



**DEPARTMENT OF TRANSPORTATION**

**NOTICE TO CONTRACTORS,  
PROPOSAL, SPECIAL PROVISIONS,  
CONTRACT AND CONTRACT BOND  
FOR**

**WATER MAIN ADJUSTMENTS AND  
SANITARY SEWER IMPROVEMENTS**

CITY

PROJECT NO. 2014 1( )  
(PCN X03A)

SD HIGHWAY 47

IN HYDE COUNTY

## **NOTICE TO ALL BIDDERS**

### **TO REPORT BID RIGGING ACTIVITIES, CALL: 1-800-424-9071**

THE U.S. DEPARTMENT OF TRANSPORTATION (DOT) OPERATES THE ABOVE TOLL-FREE "HOTLINE" MONDAY THROUGH FRIDAY, 8:00 A.M. TO 5:00 P.M., EASTERN TIME. ANYONE WITH KNOWLEDGE OF POSSIBLE BID RIGGING, BIDDER COLLUSION, OR OTHER FRAUDULENT ACTIVITIES SHOULD USE THE "HOTLINE" TO REPORT SUCH ACTIVITIES.

THE "HOTLINE" IS PART OF THE DOT'S CONTINUING EFFORT TO IDENTIFY AND INVESTIGATE HIGHWAY CONSTRUCTION CONTRACT FRAUD AND ABUSE AND IS OPERATED UNDER THE DIRECTION OF THE DOT INSPECTOR GENERAL.

ALL INFORMATION WILL BE TREATED CONFIDENTIALLY AND CALLER ANONYMITY WILL BE RESPECTED.

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### **PLANS, PROPOSALS AND ADDENDA**

AFTER AWARD OF CONTRACT, THE LOW BIDDER WILL RECEIVE TEN (10) COMPLIMENTARY SETS OF PLANS, PROPOSALS, AND ADDENDA FOR FIELD AND OFFICE USE. AN ELECTRONIC COPY WILL ALSO BE PROVIDED. ANY ADDITIONAL COPIES REQUIRED WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

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## NOTICE TO CONTRACTORS

Electronic Bids for this project will be received by the South Dakota Department of Transportation (SDDOT) via the SDDOT secure bid submission site at <http://apps.sd.gov/hc65bidletting/bidsubmittallogin.aspx> until 10 A.M. Central time, on August 20, 2014, at which time the SDDOT will open bids. All bids will be checked for qualifications with results posted on the SDDOT website. The South Dakota Transportation Commission will consider all bids at a scheduled Commission meeting.

The work for which proposals are hereby requested is to be completed: **ON OR BEFORE NOVEMBER 13, 2015.**

The DBE goal for this project is: **DBE/MBE 1% and WBE 4%.**

Work Type for this project is: **Work Type 5.**

All proposals shall be prepared and submitted accordance with the Special Provision of Electronic Bidding Requirements. Any proposal otherwise submitted will be deemed informal, irregular and not subject to or worthy of consideration in the award of the contract.

Plans and the proposal package for the work may be obtained at:  
<http://apps.sd.gov/hc65bidletting/ebslettings1.aspx>

City specifications for the City Utility work are provided and referenced within the advertised contract documents. All work not covered under the City utility specifications shall be completed in accordance with the Standard Specifications for Roads and Bridges, most recent edition. An electronic version of the Standard Specifications for Roads and Bridges may be obtained at <http://www.sddot.com/business/contractors/specs/Default.aspx>

The electronic bid proposal must be submitted by a valid bidder as designated on the [Bidding Authorization Form](#). The Bidder ID and Password, coupled with a previously Department assigned Company ID, will serve as authentication that an individual is a valid bidder and will assure the secure electronic delivery of bid proposals to the Department. This authorization shall remain in full force and effect until written notice of termination of this authorization is sent by an Officer of the company and received by the Department.

No proposal will be considered unless a guaranty in amount of five percent of the total amount of the bid is secured by the Contractor and received by the Department with the bid or prior to opening of the bids. Satisfactory proposal guaranties include certified checks, cashier's checks, bank drafts issued upon a National or State Bank, or a bid bond issued in accordance with the laws of South Dakota. If electronic bid bonds are used, the Contractor is required to submit the bid bond identification number with the Contractor's bid. Unless otherwise specified in the proposal book, the proposal guaranty shall be made payable at sight to the Department of Transportation, State of South Dakota.

The South Dakota Transportation Commission reserves the right to reject any or all Proposals.



SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION, STATE OF SOUTH DAKOTA:

Ladies / Gentlemen:

The following proposal is made on behalf of the undersigned and no others. It is in all respects fair and is made without collusion on the part of any other person, firm or corporation not appearing in the signature to this proposal.

The undersigned certifies that she / he has carefully examined the plans listed herein, the Specifications hereinbefore referred to, the Special Provisions and the form of contract, both of which are attached hereto. The undersigned further certifies that she / he has personally inspected the actual location of the work, together with the local sources of supply and that she / he understands the conditions under which the work is to be performed, or, that if she / he has not so inspected the actual location of the work, that she / he waives all right to plea any misunderstanding regarding the location of the work or the conditions peculiar to the same.

On the basis of the plans, Specifications, Special Provisions and form of contract proposed for use, the undersigned proposes to furnish all necessary machinery, tools, apparatus and other means of construction, to do all the work and furnish all the materials in the manner specified, to finish the entire project **ON OR BEFORE NOVEMBER 13, 2015** and to accept as full compensation therefore the amount of the summation of the products of the actual quantities, as finally determined, multiplied by the unit prices bid.

The undersigned understands that the quantities as shown in the Bid Schedule are subject to increase or decrease, and hereby proposes to perform all quantities of work, as increased or decreased, in accordance with the provisions of the specifications, and subject to any applicable special provisions, and at the unit prices bid.

The undersigned understands that the "Total or Gross Amount Bid" as immediately hereinbefore set forth is not the final amount which will be paid if this proposal is accepted and the work done, but that such amount is computed for the purpose of comparison of the bids submitted and the determination of the amount of the contract bond.

The undersigned further proposes to perform all extra work that may be required on the basis provided in the specifications, and to give such work personal attention in order to see that it is economically performed.

The undersigned further proposes to both execute the contract agreement and to furnish a satisfactory contract bond, in accordance with the terms of the specifications, within twenty (20) days after the receipt of notice from the South Dakota Department of Transportation that this proposal has been accepted.



REV. 5/15/14

SPECIAL PROVISIONS

PROJECT NUMBER(S): 2014 1( ) PCN: X03A

TYPE OF WORK: WATER MAIN ADJUSTMENTS AND SANITARY SEWER IMPROVEMENTS

COUNTY: HYDE

The following clauses have been prepared subsequent to the Standard Specifications for Roads and Bridges and refer only to the above described improvement, for which the following Proposal is made. In case of any discrepancy or conflict between said specifications and these Special Provisions, the latter are to govern.

The Contractor's attention is directed to the need for securing from the Department of Environment & Natural Resources, Foss Building, Pierre, South Dakota, permission to remove water from public sources (lakes, rivers, streams, etc.). The Contractor should make his request as early as possible after receiving his contract, and insofar as possible at least 30 days prior to the date that the water is to be used.

Mark Anderson is the official in charge of the Pierre Career Center for Hyde County.

**THE FOLLOWING ITEMS ARE INCLUDED IN THIS PROPOSAL FORM:**

**Instructions for Bidders**

**Special Provision Regarding Triple Combination Bids, dated 7/22/14.**

**Special Provision Regarding the City Portion for Subletting, dated 3/4/14.**

**BUY AMERICAN Use of American Iron and Steel**

**STATE REVOLVING FUND (SRF) GENERAL CONDITIONS with  
Davis-Bacon Provisions, dated 1/10.**

**Technical Specifications for Highway 47 Utilities Relocation.**

Special Provision for Electronic Bidding Requirements, dated 12/18/13.

Special Provision for Differing Site Conditions, dated 12/19/13.

Special Provision for Suspension of Work, dated 2/13/04

Standard Title VI Assurance, dated 1/15/04.

Special Provision For Implementation of Clean Air Act & Federal Water Pollution Control Act,  
dated 9/1/97.

Supplemental Specification for Errata, dated 3/3/10.

Supplemental Specification to Standard Specifications for Roads and Bridges, dated 3/3/10.

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**L13 03083( ), PCN X03A**  
**WATER MAIN ADJUSTMENTS AND SANITARY SEWER IMPROVEMENT**  
**SD HIGHWAY 47**  
**CITY OF HIGHMORE**

**INSTRUCTIONS FOR BIDDERS**

- (1) Inquiries concerning the design and construction of this Sanitary Sewer & Watermain Project may be directed to: Samuel Hahn, SPN & Associates, 2100 North Sanborn Blvd, Mitchell, SD 57301, telephone (605)996-7761.
- (2) This Water Main Adjustments and Sanitary Sewer Improvements Project will be let and awarded by the South Dakota Department of Transportation, subject to concurrence by the City of Highmore and the Department of Environment & Natural Resources.
- (3) Plans, specifications and bidding proposals shall be obtained from the South Dakota Division of Planning and Engineering, Bid Letting Office, 700 East Broadway Avenue, Pierre, SD 57501.
- (4) All bid bonds shall be made out to the Department of Transportation.
- (5) Department of Transportation procedures regarding letting and awarding of contracts shall be followed.
- (6) Bidders submitting a bid on this project shall also submit bids on Projects P 0047(18)136, PCN 6161, and P 0047(1010)137, PCN 038B Hyde County. Award of these projects will be to the same bidder based on the total of the three projects.
- (7) Bidders on this Water Main Adjustments and Sanitary Sewer Improvements Project will be required to comply with the: A) Federal Bid Requirements & Inclusions for Projects Involving Disadvantaged Business Enterprise (DBE) Program and B) D.E.N.R. State Revolving Funds (SRF) General Conditions. Goals for contract participation for DBE/MBE are 1% and WBE are 4%. **The following forms contained in the State Revolving Fund (SRF) General Conditions must be completed and submitted with the bid proposal: MBE/WBE Subcontractor Solicitation Information form (page MBE/WBE-6) and the Certification Regarding Debarment, Suspension, and Other Responsibility Matters (page Debar-2). If these forms are not completed and submitted, the bid will be rendered null and void and will be cause for rejection.** Inquiries relative to these documents can be directed to Claire Peschong, Water Resources Assistance Program, Dept. of Environment & Natural Resources, Foss Building, Pierre, SD (605)773-5668.
- (8) In addition to the above listed Federal requirement (Item 7) for work on this Water Main Adjustments and Sanitary Sewer Improvements Project, bidders will be required to comply with the President's Executive Order Nos. 11246, as amended, 11518 and 11625 as amended. The requirements for bidders and contractors under these orders are explained in the general conditions. **Inquiries relative to these documents can be directed to Claire Peschong, Water Resources Assistance Program, Dept. of Environment & Natural Resources, Foss Building, Pierre, SD (605)773-5668.**
- (9) The low responsive bidder will be required to certify to compliance with the Buy American Iron and Steel provision of the Consolidated Appropriations Act of 2014. This certification form may be found on page BA-2 of the State Revolving Fund (SRF) General Conditions and must be included in the bid proposal.

