

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			I. CONTRACT ID CODE	PAGE OF PAGES
			J	1 29
2. AMENDMENT/MODIFICATION NO. 0009	3. EFFECTIVE DATE 23-Nov-2001	4. REQUISITION/PURCHASE REQ. NO. W81G67-0224-9705	5. PROJECT NO.(If applicable)	
6. ISSUED BY CONTRACTING DIVISION USACE - ST PAUL 190 5TH STREET ST PAUL MN 55101-1638	CODE DACW37	7. ADMINISTERED BY (If other than item 6) CODE See Item 6		
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		X	9A. AMENDMENT OF SOLICITATION NO. DACW37-00-B-0020	
		X	9B. DATED (SEE ITEM 11) 04-Apr-2001	
			10A. MOD. OF CONTRACT/ORDER NO.	
			10B. DATED (SEE ITEM 13)	
CODE	FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS				
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not extended.				
Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.				
12. ACCOUNTING AND APPROPRIATION DATA (If required)				
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.				
A.THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.				
B.THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).				
C.THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:				
D.OTHER (Specify type of modification and authority)				
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.				
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) The bid opening date is 12-18-01 at 1400 hours, CDT. This amendment updates the bid schedule, wage rates, drawings and technical section of the solicitation.				
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.				
15A. NAME AND TITLE OF SIGNER (Type or print)			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)		16C. DATE SIGNED 20-Nov-2001

SUMMARY OF CHANGES

A. Changes to Section 00100 through 00830

Wage Rates

Section 00830:

Remove General Decision ND010002 wage rates and replace with ND010002 dated 11/02/2001 which are attached to and are part of this amendment.

Remove General Decision ND010014 wage rates and replace with ND010014 dated 09/28/2001 which are attached to and are part of this amendment.

General Decision Number ND010014

General Decision Number ND010014

Superseded General Decision No. ND000014

State: North Dakota Construction Type:

HEAVY

County(ies):

BURLEIGH GRAND FORKS CASS MORTON

HEAVY CONSTRUCTION PROJECTS (Excluding Sewer & Water Line
Construction & Drainage Projects)

Modification Number Publication Date

0 03/02/2001

1 09/28/2001

COUNTY(ies):

BURLEIGH GRAND FORKS CASS MORTON

* ELEC0714I 01/01/2001

Rates Fringes

BURLEIGH AND MORTON COUNTIES:

ELECTRICIANS:

ELECTRICIAN 23.45 10.5%+a

CABLE SPLICER 23.85 10.5%+a

FOOTNOTE;

a. \$5.20 per hour.

ELEC14260 01/01/2000

Rates Fringes

CASS AND GRAND FORKS COUNTIES:

WIREMAN 18.94 4.28+11.5%

CABLE SPLICER 19.89 4.28+11.5%

SUND2006A 05/04/2000

Rates Fringes

LABORERS:

Common 9.92

Pipelayers 12.00

PAINTER:

Brush, Roller, & Spray	17.00	
POWER EQUIPMENT OPERATORS:		
Backhoe	15.74	4.84
Bobcat	12.60	4.50
Bulldozer	14.41	4.50
Crane	13.29	3.42
Front End Loader	14.93	
Motor Grader	18.10	
Scraper	16.13	
Tractor	12.13	
TRUCK DRIVER:		
Dump	8.50	
Tandem/Semi	15.77	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.
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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)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator

U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

General Decision Number ND010002

General Decision Number ND010002
 Superseded General Decision No. ND000002
 State: North Dakota Construction Type:
 HIGHWAY

County(ies):
 STATEWIDE

HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/02/2001
1	09/28/2001
2	11/02/2001

COUNTY(ies):

STATEWIDE

ELEC0714B 01/01/2001

	Rates	Fringes
ADAMS, BILLINGS, BOTTINEAU, BOWMAN, BURKE, BURLIEGH, DIVIDE, DUNN, EMMONS, GOLDEN VALLEY, GRANT, HETTINGER, MCHENRY, MCKENZIE, MCLEAN, MERCER, MORTON, MOUNTRIAL, OLIVER, PIERCE, RENVILLE, ROLLETTE, SHERIDAN, SOIUX, SLOPE, STARK, WARD, & WILLIAMS		

COUNTIES:

ELECTRICIANS:

ELECTRICIAN	23.45	10.5%+a
CABLE SPLICER	23.85	10.5%+a

FOOTNOTE;

a. \$5.20 per hour.

ELEC0714C 10/01/2000

	Rates	Fringes
LINE CONSTRUCTION:		
LINEMAN	23.06	2.00+23.75%
CABLE SPLICER	23.06	2.00+23.75%
LINE EQUIPMENT OPERATOR	20.75	2.00+23.75%
GROUNDMAN	13.84	2.00+23.75%

ELEC1426C 06/01/1993

	Rates	Fringes
BARNES, BENSON, CAVALIER, DICKEY, EDDY, FOSTER, GRAND FORKS, GRIGGS, KIDDER, LAMOURE, LOGAN, MCINTOSH, NELSON, PEMBINA, RAMSEY, RANSOM, RICHLAND, SARGENT, STEELE, STUTSMAN, TOWNER, TRAILL, WALSH, & WELLS COUNTIES:		

ELECTRICIANS:

ELECTRICIAN	14.70	2.95+11.5%
CABLE SPLICER	15.45	2.95+11.5%

ENGI0049B 11/01/2000

	Rates	Fringes
POWER EQUIPMENT OPERATORS:		
GROUP 1	16.85	5.65
GROUP 2	16.70	5.65
GROUP 3	16.45	5.65
GROUP 4	16.30	5.65
GROUP 5	15.45	5.65
GROUP 6	14.15	5.65

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1:

All Terrain Vehicle Cranes 80 tons and over and Hydro Cranes 80 tons and over Crane Operator with 135' Boom and over Derrick (Guy & Stiff Leg) Gantry Crane Operator Helicopter Operator (Construction Work Only) Mole Operator, or Tunnel Mucking Machine Power Shovel and /or other Equipment with Shovel Type Controls 3-1/2 Cu. Yd. Mfg. Rated Capacity & Over Travelling Tower Crane

GROUP 2:

All Terrain Vehicle Cranes over 20 tons and up to 80 tons and Hydro Cranes 20 tons up to 80 tons Dredge Operator over 12" Finish Motor Grader Creter Crane Crane Operator up to 135' boom Master Mechanic: The inclusion of the classification of Master Mechanic in this Agreement does not mean that a Master Mechanic must be employed, but if employed, that he shall perform manual work Equipment Dispatcher Power Shovels up to 3-1/2 cu. yd. Mon-O-Rail Hoist Operator Front End Loader Operator over 8 cu. yd. Tugboat Backhoe Operator 3 cu. yds. and over

GROUP 3:

All Terrain Vehicle Cranes - thru 20 tons and Hydro Cranes thru 20 tons Drill Rigs, Heavy Duty Rotary or Churn or Cable Drill Front End Loader Operator 3 cu. yd. up thru 8 cu. yd. Locomotive, all types. Mechanic, Heavy Duty. Pipeline Wrapping, Cleaning & Bending Machine Operator. Power Actuated Horizontal Boring Machine Over 6" Operator. Refrigeration Plant Engineer. Slip Form Operator (Paving) (Concrete). Tandem Pushed Quad 9 or similar. Asphalt Paving Machine Operator. Asphalt Plant Operator. Motor Grader Operator. Crushing Plant Operator, Gravel Washing, and Screening Plant Operator Automated Grade Trimmer. Backhoe Operator over 1/2 cu. yd. up to 3 cu. yd. Boom Truck, Hydraulic - 8 tons and over. Cableway Operator Roto Milling Machine (surface planer) 43" and over. Concrete Batch Plant Operator Concrete Mixer Paving Machine Operator Concrete Paver - Bridge Decks Concrete Pump, Concrete Belt Placer, Dozer Operator Scraper Operator Tractor with boom attachment, Trenching Machine Operator, over 100 H.P. Dredge Operator or Engineer up thru 12" Paving Breaker - Non Hydro Hammer Type Power Actuated Horizontal Boring Machine over 6" Operator

GROUP 4:

Asphalt Paving Screed Operator concrete Spreader Operator, Backhoe up thru 1/2 cu. yd. Greaser Motor Grader Operator (Haul Road) Paving Breaker Hydro Hammer Type Console Board Operator Push Tractor Roller, Steel, and Rubber on Hot Mix Asphalt Paving Rotomill Operator (up to 42") Self-Propelled Traveling Soil Stabilizer Slip Form, Curb and Gutter Operator Distributor Operator (bituminous) Traeching Machine Operator. 40 H.P. - 100 H.P. Truck Mechanic Forklift Operator Sheepsfoot Packer with Dozer Attachment - 100 H.P. and over Front End Loader 1-1/2 cu. yds. up to 3 cu. yds. (Standard Mfg. Rating) Gravel Screeding Plant Operator (not crushing or washing) Logitudinal Float and Spray Operator Pugmill Operator Shouldering Machine Tamping Machine Operator Tie Tamper and Ballast Machine Well Points

GROUP 5:

Boom Truck A-Frame or Hydraulic 3 to 8 tons broom - Self-Propelled Concrete Saw (Power Operated) Front End Loader Operator up to 1-1/2 cu. yds. Mobile Cement Mixer Off Road Hauler Power Actuated Augers and Boring Machine Operator - Up thru 6" Roller, (on other than Hot Mix Asphalt Paving) Sand and Chip Spreader - Self Propelled Truck Crane Oiler Vibrating Packer Operator (Pad type) (Self-propelled) Water Spraying Equipment - Self Propelled Sheepsfoot Roller on Compactor - Self Propelled

GROUP 6:

Brakeman or Switchman Form Trench Digger (power) Crane Oiler Gunitite Operator Gunall Pick-up Sweeper, 1 yd. and Over Hopper Capacity Tractor Pulling Compaction or Areating Equipment Scissor Jack (self-propelled), Platform Lift Trenching Machine Operator, Under 40 H.P. Curb Machine Operator (Manual) Dredge or Tugboat Deck Hand Paint Machine Striping Operator Stump Chipper Operator Straw Mulcher and Blower

SUND3001A 11/01/2000

	Rates	Fringes
CARPENTERS	15.50	2.85
CEMENT MASON/FINISHER	15.50	2.85
ELECTRICIANS:		
CASS COUNTY	14.72	3.40
LABORERS:		
GROUP 1:	10.50	
GROUP 2:	10.75	
GROUP 3:	10.90	
GROUP 4:	11.65	
FLAGGERS/PILOT CARS	10.50	

LABORERS CLASSIFICATIONS

GROUP 1: General Construction Laborers: Sack Shaker (cement and mineral filler): Pipe Handler: Drill Runner Tender: Salamander Heater and Blower Tender.

GROUP 2: Semi Skilled Laborer: Bulk Cement Handler: Conduit Layer, Telephone or Electrical: Form Setter (pavement): Gas Electric or pneumatic tool operator: Chipping Hammer, Grinders and Paving Brakers (tamper-drit) Concrete Vibrator Operator: Chain Saw Operator: Concrete Saw Operator: Concrete Curing Man (not water): Bituminous worker (Shoveler, Dumper, Raker and Floated): Kettleman (bituminous or lead): Concrete Bucket Signlman: Power Buggy Operator: Brick and Mason Tender: Multiplate Pipelayer: Culvert Pipe Layers: Concrete Finishers Tender. Carpenters Tenders.

GROUP 3: Caisson Worker: Bottom Man (sanitary sewer, storm sewer water and gas liners): Concrete Mixer Operator (one bag capacity): Mortar Mixer.

GROUP 4: Pipe Layers (sanitary sewer, storm sewer, water and gas lines): Drill runner (includes Wagon Churn or Air Track) Powderman, Gunitite and Sandblast, (Nozzleman, Reinforcing Steel Setters/Tiers.

* TEAM0082A 11/01/2001

	Rates	Fringes
TRUCK DRIVER:		
Single Axle	15.07	5.60

Tandem Tri/Axle Truck	15.19	5.60
Tandem Tri/Axle Semi	15.50	5.60
Lowboy	15.50	5.60
Off Road Heavy Duty End Dump		
20 Yards And Under	15.50	5.60
Euclid, Over 20 Yards	16.27	5.60

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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)(v)).

