purposes, a 'Fuel Cost Adjustment Affidavit' (SFN 58393) is included as Attachment A.

FUEL COST ADJUSTMENT AFFIDAVIT

North Dakota Department of Transportation, Construction Services
SFN 58393 (08-2006)

SP Fuel Cost Adjustment Clause
6 of 6

Attachment A

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.

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.

If yes, provide the total dollars for each of the applicable fuels.

Diesel (x)	\$		
Unleaded (y)	\$		
Burner Fuel (z)	\$		
Sum (x+y+z)	\$	% of Original Contract Amount	%*

*The sum of the x, y, and z may not exceed 15% of the original contract amount.

Under the penalty of law for perjury of falsification, the undersigned,

_____, _____
Name Title

of _____, here by certifies that the documentation is submitted in good
Contractor

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.

Date Signed

State of _____

County of _____

Subscribed and sworn to before me this _____ day of _____, _____.

(Seal)

X

Signature of Notary Public

My Commission Expires _____