Please be advised that waivers or exemptions from the Buy American provision that cite International Trade Agreements **DO NOT** comply with the Consolidated Appropriations Act of 2014 as it applies to

the SRF programs. Claims from suppliers that the Buy American Iron and Steel provision does not apply to certain products based on the International Trade Agreement exemptions of the Consolidated Appropriations Act of 2014 will not be accepted.

- (10) Davis Bacon and related acts wages apply to this project. All provision relative those acts must be met.
- (11) After award of contract, the Contractor shall furnish satisfactory proof of coverage of insurance required. Copies of Certificates of Insurance shall be furnished to the Department of Transportation Bid Letting Office AND City of Highmore.
- (12) The contract completion date for this project will be the same as specified for Project P 0047(18)136, PCN 6161, Hyde County. Any delays in completing this contract will not be a basis for an extension of the contract completion time for PCN 6161, Hyde County.
- (13) Payments for this Sanitary Sewer Improvements project will be made to the Contractor by the City of Highmore.
- (14) Construction engineering for this contract will be performed by the City of Highmore.

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**STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

**SPECIAL PROVISION REGARDING  
TRIPLE COMBINATION BIDS**

**2014 1( ), PCN X03A  
WATER MAIN ADJUSTMENTS AND  
SANITARY SEWER IMPROVEMENTS  
HYDE COUNTY**

**JULY 22, 2014**

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Bidders submitting a bid on this project **MUST ALSO** submit a bid on projects:

P 0047(18)136, PCN 6161  
SD HIGHWAY 47  
URBAN GRADING), ASPHALT CONCRETE SURFACING,  
CURB & GUTTER, STORM SEWER, & LIGHTING  
HYDE COUNTY

AND

P 0047(101)137, PCN 038B  
SD HIGHWAY 47  
ASPHALT CONCRETE RESURFACING  
HYDE COUNTY

Award of the three projects will be to the same bidder based on the total of the three projects.

Work on PCN (6161 & 038B) CANNOT be used to meet the DBE Goal established for this project.

After award, the contracts will be administered as entirely separate contracts.

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**STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

**SPECIAL PROVISION REGARDING  
THE CITY PORTION FOR SUBLETTING**

**2014 1( ), PCN X03A  
HYDE COUNTY**

**MARCH 4, 2014**

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This project is being let in combination with State Project Number P 0047(18)136 PCN 6161. The provisions of section 8.1 of the Standard Specifications for Roads & Bridges, 2004 ed., requiring Contractor to perform work amounting to not less than 50% of the total contract cost with his own organization does not apply to the work to be performed on this contract.

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# **BUY AMERICAN**

## **USE OF AMERICAN IRON AND STEEL**

SEC. 436. (a)(1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C.300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.

(2) In this section, the term “iron and steel products” means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

(b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the “Administrator”) finds that—

- (1) applying subsection (a) would be inconsistent with the public interest;
- (2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
- (3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

(d) This section shall be applied in a manner consistent with United States obligations under international agreements.

(e) The Administrator may retain up to 0.25 percent of the funds appropriated in this Act for the Clean and Drinking Water State Revolving Funds for carrying out the provisions described in subsection (a)(1) for management and oversight of the requirements of this section.

(f) This section does not apply with respect to a project if a State agency approves the engineering plans and specifications for the project, in that agency’s capacity to approve such plans and specifications prior to a project requesting bids, prior to the date of the enactment of this Act.

## BUY AMERICAN CERTIFICATION

1. Identification of American-made Iron and Steel: Consistent with the terms of the Borrower's bid solicitation and the provisions of the Consolidated Appropriations Act of 2014 ("Omnibus Spending Bill"), Section 436, the Bidder certifies that this bid reflects the Bidder's best, good faith to identify domestic sources of iron and steel for all iron and steel products contained in the bid solicitation where such American-made products are available on the schedule and consistent with the deadlines prescribed in or required by the bid solicitation.
2. Verification of U.S. Production: The Bidder certifies that all iron and steel products contained in the bid solicitation that are American-made have been so identified, and if this bid is accepted, the Bidder agrees that it will provide reasonable, sufficient, and timely verification to the Borrower of the U.S. production of each iron and steel product so identified.
3. Documentation Regarding Non- American-made Iron or Steel: The Bidder certifies that for any iron and steel product that is not American-made and is so identified in this bid, the Bidders has included in or attached to this bid `` the following, as applicable:
  - a. Identification of and citation to a categorical waiver published by the U.S. Environmental Protection Agency on the official public Internet Web site of the Environmental Protection Agency that is applicable to such iron and steel product, and an analysis that supports its applicability to the iron and steel product;
  - b. Verifiable documentation sufficient to the Borrower that a waiver request has been made to the Administrator of U.S. Environmental Protection Agency for any iron and steel product that the Bidder believes is eligible for a waiver under Section 436.

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Bidder/Contractor

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Date

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Signature of Contractor/Title

# **STATE REVOLVING FUND (SRF)**

## **GENERAL CONDITIONS**

with

### **DAVIS-BACON PROVISIONS**

South Dakota  
Department of Environment  
and Natural Resources

These provisions must be included in the specifications for all Clean Water SRF  
and Drinking Water SRF projects.

January 2010

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**GUIDANCE FOR UTILIZATION OF DISADVANTAGED BUSINESS ENTERPRISES REQUIREMENTS OF 40 CFR §33.**

**A. REQUIREMENTS**

1. The recipient and prime contractor will exercise good faith efforts to attract and utilize small, minority, and women's business enterprises primarily through outreach, recruitment, and race/gender neutral activities; at a minimum, fulfillment of the six affirmative steps set forth below:
  - a. Including disadvantaged businesses on solicitation lists;
  - b. Assuring that disadvantaged businesses are solicited whenever they are potential sources;
  - c. Dividing total requirements, when economically feasible, into small tasks or quantities to permit maximum participation by disadvantaged businesses;
  - d. Establishing delivery schedules, when the requirements of the work permit, which will encourage participation by disadvantaged businesses;
  - e. Using the services of the Small Business Administration and the Office of Minority Business Enterprise of the U.S. Department of Commerce, as appropriate; and
  - f. Require a. through e. to be taken if subcontracts are awarded.

**B. FAIR SHARE OBJECTIVE**

1. The fair share objective for this project is   1   % MBE's and   4   % WBE's.

**C. DEFINITIONS**

1. Disadvantaged Business Enterprise (DBE) is a business concern which meets the qualifications of a Minority Business Enterprise (MBE), Women's Business Enterprise (WBE), Small Business (SBE), or Small Business in a Rural Area (SBRA).
2. Minority Business Enterprise (MBE) is a business concern which is:
  - a. Certified as socially and economically disadvantaged by the Small Business Administration;
    - (1) Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities.
    - (2) Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system is impaired due to diminished capital and credit opportunities, as compared to others in the same business area who are not socially disadvantaged. In determining the degree of diminished credit and capital opportunities, the Small Business Administration shall consider, but not be limited to, the assets and net worth of such socially disadvantaged individuals. Individuals who certify that they are members of named groups (Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Asian-Indian Americans), are to be considered socially and economically disadvantaged. Economically and socially disadvantaged individuals are deemed to include women.
  - b. Certified as a minority business enterprise by a State or Federal agency; and

c. An independent business concern which is at least 51 percent owned and controlled by minority group member(s).

(1) A minority group member is an individual who is a citizen of the United States and one of the following:

(a) Black American;

(b) Hispanic American (with origins from Puerto Rico, Mexico, Cuba, South or Central America)

(c) Native American (American Indian, Eskimo, Aleut, native Hawaiian); or

(d) Asian-Pacific American (with origins from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the U.S. Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, Taiwan or the Indian subcontinent).

(2) In order to satisfy this third criteria of the MBE definition, the minority ownership's interest must be real, substantial and continuing. Such interest is characterized by:

(a) Risk of loss/share of profit commensurate with the proportional ownership; and

(b) Receipt of the customary incidents of ownership, such as compensation (i.e., salary and other personnel compensation).

(3) A minority owner must have and exercise control of the business decisions. Characteristics of control include, but are not limited to:

(a) Authority to sign bids and contracts;

(b) Decisions in price negotiations;

(c) Incurring liabilities for the firm;

(d) Final staffing decisions;

(e) Policy-making; and

(f) General company management decisions.

(4) Only those firms performing a useful business function according to custom and practice in the industry, are qualified as MBEs. Acting merely as a passive conduit of funds to some other firm where such activity is unnecessary to accomplish the project does not constitute a "useful business function according to custom and practice in the industry." The purpose of this approach is to discourage the use of MBE "fronts" and limit the creation of an artificial supplier and broker marketplace.

3. Women's Business Enterprise (WBE) is a business which is certified as such by a State or Federal agency, or which meets the following definition:

"A women's business enterprise is an independent business concern which is at least 51 percent owned by a woman or women, who also control and operate it. Determination of whether a business is at least 51 percent owned by a woman or otherwise qualified WBE which is 51 percent owned by a married woman in a community property State will not be disqualified because her husband has a 50 percent interest in her share. Similarly, a business which is 51 percent owned by a married man and 49 percent owned by an

unmarried woman will not become a qualified WBE by virtue of his wife's 50 percent interest in his share of the business."

As in the case of a MBE, only United States citizens will be deemed to be WBEs. Similar to the MBE criteria, WBE should meet the criteria cited in subparagraphs B.1.c.(2), (3), and (4).

4. Fair Share or Fair Share Objective A fair share or a fair share objective is an amount of funds reasonably commensurate with the total project funding and the availability of qualified MBEs and WBEs, taking into account experience on EPA-funded projects and other comparable projects in the area. A fair share objective does not constitute an absolute requirement, but a commitment on the part of the bidder to exercise good faith efforts as defined in this section to use MBEs and WBEs to achieve the fair share objective.
5. Small Business (SBE) Any business entity, including its affiliates, that is independently owned and operated, and not dominant in its field of operations in which it is bidding on Government contracts, and qualified as a small business under the criteria and size standards set forth in 13 CFR Part 121.
6. Small Business in a Rural Area A small business in a rural area (SBRA) is a business entity meeting the definition of a small business, and is located and conducts its principal operations in a geographical area (county) listed in the Small Business Administration's Listing of Non-Metropolitan Counties by State.
7. Recipient A party receiving SRF financial assistance.
8. Project The scope of work for which an SRF loan is awarded.
9. Bidder A party seeking to obtain a contract with a recipient through a competitive, advertised, sealed bid process.
10. Offeror A party seeking to obtain a contract with a recipient through a negotiative procurement process.
11. Prime Contractor A party that has obtained a contract with a recipient through a competitive, advertised, sealed bid process.
12. Good Faith Efforts Good faith efforts by a recipient, prime contractor, and/or bidder/offeror means efforts to attract and utilize DBEs primarily through outreach, recruitment, and race/gender neutral activities. The following are examples of activities to assist recipients, prime contractors and/or bidders/offerors to comply with good faith efforts.
  - a. Include qualified DBEs on solicitation lists.
    - (1) Maintain and update a listing of qualified DBEs that can be solicited for supplies, construction and/or services.
    - (2) Provide listings to all interested parties who requested copies of the bidding or proposing documents.
    - (3) Contact appropriate sources within your geographic area and State to identify qualified DBEs for placement on your minority and women's business listings.
    - (4) Utilize other DBE listings such as those of the State's Minority Business Office, the Small Business Administration, Minority Business Development Agency, US EPA- Office of Small Business Programs and the Department of Transportation.
    - (5) Have the State environmental agency personnel review this solicitation list.