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Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

B. Specification Changes

1. Remove Section 01000 in its entirety and replace with amended section 01000 (16 pages) which is located in attachment A at the end this amendment. Previous amendments to Section 01000 have been incorporated or no longer apply.
2. Remove Section 01270 in its entirety and replace with amended section 01270 (14 pages) which is located in attachment A at the end this amendment. Previous amendments to Section 01270 have been incorporated or no longer apply.
3. Remove Section 02300 in its entirety and replace with amended section 02300 (13 pages) which is located in attachment A at the end this amendment. Previous amendments to Section 02300 have been incorporated or no longer apply.
4. Remove Section 02464 in its entirety and replace with amended section 02464 (6 pages) which is located in attachment A at the end this amendment. Previous amendments to Section 02464 have been incorporated or no longer apply.
5. Remove Section 03500 in its entirety and replace with amended section 03500 (4 pages) which is attached to and is part of this amendment. Previous amendments to Section 03500 have been incorporated or no longer apply.
6. Add Section 01312 (8 pages) - Quality Control System (QCS) which is attached to and is part of this amendment.

C. Changes to Drawings

Insert new drawings; or remove existing drawings and insert amended drawings, which are attached below:

Drawing # R-P-GF-00/006	Remove and insert amended drawing
Drawing # R-P-GF-64/019	Remove and insert amended drawing
Drawing # R-P-GF-64/020	Remove and insert amended drawing
Drawing # R-P-GF-64/020A	Insert new drawing
Drawing # R-P-GF-64/020B	Insert new drawing
Drawing # R-P-GF-64/020C	Insert new drawing
Drawing # R-P-GF-64/020D	Insert new drawing
Drawing # R-P-GF-64/020E	Insert new drawing
Drawing # R-P-GF-64/021	Remove and insert amended drawing
Drawing # R-P-GF-64/022	Remove and insert amended drawing
Drawing # R-P-GF-64/023	Remove and insert amended drawing
Drawing # R-P-GF-64/024	Remove and insert amended drawing
Drawing # R-P-GF-64/024A	Insert new drawing
Drawing # R-P-GF-64/025	Remove and insert amended drawing
Drawing # R-P-GF-64/026	Remove and insert amended drawing
Drawing # R-P-GF-64/027	Remove and insert amended drawing
Drawing # R-P-GF-64/028	Remove and insert amended drawing
Drawing # R-P-GF-64/31	Remove and insert amended drawing
Drawing # R-P-GF-64/32	Remove and insert amended drawing
Drawing # R-P-GF-64/33	Remove and insert amended drawing
Drawing # R-P-GF-64/34	Remove and insert amended drawing
Drawing # R-P-GF-64/35	Remove and insert amended drawing
Drawing # R-P-GF-64/36	Remove and insert amended drawing
Drawing # R-P-GF-64/37	Remove and insert amended drawing
Drawing # R-P-GF-64/38	Remove and insert amended drawing
Drawing # R-P-GF-64/39	Remove and insert amended drawing
Drawing # R-P-GF-64/40	Remove and insert amended drawing
Drawing # R-P-GF-64/41	Remove and insert amended drawing
Drawing # R-P-GF-64/43	Remove and insert amended drawing
Drawing # R-P-GF-64/44	Remove and insert amended drawing
Drawing # R-P-GF-64/46	Remove and insert amended drawing
Drawing # R-P-GF-64/47	Remove and insert amended drawing
Drawing # R-P-GF-64/48	Remove and insert amended drawing
Drawing # R-P-GF-64/49	Remove and insert amended drawing
Drawing # R-P-GF-64/50	Remove and insert amended drawing
Drawing # R-P-GF-64/52	Remove and insert amended drawing
Drawing # R-P-GF-64/53	Remove and insert amended drawing
Drawing # R-P-GF-64/54	Remove and insert amended drawing
Drawing # R-P-GF-64/55	Remove and insert amended drawing
Drawing # R-P-GF-64/57	Remove and insert amended drawing
Drawing # R-P-GF-64/58	Remove and insert amended drawing

Drawing # R-P-GF-64/59	Remove and insert amended drawing
Drawing # R-P-GF-64/60	Remove and insert amended drawing
Drawing # R-P-GF-64/61	Remove and insert amended drawing
Drawing # R-P-GF-64/62	Remove and insert amended drawing
Drawing # R-P-GF-64/64	Remove and insert amended drawing
Drawing # R-P-GF-64/65	Remove and insert amended drawing
Drawing # R-P-GF-64/69	Remove and insert amended drawing
Drawing # R-P-GF-64/92	Remove and insert amended drawing
Drawing # R-P-GF-64/99	Remove and insert amended drawing
Drawing # R-P-GF-64/121	Remove and insert amended drawing
Drawing # R-P-GF-64/122	Remove and insert amended drawing
Drawing # R-P-GF-64/123	Remove and insert amended drawing
Drawing # R-P-GF-64/124	Remove and insert amended drawing
Drawing # R-P-GF-64/125	Remove and insert amended drawing
Drawing # R-P-GF-64/126	Remove and insert amended drawing
Drawing # R-P-GF-64/139	Remove and insert amended drawing
Drawing # R-P-GF-64/140	Remove and insert amended drawing
Drawing # R-P-GF-64/141	Remove and insert amended drawing
Drawing # R-P-GF-64/154	Remove and insert amended drawing

D. Changes in Clauses

The following clauses which are incorporated by full text have been added or modified:

52.212-5000 EVALUATION OF SUBDIVIDED ITEMS (MAR 1995)--EFARS

Item Nos. 0012, 0013 and 0014 are subdivided into two or more estimated quantities and are to be separately priced. The Government will evaluate each of these items on the basis of total price of its sub-items.

(End of provision)

52.212-5001 VARIATIONS IN ESTIMATED QUANTITIES, SUBDIVIDED ITEMS (MAR 1995)--EFARS

This variation in estimated quantities clause is applicable only to Items Nos. 0012, 0013 and 0014.

- (a) Variation from the estimated quantity in the actual work performed under any second or subsequent sub-item or elimination of all work under such a second or subsequent sub-item will not be the basis for an adjustment in contract unit price.
- (b) Where the actual quantity of work performed for Items Nos. 0012AA & 0012AB, 0013AA & 0013AB and 0014AA & 0014AB is less than 85% of the quantity of the first sub-item listed under such item, the contractor will be paid at the contract unit price for that sub-item for the actual quantity of work performed and, in addition, an equitable adjustment shall be made in accordance with the clause FAR 52.211-18, Variation in Estimated Quantities.
- (c) If the actual quantity of work performed under Items Nos. . 0012AA & 0012AB, 0013AA & 0013AB and 0014AA & 0014AB exceeds 115% or is less than 85% of the total estimated quantity of the sub-item under that item and/or if the quantity of the work performed under the second sub-item or any subsequent sub-item under Items Nos. . 0012AA & 0012AB, 0013AA & 0013AB and 0014AA & 0014AB exceeds 115% or is less than 85% of the estimated quantity of any such sub-item, and if such variation causes an increase or a decrease in the time required for performance of this contract the contract completion time will be adjusted in accordance with the clause FAR 52.211-18, Variation in Estimated Quantities.

(End of clause)

52.217-4000 *OPTION FOR ADDITIONAL WORK (Construction) (AUG 2000)*

1. The Government may require the Contractor to perform the work identified as optional items (CLINs 0022 through 0034) at the price stated in the Schedule. The Contracting Officer may exercise the option(s) by written notice to the Contractor at any time before the required completion date stated in Section 00700 and clause number 52.211-10 I or any extensions thereto. The Contracting Officer shall provide the Contractor notice of the Government's intent to exercise the option at least 30 calendar days) in advance of exercising the option. Notice of intent to exercise the option shall not constitute an exercise of the option and shall not bind the government to exercise the option. If the Government should exercise the option(s) within 120 calendar days of the required completion date or any extension thereto, the Government shall extend the required contract completion date to 120 calendar days after the date of the exercise of the option.

2. Exercise of the option shall be evidenced on Standard Form 30, citing this Section as the authority for exercising the option. Notice of intent to exercise the option shall be considered to have been given at the earlier of the occurrence of any of the following events: deposit of written notification in the mail, receipt by the Contractor of a facsimile notifying it of the Government's intent to exercise the option, or receipt by the Contractor of an e-mail notifying the Contractor of the Government's intent to exercise the option. The option shall be considered to have been exercised at the time the Government deposits written notification to the Contractor in the mail or, if earlier, at the time written notice is delivered to the Contractor.

E. New Bid Schedule

Basic Items

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	Demolition FFP	1.00	Lump Sum		
0002	Structure 1 - 3 Drop Structures FFP	1.00	Lump Sum		
0003	Structure 2 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		
0004	Structure 3 - Box Culvert FFP	1.00	Lump Sum		
0005	Structure 5 - Box Culvert FFP	1.00	Lump Sum		
0006	Structure 7 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0007	Structure 9 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0008	Structure 10 - Box Culvert FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0009	Structure 17 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0010	Fencing FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0011	Common Excavation FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0011AA	First 700,000 Cubic Yards FFP	700,000.00	Cubic Yard		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0011AB	Over 700,000 Cubic Yards FFP	500,000.00	Cubic Yard		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0012	Compacted Fill FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0012AA	First 50,000 Cubic Yards FFP	50,000.00	Cubic Yard		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0012AB	Over 50,000 Cubic Yards FFP	10,000.00	Cubic Yard		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0013	Semi Compacted Fill FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0013AA	First 120,000 Cubic Yards FFP	120,000.00	Cubic Yard		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0013AB	Over 120,000 Cubic Yards FFP	22,000.00	Cubic Yard		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0014	Reach between Station 0+00 and 16+46 FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0014AA	Clearing and Grubbing FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0014AB	Stripping FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0014AC	Topsoil and Seed FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0014AD	Interior Drainage - 1 Culvert FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO SUPPLIES/SERVICES
 0015 Reach between Station 16+46 and 122+75
 FFP

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0015AA	Clearing and Grubbing FFP	1.00	Lump Sum		
0015AB	Stripping FFP	1.00	Lump Sum		
0015AC	Topsoil and Seed FFP	1.00	Lump Sum		
0015AD	Road Relocation - Gravel FFP - TWSP Road between Structures #2 and #4	1.00	Lump Sum		
0015AE	Columbia Road Raise - Gravel FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0015AF	Concrete Accesses, Roads and Sitework FFP - Concrete Accesses, Roads and Sitework at Minn-Dak Growers Site	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0015AG	Interior Drainage - 15 Culverts and Ditches FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0016	Reach between Station 122+75 and 201+00 FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0016AA	Clearing & Grubbing FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0016AB	Stripping FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0016AC	Topsoil & Seed FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0016AD	Road Relocation - Gravel, 55th Street FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0016AE	Interior Drainage - 10 Culverts and Ditches FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0017	Reach between Station 201+00 and 251+96 FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0017AA	Clearing & Grubbing FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0017AB	Stripping FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0017AC	Topsoil & Seed FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0017AD	Interior Drainage - 2 Culverts & Ditches FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES				
0018	Reach between Station 251+96 and 331+00 FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0018AA	Clearing & Grubbing FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0018AB	Stripping FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0018AC	Topsoil & Seed FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES				
0019	Roadways FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0019AA	US Highway 81, approx. 1' raise - Station 36+38 FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0019AB	Interstate 29, approx. 3' raise - Station 83+05 FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0019AC	Township Road, approx. 2' raise - Station 175+52 FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0019AD	Access Road, approx. 2' raise - Station 198+92 FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0020	All Bond Costs (Bid, Performance and Payment) FFP - See Bid Note regarding Bid Bond - Bid Bond is to include all option items.	1.00	Lump Sum		

Total Estimated Amount (Basic Period CLINs 0001 thru 0020) _____

Option Items

ITEM NO SUPPLIES/SERVICES
 0021 Haul to Landfill and Stockpile
 FFP

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0021AA	Material between Station 203+00 and 250-00 FFP - Section 36, Haul Excess Excavation	37,920.00	Cubic Yard		
0021AB	Material between Station 252+00 and 277+00 FFP - Section 36, Haul Excess Excavation	73,840.00	Cubic Yard		
0021AC	Material between Station 281+00 and 331+00 FFP - Section 1, Haul Excess Excavation	138,800.00	Cubic Yard		
0021AD	Material between Station 334+00 and 385+00 FFP - Section 12, Haul Excess Excavation	23,600.00	Cubic Yard		
0021AE	Material between Station 493+00 and 501+00 FFP - Section 26, Haul Excess Excavation	2,400.00	Cubic Yard		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0022	Bonds-Performance and Payment for CLIN 0021 FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES
0023	Reach between Station 331+00 and 501+95 FFP

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0023AA	Clearing and Grubbing FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0023AB	Stripping FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0023AC	Top Soil and Seed FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0023AD	Interior Drainage - 15 Culverts and Ditches FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0024		1.00	Lump Sum		
	Est. 1/2' to 1-1/2' raise and west side ditching				
	FFP - 69th Street - Station 280+50 to 317+00				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0025		1.00	Lump Sum		
	Roadways - 69th St., approx. 1/2' to 1-1/2' raise				
	FFP - Station 317+00 to 491+60				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0026		1.00	Lump Sum		
	Roadways - 47th Avenue, approx. 1/2' raise				
	FFP - Station 491+60 to 501+95				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0027		1.00	Lump Sum		
	Structure 11 - Box Culvert				
	FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0028		1.00	Lump Sum		
	Structure 12 - Box Culvert (Special Design/Build)				
	FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0029		1.00	Lump Sum		
	Structure 13 - Diversion Structure				
	FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0030	Structure 14 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0031	Structure 15 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0032	Demolition of Westgate Marine property FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0033	Demolition of Humane Society property FFP	1.00	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0034	Bond - Performance and Payment for CLINs 0023 through 0033 FFP	1.00	Lump Sum		

Total Estimated Amount (Option Items CLINs 0021 thru 0034) _____

**Total Estimated Amount (Basic Period and Options)
(CLINs 0001 thru 0034)** _____

Attachment A

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07/01

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SECTION 01000

GENERAL

07/01

PART 1 GENERAL

1.1 ORGANIZATION OF SPECIFICATIONS

The specifications which govern the materials and equipment to be furnished and the work to be performed under this contract are listed in the Table of Contents. No attempt has been made in the specifications to segregate work to be performed by any trade, craft, or subcontractor. Any segregation between the trades or crafts shall be solely a matter for agreement between the Contractor, Contractor's employees, and subcontractors.

1.2 REFERENCES

Reference to the standards, specifications, or codes of any technical society, organization, or association, or local, state, or Federal authority shall mean the specific edition or revision listed.

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-08 Statements

Designated Landfill; GA

The Contractor shall select the landfill as described in PARAGRAPH: DISPOSAL OF DEBRIS AND WASTE.

Dewatering plan; FIO.

The submittal requirements are described in PARAGRAPH: DEWATERING OPERATIONS.

Shoring plan; FIO.

The submittal requirements are described in PARAGRAPH: SHORING.

1.4 MEASUREMENT AND PAYMENT

The Contractor shall be responsible for the work of this section, without any direct compensation being made other than the payment received for

contract line items on the bidding schedule.

PART 2 PRODUCTS

2.1 PRE-BID SOIL TEST PITS

The Corps of Engineers will conduct a series of test pits along the diversion alignment during the solicitation period. The test pits will give potential bidders the opportunity to witness first hand the difficulty associated with excavation and placement of the foundation soils.

2.2 APPROVAL OF MATERIALS OR ALTERNATES

Requests for approval of materials and products, or substitutes thereof, will not be considered prior to award of the contract.

2.3 WARRANTIES

Any items that are submitted for review or approval of the Contracting officer should include a copy of the manufacturer's standard warranty if one is available.

PART 3 EXECUTION

3.1 GROUNDS AND ROADWAYS

3.1.1 Availability of Grounds

The boundary limits of the grounds made available for the Contractor's use during the life of the contract are shown on the drawings. Any additional rights-of-way or grounds desired by the Contractor shall be obtained by the Contractor at its own expense, and copies of agreements for the use of such rights-of-way shall be furnished to the Contracting Officer before entering thereon. Such agreements shall clearly relieve the Government of any responsibility for damages resulting from the use of the grounds.

3.1.2 Railroad Right of Way

The Government has not obtained permission from railroads to enter on their right of way at locations listed below. Therefore all work within the railroad right of way at all rail crossings is not a part of this contract and the contractor shall not enter on railroad property unless and until the Government has obtained permission. Work herein may be incorporated by amendment at a later date.

- Seepage Cutoffs
- 68+60 - Structure #4 Cleanout
- 68+60 - Culvert removal and installation
- 185+90 - Remove Structure #8
- 332+00 - Cleanout Railroad Bridge near Structure #11
- 332+00 - Railroad Bridge by others

3.1.3 Drainage Facilities

Insofar as natural drainage from protected areas and agricultural fields is obstructed by contract operations, it shall be the Contractor's responsibility to make adequate provision for accommodating such drainage in a satisfactory manner during the life of this contract, either by temporary means or by use of the permanent construction and operation of the permanent facilities.

3.1.4 Legal Drain #9, near Station 387+00

Flows through Legal Drain No. 9 shall not to be obstructed during construction operations.

3.1.5 Roadways

3.1.5.1 Traffic hazards

When continuous haul operations or other conditions created by the Contractor's operations result in interference or hazard to traffic on streets and highways, beyond that of ordinary public usage, the Contractor shall erect warning signs and provide flagging services as necessary to safeguard the public as required in SECTION 01500: TEMPORARY CONSTRUCTION FACILITIES.

3.1.5.2 Haul routes

The Contractor shall be responsible for securing all permits required along haul routes. The Contractor shall be the sole permittee and shall be responsible for meeting all obligations of the permits. A copy of each permit shall be submitted to the Contracting Officer. The Contractor, as between the Government and the Contractor, has sole responsibility for damage or deterioration of the Contractor's haul routes. Dust control shall be provided as stated in SECTION 01410: ENVIRONMENTAL PROTECTION.

3.1.5.3 Road Closures

The Contractor shall be responsible for coordinating road closures and detours with the appropriate jurisdictions.

3.1.5.4 Seedmill Access Road

The temporary Seedmill Access Road shown on drawing R-P-GF 64/092 shall be kept open to 80,000 pound gross vehicle weight truck traffic twenty-four hours per day.

3.1.6 Work on Railroad ROW

When work activity is under of or within 25 feet from centerline of

railroad tracks, the Contractor shall notify Burlington Northern and Santa Fe Railway at least 30 days prior to start of work activity to arrange for railroad flagging services in accordance with Insurance and Flagging Requirements located in SECTION 00830: ATTACHMENTS, Attachment 4.

3.2 DISPOSAL OF DEBRIS AND WASTE

The Contractor's attention is directed to SECTION 01410: ENVIRONMENTAL PROTECTION and to the following SECTION 00700: CONTRACT CLAUSES: PERMITS AND RESPONSIBILITIES; PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES, EQUIPMENT, AND IMPROVEMENTS; OPERATIONS AND STORAGE AREAS; and CLEANING UP. Burning will not be permitted at the project site and debris or waste shall not be left on the site. Disposal of clearing and grubbing debris shall be by the following method:

3.2.1 Disposal in a locally operated sanitary landfill

Contractor shall select the disposal site with the approval of the Contracting Officer. The Contractor shall secure the required permits for disposal and provide copies of the permit to the Contracting Officer.

3.3 EXISTING UTILITIES

3.3.1 Work By Others

Relocation of existing utilities will be the responsibility of the utility companies. This includes moving or lowering such services as jet fuel line, gas line, underground power and communication lines, sanitary sewer, water main, and overhead power lines.

The Contractor shall coordinate construction activities near existing utilities with the utility companies. The Contractor shall coordinate with the utility representatives listed in Attachment A following this SECTION.

3.3.2 Buried Utilities

The approximate locations of known existing buried utilities are shown on the drawings to the extent of available information at the time the drawings were prepared. (In general, no service connections are shown.) Prior to commencing excavation, the Contractor shall accurately locate all such installations. In the event the Contractor damages any existing utility lines, report thereof shall be made immediately to the Contracting Officer. If the Contracting Officer determines that repairs shall be made by the Contractor, such repairs shall be performed immediately. The costs associated with repairs shall be borne by the Contractor.

3.3.3 North Dakota One Call Excavation Notice System

For contract work performed within the State of North Dakota, the Contractor shall meet the requirements of North Dakota Statutes, Chapter 42-23 "One Call Excavation Notice System." The North Dakota One Call notification center telephone numbers are:

Hotline 800-795-0555
Main Office 701-223-9380

3.4 SCHEDULING

3.4.1 General

It shall be the responsibility of the Contractor to schedule and execute the work, incorporating the necessary requirements set forth in these specifications. The Contractor shall develop and submit a schedule in accordance with SECTION 00800: SPECIAL CONTRACT REQUIREMENTS: SCHEDULES FOR CONSTRUCTION CONTRACTS.

3.4.2 Notification

The Contractor shall inform the Government in writing within 5 days after receipt of notice to proceed and before work begins as to which hours of the day and days of the week work under this contract will be performed. The Contractor shall notify the Government at least 24 hours before work is to be conducted on overtime, in multiple shifts, on weekends, or on Federal Government holidays.

3.4.3 Highway 81

Work on Structure #3 and Highway 81 road raise shall be completed prior to November 1, 2002. See paragraph 3.6.

3.4.4 Utility Relocations

Most utilities have been or will be relocated prior to construction under this contract. Where necessary the Contractor shall coordinate with the utilities and schedule work accordingly.

3.4.4.4 City of Grand Forks

Wastewater force main near station 174+80 and 228+60 will be relocated before 1 August 2002.

3.4.4.5 MinnKota Power Cooperative

Switch and overhead power near station 276+00 will be relocated prior to award of this contract. The Contractor shall be responsible for removal of the structure on this property. The structure is a metal building approximately 25 feet square.

3.4.5 MINN-DAK Growers, Inc.

3.4.5.1 Access Road

Access for 80,000 pound GVW traffic to the facility shall be continuously maintained by means of construction sequencing and the use of temporary access roads if necessary. The concrete roadway shown shall be completed before June 30, 2002.

3.4.5.2 Road Work and Site Work

All other work including permanent access road from US 81, additional road work and site work shall be accomplished between June 1, 2002 and August 31, 2002.

3.5 CONSTRUCTION RESTRICTIONS

3.5.1 Blasting

Blasting will not be permitted.

3.5.2 Protection of Trees

Trees to be protected shall be determined and staked by the Contracting Officer. The following measures shall be implemented for tree protection and shall be addressed in the Environmental Protection Plan required under SECTION 01410:

- a. The trees shall be protected from wounds to the bark and foliage.
- b. The critical root zone shall be protected from compaction and grading.
- c. Changes in temporary site drainage and ponding shall be minimized to the extent possible that it effects the protected trees.

The critical root zone of trees designated to be protected shall be surrounded by a high visibility fence 4 feet in height, supplied and erected by the Contractor. The critical root zone shall be defined by an area extending 1.5 feet radius from each tree for each inch of Diameter at Breast Height (DBH). The fence shall be securely erected and installed prior to any movement through the project site by construction vehicles or equipment, and remain in place until construction and clean-up are completed. The critical root zone shall remain free of all construction activities including trenching, staging, stockpiling and storage of materials. Vehicles and equipment shall not drive or park within the critical root zone. Variation to the critical root zone size or configuration will only be permitted where it is absolutely necessary for construction of the project, and requires approval of the Contracting Officer. Short duration alterations of the critical root zone involving wood chips and limited equipment travel shall be submitted in writing for approval.

The Contractor shall not operate equipment in vegetated areas outside the work limits.

3.5.2.1 Restoration of Damaged Trees

Any existing tree designated to be protected that is damaged by the Contractor's operations shall be replaced. Trees will be considered

damaged if the critical root zone in cohesive soils is compacted, if there are significant wounds that could contribute to rot, or if distress (evident by reduced growth or other observations of distress documented by a forester) is observed prior to closing the contract. Trees shall be replaced in kind on a caliper inch per caliper inch basis (DBH) (i.e. one 6-inch red oak shall be replaced with two 3-inch red oaks, three 2-inch red oaks, or six 1-inch red oaks). Replacement trees shall be planted and guaranteed with the Contractor's standard warranty. Replacement tree size and location will be determined and staked by the Contracting Officer. Repair by pruning, aeration, soil conditioning, or other recommendation from a qualified forester will be considered as substitution for replacement by the Contracting Officer.

3.5.3 Westgate Marine Property

Work within the Westgate Marine property limits is an optional bid item. The Contractor is not permitted to enter the property until and unless the bid option is exercised by the Government.

3.5.4 Structure #4 and Structure #8

Work for the seepage cutoff walls are not part of this contract. The Contractor is not permitted to perform any part of this work until and unless the Contract is modified to include part or all.

3.5.5 Railroad

The Burlington Northern Santa Fe Railroad, the owner will, when agreement is reached with the Government, construct a railroad bridge across the new diversion. The Contractor is not permitted to do excavation, embankment, or other work between stations 331+00 and 334+00 until this railroad bridge is substantially complete and open to train traffic.