- b. Assure that DBEs are solicited.
  - (1) Conduct meetings, conferences, and follow-ups with DBEs, small, minority and/or women's business associations, minority media, etc., to inform these groups of opportunities to provide supplies, services, and construction.
  - (2) MBE Utilization is facilitated if the recipient or prime contractor advertises through the minority media. Such advertisements may include, but are not limited to, contracting and subcontracting opportunities, hiring and employment, or any other matter related to the project.
  - (3) Conduct pre-bid, pre-solicitation, and post-award conferences to ensure that consultants, suppliers, and builders solicit DBEs.
  - (4) Provide bidders and offerors with listings of qualified DBEs and establish that a fair share of contracts/procurements should be awarded to these groups.
  - (5) Advertise in general circulation, trade publications, State agency publications of identified source, disadvantaged business focused media, etc., concerning contracting opportunities on your projects. Maintain a list of disadvantaged business-focused publications that may be utilized to solicit MBEs or WBEs.
  - (6) Provide interested DBEs with adequate information about plans, specifications, timing and other requirements of the proposed projects.
  - (7) Provide DBE trade organizations with succinct summaries of solicitations.
  - (8) Notify DBEs of future procurement opportunities so that they may establish bidding solicitations and procurement plans.
- c. Divide total requirements when economically feasible, into small tasks or quantities to permit maximum participation of DBEs.
  - (1) Perform an analysis to identify portions of work that can be divided and performed by qualified DBEs.
  - (2) Scrutinize the elements of the total project to develop economically feasible units of work that are within the bonding range of DBEs.
  - (3) Analyze bid packages for compliance with the good faith efforts to afford DBEs maximum participation.
- d. Establish delivery schedules, where requirements of the work permit, which will encourage participation by DBEs.
  - (1) Consider lead times and scheduling requirements often needed by DBE participation.
  - (2) Develop realistic delivery schedules which may provide for greater DBE participation.
- e. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the US Department of Commerce, as appropriate.
  - (1) Use the services of outreach programs sponsored by the Minority Business Development Agency and/or the Small Business Administration to recruit bona fide firms for placement on DBEs' bidders lists to assist these firms in the development of bid packaging.

- (2) Seek out Minority Business Development Centers (MBDCs) to assist recipients and prime contractors in identifying MBEs for potential work opportunities on this project.

**D. ADDITIONAL CONTRACT PROVISIONS (New Requirements)**

1. The prime contractor must pay its subcontractors for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the owner.
2. The prime contractor must notify the owner in writing prior to any termination of a DBE subcontractor for convenience.
3. If a DBE subcontractor fails to complete work under the subcontract for any reason, the prime contractor must employ the good faith efforts if soliciting a replacement subcontractor, even if the fair share objectives have already been achieved.
4. Each procurement contract signed by an EPA financial recipient, including those for an identified loan under an EPA financial assistance agreement capitalizing a revolving loan fund, must include the following term and condition:

The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies.

**E. REPORTING**

1. Bidders/offerors shall demonstrate compliance with good faith efforts in order to be deemed responsible. To demonstrate compliance, the "DBE Subcontractor Solicitation Sheet" (pg. DBE - 6) shall be submitted as part of its bid or proposal package. Information shall be included for each DBE subcontractor contacted by the bidder/offeror, not just those used to meet the fair share objective.
2. The prime contractor must distribute DBE Program Subcontractor Participation Form (EPA Form 6100-2) to all of its DBE subcontractors. The subcontractors can submit completed forms to the South Dakota Department of Environment and Natural Resources, Water Resources Assistance Program.
3. The prime contractor must have its DBE subcontractors complete DBE Program Subcontractor Performance Form (EPA Form 6100-3) and should include completed forms in its bid or proposal package.
4. The prime contractor must complete DBE Program Subcontractor Utilization Form (EPA Form 6100-4) which should be submitted as part of its bid or proposal package.
5. Form 6100-3 and Form 6100-4 must be submitted by the apparent low-bidder within ten calendar days of the bid opening. Failure to submit this information will be viewed as a non-responsive bid.

Additional DBE forms can be downloaded at <http://www.epa.gov/osbp/grant.htm>

## DBE SUBCONTRACTOR SOLICITATION INFORMATION

**PROJECT NAME:**

Subcontractor Name and Telephone Number	MBE or WBE	Description of Work Offered	Date of Phone Follow-up & Person Contacted	Amount of Bid or Reason for not Quoting	Bid Accepted or Rejected? Include Reason for Rejection

This information is true and correct to the best of my knowledge

**This form shall be submitted as part of the contractor's bid.**

Contractor Name, Address and Telephone Number \_\_\_\_\_

Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_



Environmental  
Protection Agency

OMB Control No: 2090-0030  
Approved: 05/01/2008  
Approval Expires: 01/31/2011

**Disadvantaged Business Enterprise Program  
DBE Subcontractor Participation Form**

NAME OF SUBCONTRACTOR	PROJECT NAME
ADDRESS	CONTRACT NO.
TELEPHONE NO.	EMAIL ADDRESS
PRIME CONTRACTOR NAME	

Please use the space below to report any concerns regarding the above EPA-funded project (e.g., reason for termination by prime contractor, late payment, etc.).

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CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES RECEIVED FROM THE PRIME CONTRACTOR	AMOUNT SUBCONTRACTOR WAS PAID BY PRIME CONTRACTOR
<hr/> Subcontractor Signature		<hr/> Title/Date

Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-2 (DBE Subcontractor Participation Form)



Environmental  
Protection Agency

OMB Control No: 2090-0030  
Approved: 05/01/2008  
Approval Expires: 01/31/2011

## Disadvantaged Business Enterprise Program DBE Subcontractor Participation Form

The public reporting and recordkeeping burden for this collection of information is estimated to average fifteen (15) minutes. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed EPA DBE Subcontractor Participation Form to this address.



Environmental  
Protection Agency

OMB Control No: _____
Approved: _____
Approval Expires: _____

**Disadvantaged Business Enterprise Program  
DBE Subcontractor Performance Form**

NAME OF SUBCONTRACTOR <sup>1</sup>		PROJECT NAME
ADDRESS		BID/PROPOSAL NO.
TELEPHONE NO.		E-MAIL ADDRESS
PRIME CONTRACTOR NAME		
CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES BID TO PRIME	PRICE OF WORK SUBMITTED TO PRIME CONTRACTOR
Currently certified as an MBE or WBE under EPA's DBE Program? _____ Yes _____ No		
_____ Signature of Prime Contractor		_____ Date
_____ Print Name		_____ Title
_____ Signature of Subcontractor		_____ Date
_____ Print Name		_____ Title

<sup>1</sup>Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.



Environmental  
Protection Agency

OMB Control No: _____
Approved: _____
Approval Expires: _____

### Disadvantaged Business Enterprise Program DBE Subcontractor Performance Form

The public reporting and recordkeeping burden for this collection of information is estimated to average fifteen (15) minutes. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed EPA DBE Subcontractor Performance Form to this address.



Environmental  
Protection Agency

OMB Control No: 2090-0030  
Approved: 05/01/2008  
Approval Expires: 01/31/2011

**Disadvantaged Business Enterprise Program  
DBE Subcontractor Utilization Form**

<b>BID/PROPOSAL NO.</b>	<b>PROJECT NAME</b>
<b>NAME OF PRIME BIDDER/PROPOSER</b>	<b>E-MAIL ADDRESS</b>
<b>ADDRESS</b>	
<b>TELEPHONE NO.</b>	<b>FAX NO.</b>

The following subcontractors will be used on this project:			
<b>COMPANY NAME, ADDRESS, PHONE NUMBER, AND E-MAIL ADDRESS</b>	<b>TYPE OF WORK TO BE PERFORMED</b>	<b>ESTIMATED DOLLAR AMOUNT</b>	<b>CURRENTLY CERTIFIED AS AN MBE OR WBE?</b>

I certify under penalty of perjury that the forgoing statements are true and correct. In the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302(c)

_____ Signature of Prime Contractor	_____ Date
_____ Print Name	_____ Title

'Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-4 (DBE Subcontractor Utilization Form)



Environmental  
Protection Agency

OMB Control No: 2090-0030  
Approved: 05/01/2008  
Approval Expires: 01/31/2011

**Disadvantaged Business Enterprise Program  
DBE Subcontractor Utilization Form**

The public reporting and recordkeeping burden for this collection of information is estimated to average fifteen (15) minutes. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed EPA DBE Subcontractor Utilization Form to this address.

**EQUAL EMPLOYMENT OPPORTUNITY and AFFIRMATIVE ACTION REQUIREMENTS on  
FEDERALLY ASSISTED CONSTRUCTION CONTRACTS**

**Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity  
(Executive Order 11246)**

1. The Offerer's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area as follows:

Goals for minority participation in each trade -	<u>7.9%</u>
(See Appendix A for goals by county)	
Goals for female participation in each trade -	<u>6.9%</u>

As used in this notice, and in the contract resulting from this solicitation, the "covered area" is  
Hyde County.

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

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

**3. The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation.** The notification shall list the name, address and telephone number for the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed. A form is provided on page EEO - 7 that the contractor may use for this purpose.

**This notice shall be included in, and shall be a part of, all solicitations for offers and bids on all federal and federally assisted construction contracts or subcontracts.**

## **EQUAL OPPORTUNITY CLAUSES**

The Equal Opportunity Clause published at 41 CFR Part 60-1.4(b) is required to be included in, and is part of, all nonexempt federally assisted construction contracts and subcontracts. The Equal Opportunity Clause shall be considered to be a part of every contract and subcontract required by the regulations in this part to include such a clause, whether or not it is physically incorporated in such contracts.

In addition to the clauses described above, all federal contracting officers, all applicants, and all non-construction contractors, as applicable, shall include the specifications set forth in this section in all federal and federally assisted construction contracts in excess of \$10,000 to be performed in geographical areas designated by the Director pursuant to §60-4.6 of this part and in construction subcontracts in excess of \$10,000 necessary in whole or in part to the performance of non-construction Federal contracts and subcontracts covered under the Executive Order.

### **STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)**

1. As used in these specifications:

- a. "Covered Area" means the geographical area described in the solicitation from which this contract resulted;
- b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
- c. "Employer identification number" means the Federal Social Security number used on the employer's quarterly Federal Tax Return, U.S. Treasury Department Form 941.
- d. "Minority" includes:
  - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
  - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
  - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands);
  - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area, (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs (7)(a) through (p) of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the FEDERAL REGISTER in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the areas which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under (7)(b) above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7)(a) through (p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be

asserted as fulfilling any one or more of its obligations under (7)(a) through (p) of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the Executive order if a specific minority group of women is under-utilized).

10. The contractor shall not use the goals and timetables of affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any subcontract with any person or firm debarred from government contracts pursuant to Executive Order 11246.

12. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph (7) of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

APPENDIX A

GOALS FOR MINORITY PARTICIPATION ON EACH TRADE

Counties	Goal
Aurora, Beadle, Brookings, Brule, Charles Mix, Davison, Douglas, Gregory, Hand, Hanson, Hutchinson, Jerauld, Kingsbury, Lake, Lincoln (excluding Sioux Falls), McCook, Miner, Moody, Sanborn, Turner	0.8
Bon Homme, Clay, Minnehaha (including all of Sioux Falls), Union, Yankton	1.2
Brown, Clark, Codington, Day, Deuel, Edmunds, Faulk, Grant, Hamlin, McPherson, Marshall, Roberts, Spink	1.3
Meade, Pennington	3.4
Bennett, Buffalo, Butte, Campbell, Corson, Custer, Dewey, Fall River, Haakon, Harding, Hughes, Hyde, Jackson, Jones, Lawrence, Lyman, Mellette, Perkins, Potter, Shannon, Stanley, Sully, Todd, Tripp, Walworth, Ziebach	7.9

CONTRACTOR'S NAME, ADDRESS & TELEPHONE NUMBER

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Return to:**

Joan Ford, Regional Director  
 US Department of Labor  
 Federal Building, Room 840  
 525 South Griffin St.  
 Dallas, TX 75202

Contractor Employer ID Number: \_\_\_\_\_

**CONTRACT INFORMATION**

PROJECT AND LOCATION:

Dollar Amount of Contract	Estimated Start Date	Estimated Completion Date	Contract No.	Geographical Area (County, State)

**NOTIFICATION OF SUBCONTRACTS AWARDED (>\$10,000)**

Subcontractor's Name Address, and Phone Number	Employer ID Number of Subcontractor	Estimated \$ Amount of Subcontract	Estimated Start Date	Estimated Completion Date

## **CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS**

### **A. INSTRUCTIONS**

Under Executive Order 12549, an individual or organization debarred or excluded from participation in Federal assistance or benefit programs may not receive any assistance award under a Federal program, or a subagreement thereunder for \$25,000 or more. The status of prospective individuals or organizations can be checked at:

<http://epls.arnet.gov/>

Accordingly, each prospective recipient of an EPA grant, loan, or cooperative agreement and any contract or subagreement participant thereunder must complete the attached certification or provide an explanation why they cannot complete the certification. For further details, see 40 CFR 32.510, Participants Responsibilities.

### **B. WHERE TO SUBMIT**

A prospective prime contractor must submit a completed certification or explanation to the project owner for the project. Each prospective subcontractor must submit a completed certification or explanation to the prime contractor for the project.

### **C. HOW TO OBTAIN FORMS**

This form may reproduced as necessary. If needed, additional forms may be obtained from the Department of Environment and Natural Resources.

SRF Project Number

United States Environmental Protection Agency  
Washington, DC 20460

**Certification Regarding  
Debarment, Suspension, and Other Responsibility Matters**

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
- (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

---

Typed Name & Title of Authorized Representative

---

Signature of Authorized Representative

Date

\_\_\_\_\_ I am unable to certify to the above statements. My explanation is attached.

## **PROHIBITION AGAINST LISTED VIOLATED FACILITIES**

### **A. REQUIREMENTS**

- (1) To comply with all the requirements of section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by Pub. L. 92-604) and section 308 of the Clean Water Act (33 U.S.C. 1251, as amended), respectively, which relate to inspection, monitoring, entry, reports, and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, respectively, and all regulations and guidelines issued thereunder before the award of this contract.
- (2) That no portion of the work required by this prime contract will be performed in a facility listed on the Environmental Protection Agency list of violating facilities on the date when this contract was awarded unless and until the EPA eliminates the name of such facility or facilities from the listing.
- (3) That the best efforts to comply with clean air and clean water standards at the facilities in which the contract is being performed.
- (4) To insert the substance of the provisions of this clause, including this paragraph (4), in any nonexempt subcontract.

### **B. DEFINITIONS**

- (1) Air Act means the Clean Air Act, as amended (42 U.S.C. 1857 et seq.).
- (2) Water Act means the Clean Water Act, as amended (33 U.S.C. 1251 et seq.).
- (3) Clean Air Standards means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted under the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110 (d) of the Air Act (42 U.S.C. 1857c-5(d)), an approved implementation procedure or plan under section 111 (c) or section 111(d), or an approved implementation procedure under section 112(d) of the Air Act (42 U.S.C. 1857c-7(d)).
- (4) Clean Water Standards means any enforceable limitation, control, condition, prohibition, standard, or other requirement which is promulgated under the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by a local government to ensure compliance with pretreatment regulations as required by section 307 of Water Act (33 U.S.C. 1317).
- (5) Compliance means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency in accordance with the requirements of the Air Act or Water Act and regulations.
- (6) Facility means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned, leased, or supervised by a contractor or subcontractor, to be used in the performance of a contract or subcontract. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location or site shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are located in one geographical area.

## **WILLIAMS-STEIGER OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970**

### **A. AUTHORITY**

- (1) The contractor is subject to the provisions of the Williams-Steiger Occupational Safety and Health Act of 1970.
- (2) These construction documents and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of the Federal law(s) , including but not limited to the latest amendment of the following:
  - a. Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 94-596;
  - b. Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations;
  - c. Part 1926 - Safety and Health Regulations for Construction, Chapter XVII of Title 29, Code of Federal Regulations.

### **B. SAFETY AND HEALTH PROGRAM REQUIREMENTS**

- (1) This project, its prime contractor and its subcontractors, shall at all times be governed by Chapter XVII of Title 29, Code of Federal Regulations, Part 1926 - Safety and Health Regulations for Construction (29 CFR 22801), as amended to date.
- (2) To implement the program and to provide safe and healthful working conditions for all persons, general project safety meetings will be conducted at the site at least once each month during the course of construction, by the construction superintendent or his/her designated safety officer. Notice of such meeting shall be issued not less than three (3) days prior, stating the exact time, location, and agenda to be included. Attendance by the owner, architect, general foreman, shop steward(s), and trades, or their designated representatives, witnessed in writing as such, shall be mandatory.
- (3) To further implement the program, each trade shall conduct a short gang meeting, not less than once a week, to review project safety requirements mandatory for all persons during the coming week. The gang foreman shall report the agenda and specific items covered to the project superintendent, who shall incorporate these items in his/her daily log or report.
- (4) The prime contractor and all subcontractors shall immediately report all accidents, injuries, or health hazards to the owner and architect, or their designated representatives, in writing. This shall not obviate any mandatory reporting under the provisions of the Occupational Safety and Health Act of 1970.
- (5) This program shall become a part of the contract documents and the contract between the owner and prime contractor, prime contractor and all subcontractors, as though fully written therein.

## **DISCOVERY OF ARCHAEOLOGICAL AND OTHER HISTORICAL ITEMS**

In the event of an archaeological find during any phase of construction, the following procedure will be followed:

- (1) Construction shall be halted, with as little disruption to the archaeological site as possible.
- (2) The Contractor shall notify the Owner who shall contact the State Historical Preservation Officer.
- (3) The State Historical Preservation Officer may decide to have an archaeologist inspect the site and make recommendations about the steps needed to protect the site, before construction is resumed.
- (4) The entire event should be handled as expediently as possible in order to hold the loss in construction time to a minimum while still protecting archaeological finds.

A similar procedure should be followed with regard to more recent historical resources. Should any artifacts, housing sites, etc., be uncovered, the same procedure should be followed as for an archaeological find.

In the event archaeological/historical data are evaluated to meet National Register criteria, the Advisory Council on Historic Preservation may be notified and asked to comment by the South Dakota Department of Environment and Natural Resources.

# DAVIS-BACON AND RELATED ACTS

## LABOR STANDARDS

Contractors performing work on construction projects which have been provided assistance through the State Revolving Fund must fulfill the requirements of the Labor Standards Provisions for federally assisted construction contracts. These standards are located at the end of this section.

### WEEKLY CONTRACTOR PAYROLLS

Each week as work progresses, the contractor must submit to the Owner a copy of all weekly payrolls and required attachments stipulated therein. Sample suggested payrolls may be obtained from the Owner upon request. All weekly payrolls shall contain or have attached the following:

1. Name of each employee and the last four digits of the social security number.
2. Classification of employees (same as shown on wage determination).
3. Rate of pay not less than that shown on the wage determination.
4. Hours worked each day and total for each week for each employee.
5. All deductions made.
6. Net amount paid to employee.
7. The following certification:

"I certify that the payroll is correct and complete, that the wage rates contained therein are not less than the applicable rates contained in the Wage Determination decision of the Secretary of Labor and that the classification set forth for each laborer or mechanic conform with the work he performs."

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

### COMPLIANCE WITH THE COPELAND (ANTI-KICKBACK) ACT

The following anti-kickback statement must be submitted with each set of weekly payrolls:

"I, (name of signatory party), (title), do hereby state: That I pay or supervise the payment of the persons employed by (contractor or subcontractor) on the (work or building); that during the payroll period commencing on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, and ending the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly from the full weekly wages earned by any person, other than permissible deductions, as defined in Regulations, Part 3 (CFR Part 3) issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948; 63 Stat. 108; 72 Stat. 967; and 40 U.S.C. 276c), and described below: (Paragraph describing deductions, if any)"

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

All prime contractors shall include the wage determination and all the labor standards provisions in all subcontracts as herein specified.

The Contractor shall make employment records available for inspection by authorized representatives of the State of South Dakota and the Department of Labor, and will permit employees to be interviewed during working hours by these representatives. Payroll records will be maintained during the course of the work by the Prime Contractor, including a copy of the payroll of each Subcontractor and they shall be preserved for a period of three years thereafter.

Each monthly engineering estimate must be accompanied by the following certificate executed by each Prime Contractor employing mechanics and laborers at the site on work in which the Federal government is to participate:

Principal Contractor \_\_\_\_\_

Project Name \_\_\_\_\_

Project No. \_\_\_\_\_

I, \_\_\_\_\_, as official representative of the above named principal contractor do hereby certify as follows:

- All Labor Standards Requirements have been fulfilled by principal contractor and all subcontractors under this contract; or
- There is an honest dispute regarding the required provisions.

Explanation: \_\_\_\_\_

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

In the event of a violation of the Labor Standards provisions of the contract by the Prime Contractor or any Subcontractor, the owner may, after notice to the Contractor, suspend further payments or proceed to terminate the contract as provided in the Labor Standards section of the Contract.

## FEDERAL LABOR STANDARDS PROVISIONS

### Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

#### A.1 Minimum Wages

- (i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act(29CFR Part 3), the full amount of wages and bona fide fringe benefits(or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.
- (ii)(a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. EPA shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

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

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

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

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and EPA or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by EPA or its designee to the Administrator of the Wage and Hour Division, Employment standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise EPA or its designee or will notify EPA or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and EPA or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), EPA or its designee shall refer the questions, including the views of all interested parties and the recommendation of EPA or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise EPA or its designee or will notify EPA or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control Number 1215-0140.)