3.5.6 Access to Farmland

Access to farmland west of the channel between Structure #9 and Structure #8 shall be kept open to access for farm equipment by some means while Structure #9 is closed to traffic. The Contractor may not close Structure #9 and #7 at the same time. During levee construction toe drainage shall be maintained to these fields. Payment for crops lost as a result of water left standing because the drainage has been changed during construction shall be the responsibility of the Contractor.

3.5.7 Access to Residences

The Contractor shall maintain access to residences at all times. If, as a result of construction activities, access to a residence is blocked the Contractor shall provide temporary access for local traffic at all times.

Locations include but are not limited to

House at Station 177+00

3.5.8 Access to Businesses

The Contractor shall maintain access to businesses at all times. If, as a result of construction activities, access to a business is blocked the Contractor shall provide temporary access for local traffic at all times.

Locations include but are not limited to

Waste Management Firm on 55th at Station 197+50
Animal Hospital on Highway 2 at Station 278+00 Temporary access from
US 2 may be necessary.

3.5.9 Diversion Drainage

As a result of excavation the contractor shall not be permitted to adversely affect drainage into other existing ditches, except for the existing English Coulee Diversion.

3.5.10 32nd Avenue temporary bypass

Trees between stations 150+50 to 151+50 shall not be damaged during construction.

3.5.11 Stations 0+50 to Columbia Road

Fences exist on both sides of the English Coulee Diversion Channel for Columbia Road to the Red River. Continuous containment shall be maintained. The Contractor shall be responsible for removal where necessary, temporary fencing and permanent replacement of fence. Permanent fence shall be suitable for containing cattle.

Wood fence along the east side of Columbia Road from approximately station 17+20 to Station 19+80 (Columbia Road Stationing) will be relocated by others. The Contractor shall coordinate work with landowner to assure continuous containment.

3.5.12 69th Street Road Raise and Ditches

69th Street road raise is divided into two optional bid items. This work is not to be performed unless and until the Government exercises either, or both options.

3.5.13 Channel Work from Station 331+00 - 501+95

Work in this stationing is an optional bid item. When real estate is acquired, the Government will exercise this option. The Contractor is not permitted to enter the property until and unless the bid option is exercised by the Government.

3.5.14 Recycling/Waste Management Business Road

The road at Station 197+60 RT is heavily used by a recycling/waste

management business. The contractor shall maintain access to this road for heavy truck traffic.

3.6 OTHER CONTRACTS

The Contractor shall coordinate with other contractors in the performance of the work and schedule such work to provide for a minimum of delays and interferences. Coordination shall be through the Contracting Officer. Work listed below is currently required under separate contract or is scheduled to be awarded as a separate contract prior to completion of work under this contract. These contracts will be considered in the application of SECTION 00700: CONTRACT CLAUSE: OTHER CONTRACTS.

3.6.1 List other contracts

North Dakota Department of Transportation - NDDOT upgrade of Highway 81 in 2003.

Army Corps of Engineers - English Coulee Pump Station. It is anticipated a contract for the English Coulee Pump Station will be awarded and construction will take place during the life of this contract.

Army Corps of Engineers - 55th Street Pump Station. It is anticipated a contract for this pump station at 55th Street, north of the diversion channel will be awarded and construction will take place during the live of this contract.

3.7 SHORING

3.7.1 General

At locations where shoring is not specifically required by the contract documents to safeguard adjacent structures, the Contractor may at its own option employ shoring for protecting work areas within excavations in lieu of performing excavation to safe and stable side slopes. The Contractor shall construct all shoring required in performing the excavations. Shoring shall be constructed in accordance with the safety requirements of EM 385-1-1.

3.7.2 Responsibility

The Contractor shall be responsible for design and maintenance of all shoring which the Contractor proposes to install. Shoring plan and design computations for all shoring used shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES at least 30 days prior to installation.

3.7.3 Removal

Unless otherwise authorized, all sheeting and bracing shall be removed when backfill is completed.

3.8 DEWATERING OPERATIONS

3.8.1 Scope

The Contractor shall design, furnish, install and operate dewatering systems in the execution of the contract work. The work involves the drawdown of water table and construction of temporary barriers (small cofferdams, earth dikes, sheeting, or other satisfactory types of barriers) to protect against the prevailing river/coulee stages and to permit, where specified or shown, placement of concrete and fill in the dry.

3.8.2 Payment

No separate payment will be made for dewatering on this project and compensation for all dewatering operations will be included in the respective contract items to which the work pertains.

3.8.3 Requirements

Control of groundwater shall be accomplished in a manner that will provide suitable working conditions for construction, preserve the strength of the foundation soils, will not cause instability of excavations, and will not result in damage to existing structures. Suitable working conditions for construction will provide a dry or moist subgrade free of standing, percolating, or running water during placement and curing of concrete, and placement and compaction of backfill. Where necessary to these purposes, the water level shall be lowered in advance of excavation utilizing wells, wellpoints, or similar methods. For structure foundations, the water level (as measured in piezometers) shall be maintained a minimum of 2 feet below the prevailing excavation level.

3.8.3.1 Design

The responsibility for the design of adequate dewatering protection, including shoring, pumping, and other dewatering facilities, shall rest with the Contractor. The design of the protection shall be in accordance with sound engineering practice, based on generally accepted methods and load assumptions as approved. Barriers constructed in the river/coulee channel shall be capable of protecting against a reasonable rate of flow based on normal weather conditions. The Contractor shall limit exposure of the work to damage from high river/coulee channel flows by minimizing the length of new channel construction exposed to flows that exceed the dewatering protection capacity.

3.8.3.2 Regulations

Compliance with all regulations shall be incidental to the dewatering work. Disposal of water shall be in accordance with SECTION 01410: ENVIRONMENTAL PROTECTION and all applicable regulations. Well abandonment shall seal aquifers and confining layers in compliance with environmental regulations and permits.

3.8.3.3 Operation

Upon installation and commencement of dewatering operations, the system shall be operated continuously (24 hours/day, 7 days/week) until the structure and backfill are completed to the groundwater elevation. The

Contractor shall be responsible for maintaining the system.

3.8.3.4 Removal

Upon completion of the work, well casing and screens shall be withdrawn, and all equipment shall be removed (including related temporary cofferdams, shoring, etc.)

3.8.4 Geologic and Hydrologic Information

Ground water elevations shown on the boring logs are those encountered at the time the borings were taken. Because groundwater elevations are dependent upon hydrologic conditions, variations in the water table should be expected. For work near the Red River of the North, refer to the hydrographs included with the contract drawings. For local precipitation data and English Coulee flow frequencies, refer to SECTION 00830: ATTACHMENTS, ATTACHMENT 5. It shall be the Contractors responsibility to perform the necessary dewatering operations irrespective of the water elevations at the time of the work. However, nothing in this clause prohibits the Contractor from receiving a time extension under the Default clause, the Time Extensions for Unusually Severe Weather clause, or any other clause in this contract.

3.8.5 Specific Requirements for Wells

3.8.5.1 Screens

Wells and wellpoints shall be installed with suitable screens and filters so that continuous pumping of fines does not occur. Pumps shall discharge into a settling tank to check for movement of sand. Wells shall be sealed in accordance with State Health Department requirements.

3.8.5.2 Setback

The following criteria shall be followed to the maximum extent possible. Where permanent site features restrict placement of dewatering devices, the Contracting Officer will allow a variance. Wellpoints shall be located a minimum horizontal distance away from structures (existing and proposed) equal to the depth of penetration below foundation elevation. Wells larger than 3 inches diameter shall be located a minimum horizontal distance away from structures equal to the depth of penetration below foundation elevation plus half the depth of penetration above foundation elevation.

3.8.5.3 Roads and Levees

Wells larger than 3 inches diameter shall not be jetted through roadway and levee embankments. Wells larger than 3 inches diameter located on the up gradient side of levees, dikes, dams or floodwalls shall be screened without a gravel filter pack. These wells shall be abandoned by plugging the hole with a cement-bentonite grout. The screens shall include a loose end cap to allow removal of screen and casing without hole collapse.

3.8.6 Dewatering Plan

At least 15 calendar days prior to commencing work on the installation or construction of dewatering protection, the Contractor shall submit for review by the Contracting Officer prints in triplicate showing plans and details of the type of construction, including shoring proposed for installation at each location. The design shall be in accordance with sound engineering practice as approved. This submittal data shall include computations covering the analysis and design layout, proposed methods of protection of construction work that would be subject to exposure to channel flows exceeding the dewatering protection capacity, type and spacing of dewatering devices, number and size of pumps and other equipment, together with a description of the installation and operating procedures, including relationship to the construction operations. The plan shall be reviewed and signed by a Registered Professional Engineer. The plan shall include the following items:

1. layout (including the relationship to site improvements and construction operations)
2. type, sizes, depth and spacing of dewatering devices
3. number and capacity of pumps
4. design assumptions, analysis methods, and calculations
 - 4A. justification for pump capacity
 - 4B. justification for slot size on screens
 - 4C. justification for screen intake area
 - 4D. justification for filter pack gradation
5. description of installation equipment
6. description of operating procedures
7. description of discharge point (weirs, sedimentation basin, etc.)
8. type and location of monitoring equipment
9. removal and abandonment plans

3.8.7 Liability

Government review of the proposed dewatering system will not relieve the Contractor of full responsibility for the adequacy of the dewatering operations. The Contractor shall be responsible for dewatering effects on adjacent properties, including but not limited to blockage of easements, erosion or sedimentation of ditches, and encroachment onto private property by flooding from pump outlets and sedimentation basins.

3.8.8 Related Work

Shoring, trench support systems, cofferdams and diversion structures shall be coordinated with the dewatering effort to provide safe and reliable conditions.

3.8.9 Surface Water Management During Construction

English Coulee Diversion and Red River Flooding: The English Coulee Diversion Channel and Red River of the North are prone to experience extremely high flood stages of relatively long duration. The Red River may inundate the lower reach of the English Coulee Diversion Channel, submerging the uppermost drop structure up to 15 feet during the 100 year event. The Contractor shall be responsible for monitoring local weather conditions and flow conditions in order to anticipate flooding conditions

prior to their occurrence. The Contractor shall keep the Contracting Officer informed regarding all flooding conditions on the English Coulee Diversion Channel.

The Contractor shall be responsible for construction sequencing involving English Coulee Diversion Channel flows and construction of structural features such as drop structures and culverts. It is advisable to consider winter construction of the drop structures as well as construction of the drop structures prior to connection of the diversion extension to the existing English Coulee Diversion Channel

The Contractor should satisfy itself before submitting its bid as to hazards that arise from weather conditions and flooding. Precipitation data, English Coulee Diversion Channel flow-frequency curve, and Red River of the North rating curves and hydrographs are included in the contract documents as attachments in SECTION 00830: ATTACHMENTS or in the contract drawings. These references include:

1. Grand Forks Airport Precipitation (Attachment 5)
2. Precipitation-Runoff Relationship for Existing English Coulee Diversion Channel (Attachment 5)
3. Existing English Coulee Diversion Channel Discharge Frequency Curve (Attachment 5)
4. Red River of the North Elevation-Discharge Rating Curve (Contract Drawings)
5. Mean Daily Flows for Red River of the North, Water Years 1978 and 1979 and 1991 through 1998 (Contract Drawings)
6. Red River of the North Monthly Flow Duration Curves (Contract Drawings)

3.9 SEWAGE WATER DISPOSAL

The Contractor's methods for disposal of sanitary sewage shall meet applicable local, state, and federal requirements.

3.10 TEMPORARY ACCESS

The Contractor shall provide temporary access during roadway and levee construction to the Pet Hospital and the Grainary. At no time shall access to these premises be denied. Temporary access shall also be provided to farm fields that lack secondary access roads.

3.11 SURVEYS

3.11.1 Field Layout

The Contractor shall layout the work from the Government established bench marks in accordance with SECTION 00800: CONTRACT CLAUSE LAYOUT OF WORK. The construction of each feature of work shall follow the alignments as indicated on the drawings. The Contractor shall have in place, at least 7 calendar days prior to commencing construction operations, sufficient stakes and markings to enable the Contracting Officer to observe the field layout of the alignment and limits of each feature of work. For each feature of work, these stakes shall define areal limits such that the

Contracting Officer can easily determine, without additional surveys, if alignment and/or limit adjustments need to be made. For embankments, levees, and similar work, these stakes shall define centerline, stationing, outermost fill/cut limits, and work limits. For structures and similar work, the corners shall be staked. General site work shall be staked to define staging areas, storage areas, and other area limits as directed. The Contracting Officer may waive these requirements for certain areas. The layout shall be sufficient for the Contracting Officer to mark trees, vegetation and other features to be left undisturbed. No work shall take place without approval of field layout by the Contracting Officer.