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

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

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

separate account assets for the meeting of obligations under the plan or program.  
(Approved by the Office of Management and Budget under OMB Control Number  
1215-0140.)

## **2. Withholding.**

EPA or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, EPA or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. EPA or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

## **3. Payrolls and basic records**

- (i) Basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents there of the types described in Section 1(b)(2)B of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Certified weekly payrolls shall contain the name and last four digits of the social security number. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(b) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB control Numbers 1215-0140 and 1215-0017.)
- (ii)(a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to EPA or its designee if the agency is a party to the contract, but if the agency is not such party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may

be, for transmission to EPA or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of management and Budget under OMB Control Number 1215-0149.)

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

That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.59(a)(3)(i) and that such information is correct and complete;

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

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

- (c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of compliance" required by paragraph A.3(ii)(b) of this section.
- (d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.
- (iii) The contractor or subcontractor shall make the records required under paragraph A.3(i) of this section available for inspection, copying, or transcription by authorized representatives of EPA or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, EPA or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

#### 4. **Apprentices and trainees.**

- (i) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevail for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines

that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) **Equal employment opportunity.** The utilization of apprentices, trainees, and journeymen under this part shall be in conformity with the equal and employment opportunity requirements of executive order 11246, as amended, and 29 CFR Part 30.

5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.
6. **Subcontracts.** The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5 (a)(1) through (10) and such other clauses as EPA or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.
7. **Contract termination; debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
8. **Compliance with Davis-Bacon and Related Act Requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.
9. **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and EPA or its designee, the U.S. Department of Labor, or the employees or their representatives.

#### 10. **Certification of Eligibility**

- (i). By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded EPA contracts or participate in EPA programs pursuant to 24 CFR Part 24.

- (ii) No part of this contract shall be subcontracted to any person or firm ineligible for

award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded EPA contracts or participate in EPA programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part "Whoever, for the purpose of...influencing in any way the action of such Administration...makes, utters or publishes any statement, knowing the same to be false...shall be fined not more than \$5,000 or imprisoned not more than two years or both."

**11. Complaints, Proceedings, or Testimony by Employees.** No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

**B. Contract Work Hours and Safety Standards Act.** As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

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

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

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

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

**C. Health and Safety**

No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96).

The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Administrator of Environment and Natural Resources or the Secretary of Labor shall direct as a means of enforcing such provisions.

**TECHNICAL  
SPECIFICATIONS**

**FOR**

**HIGHWAY 47  
UTILITIES RELOCATION**

**HIGHMORE, SOUTH DAKOTA**

**PCN # X03A  
CITY # 2014-1  
SPN #13996**

**January 2014**



**& Associates**

**ENGINEERS-PLANNERS- SURVEYORS**

2100 NORTH SANBORN BLVD, PO BOX 398  
MITCHELL, SOUTH DAKOTA 57301

PHONE 605-996-7761

FAX 605-996-0015

HIGHWAY 47  
UTILITY RELOCATION

HIGHMORE, SOUTH DAKOTA

DOT PCN # X03A

CITY # 2014-1

SPN # 13996

I hereby certify that this plan, specification  
or report was prepared by me or under my direct  
supervision and that I am a duly Registered  
Professional Engineer under the laws of the  
State of South Dakota.



By \_\_\_\_\_  
Samuel D. Hohn, P.E.

SCHMUCKER, PAUL, NOHR & ASSOCIATES  
CONSULTING ENGINEERS - SURVEYORS  
2100 NORTH SANBORN BLVD, PO BOX 398  
MITCHELL, SOUTH DAKOTA 57301

SUPPLEMENTARY SPECIFICATIONS  
TO THE  
STANDARD SPECIFICATIONS  
FOR  
ROADS AND BRIDGES  
2004 EDITION  
AS PUBLISHED BY  
SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION

PROJECT  
HIGHWAY 47 UTILITIES RELOCATION  
HIGHMORE, SOUTH DAKOTA

**I. INTRODUCTION**

- A. These Supplementary Specifications amend or supplement the Standard Specifications for Roads and Bridges (2004 Edition) as published by the South Dakota Department of Transportation and shall be applicable to the above referenced Project. All provisions which are not so amended or supplemented hereinafter remain in full force and effect.

**II. MODIFICATIONS**

DIVISION I – GENERAL PROVISIONS

1. The following definition is to be added to Section 1 – Definitions and Terms as Paragraph 1.73:

"Design Engineer" or "Project Engineer" – Schmucker, Paul, Nohr and Associates located at 2100 North Sanborn Boulevard with a mailing address of PO Box 398, Mitchell, South Dakota 57301 and a telephone number of (605) 996-7761.

2. The following definition is to be added to Section 1 – Definitions and Terms as Paragraph 1.74:

"Owner" or "City" – The City of Highmore, South Dakota , as represented by its proper authorities and with the mailing address of 125 2<sup>nd</sup> Street SW, Highmore, South Dakota 57345.

DIVISION IV – UNDERGROUND UTILITIES TECHNICAL SPECIFICATIONS

1. The following shall be added as DIVISION IV A – GENERAL PROJECT REQUIREMENTS:

SECTION 01010 - SUMMARY OF WORK  
SECTION 01051 - GRADES, LINES AND LEVELS  
SECTION 01170 - SPECIAL PROJECT PERMITS  
SECTION 01340 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

1. The following shall be added as DIVISION IV B – SITE WORK:

SECTION 02020 - EXISTING UTILITIES

SECTION 02160 - SHEETING, SHORING, AND BRACING

SECTION 02224 - TRENCHING, BACKFILLING AND COMPACTING

SECTION 02605 - MANHOLES AND CASTINGS

SECTION 02640 - VALVES AND APPURTENANCES

SECTION 02645 - HYDRANTS

SECTION 02665 - WATER PIPING AND FITTINGS

SECTION 02666 - WATER SERVICE PIPING, FITTINGS AND VALVES

SECTION 02667 - MECHANICAL THRUST RESTRAINT

SECTION 02675 - CLEANING AND DISINFECTION OF WATER DISTRIBUTION SYSTEMS

SECTION 02676 - TESTING OF WATER DISTRIBUTION SYSTEMS

SECTION 02730 - WASTEWATER PIPING AND FITTINGS

SECTION 02731 - PIPELINE TESTING

SECTION 02732 - CLEANING OF SANITARY SEWER SYSTEMS

## DIVISION IV A - GENERAL REQUIREMENTS

SECTION 01010 - SUMMARY OF WORK

SECTION 01051 - GRADES, LINES AND LEVELS

SECTION 01170 - SPECIAL PROJECT PERMITS

SECTION 01340 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

## SECTION 01010 SUMMARY OF WORK

### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.

### 1.02 DEFINITIONS

- A. "Project Engineer," "Engineer," - Schmucker, Paul, Nohr & Associates located at 2100 North Sanborn Blvd, Mitchell, South Dakota, with a mailing address of PO Box 398, Mitchell SD 57301; telephone number: (605) 996-7761; and web site: [www.spn-assoc.com](http://www.spn-assoc.com).
- B. "Owner" or "City" - The City of Highmore South Dakota, as represented by its proper authorities and with the mailing address of 125 2<sup>nd</sup> Street SW, Highmore, South Dakota 57345.
- C. "Written Notice" - Written notice or order shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm, or to an officer of the corporation for whom it is intended or if delivered at or sent by registered mail to the last known address of the addressee.

### 1.03 ARRANGEMENTS OF DETAILED SPECIFICATIONS AND DRAWINGS

- A. The detailed specifications arrangement is based upon the I980 CSI format and incorporates the following Divisions:

Division 1 General Requirements  
Division 2 Site Work

- B. The contract drawings or plans which depict the contract work of the project and upon which the contract is based are those drawings or sheets listed on Sheet I of the drawings. Each sheet bears the following general title:

- - - HIGHWAY 47 UTILITY RELOCATION - - -  
HIGHMORE, SOUTH DAKOTA

- C. The drawings referred to above are supplemented by drawings bound in this book of specifications and by additional shop and dimension drawings to be prepared by the Contractor as set forth in the specifications.
- D. Division of Work as made by the contract drawings and specifications is for the purpose of specifying all work which is required. There is no attempt to make complete classification according to trade or any agreements which may exist between Contractors or groups of contractors and trade unions. Such division and classification of the work shall be the Contractor's responsibility.

### 1.04 LOCATION OF THE WORK

- A. The work under this contract is located within the City of Highmore, Hyde County, South Dakota, on properties for which easements and/or title have been obtained by the Owner.

### 1.05 WORK COVERED

- A. The broad scope of the project includes, but is not limited to, The installation of approximately 1182 feet of PVC water main of various sizes, 3133 feet of 8-inch PVC sanitary sewer main; 2352 feet of 4" PVC sanitary sewer service line, nine sanitary sewer manholes; 16 gate valves of various sizes, multiple fittings, hydrants and connections; service line pipe with service valves, fittings and connections; and other associated work. The street surfacing removal and replacement is not included in this contract. The elements associated with this project are described in the Bid Schedule(s).

#### 1.06 CONTRACTS

- A. The work shall be performed under one Contract.

#### 1.07 CONSTRUCTION SEQUENCING

- A. The Contractor shall note the requirements of Paragraph 1.09.A of this section.
- B. Each Contractor shall schedule their work with the Owner, the other Contractors and Subcontractors on the project so that the respective completion dates can be obtained. The Contractor is required to coordinate with the Contractor of the street project as needed to complete the different phases of the work.
- C. The contractor shall provide temporary potable water service to all users of the Owner's water distribution system unless otherwise approved by the Owner.
- D. The Contractor shall be aware that only one half of the existing roadway plus an additional four feet will be removed for the first phase of the contract and temporary connections for the sewer and water systems will be required.
- E. The Contractor shall understand that due to the sequence of the road construction that it will be necessary for the utility work to be done in two phases and therefore require mobilizing two times.
- F. During the first phase of the project there will be two lanes of traffic kept open to the public. The utility contractor will be required to provide flaggers to reduce the traffic to one lane in the area of the utility work. Traffic may be reduced to one lane by means of flagging between any two consecutive intersections along the construction route. Only one of the two intersections may be closed at one time.
- G. All excavations shall be backfilled and closed at the end of each day. In the event the Contractor needs to excavate more than four feet beyond centerline into the existing pavement to construct any part of the sanitary sewer collection system, it will be the responsibility of the Contractor to fill and compact that area with gravel base material to match the existing surface elevations prior to opening that lane to traffic. No separate measurement or payment will be made for this work.

#### 1.08 CONTRACTOR'S RESPONSIBILITIES AND DUTIES

- A. General:

1. Each Contractor must satisfy himself by personal examination of each site as to all local conditions affecting the performance of his contract. The Contractor is deemed to accept such conditions as found to exist.
2. All construction activities shall be confined within the areas shown on the drawings. Construction easements, as needed, have been obtained by the Owner. If additional area is needed, it shall be the Contractor's responsibility to obtain said area.
3. See the reference to "Existing Structures" as found in the applicable paragraphs of this Division I.