3.11.1.1 Alignment Changes

The Government reserves the right to make changes in the alignment of any feature of work as may be found necessary during the course of the contract. If it becomes necessary, through no fault of the Contractor, equitable adjustment for completed work will be made. No alignment changes or abandonment shall take place without prior written notice from the contracting Officer.

3.11.2 Quantity Surveys

The Contractor shall perform quantity and tolerance verification surveys for all features of work in accordance with SECTION 00800: SPECIAL CONTRACT REQUIREMENTS: QUANTITY SURVEYS--ALTERNATE I. Unless changed by the Contracting Officer, the Contractor shall provide cross sections at 100 foot intervals to verify the required section. Areas where payment for material is specified by volume shall be surveyed by the Contractor, prior to commencement of construction of each feature and upon completion of each feature, in enough detail to accurately determine quantities and verify the required section. The Contractor shall also provide a copy of the survey notes and cross sections to the Contracting Officer within 10 days after completion of the survey.

3.11.3 Section and Quarter Monuments

The Contractor will be responsible for care, maintenance, rehabilitation and restoration of any monument(s) occupied or disturbed during the construction of diversion channels, levees and roadways for the English Coulee Diversion Project. The Contractor will be required to comply with the Land Surveying Standards set forth by Grand Forks County and the State of North Dakota. Monuments that are damaged or removed shall be replaced at no cost to the Government.

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SECTION 01270

MEASUREMENT AND PAYMENT

07/01

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Quantity Surveys; FIO.

The Quantity Surveys are described in SECTION 01000: GENERAL: SURVEYS.

1.2 LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BIDDING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.2.1 Demolition

1.2.1.1 Payment

Payment will be made for costs associated with operations necessary for demolition and removal of existing structures. Items to be demolished includes, but is not limited to drop structures, bridges, highway box culvert, homes, businesses, farm buildings, abandoned water main, fences, and field entrances. Debris shall be taken off site for proper disposal.

1.2.1.2 Unit of Measure

Unit of Measure: Lump Sum.

1.2.2 Structure No. 1-3 Drop Structures

1.2.2.1 Payment

Payment will be made for the costs associated with operations necessary for construction of three drop structures located between Stations 1+90 and 10+05. Work shall include, but is not limited to excavation, installation of H-piles, backfill, placement of riprap, installation of guardrails, and construction of cofferdam and dewatering as needed.

1.2.2.2 Unit of Measure

Unit of measure: lump sum.

1.2.3 Structure No. 2-Four Cell Box Culvert (Special Design/Build)

1.2.3.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel Township road -Columbia Road- at Station 16+46. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of road embankment and surface.

1.2.3.2 Unit of Measure

Unit of measure: lump sum.

1.2.4 Structure No. 3-Four Cell Skewed Box Culvert

1.2.4.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the box culvert under US Highway 81 at Station 36+38. Work shall include, but is not limited to excavation, backfill to two feet of cover over top of culvert, and placement of riprap.

1.2.4.2 Unit of Measurement

Unit of measure: lump sum.

1.2.5 Structure No. 5-Four Cell Box Culvert

1.2.5.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the box culvert under Interstate 29 at Station 83+05. Work shall include, but is not limited to excavation, backfill to two feet of cover over top of culvert, and placement of riprap.

1.2.5.2 Unit of Measurement

Unit of measure: lump sum.

1.2.6 Structure No. 7-Four Cell Box Culvert (Special Design/Build)

1.2.6.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel Township road at Station 175+52. Work shall include, but is not limited to excavation, backfill to two feet of cover over top of culvert, and placement of riprap.

1.2.6.2 Unit of Measurement

Unit of measure: lump sum.

1.2.7 Structure No. 9-Four Cell box Culvert (Special Design/Build)

1.2.7.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel access road at Station 198+92. Work shall include, but is not limited to excavation, backfill to two feet of cover over top of culvert, and placement of riprap.

1.2.7.2 Unit of Measurement

Unit of measure: lump sum.

1.2.8 Structure No. 10-Four Cell Box Culvert

1.2.8.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the box culvert under Highway 2 at Station 279+84. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of temporary cross-overs, road embankment and concrete pavement.

1.2.8.2 Unit of Measurement

Unit of measure: lump sum.

1.2.9 Structure No. 11-Four Cell Box Culvert (Option)

1.2.9.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the box culvert under County Road 4 (Demers Avenue) at Station 332+72. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of temporary road bypass, road embankment and asphalt pavement.

1.2.9.2 Unit of Measurement

Unit of measure: lump sum.

1.2.10 Structure No. 12-Four Cell Box Culvert (Special Design/Build)(Option)

1.2.10.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert and weir under gravel Township road at Station 385+48. Work shall include, but is not limited to excavation, backfill, placement of riprap, installation of stoplogs, and construction of road embankment and aggregate surface.

1.2.10.2 Unit of Measurement

Unit of measure: lump sum.

1.2.11 Structure No. 13-Diversion Structure (Option)

1.2.11.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the diversion structure near Station 385+90 on Legal Drain No. 9. Work shall include, but is not limited to excavation, backfill, placement of riprap, and installation of stoplogs, vertical lift gates, steel grates and guardrail.

1.2.11.2 Unit of Measurement

Unit of measure: lump sum.

1.2.12 Structure No. 14-Two Cell Box Culvert (Special Design/Build)(Option)

1.2.12.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel road at Station 438+39. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of temporary road bypass, road embankment and asphalt pavement.

1.2.12.2 Unit of Measurement

Unit of measure: lump sum.

1.2.13 Structure No. 15-Two Cell Box Culvert (Special Design/Build)(Option)

1.2.13.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel Township road at Station 492+22. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of road embankment and surface.

1.2.13.2 Unit of Measurement

Unit of measure: lump sum.

1.2.14 Structure No. 17-Four Cell Box Culvert (Special Design/Build)

1.2.14.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel road at Station 318+52. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of road embankment and aggregate surface.

1.2.14.2 Unit of Measurement

Unit of measure: lump sum.

1.2.15 Existing Structure 4 Cleanout and Seepage Cutoff(NOT USED)

1.2.15.1 Payment

Work is not included in this contract.

1.2.15.2 Unit of Measurement

Unit of measure: lump sum.

1.2.16 Existing Structure 6 Cleanout(NOT USED)

1.2.16.1 Payment

Work is not included in this contract.

1.2.16.2 Unit of Measurement

Unit of measure: lump sum.

1.2.17 Structure 8 Removal (NOT USED)

1.2.17.1 Payment

Work is not included in this contract.

1.2.17.2 Unit of Measurement

Unit of measure: lump sum.

1.2.18 Cleanout Railroad Bridge Near Structure 11(NOT USED)

1.2.18.1 Payment

Work is not included in this contract.

1.2.18.2 Unit of Measurement

Unit of measure: lump sum.

1.2.19 Fencing

1.2.19.1 Payment

Replacement of existing fences will not be measured for payment. Payment will be made for the costs associated with operations necessary for the installation of farm type fences and gates. Work includes, but is not limited to, the installation of fence posts, horizontal brace rails, gates and barbed wire.

1.2.19.2 Unit of Measure

Unit of measure: lump sum.

1.2.20 Clearing and Grubbing

1.2.20.1 Payment

Clearing and grubbing will not be measured for payment. All costs therefore shall be included in the bid item to which the work pertains. Material that can be salvaged shall be stored for later use. Debris shall be properly disposed. No allowances will be made for clearing and grubbing outside the limits of construction unless authorized.

1.2.20.2 Unit of Measurement

Unit of measure: lump sum.

1.2.21 Stripping

1.2.21.1 Payment

Stripping will not be measured for payment. All costs therefore shall be included in the bid item to which the work pertains. Strip vegetation and topsoil along the diversion channel and levee alignments. Topsoil shall be stockpiled for later use. Unsuitable material shall be properly disposed. No allowances will be made for stripping outside the limits of construction unless authorized.

1.2.21.2 Unit of Measurement

Unit of measurement: lump sum.

1.2.22 Topsoil and Seed

1.2.22.1 Payment

The placement of topsoil and seeding on the diversion channel and levee sideslopes will not be measured for payment. All costs therefore shall be included in the bid item to which the work pertains. Work includes, but is not limited to placement of soil amendments, mulch, and care of turf. Restoration of disturbed areas outside of work limits and haul roads is incidental to the price bid. No allowances will be made for topsoil and

seeding outside the limits of construction unless authorized. The Contractor shall include compensation for installation and maintenance of erosion and sediment controls in the most applicable contract line item in the bid schedule.

1.2.22.2 Unit of Measurement

Unit of measure: lump sum.

1.2.23 Interior Drainage

1.2.23.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the interior drainage structures. Work includes, but is not limited to installation of culverts, gatewells, manholes, headwalls, outlet structures, riprap, flap gates, sluice gates and construction of ditches. The work shall also include removal and salvage of existing culverts. Restoration of roads, driveways, fences, and field entrances is incidental to the price bid. No allowances will be made for maintaining drainage from agricultural fields during interruptions in construction.

1.2.23.2 Unit of Measurement

Unit of measure: lump sum.

1.2.24 Road Relocations

Roads to be relocated include:

- Gravel Township Road between Structures No. 2 and No. 4, MINNDAK Seedmill concrete pavement, and rail spur retaining wall.
- 55th Street between Structures No. 6 and No. 9.

1.2.24.1 Payment

Payment will be made for the costs associated with operations necessary for relocating existing gravel roads to top of levee. Work includes, but is not limited to stripping and stockpiling existing gravel layer, placement and compaction of subgrade fills and placing pavement layers. Work shall also include design and construction of rail spur retaining wall. Submit design to Contracting Officer for approval. Restoration of driveways, driveway culverts, fences, and field entrances are incidental to the price bid.

1.2.24.2 Unit of Measurement

Unit of measure: lump sum.

1.2.25 Road Raises

Roads to be raised include:

- Gravel access road over Structure 9, approximately 2-foot raise.

- Gravel Township road over Structure 7, approximately 2-foot raise.
- US Highway 81 (concrete) over Structure 3, approximately 3-foot raise.
- Interstate 29 (concrete) over Structure 5, approximately 3-foot raise.
- 69th Street (gravel) between Stations 317+00 and 491+60, approximately 1/2 to 1-1/2 foot raise.
- 47th Avenue between Stations 491+60 and 501+95, approximately 1/2 foot raise.
- 69th Street (gravel) between Stations 280+5 and 317+00, approximately 1/2 to 1-1/2 foot raise may be included in this work at the Government's option.
- Columbia Road (gravel) extends approximately 1100 feet left of the channel and approximately 3200 feet right of the channel at Station 16+45, approximately 5 foot raise.

1.2.25.1 Payment

Payment will be made for the costs associated with operations necessary for raising the profile of existing roads over new structures. Work includes, but is not limited to clearing and grubbing, stripping, road embankment, aggregate base, construction of appropriate pavement, grading shoulders, placing topsoil and seeding, and replacement or installation of signage and pavement markings as needed. Work may include construction of temporary road bypasses or cross-overs, bracing for cross-overs, providing temporary access, restoration of driveways, driveway culverts, fences, and field entrances and are incidental to the price bid.

1.2.25.2 Unit of Measurement

Unit of measure: lump sum.

1.2.26 Demolition at the optional item Westgate Marine Property(Option)

1.2.26.1 Payment

If this option is elected by the Government payment will be made at the contract price for costs associated with removing the buildings, pavements, walks, utilities, fencing and all other necessary items prior to channel excavation at this property.

1.2.26.2 Unit of Measurement

Unit of measure: lump sum.

1.2.27 Demolition at the optional item Humane Society Property(Option)

1.2.27.1 Payment

If this option is elected by the Government payment will be made at the contract price for costs associated with removing the buildings, pavements, walks, utilities, fencing and all other necessary items prior to channel excavation at this property.

1.2.27.2 Unit of Measurement

Unit of measure: lump sum.

1.2.28 Seepage Cutoff Wall at Structure #4(NOT USED)

1.2.28.1 Payment

Work is not included in this contract.

1.2.28.2 Unit of Measurement

Unit of measure: lump sum.

1.2.29 69th St., approx. 1/2' to 1-1/2' raise Station 317+00 to 491+60.
(Option)

1.2.29.1 Payment

If this option is elected by the Government payment will be made at the contract price for costs associated with the road raise on 69th Street between Stations 317+00 and 491+00.

1.2.29.2 Unit of Measurement

Unit of measure: lump sum.

1.2.30 Channel work from Stations 331+00 - 501+95

1.2.30.1 Payment

If this option is elected by the Government payment will be made at the contract price for costs associated with the channel work from station 331+00 - 501+95. Excavation and fill will be added to cumulative total for this contract to establish if it is in the "first" or "over" bid item

1.2.31.2 Applicable bid items are:

0038 Channel work from Stations 331+00 - 501+95

0038AA Clearing and Grubbing

0038AB Stripping

0038AC Topsoil and Seeding

0022 Semi Compacted Fill

0020 Common Excavation

0020AB First 700,000 Cubic Yards

0022AB Over 700,000 Cubic Yards

1.3 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor,

materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

1.3.1 Common Excavation

1.3.1.1 Payment

Payment will be made for costs associated with excavation for the diversion channel. Disposition of excess excavated material and unsuitable and frozen materials to excess disposal fill zones will be incidental to the price bid for common excavation. Work includes, but is not limited to, placing fill in trucks, placing fills in on-site stockpiles, spreading disposal fills and rough grading of disposal fills. Common excavation does not include excavation for culverts, excavation for structures, excavation for utilities, off-site borrow excavation and any other excavation where measurement and payment is specified elsewhere.

1.3.1.2 Measurement

Common excavation shall be measured for payment by the cubic yard, in the original position, using the average-end-area method based on the original ground lines as determined by the required survey and the lines and grade shown. Topsoil stripped from common excavation zones shall be deducted from the quantity measured for common excavation. Final surveys shall be used for any authorized over-depth excavation. Except for authorized over-depth excavation, materials removed outside the lines and grades shown will not be measured for payment. Material removed outside the lines and grades shown, but within the specified tolerance will not be measured for payment. Disposal fill will not be measured for payment. All costs therefore shall be included in the bid item to which the work pertains.

1.3.1.3 Unit of Measure

Unit of measure: cubic yard.

1.3.2 Haul Excess Fill to Landfill (Optional)

1.3.2.1 Payment

Payment will be made for the costs associated with hauling excess fill from the excavation of the diversion channel to the City landfill and stockpiling the soil. The costs associated with excavation are covered in Article 1.3.1 Common Excavation.

1.3.2.2 Measurement

Excess fill hauled to the landfill shall be measured for payment by converting weight ticket amounts to cubic yards using a factor of 1.21 tons per cubic yard.

1.3.2.3 Unit of Measure

Unit of measure: cubic yard.

1.3.3 Compacted Fill and Semi-Compacted Fill

1.3.3.1 Payment

Payment will be made for the costs associated with the final placement and compaction of compacted and semi-compacted fill for the construction of the diversion channel sides lopes and levees. Work includes, but is not limited to, spreading and compacting fills, and rough grading.

1.3.3.2 Measurement

Compacted and semi-compacted fill shall be measured for payment by the cubic yard in place using the average-end-area method based on the original ground lines as determined by the required survey data after stripping and lines and grades shown with the following limitations or exceptions:

- (1) Tolerances are provided only for the convenience of the Contractor and no material placed outside of the lines, grades, and sections shown as a result of the permitted tolerances will be measured for payment.
- (2) Material placed above the lines, grades, and sections shown as allowance for shrinkage will not be measured for payment.
- (3) Volumes occupied by structures will not be included in measurement of fill or embankment quantities.

Impervious fill placed in the stockpiles for the closures will be measured and paid for as semi-compacted fill.

1.3.3.3 Unit of Measure

Unit of measure: cubic yard.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

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SECTION 01312

QUALITY CONTROL SYSTEM (QCS)

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SECTION 01312

QUALITY CONTROL SYSTEM (QCS)

08/01

PART 1 GENERAL

1.1 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format.

Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

Particular attention is directed to other clauses which have a direct relationship to the reporting to be accomplished through QCS:

- 52.236-15 Schedules for Construction Contracts,
- 52.232-5 Payments Under Firm Fixed Price Construction Contracts,
- Section 01320, PROJECT SCHEDULE,
- Section 01330, SUBMITTAL PROCEDURES,
- Section 01451, CONTRACTOR QUALITY CONTROL

There is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on 3-1/2 inch high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

1.3 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

Hardware

IBM-compatible PC with 200 MHz Pentium or higher processor

32+ MB RAM

4 GB hard drive disk space for sole use by the QCS system

3 1/2 inch high-density floppy drive

Compact disk (CD) Reader

Color monitor

Laser printer compatible with HP LaserJet III or better, with minimum 4 MB installed memory.

Connection to the Internet, minimum 28 BPS

Software

MS Windows 95 or newer version operating system (MS Windows NT 4.0 or newer is recommended)

Word Processing software compatible with MS Word 97 or newer

Internet browser

The Contractor's computer system shall be protected by virus protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.

Electronic mail (E-mail) compatible with MS Outlook

1.4 RELATED INFORMATION

1.4.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.4.2 Contractor Quality Control(QQC) Training

The use of QCS will be discussed at the Contractor's QC System Manager Training classes.

1.5 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.6 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government shall be submitted with file attachments, e.g., daily reports, schedule updates, payment requests. The QCS database typically shall include current data on the following items:

1.6.1 Administration

1.6.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, and management staff. The Contractor shall deliver Contractor administrative data in electronic format prior to the preconstruction conference.

1.6.1.2 Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. The Contractor shall deliver subcontractor administrative data in electronic format prior to the preconstruction conference.

1.6.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered

starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

1.6.1.5 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.6.1.7 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.6.2 Finances

1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.6.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data with file attachment(s). A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01451, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01451, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the Government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

1.6.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.6.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

1.6.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 200.

1.6.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work

progresses, and shall promptly provide this information to the Government via QCS.

1.6.4 Submittal Management

The Government will provide the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER, in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts"[, and Section 01320, PROJECT SCHEDULE]. This schedule shall be input and maintained in the RMS-QC database. The updated schedule data shall be included with each pay request submitted by the Contractor.

1.6.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data.

1.7 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

1.8 DATA SUBMISSION

The Contractor shall submit updates, payment requests, correspondence and other data in the format directed by the Contracting Officer. Submission formats available include diskettes, CD-ROM, or E-mail. Generally, E-mail is preferred for submissions from the Contractor's home office, and diskette or CD-ROM is preferred for submissions from the contractor's field office.

Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

1.8.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided

high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.8.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

1.9 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

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SECTION 02300

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SECTION 02300

EARTHWORK

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PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 117	(1995) Materials Finer Than 75 Micrometers (No. 200 Sieve) in Mineral Aggregates by Washing
ASTM C 136	(1996) Sieve Analysis of Fine and Coarse Aggregates
ASTM D 698	(1991) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft ³) (600 KN-m/m ³)
ASTM D 1556	(1996) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 2487	(1993) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2488	(1993) Description and Identification of Soils
ASTM D 2922	(1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(1988; R 1993) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
ASTM D 4318	(1995a) Liquid Limit, Plastic Limit, and Plasticity Index of Soils

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION (NDDOT)

Standard Specifications for Road and Bridge Construction

NDDOT 203	(1997) Excavation and Embankment
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NDDOT 230

(1997) Reshaping Roadway and Subgrade
Preparation

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-09 Reports

Testing; FIO.

A summary of testing results indicated in PARAGRAPH: TESTING shall be submitted when the site work is substantially complete. See PARAGRAPH: TESTING for draft correspondence.

1.3 SUBSURFACE DATA

The material to be excavated generally consists of silt and clay with relatively high moisture contents in many areas. The deposits in the major portion of the project are alkali or saline in nature and in many areas have moisture contents near or above their liquid limits. Experience with other projects in the general area indicate that these deposits can become very soft when disturbed by construction equipment. Based on local experience, excavation of these deposits has often been done during the winter months when frozen soils provide better support for excavation and hauling equipment. Soil boring logs containing more specific subsurface information are included in the plan reference drawings.

The existing roadway to be removed from Station 37+20 to Station 68+40 is anticipated to have approximately 3 feet of large stone beneath the aggregate base. Excavation and removal of this material will be the responsibility of the Contractor.

PART 2 PRODUCTS

2.1 DEFINITIONS

2.1.1 Satisfactory Materials

Material placed as compacted fill, semi compacted fill, minimum extent of disposal fill, or backfill shall consist of material classified by ASTM D2487 as GW, GP, GC, GM, SP, SM, SC, CH, ML, MH, CL AND SW. The material shall be free of ice, snow, frozen earth, trash, debris, sod, roots, organic matter, or stones larger than 3 inches in any dimension. All materials shall be of a character and quality satisfactory for the purpose intended. Maximum extent of disposal fill may have frozen earth.

2.1.2 Cohesionless and Cohesive Materials

Cohesionless materials include materials classified in ASTM D 2487 as GW,

GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic.

2.2 MATERIALS

2.2.1 Select Granular Fill

Select granular material shall be satisfactory material containing not more than 5 percent by weight of material passing the No. 200 sieve. The maximum allowable aggregate size shall be 1-1/2 inches.

2.2.2 Granular Fill

Granular material shall be satisfactory material containing not more than 12 percent by weight of material passing the No. 200 sieve.

2.2.3 Embankment Fill

The contract drawings indicate three types of fill to be used for levee construction. These include compacted fill, semi compacted fill and disposal fill. Material requirements for these types of fill are as follows:

2.2.3.1 Compacted Fill

Compacted fill shall consist of satisfactory cohesive material free from ice lenses and frozen material.

2.2.3.2 Semi Compacted Fill

Semi compacted fill shall have the same requirements as compacted fill.

2.2.3.3 Disposal Fill

Minimum extent of disposal fill shall have the same requirements as compacted fill.

Maximum extent of disposal fill may be any material obtained from required excavations. This includes frozen soil, muck, organic soil or large stones.

2.3 CONSTRUCTION EQUIPMENT

Compaction equipment shall consist of sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, or other approved equipment well suited to the soil type being compacted. Water flooding or jetting methods of compaction will not be permitted for any soil types. Sprinkling equipment for cohesive soils shall apply water uniformly, in controlled quantities, and be capable of variable application widths.

2.3.1 Levees

Use of sheepfoot rollers (vibratory or non-vibratory), or scarification between lifts, is required for construction of the compacted or semi

compacted levees. Construction equipment and methods shall avoid poor bonding between lifts, characterized by layered or laminated texture at the lift interfaces. Smooth surfaces (such as produced from smooth drum rollers, rubber tired rollers, and construction traffic) shall be scarified prior to placing subsequent lifts.

PART 3 EXECUTION

3.1 CLASSIFICATION OF SOIL MATERIALS

Classification of soil materials shall be performed by the Contractor in accordance with ASTM D 2488. The Contracting Officer reserves the right to revise the Contractor classifications. In the case of disagreement, the Contracting Officer's classification will govern unless the soils are classified in accordance with ASTM D 2487. All testing completed by the Contractor in conjunction with soil material classification will be considered incidental to the contract work.

3.2 STOCKPILES

Stockpiles of satisfactory material shall be placed and graded as specified. Stockpiles of all materials shall be kept in a neat and well drained condition, giving due consideration to drainage at all times. The ground surface at stockpile locations shall be cleared, grubbed, and sealed. Excavated satisfactory and unsatisfactory materials shall be separately stockpiled. Stockpiles of satisfactory materials shall be protected from contamination which may destroy the quality and fitness of the stockpiled material. If the Contractor fails to protect the stockpiles, and any material becomes unsatisfactory, such material shall be removed and replaced with satisfactory material from approved sources at no additional cost to the Government.

3.3 STRIPPING OF TOPSOIL

Where indicated or directed and under all temporary roads and bypasses, topsoil shall be stripped to a minimum depth of 1.0 feet. Topsoil shall be spread on areas already graded and prepared for topsoil, or transported and deposited in stockpiles convenient to areas that are to receive application of the topsoil later, or at locations indicated or specified. Observation of existing vegetation in the area between approximately station 225+00 and 385+00 indicate that the existing topsoil is very alkaline or saline in nature and may not be suitable for use as topsoil on project earthwork. Topsoil shall be kept separate from other excavated materials, brush, litter, objectionable weeds, roots, stones larger than 2 inches in diameter, and other materials that would interfere with planting and maintenance operations. Any surplus of topsoil from excavations and grading shall be removed from the site.