B. Continuous Operation:

1. The Contractor must receive the approval of the Owner prior to any scheduled intermittent, partial or complete shut-down of the existing facilities.
2. Each Contractor shall note that the Owner must continue the operation of the existing water distribution and wastewater collection systems.
3. Each Contractor shall schedule all required work so as to minimize the interruption of the continuous operation of the existing facilities and functions.
4. When it is necessary to take a certain portion of the existing facilities or systems out of service, the Contractor shall submit to the Engineer a description of the procedure and schedule of the work proposed. The schedule and procedure shall be reviewed and approved by the Engineer, and the Owner prior to commencement of these operations.
5. The Contractor shall be responsible for notifying each individual user of the Owner's water distribution system of any scheduled interruption of water service to the user. Notification shall be provided not less than 12 hours or more than 24 hours prior to the scheduled interruption. The notification shall consist of a printed document delivered at the point of use or a personal contact with the user. The notification shall contain information as to the expected time the interruption is to begin, the expected duration of the interruption and the time the service is to be resumed. In no event shall the interruption of service be allowed to be greater than 8 hours in length. In the event an interruption to any user is greater than 8 hours in length, the Contractor shall be responsible for furnishing all labor, equipment and material necessary to provide temporary service to the affected user(s). All costs related to providing temporary service shall be considered incidental to the project.
6. The Contractor shall be responsible for furnishing all labor, equipment and material to install, operate and maintain temporary water service on a continuous 24-hour per day, 7-day per week basis to those users of the water distribution system. Compensation for providing temporary service shall be considered incidental to other items on the Bid Schedules. The material required for the temporary service shall remain the property of the Contractor.
5. Under any emergency condition or where partial shutdown of the existing facilities is involved, the modifications and connections shall be pursued on a 24-hour-per-day basis and 7 days per week schedule to minimize disruption of service unless otherwise provided in the technical specifications. The Contractor shall provide at no additional cost to the Owner all temporary connections, parallel temporary lines or bypasses as may be required.

6. All materials shall be on the job and ready for installation for these items. All arrangements, measurements and planning shall be done in advance of taking existing facilities out of service.
- C. Existing Utilities:
1. Refer to Section 02020 of the Specifications.
- D. Existing Structures:
1. Each Contractor shall take complete field measurements affecting all existing construction, wiring, piping, and equipment in this contract, and he shall be solely responsible for proper fit between his work and existing structures and other equipment. He shall examine all work to which he will connect; and if any misalignment is found, he shall so arrange his work that the misalignment is corrected to the satisfaction of the Engineer.
  2. Dimensions given on the drawings related to the existing structures are based on existing construction drawings, and it shall be the responsibility of the Contractor to verify the accuracy of these dimensions. Any discrepancies shall be brought to the attention of the Engineer prior to start of new construction.
  3. Each Contractor will be held responsible for any damage to existing structures, work, materials, or equipment because of his operations and shall repair or replace any damaged structures, work, materials, or equipment to the satisfaction of, and at no additional cost to the Owner.
  4. Each applicable Contractor shall be responsible for all damage to streets, curbs, sidewalks, ditches, lawns, culverts or other public or private property, which may be caused by transporting equipment, materials, or men to or from work. The Contractor shall make satisfactory and acceptable arrangements with the agency having jurisdiction over the damaged property concerning its repair or replacement.
- E. Unfavorable Construction Conditions:
1. During unfavorable weather, wet ground, or other unsuitable construction conditions, the Contractor shall confine his operations to work which will not be affected adversely thereby. No portion of the work shall be constructed under conditions which would affect adversely the quality efficiency thereof, unless special means or precautions are taken by the Contractor to perform the work in a proper and satisfactory manner.
- F. Preservation of Monuments and Stakes
1. In case of his destruction thereof, the Contractor will be charged with the expense of replacement and shall be responsible for any mistake or loss of time that may be caused. The Contractor shall furnish materials and assistance for the proper replacement of such monuments or bench marks.
- G. Methods of Operation:
1. Each Contractor shall inform the Engineer in advance concerning his plans for carrying on each part of the work, but the contractor alone shall be responsible for the safety, adequacy, and efficiency of his plant, equipment, and methods.

2. Any method of work suggested by the Owner or Engineer, but not specified, shall be used at the risk and responsibility of the Contractor. The Engineer and Owner will assume no responsibility therefor.
3. Review by the Owner or Engineer of any plan or method of work proposed by the Contractor shall not relieve the Contractor of any responsibility therefor, and such review shall not be considered as an assumption of any risk or liability by the Owner, Engineer, or any officer, agent, or employee thereof. The Contractor shall have no claim on account of the failure or inefficiency of any plan or method so reviewed.

#### H. Conduct of Work:

1. Each Contractor shall observe that the Owner reserves the right to do other work in connection with the project or adjacent thereto by contract or otherwise, and he shall at all times conduct his work so as to impose no hardship on the Owner or others engaged in the work, nor cause any unreasonable delay or hindrance thereto.
2. Each Contractor shall be responsible to others engaged in the work or work adjacent thereto for all damage or injury to work, to persons or property, or for loss caused by failure to finish the work within the specified time for completion. He shall adjust, correct, and coordinate his work with the work of others so that no discrepancies shall result in the whole work.
3. The work of this contract includes the furnishing and necessary installation of all tools, machinery, scaffolds, false work, forms and centers for the execution of the work, except as may be otherwise specified. Equipment provided shall be adequate. The Contractor shall obtain all necessary measurements for the work and shall check dimensions, levels, and construction and layout and supervise the construction for correctness of all of which he shall be responsible.
4. Where work of one trade joins to, or is on other work, there shall be no discrepancy when the work is completed. The Contractor must anticipate relation of all parts of the work, and at the proper time provide and set required anchors and blocking. Anchors, blocking, sleeves, and inserts necessary for each trade shall be a part of same except where stated otherwise. Assistance required by the Engineer in obtaining measurements or information on the work shall be furnished accurately and fully by the Contractor without additional cost to the Owner.

#### 1.09 PARTIAL OWNER OCCUPANCY

- A. It is anticipated that portions of the facilities will be in operation before final construction is completed. The Owner, therefore, reserves the right to operate the installed equipment following startup. This continued operation shall in no way indicate final acceptance prior to completion of the project.

#### 1.10 PERMITS AND REGULATIONS

- A. Refer to Section 01170 – Special Project Permits and the DOT Special Provisions.

\* \* \* END OF SECTION \* \* \*

## SECTION 01051 GRADES, LINES AND LEVELS

### PART 1 GENERAL

#### 1.01 GENERAL

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.
- B. Topography and profiles showing existing ground elevations and features were obtained by topographic survey.
- C. The Engineer will furnish construction staking to prosecute the Work as described below. The Contractor shall make timely demands of the Engineer for such staking. A notice of not less than five working days will be required in advance of setting stakes. The Contractor shall not proceed with the Work until construction stakes have been provided.
  - 1. Stakes showing line and grade, where required, will be furnished by the Engineer for the construction of the sewer. Stakes will be furnished on an off-set agreed upon by the Engineer and Contractor at all changes in pipeline grade and at intervals of not less than 50 feet. Elevations will be provided at all hydrant locations or other benchmarks will be provided.
  - 2. Stakes showing the line, where required, will be furnished by the Engineer for the construction of the water main. Stakes will be furnished on an offset agreed upon by the Engineer and Contractor at intervals as required.
  - 3. Should the Contractor request the setting of stakes in excess of those described above, the Contractor shall be responsible for the extra cost which will be prorated on the basis of the total number of stakes set.
- D. The Contractor shall be responsible for transferring from the grade and line stakes all distances and elevations necessary for the execution of the Work including but not limited to establishing limits of embankments and excavations, slopes, etc.
- E. The Contractor shall preserve all construction stakes, reference points, and other survey points. In case of their loss or destruction, the Contractor shall be liable for and charged with the cost of their replacement and of any expense resulting from their loss or disturbance.
- F. Should the Engineer be required to reset construction stakes, the cost for such resetting will be at the then current per diem rates. The charges for such Work will be deducted by the Owner from the progress payments to the Contractor for the month in which the surveying Work is done by the Owner and thereon paid to the Engineer.

\* \* \* END OF SECTION \* \* \*

## SECTION 01170 SPECIAL PROJECT PERMITS

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.

- A. The provisions of the Temporary Dewatering Permit issued by the South Dakota Department of Environment and Natural Resources (SD DENR) to the City, in compliance with the provisions of the South Dakota Water Pollution Control Act and the administrative rules of the State of South Dakota shall apply to the applicable portions of the work.
- B. The provisions of the Storm Water Discharge Permit issued by the SD DENR to the City under SWD General Permit issued in compliance with the Clean Water Act shall apply to all portions of the work.

#### 1.02 SCOPE

- A. This Section identifies the special project conditions and procedures required by the above referenced permits.
- B. The Contractor shall be responsible for implementing and conforming to all special project procedures and requirements as identified herein.

### PART 2 PRODUCTS - NOT USED

### PART 3 EXECUTION

#### 3.01 GENERAL PERMITS

- A. The Contractor shall comply with all Federal, State, County and local laws, ordinances, rules and regulations relating to the performance of the work. Nonconformance to any of these requirements will subject the Contractor to termination.
- B. The Contractor shall, at his own expense, procure all other permits, certificates and licenses required of him by law for the execution of the Work.
- C. The City of Highmore shall prepare and submit applications for the Temporary Discharge Permit and the Storm Water Discharge Permit for Construction Activities.

### 3.02 TEMPORARY DEWATERING PERMIT REQUIREMENTS

A. A copy of the Temporary Dewatering Permit will be on file with the Finance Officer. The requirements of the permit are described therein. A copy may be obtained by submitting a request to the office named above.

B.

### 3.02 STORM WATER DISCHARGE PERMIT REQUIREMENTS

A. A copy of the Storm Water Discharge Permit will be on file with Finance Officer, City of Highmore, South Dakota. The requirements of the permit are describe therein. A copy may be obtained by submitting a written request to the office named above.

B. A Storm Water Pollution Prevention Plan has been prepared for this project and is included in the plans.

\* \* \* END OF SECTION \* \* \*

# SECTION 01340 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

## PART 1 GENERAL

### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.

### 1.02 SCOPE

- A. This Section covers the submission, review and distribution requirements of shop drawings, product data and samples.

## PART 2 PRODUCTS

### 2.01 SHOP DRAWINGS

- A. The shop drawings submitted for review shall contain pertinent information for the Engineer to review the proposed equipment or materials for acceptance.
  - 1. Submit additional information as specified in the individual technical specifications.
  - 2. All shop drawings and materials shall be identified by reference to specification section and/or drawing detail number.
  - 3. Minimum drawing size shall be 8-1/2" x 11".

### 2.02 PRODUCT DATA

- A. Manufacturer's standard schematic drawings shall be identified by reference to Section number and modified to delete information which is not applicable to the Work. Standard information shall be supplemented to provide additional information applicable to the Work.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data that are submitted for review shall be clearly marked to identify pertinent materials, products or models, show dimensions and clearances required, show performance characteristics and capacities, and show wiring diagrams and controls.

### 2.03 SAMPLES

- A. All samples submitted for review shall be identified by reference to section number and shall provide pertinent information for the Engineer to review the proposed materials for acceptance.