3.4 COMMON EXCAVATION

After topsoil removal has been completed, excavation of every description, regardless of material encountered, within the grading limits of the project shall be performed to the lines and grades indicated. Excavation

material suitable for use as fill shall be transported to and placed in fill areas within the limits of the work. All unsatisfactory material, including any soil which is disturbed by the Contractor's operations or softened due to exposure to the elements and water, and surplus material shall be disposed of in disposal fill areas designated on the drawings. In the event that it is necessary to remove unsatisfactory material to a depth greater than specified, the Contracting Officer shall be notified prior to removal of unsatisfactory material and an adjustment in the contract price will be considered in accordance with the contract. Excavations carried below the depths indicated shall be refilled to the proper grade with satisfactory material. Additional work not authorized by the Contracting Officer shall be at the Contractor's expense. Material required for fill or embankment in excess of that produced by excavation within the grading limits shall be excavated from borrow areas selected by the Contractor and approved by Contracting Officer as specified.

3.5 DIVERSION CHANNEL AND DITCHES

Ditches and diversion channel shall be cut accurately to the cross sections and grades indicated. Ditches shall be finished in a manner that will result in effective drainage. All roots, stumps, rock, and foreign matter in the sides and bottom of ditches and diversion channel shall be trimmed and dressed or removed to conform to the slope, grade, and shape of the section indicated. Care shall be taken not to excavate below the grades indicated. Excessive excavation shall be backfilled to grade with properly placed and compacted material. All ditches excavated under this section shall be maintained until final acceptance of the work. Satisfactory material excavated from ditches shall be placed in fill areas. Unsatisfactory and excess excavated material shall be properly disposed of.

3.5.1 Drainage

Surface water shall be directed away from excavation and construction sites so as to prevent erosion and undermining of foundations. Diversion ditches, dikes and grading shall be provided and maintained as necessary during construction. Excavated slopes and backfill surfaces shall be protected to prevent erosion and sloughing. Excavation shall be performed so that the site and the area immediately surrounding the site and affecting operations at the site shall be continually and effectively drained.

3.5.2 Dewatering

See SECTION 01000: GENERAL for dewatering requirements.

3.5.3 Scour Hole Backfill Material

Granular fill shall be used to fill scour holes in channel bottom to the lines and grades indicated and for replacing unsatisfactory materials, unless otherwise indicated or directed.

3.6 BORROW MATERIAL

3.6.1 Common Borrow

It is anticipated that all cohesive fill will be obtained from required excavation. No borrow sources will be provided for cohesive or cohesionless fill.

Borrow material shall be selected to meet the requirements and conditions of the particular fill or embankment for which it is to be used.

3.6.2 Excavation

Except as otherwise permitted excavation areas shall be excavated providing adequate drainage. Overburden and other spoil material shall be transported to designated disposal fill areas or otherwise disposed of, or used for special purposes.

3.6.2 Utilization of Excavated Materials

Satisfactory material removed from excavations shall be used, insofar as practicable, in the construction of fills, subgrades, and for similar purposes. No excavated material shall be disposed of in such a manner as to obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.

3.7 EMBANKMENTS

Compacted and semi compacted fills and roadway embankments shall be constructed at the locations and to lines and grades indicated. Fill shall be satisfactory material. The material shall be placed in successive horizontal layers for the full width of the cross section designated for compaction and shall be compacted as specified. Each layer shall be compacted before the overlaying lift is placed.

3.8 LEVEES

3.8.1 Embankment

If not specifically identified, compacted, semi compacted and disposal fill or other unclassified material shall be sorted to the extent practicable with the more cohesive and less pervious material placed coulee side, and sandy free-draining material placed land side.

3.9 SUBGRADE PREPARATION

Areas upon which compacted, semi compacted and minimum extent of disposal fill is to be placed shall be stripped before the fill is started. Material other than maximum extent of disposal fill shall not be placed on surfaces that are muddy, frozen, contain frost, or where unsatisfactory material remains in or under the fill. For cohesionless soils, the subgrade surface shall be scarified to a depth of 12 inches and compacted to at least 100 Percent of the Standard Proctor density. For cohesive soils, the subgrade shall be proof rolled with rubber tired equipment and any soft areas shall be brought to the Contracting Officer's attention. Sloped ground surfaces steeper than one vertical to four horizontal on which fill is to be placed shall be stepped such that the fill material

will bond with the existing surface.

3.9.1 Subgrade Correction

Soft or otherwise unsatisfactory material under compacted and semi-compacted fill shall generally be removed and replaced with satisfactory excavated material or other approved material as directed. Low areas resulting from removal of unsatisfactory material shall be brought up to required grade with satisfactory materials, and the entire subgrade shall be shaped to line, grade, and cross section and compacted as specified. Subgrade correction under disposal fill is not necessary.

3.10 FINISHING

All areas covered by the project, including excavated and filled sections and adjacent transition areas, shall be uniformly smooth-graded. The finished surface shall be reasonably smooth, compacted, and free from irregular surface changes. The degree of finish shall be that ordinarily obtainable from blade-grader operations, except as otherwise specified. Ditches shall be finished to permit adequate drainage. The surface of areas to be turfed shall be finished to a smoothness suitable for the application of turfing.

3.10.1 Roadway Subgrade Tolerances

When the final layer of subgrade has been completed, and at the time any additional construction is to be placed thereon, the finished surface of the subgrade shall not vary more than 0.05 feet from the plan elevation.

3.10.2 Embankment Tolerances

The finished surface of compacted and semi-compacted levees and embankments not used for roadways shall not vary more than plus (+) 0.5 feet.

3.10.3 Channel Tolerances

The finished surface of the diversion channel bottom shall not vary more than minus (-) 0.15 feet.

3.11 PLACING TOPSOIL

Topsoil placement is covered in SECTION 02920: SEEDING, SODDING, AND TOPSOIL. The finished grade shall be such that after subsequent treatment (tillage, topsoiling and planting) the planted grade shall join 1 inch below adjoining surfaced grade of paved areas and even with adjoining turfed areas.

3.12 COMPACTION

3.12.1 Degree of Compaction

Degree of compaction required is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 698. The maximum density is hereafter abbreviated as the "Standard Proctor" value.

3.12.2 Moisture Control

Control of moisture in all types of fill except disposal fill shall be maintained to provide acceptable compaction. Dried or crusted cohesive soils shall be plowed, disked or otherwise broken up before compaction. If water is added to fills, the layer shall be spread in even lifts, moistened as necessary, thoroughly mixed, and compacted.

3.12.3 Placement And Compaction

For all types of fill except disposal fill each layer shall be spread uniformly on an acceptable soil surface. The type of fill, its maximum uncompacted lift thickness, and the minimum compaction requirements (Percent of Standard Proctor density) to which each type of fill shall be compacted shall be as listed below.

<u>Fill Zone</u>	<u>Maximum Uncompacted Lift Thickness (inches)</u>	<u>Percent of Standard Proctor Density</u>
General Grading	12	95
Levees - Compacted Fill	12	95
Levees - Semi Compacted	12	See 3.12.4
Levees - Disposal Fill	N/A	See 3.12.4
Utility and Storm Drain Backfill	Use specification for zone where utility is located.	

- a. Satisfactory materials shall be place in horizontal layers not exceeding 6 inches loose depth when hand operated compactors are used.
- b. Roadway embankments and subgrade shall be compacted to at least the Percent of Standard Proctor density as follows:
 - (1) For embankment fill sections the top 36 inches below the aggregate base course shall be placed in uncompacted lifts not exceeding 9 inches and compacted to at least 100 Percent of the Standard Proctor density at a moisture content of +/- 3% OMC.
 - (2) For roadway cut sections in cohesionless soils the subgrade surface shall be compacted to at least 100 Percent of the Standard Proctor density. For cut sections in cohesive soils, the subgrade shall be proof rolled and any soft areas shall be brought to the Contracting Officer's attention.
 - (3) For pavement subgrade, use Subgrade Preparation Type A with compaction to 100 percent of Standard Proctor maximum dry density at a moisture content of +/-3% OMC. Refer to NDDOT Specification Sections 203 and 230.

3.12.4 Semi Compacted and Disposal Fill

3.12.4.1 Semi Compacted Fill

Semi compacted fill shall be placed in 12 inch lifts. Each lift shall have a minimum of 5 passes over the entire surface of a crawler type tractor weighing not less than 20,000 lbs or 5 passes of other approved compaction equipment.

3.12.4.2 Disposal Fill

It is anticipated that disposal fill will be placed in loose piles after removal from required excavation. The surface of the piles will be graded to provide a uniform free draining surface and the entire final surface will be compacted by a minimum of 2 passes of a crawler type tractor weighing not less than 20,000 lbs or other approved compaction equipment.

3.13 TESTING

3.13.1 General

All testing expenses shall be the Contractor's responsibility. Prior to sampling and testing the work, testing laboratories shall be inspected and approved in accordance with SECTION 01451: CONTRACTOR QUALITY CONTROL. The Contracting Officer reserves the right to direct the location and select the material for samples to be tested and to direct where and when moisture-density tests shall be performed.

3.13.2 Transmittal

The Contracting Officer shall be informed of test results daily for direction on corrective action required. Draft copies of field testing results shall be submitted to the Contracting Officer on a frequent and regular basis, as directed.

3.13.3 Corrective Action

Tests of materials which do not meet the contract requirements (failing test) will not be counted as part of the required testing. Each such failing test must be retaken at the same location as the failing test was taken. If testing indicates material does not meet the contract requirements, the material represented by the failing test shall not be placed in the contract work or shall be recompacted or removed. The quantity of material represented by the failing test shall be determined by the Contracting Officer up to the quantity represented by the testing frequency. The Contractor may increase testing frequency in the vicinity of a failing test in order to reduce removal requirements, as approved by the Contracting Officer. Such increases in testing frequency shall be at the Contractor's expense and at no additional cost to the Government.

3.13.4 Testing Schedule

- a. Moisture-Density Relations (ASTM D 698)

One test for each material variation, not less than 3 tests total.

- b. In-Place Densities (ASTM D 1556 or ASTM D 2922)
 - (1) Typical, 1 test per 2500 CY of fill placed
 - (2) Structure foundations and floor slabs, not less than 1 test for each 2 vertical feet of fill
 - (3) Utility trench backfill below pavements and slabs, not less than 1 test per 2 vertical feet per 300 linear feet
- c. Percent Passing No. 200 sieve (ASTM C 117)
 - (1) Select Granular Fill, 1 test per 1000 CY of fill placed, not less than 1 test for each source placed
 - (2) Granular Fill, 1 test per 5000 CY of fill placed, not less than 1 test for each source
- d. Sieve Analysis, (ASTM C 136)
 - (1) Select Granular Fill, 1 test for each source
- e. Plasticity Index (ASTM D 4318)
 - (1) Cohesive soils, 1 test for each moisture density relation
- f. No testing will be required for disposal fill.

3.14 NUCLEAR DENSITY TESTING EQUIPMENT

Nuclear density testing equipment shall be used in general accordance with ASTM D 2922 and ASTM D 3017. In addition, the following conditions shall apply:

- a. Prior to using the nuclear density testing equipment on the site, the Contractor shall submit to the Contracting Officer a certification that the operator has completed a training course approved by the nuclear density testing equipment manufacturer, the most recent data sheet from the manufacturer's calibration, and a copy of the most recent statistical check of the standard count precision.
- b. The first test and every tenth test thereafter shall include a sand cone correlation test. The sand cone test shall be centered over the prepared surface for the nuclear test, shall include a nominal 6 inch diameter sand cone, and shall include a minimum wet soil weight of 6 pounds extracted from the hole. In addition, testing of aggregate base soils shall include a minimum of 3 sand cone correlations for each day of testing; and testing of bituminous shall include a minimum of 3 core densities for each day of testing. The density correlations shall be submitted with test results. Each transmittal including density test data shall include a summary of all density correlations for the job neatly prepared on a summary sheet including at a minimum:

- (1) meter serial number and operators initials.
- (2) standard count for each test.
- (3) material type.
- (4) probe depth.
- (5) moisture content by each test method and the deviation.
- (6) wet density by each test method and the deviation.

c. The nuclear density testing equipment shall be capable of extending a probe 6 inches minimum down into a hole.

d. Nuclear density testing equipment used within 2 vertical feet from the existing ground water level, 5 horizontal feet from a vertical wall or massive concrete structure, or in a trench shall have the standard count changed before and after each test.

e. Nuclear density testing equipment shall not be used during rain.