## PART 3 EXECUTION

### 3.01 SHOP DRAWINGS AND PRODUCT DATA

- A. The review and submittal process for shop drawings and product data shall be in accordance with the requirements of the DOT.
- B. A minimum of five (5) copies of all shop drawings and product data shall be submitted. If the Contractor requires more than two (2) copies of the reviewed shop drawings and product data to be returned, he shall submit additional copies. Digital copies of the shop drawings may be submitted by email or other means.
- C. All shop drawings shall be submitted through the prime Contractor and be accompanied by a letter of transmittal. The prime Contractor shall approve all shop drawings before transmitting them for review.

### 3.02 SAMPLES

- A. Submit in accordance with the requirements of the DOT a minimum of four (4) samples of materials, finishes, colors, etc., as identified in the technical specifications for review.
- B. If the Contractor requires more than two (2) samples of material to be returned, additional samples shall be submitted.

\* \* \* END OF SECTION \* \* \*

## DIVISION IV B - SITE WORK

SECTION 02020 - EXISTING UTILITIES

SECTION 02160 - SHEETING, SHORING, AND BRACING

SECTION 02224 - TRENCHING, BACKFILLING AND COMPACTING

SECTION 02605 - MANHOLES AND CASTINGS

SECTION 02640 - VALVES AND APPURTENANCES

SECTION 02645 - HYDRANTS

SECTION 02665 - WATER PIPING AND FITTINGS

SECTION 02666 - WATER SERVICE PIPING, FITTINGS AND VALVES

SECTION 02667 - THRUST RESTRAINT

SECTION 02675 - CLEANING AND DISINFECTION OF WATER DISTRIBUTION SYSTEMS

SECTION 02676 - TESTING OF WATER DISTRIBUTION SYSTEMS

SECTION 02730 - WASTEWATER PIPING AND FITTINGS

SECTION 02731 - PIPELINE TESTING

SECTION 02732 - CLEANING OF SANITARY SEWER SYSTEMS

## SECTION 02020 EXISTING UTILITIES

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.

#### 1.02 SCOPE

- A. This Section describes, but is not limited to, the relationship of the Project to existing underground utilities and the Work associated with the location, adjustment and repair of such utilities.

#### 1.03 MEASUREMENT AND PAYMENT

- A. The cost to relocate or repair any utilities or other obstructions damaged by the Contractor's activities shall be considered incidental Work with no separate measurement and payment to be made.

### PART 2 PRODUCTS - Not Used

### PART 3 EXECUTION

#### 3.01 GENERAL

- A. Existing utilities, as shown on the drawings, are located in accordance with available data, but locations may vary and cannot be guaranteed. The existence and exact locations shall be determined by each Contractor as the Work proceeds. All work shall be done carefully so as to avoid damaging the existing utilities and Work. The Contractor shall be responsible for locating, or having located, all utilities, whether shown or not on the plans or in these specifications.
- B. Each Contractor shall provide for protection, temporary removal and replacement or relocation of obstructions as required for the performance of this Work required in these specifications.
- C. Other obstructions not shown on the plans and requiring relocation shall be exposed by the Contractor without injury; or if injured, shall be repaired by Contractor at his expense. Removal of such obstruction or its relocation shall be made by the Contractor at no cost to the Owner.

#### 3.02 UTILITY CONTACT

- A. In accordance with South Dakota state law, no excavator may begin any excavation without first notifying the One-Call Notification Center at 1-800-781-7474 of any proposed excavation. For your convenience the local "One Call Center" can be reached by dialing 811.

B. Prior to Work in a specific area affecting underground utilities, the following individuals shall be notified as appropriate:

1. TELEPHONE/CABLE TELEVISION:

(Name of Company) Venture Communications  
(Mailing Address) PO Box 157  
(City, State, Zip Code) Highmore, SD 57345  
Contact Person: Josh Bueg or Clint Buchholz  
Telephone Number: (605) 852-2224

2. ELECTRIC:

(Name of Company) NorthWestern Energy  
(Mailing Address)  
(City, State, Zip Code)  
Contact Person:  
Telephone Number: 1-800-245-6977

3. GAS: None

4. WATER:

(Name of Company) City of Highmore  
(Mailing Address) PO Box 299  
(City, State, Zip Code) Highmore SD 57345  
Contact Person: Chad Crago  
Telephone Number: (605) 852-2085

5. RURAL WATER

(Name of Company) Mid Dakota Rural Water  
(Mailing Address) 608 W. 14<sup>th</sup> St.  
(City, State, Zip Code) Miller, SD 57362  
Contact Person:  
Telephone Number: (605) 853-3159

6. SEWER:

(Name of Company) City of Highmore  
(Mailing Address) PO Box 299  
(City, State, Zip Code) Highmore SD 57345  
Contact Person: Chad Crago  
Telephone Number: (605) 852-2085

7. STREETS:

(Name of Company) City of Highmore  
(Mailing Address) PO Box 299  
(City, State, Zip Code) Highmore SD 57345  
Contact Person: Chad Crago  
Telephone Number: (605) 852-2085

C. The failure of any utility to be present for any reason, at the Preconstruction Conference, if held, or the failure to be included in the listing of Paragraph 'B' above shall not relieve the Contractor of any responsibility described herein.

3.03 UTILITY REPAIR

- A. When an existing utility is exposed or damaged, the Contractor shall comply with the repair requirements of the affected utility.
- B. When an underground utility is exposed, the Contractor shall compact the backfill beneath the exposed utility before completion of the backfill operation.

### 3.04 SEWER AND WATER MAIN SEPARATION

#### A. Horizontal Separation

- 1. Sewers shall be laid at least 10 feet horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, a deviation may be allowed if approved by the engineer. Such deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18 inches above the top of the sewer.
- 2. If it is impossible to obtain proper horizontal separation as described above, both the water main and sewer shall be constructed of slip-on or mechanical joint pipe complying with public water supply design standards and be pressure tested where possible to 150 psi to assure watertightness.

#### B. Vertical Separation

- 1. Sewers Crossing Under Water Mains – The sewer shall be laid to provide a minimum of 18 inches from the top of the sewer to the bottom of the water main. The crossing shall be arranged so the sewer joints will be equidistant and as far as possible from the water main.
- 2. Sewers Crossing Over Water Mains – Either the water main or the sewer main must be encased in a watertight carrier pipe that extends 10 feet on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be PVC and the ends sealed with a rubber gasket or boot.

#### C. Special Conditions – When it is impossible to obtain the proper horizontal and vertical separation as stipulated above, one of the following methods shall be specified:

- 1. Water Pipe – The sewer shall be designed and constructed equal to water pipe and shall be pressure tested where possible at 150 psi prior to backfilling to assure watertightness; or;
- 2. Carrier Pipe – Either the water main or the sewer main may be encased in a watertight carrier pipe that extends 10 feet (3.0 m) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be PVC and the ends sealed with a rubber gasket or boot.

#### D. The following are optional requirements for storm sewers:

- 1. A reinforced concrete pipe (RCP) storm sewer may cross below a water main with a separation of less than 18 inches or at any height above a water main provided the joints on the RCP within 10 feet of either side of the water main are assembled with one or more of the following:
  - a. Preformed butyl rubber sealant meeting federal specification #SS-S-210A and AASHTO M 198, and each of these joints are encased with a minimum 2-foot wide by 6-inch thick concrete collar centered over the joint and reinforced with the equivalent steel area as that

in the RCP. Encasement of the water main will not be required when the RCP joints are collared within the 20-foot section.

- b. An O-ring that conforms to ASTM C 443 specifications. O-rings are manufactured for concrete pipe with diameters up to 18 inches.
- c. A strip of impermeable material held in place with stainless steel bands and tested to 5 psi prior to the storm sewer being put into use.

\* \* \* END OF SECTION \* \* \*

# SECTION 02160 SHEETING, SHORING, AND BRACING

## PART I GENERAL

### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.
- B. Related requirements specified elsewhere:
  - 1. Trenching, Backfilling and Compacting - Section 02224.

### 1.02 DESCRIPTION OF WORK

- A. Furnish and install all necessary sheeting, shoring, and bracing to adequately protect all new and existing structures, all existing piping as may be required during construction period, and all new piping.

### 1.03 MEASUREMENT AND PAYMENT

- A. Sheeting, shoring, and bracing left in place to protect footings, structures, or piping shall be incidental to the contract unit prices as shown on the Bid Form.

## PART 2 PRODUCTS

### 2.01 MATERIALS

- A. All sheeting, shoring, and bracing shall be in good or new condition and shall conform to the requirements of current safety codes and guidelines.

## PART 3 EXECUTION

### 3.01 METHODS

- A. Contractor shall be responsible for the design, installation and maintenance of all sheeting, shoring and bracing as necessary to furnish safe working conditions conforming to the current codes, regulations, and guidelines; to prevent any shifting and movement of material which may endanger personnel; to prevent damage to structures, or other work; and to avoid delay to the work.
- B. Bracing shall be so arranged as not to place any strain on portions of existing structures or utilities or completed work until the general construction has proceeded far enough to provide ample strength.
- C. Trench sheeting shall remain in place until proposed materials have been placed, tested for defects, and repaired if necessary, and the earth around it compacted as required by the specifications.

- D. In general, the sheeting and bracing shall be removed as the excavation is refilled in such a manner as to avoid the caving in of the bank or disturbance to adjacent areas or structures. The voids left by the withdrawal of the sheeting shall be carefully filled and compacted in accordance with the specifications.
- E. No sheeting, shoring, and bracing which is within three feet of the surface of the finished grade may be left in place without the written permission of the Engineer.
- F. It shall be the duty and responsibility of the Contractor to be familiar with all local, state, and federal regulations relating to this type of work and to comply with those regulations.
- G. Contractor shall have “competent person(s)” as defined by OSHA standards 29 CFR 1926.650, 1926.651 and 1926.652; Subpart P – Excavations, on the job site whenever trenching is in progress or open trenches are within the project site.

\* \* \* END OF SECTION \* \* \*

# SECTION 02224 TRENCHING, BACKFILLING AND COMPACTING

## PART 1 GENERAL

### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.
- B. Related Requirements specified elsewhere:
  - 1. Special Project Permits – Section 01170
  - 2. Existing Utilities - Section 02020
  - 3. Sheeting, Shoring and Bracing - Section 02160

### 1.02 SCOPE

- A. This section covers the excavation of all necessary trenching for underground utilities, and backfilling same, after the pipe and related material and structures have been properly placed, inspected and tested all in accordance with applicable federal, state and local laws and regulations.
- B. The term "structures" as used in these specifications shall include but not be limited to manholes, cleanouts, fittings, valves, fire hydrants and related appurtenances.

### 1.03 QUALITY ASSURANCE

- A. When requested by the Engineer or Resident Project Representative, the Contractor shall excavate and expose the pipe previously laid at any point.
- B. The Owner will conduct in-place moisture and density tests of the water, sanitary sewer and storm sewer trench backfill. The Owner will conduct such tests, observations and measurements as may deemed appropriate for the Owner's own information and use to determine general conformance and compliance with the general intent of the plans and specifications. The results of the tests, observations and measurements made by the Owner shall not relieve the Contractor from any responsibility for completing the work in conformance with the plans and specifications.
- C. The Contractor shall be responsible for conducting such additional tests, observations and measurements as he deems necessary to demonstrate conformance with the requirements of the plans and specifications.