3.15 SUBGRADE AND EMBANKMENT PROTECTION

Compacted subgrades that are disturbed by the Contractor's operations or adverse weather shall be scarified and compacted as specified herein to the required density prior to further construction thereon. Subgrades not meeting the specifications for finish, material type and density at the time of surface material placement shall be corrected at the Contractor's expense. Cohesive embankments and subgrades shall be kept crowned or sloped for drainage. Newly graded areas shall be protected from traffic and erosion. Any settlement or washing away that may occur from any cause shall be repaired. No base course or pavement shall be laid until the subgrade has been checked and approved by the Contracting Officer. Ditches and drains along subgrade shall be maintained to provide effective drainage. All work shall implement best management practices for erosion control.

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DIVISION 02 - SITE WORK

SECTION 02464

METAL SHEET PILING

07/01

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SECTION 02464

METAL SHEET PILING
07/01

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 6 (1995b) General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling

ASTM A 572 High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D1.1 Structural Welding Codes

D2.3 Structural Welding Code Sheet Steel

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Metal Sheet Piling; GA.

Detail drawings for sheet piling including fabricated sections shall show complete piling dimensions and details, driving sequence and location of installed piling. Detail drawings shall include details and dimensions of templates and other temporary guide structures for installing piling. Detail drawings shall provide details of the method of handling piling to prevent permanent deflection, distortion or damage to piling interlocks.

Design Calcs; FIO

Detailed design calculations of braced sheet piling support system

including check of adequacy of existing sheet piling section.

Pile Driving Equipment; FIO

Complete descriptions of sheet piling driving equipment including hammers, extractors, protection caps and other installation appurtenances shall be submitted for approval prior to commencement of work.

SD-08 Statements

Pulling and Redriving; GA.

The proposed method of pulling sheet piling shall be submitted and approved prior to pulling any piling.

Qualifications; GA

Documentation of qualifications required for sheeting installer.

Materials Tests; FIO.

Certified materials tests reports showing that sheet piling and appurtenant metal materials meet the specified requirements shall be submitted for each shipment and identified with specific lots prior to installing materials. Material test reports shall meet the requirements of ASTM A 6.

SD-18 Records

Driving; FIO.

Records of the sheet piling driving operations shall be submitted after driving is completed. These records shall provide a system of identification which shows the disposition of approved piling in the work, driving equipment performance data, piling penetration rate data, piling dimensions and top and bottom elevations of installed piling. The format for driving records shall be as directed.

1.3 DELIVERY, STORAGE AND HANDLING

Materials delivered to the site shall be new and undamaged and shall be accompanied by certified test reports. The manufacturer's logo and mill identification mark shall be provided on the sheet piling as required by the referenced specifications. Sheet piling shall be stored and handled in the manner recommended by the manufacturer to prevent permanent deflection, distortion or damage to the interlocks.

PART 2 PRODUCTS

2.1 METAL SHEET PILING

Metal sheet piling shall be continuously interlocking hot-rolled steel sections conforming to ASTM A572, GR50. The interlocks of sheet piling shall be free-sliding, provide a swing angle suitable for the intended installation but not less than 5 degrees when interlocked, and maintain

continuous interlocking when installed. Sheet piling shall be provided with standard pulling holes. Metalwork fabrication for sheet piling shall be as specified and in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, AND MISCELLANEOUS PROVISIONS.

2.2 WELDING ELECTRODES

AWS D1.1 and D2.3 E70 Electrode.

2.3 APPURTENANT METAL MATERIALS

Metal plates, shapes, bolts, nuts, rivets and other appurtenant fabrication and installation materials shall conform to manufacturer's standards and to the requirements specified in the respective sheet piling standards and in Section 05502 MISCELLANEOUS METAL MATERIALS, STANDARD ARTICLES, AND SHOP FABRICATED ITEMS.

2.4 TESTS, INSPECTIONS, AND VERIFICATIONS

Requirements for material tests, workmanship and other measures for quality assurance shall be as specified and in Section 05055 METALWORK FABRICATION, MACHINE WORK, AND MISCELLANEOUS PROVISIONS.

2.4.1 Material Tests

Sheet piling and appurtenant materials shall be tested and certified by the manufacturer to meet the specified chemical, mechanical and section property requirements prior to delivery to the site. Testing of sheet piling for mechanical properties shall be performed after the completion of all rolling and forming operations. Testing of sheet piling shall meet the requirements of ASTM A 572, GR 50.

PART 3 EXECUTION

3.1 INSTALLATION

3.1.1 Pile Driving Equipment

Pile driving equipment shall conform to the following requirements.

3.1.1.1 Driving Hammers

Hammers shall be steam, air, or diesel drop, single-acting, double-acting, differential-acting, or vibratory type. The driving energy of the hammers shall be as recommended by the manufacturer for the piling weights and subsurface materials to be encountered.

3.1.2 Placing and Driving

3.1.2.1 Placing

Any excavation required within the area where sheet pilings are to be installed shall be completed prior to placing sheet pilings. Pilings to be placed in cofferdam cells and connecting arcs shall be picked up and

completely threaded to demonstrate that they slide freely in interlock. Pilings shall be carefully located as directed by Soils Engineer. Pilings shall be placed plumb with out-of-plumbness not exceeding 1/8 inch per foot of length and true to line. Pilings properly placed and driven shall be interlocked throughout their length with adjacent pilings to form a continuous diaphragm throughout the length or run of piling wall.

3.1.2.2 Driving

Prior to driving pilings in water a horizontal line shall be painted on both sides of each piling at a fixed distance from the bottom so that it shall be visible above the water line after installation. This line shall indicate the profile of the bottom elevation of installed pilings and potential problem areas can be identified by abrupt changes in its elevation. Pilings shall be driven with the proper size hammer and by approved methods so as not to subject the pilings to damage and to ensure proper interlocking throughout their lengths. Caution shall be taken in the sustained use of vibratory hammers when a hard driving condition is encountered to avoid interlock-melt or damages. The use of vibratory hammers should be discontinued and impact hammers employed when the penetration rate due to vibratory loading is one foot or less per minute. Pilings damaged during driving or driven out of interlock shall be removed and replaced at the Contractor's expense. Damaged sheet piles include but are not necessarily limited to sheet piles bent, buckled, cracked, with fabrication tolerances beyond those indicated in ASTM A572, or with any other defect as determined by the Engineer would weaken the sheet pile. Piling shall be driven without the aid of a water jet. Adequate precautions shall be taken to insure that pilings are driven plumb. If at any time the forward or leading edge of the piling wall is found to be out-of-plumb in the plane of the wall the piling being driven shall be driven to the required depth and tapered pilings shall be provided and driven to interlock with the out-of-plumb leading edge or other approved corrective measures shall be taken to insure the plumbness of succeeding pilings. The maximum permissible taper for any tapered piling shall be 1/8 inch per foot of length. Pilings in each run or continuous length of piling wall shall be driven alternately in increments of depth to the required depth or elevation. No piling shall be driven to a lower elevation than those behind it in the same run except when the pilings behind it cannot be driven deeper. If the piling next to the one being driven tends to follow below final elevation it may be pinned to the next adjacent piling. Pilings shall not be driven within 100 feet of concrete less than 7 days old.

3.1.3 Inspection of Driven Piling

The Contractor shall inspect the interlocked joints of driven pilings extending above ground. Pilings found to be out of interlock shall be removed and replaced at the Contractor's expense.

3.1.4 Pulling and Redriving

In the pulling and redriving of piles as directed, the Contractor shall pull selected pilings after driving to determine the condition of the underground portions of pilings. Any piling so pulled and found to be

damaged to the extent that its usefulness in the structure is impaired shall be removed and replaced at the Contractor's expense. Pilings pulled and found to be in satisfactory condition shall be redriven when directed.

3.2 REMOVAL

The removal of sheet pilings shall consist of pulling, sorting, cleaning the interlocks, inventorying and storing previously installed sheet pilings as shown and directed.

3.2.1 Pulling

The method of pulling piling must be approved. Extractors shall be of suitable type and size. Care shall be exercised during pulling of pilings to avoid damaging piling interlocks and adjacent construction. If the Contracting Officer determines that adjacent permanent construction has been damaged during pulling the Contractor will be required to repair this construction at no cost to the Government. Pilings shall be pulled one sheet at a time. Pilings fused together shall be separated prior to pulling unless the Contractor demonstrates to the satisfaction of the Contracting Officer that the pilings cannot be separated. The Contractor will not be paid for the removal of pilings damaged beyond structural use due to proper care not being exercised during pulling.

3.2.2 Sorting, Cleaning, Inventorying and Storing

Pulled pilings shall be sorted, cleaned, inventoried and stored by type into groups as:

- a. Piling usable without reconditioning.
- b. Piling requiring reconditioning.
- c. Piling damaged beyond structural use.

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DIVISION 03 - CONCRETE

SECTION 03500

SPECIAL CULVERT DESIGN

07/01

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SECTION 03500

SPECIAL CULVERT DESIGN
07/01

PART 1 GENERAL

1.1 GENERAL

This specification section is to provide guidance in the design of the special culverts on the English Coulee Diversion Channel project. For construction of these culverts refer to the following Sections:

SECTION 03100: STRUCTURAL CONCRETE FORMWORK

SECTION 03150: EXPANSION JOINTS, CONTRACTION JOINTS, AND WATERSTOPS

SECTION 03200: CONCRETE REINFORCEMENT

SECTION 03300: CAST-IN-PLACE STRUCTURAL CONCRETE

1.1.1 Definitions

Special culverts shall be those culverts that the Contractor is fully responsible for structural design, detailing, reinforcement and concrete quantities, shop drawing production and submittals, and construction.

1.1.2 Precast Box Culverts

The plans and specifications for this contract are written with cast in place box culverts intended throughout. The Contractor is not precluded from using precast box culverts. Where the plans show cast in place box culverts (Structures 3, 5, 10, 11) the Government will consider precast culverts as a Value Engineering Proposal. Where box culverts are to be designed by the Contractor (Structures 2, 7, 9, 12, 14, 15, 17) precast box culverts may be used providing they meet the design requirements of, and are approved by, the North Dakota Department of Transportation and are approved by the Contracting Officer.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

AASHTO

Standard Specification for Highway Bridges -
(16th Edition)

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-01 Data

Design Calculations; GA.

The Contractor shall submit design analysis and calculations for the special culverts to the Contracting Officer for review and approval by Corps of Engineers. The Contracting Officer will forward the design calculations to the North Dakota Department of Transportation.

SD-04 Drawings

Shop Drawings; GA

The Contractor shall submit shop drawings similar to the drawings within the plan set for non-special culverts. These shop drawings shall include specifics on bar sizes, spacing, locations, bends, and concrete and reinforcement quantities and must adhere to the location specific bar mark numbering system set fourth by the North Dakota Department of Transportation. The Contracting Officer will forward the shop drawings to the North Dakota Department of Transportation.

As-Built Drawings; FIO

Refer to SECTION 03300: CAST-IN-PLACE STRUCTURAL CONCRETE

1.4 QUALIFICATIONS

All calculations and submitted drawings shall be signed by a Professional Engineer registered in the State of North Dakota.

PART 2 PRODUCTS

2.1 NORTH DAKOTA DEPARTMENT OF TRANSPORTATION CULVERT DESIGN PROGRAM

The culvert design program can be obtained from Larry Schwartz of the North Dakota Department of Transportation, telephone number 701-328-4446. This program is used to aid in the design of the special culvert.

PART 3 EXECUTION

3.1 DESIGN

The concrete geometry of each cast-in-place special culvert has been given in the plan set. This ensures a similar appearance to all culverts on the English Coulee Diversion Channel project. It is the Contractors responsibility that the design of the special culverts meet or exceed the AASHTO design specifications for flexural and shear design as well as for crack control requirements set fourth in Section 17.6.4.7, Crack Control, of the above referenced specifications. The Contractor shall produce

calculations for the barrel of the culvert, showing the determination of critical moments and shears either by hand calculation or by a finite element modeling using the HS25 live loading condition. These calculations shall include reinforcement size and spacing requirement to meet the above design specification and shall be submitted for approval to the Contracting Officer. The North Dakota, Department of Transportation culvert design program and its output should not be used for determination of critical moments or shears, nor for required bar size or spacing, nor for concrete and steel quantities. It should be used to assist the Contractor in locating callouts for the location specific bar mark numbering system. Also, its output for the wingwall geometry and wingwall reinforcement size and spacing should be followed. In addition, the construction notes and details with minor corrections provided by the DOT should be used.

-- End of Section --