### 1.04 MEASUREMENT AND PAYMENT

- A. Trenching, backfilling and compacting are considered incidental work with no separate measurement and payment to be made.
- B. Should rock (solid material not removable without blasting or power hammer) be encountered, one of the following procedures will be followed upon agreement between the Owner, Contractor and Engineer:
  - 1. The line or structure will be relocated; or

2. Excavation will continue at a negotiated price, or the unit price as shown on the Bid Form. Measurement will be on the basis of actual length, depth and width. The maximum width allowed for payment shall be nominal pipe diameter plus 16 inches at the trench bottom and depth six (6) inches below the proposed invert elevation as shown on the plans.
- C. All boulders containing a volume of more than one (1) cubic yard will be considered solid rock excavation. Shale, regardless of the nature of deposit, will not be considered as rock excavation unless so designated on the plans. The responsibility and cost of satisfactorily demonstrating to the Engineer that the material being considered for rock excavation cannot be removed by means other than drilling and/or blasting shall be the obligation of the Contractor.
  - D. Where over excavation and backfill or other trench bottom stabilization measures are required, the areas requiring stabilization will be measured and paid for at a price negotiated between the Owner and Contractor as per the procedures set forth in the Contract Documents, provided the unstable trench bottom conditions are not due to the fault or neglect of the Contractor.
  - E. Dewatering is not anticipated on this project. Dewatering will not be measured for payment and will be considered as subsidiary work pertaining to the Contract. When dewatering is required and paid for, it shall be considered as dewatering only in accordance with the requirements of Paragraph 3.06 of this Section.
  - F. Soils that are determined to be contaminated with petroleum or petroleum products and must be removed from the site will be measured and paid for at the contract unit price per ton for "Contaminated Material Excavation" and shall be considered full compensation for excavating, hauling and disposing of the material at an approved site. Measurement and payment will be made to the nearest tenth (0.1) of a ton.

## PART 2 PRODUCTS - NOT USED

## PART 3 EXECUTION

### 3.01 GENERAL EXCAVATION

- A. All material encountered shall be excavated to the lines and grades as shown on the plans, set by the Engineer or as specified herein.
- B. Unless otherwise shown on the plans, trenches for sewer and water lines shall be of a depth that will provide a minimum cover of not less than six (6) feet over the top of the pipe as measured from the proposed ground surface.
- C. Where pipe elevation is determined by minimum depth only, the excavation shall be sufficient at all points to grade the pipes on the tangents and vertical curves as dictated by the minimum bending radius of the pipe and fittings as recommended by the manufacturers.
- D. The trenches shall be sufficiently straight between designated angle points to permit the pipe to be laid true to line in the approximate center of the trench.
- E. Intersections with and crossings of other underground utilities shall be as shown on the plans and/or in accordance with applicable state and local laws and regulations. Refer to Section 02020 for additional requirements.

- F. All excavated material suitable for backfilling shall be placed in an area away from the trench edges so as to avoid overloading, sliding and cave-ins.
- G. The areas immediately adjacent to the trench shall be graded as required to prevent surface water from entering the trenches.

### 3.02 EXCAVATION AT STRUCTURES

- A. A minimum of twelve (12) inches shall be left between the trench wall and the outside surface of the structure.

### 3.03 SHEETING, SHORING AND BRACING

- A. Refer to Section 02160 of these specifications.

### 3.04 ROAD, STREET AND DRIVEWAY CROSSINGS

- A. At such road and all other crossings as may be designated by the Engineer, the trenches are to be mechanically tamped and filled in such a manner as to prevent any serious interruption of traffic upon the roadway or crossing.
- B. Not more than one street or road crossing may be obstructed by the same trench at any one time except by permission of the Engineer and Owner.

### 3.05 ROCK EXCAVATION

- A. Rock excavation shall be completed to a minimum of eight (8) inches below and on each side of all structures.
- B. Excess excavation shall be backfilled with compacted material conforming to the bedding material required for the material being used.

### 3.06 PETROLEUM CONTAMINATED SOIL

- A. On the basis of information provided by the SD Department of Environment and Natural Resources (DENR) it is possible that petroleum contaminated soils may be encountered in some areas where excavation will be required. In the event petroleum contaminated soil is encountered, the Contractor shall immediately advise the Owner who shall be responsible for advising the appropriate regulatory agency. A quantity of 150 tons has been included in the estimate of quantities for bidding purposes.
- B. In the event soil is encountered that is suspected, either as a result of odors or visual observation, of being contaminated with petroleum or petroleum products, the Contractor shall remove as little of the material as possible from the trench during the construction process. Excavation shall be limited to only that amount as is necessary to safely excavate the trench and place the piping and related materials. The Contractor shall not be required to remove any additional potentially contaminated material from the trench or adjacent areas. Any material that is excavated in excess of the amount necessary, unless approved by the Owner and Engineer, shall be at the Contractor's expense.
- C. Any soil that is suspected of being contaminated shall be isolated and kept separate from the balance of the material excavated from the trench. The Contractor shall take appropriate steps to avoid potential contamination of the area adjacent to the trench and project site. The

Contractor shall not be allowed to utilize the material as trench backfill until the Owner has made the determination that the material contamination levels are less than the Tier 1 risk based corrective action levels as set forth in the Handbook for Investigation and Corrective Action Requirements for Discharges from Storage Tanks, Piping Systems and Other Releases (Version 1.1 – December 18, 1995) as issued by the Ground Water Quality Program of the DENR. For convenience, the Tier 1 Action Levels are summarized in the following Table 1.

TABLE 1

<b>Tier 1 Action Levels for Soils at Petroleum Release Sites</b>	
<b>Chemical of Concern</b>	<b>Tier 1 Action Level</b>
Benzene	0.2 ppm
Toluene	15 ppm
Ethylbenzene	10 ppm
Xylene	300 ppm
Napthalene	25 ppm
Total Petroleum Hydrocarbon	500 ppm

*Note:* The action level set forth in the above table for Total Petroleum Hydrocarbons shall be considered a “trigger level.” This level is intended to serve as a threshold level which will require a more thorough evaluation of the soil contamination to determine the suitability of the material as backfill material or if disposal and backfill with alternative materials will be required.

- D. The Owner shall have the option of having the suspected soil analyzed to determine contaminant concentrations or having the soil removed from the project site and deposited at a facility permitted for the treatment/disposal of petroleum contaminated soil. If the soil contaminant levels are less than the risk based corrective action levels set forth in Table 1, the soil may be used in the backfill of the trench. Under no circumstances shall soils with a Total Petroleum Hydrocarbon content above 10 ppm be allowed to be replaced in the trench as backfill.
- E. If any of the soil contaminate levels are greater than the risk based corrective action levels set forth in Table 1, the soil shall be removed from the project site and deposited at a facility permitted for the treatment/disposal of petroleum contaminated soil. Regardless of the contaminant levels, all soils with a Total Petroleum Hydrocarbon content above 10 ppm shall be removed from the project site and deposited at a facility permitted for the treatment/disposal of petroleum contaminated soil.

### 3.07 DEWATERING

- A. Where water is encountered in a trench, water shall be removed by pumping to lower the water level to such elevation that the pipe may be laid dry at the grade shown on the plans.
- B. All water pumped from the trench shall be disposed of in a manner so as not to cause any damage to adjacent property.
- C. When dewatering is paid for, it shall be considered as dewatering only when a manifold or pump and system of well points is installed to lower ground water such that excavation and construction can take place.
- D. The process of pumping water out of the trench with a suction hose and pump will not be considered as dewatering.

- E. Where seepage of water into the trench occurs that can be removed using standard pumping procedures, it shall not be deemed sufficient cause for installing a system of manifolds and well points and classified as dewatering in order to obtain remuneration under the bid item - Dewatering.
- F. In the event the water from the dewatering procedures can reach the waters of the state, the permit requirements of the general dewatering permit or temporary storm water discharge permit shall be followed as applicable. The Contractor is referred to Section 01170 – Special Project Permits for information relating to the permit(s). To obtain information on the permit(s) the Contractor should contact the South Dakota Department of Environment and Natural Resources at (605) 773-3351.

### 3.08 TRENCH BOTTOM PREPARATION

- A. The sides of all trenches shall be vertical from the bottom of the trench to a point one (1) foot above the top of the pipe.
- B. The width of the trench shall be greater than six (6) inches but less than twelve (12) inches on each side of the pipe bell.
- C. The bottom of all trenches for underground piping shall be carefully and accurately formed to the lines and grades as shown on the plans, set by the Engineer or as specified herein.
- D. Removal of rock, boulders, and large stones, or other manmade material shall be completed in accordance with Paragraph 3.05 of this specification.
- E. If the trench bottom is inadvertently excavated deeper than necessary, it shall be backfilled to the proper grade with compacted bedding material.

### 3.09 UNSTABLE TRENCH BOTTOM

- A. Whenever wet, soft or unstable soils incapable of properly supporting the pipe, or other appurtenances are encountered in the trench, the Contractor shall be required to remove the unsuitable materials and backfill to the proper grade with concrete, granular material or other suitable approved material as directed by the Engineer.
- B. Backfill material shall be compacted to a minimum density of 95% of maximum Standard Proctor Density (ASTM D698) at not less than 4% below optimum nor more than 4% above optimum moisture content.

### 3.10 BACKFILLING AND COMPACTING

- A. Any trenches improperly backfilled or showing excessive settlement shall be reopened to a depth required for proper compaction.
- B. Backfill material shall be free of boulders, frozen clods, large roots, excessive sod or other vegetation, construction debris.
- C. No backfilling shall take place in freezing weather without written permission from the Engineer.
- D. Bedding material shall consist of borrowed granular material and shall conform to the requirements of Sections 02665 and/or 02730.

- E. The embedment material above the bedding material shall be finely divided material free from debris, organic material, and clods, lumps or stones larger than 1-1/2 inches maximum diameter. The material shall be borrowed material or job site excavated material. Embedment material shall be placed in uniform layers not more than eight inches (8") thick and compacted to 95% maximum density as determined by ASTM D698 and a moisture content of between 4% below and 4% above optimum moisture until the pipe has a cover of not less than one foot (1').
- F. The remainder of the backfill above the embedment material shall consist of selected material from excavation or borrow, and shall be free from cinders, ashes, refuse, organic and frozen material, boulders or other materials that are unsuitable. This material shall be placed from 12 inches above the top of the pipe to 6 inches below the ground surface, unless otherwise specified, or to the subgrade elevation for streets or paved surfaces. Under no circumstances shall backfill material that is placed within two feet of the top of the pipe be allowed to contain stones, rocks or other solid debris that is greater than three (3) inches in size.
- G. After completing the bedding and embedment of the pipe as specified, the remainder of the backfill material shall:
1. In areas beneath unpaved areas, be placed in uniform layers not exceeding one foot (1') and compacted throughout the entire depth of the backfill to at least 95% of the maximum density as determined by ASTM D698 and a moisture content of between 4% below and 4% above optimum moisture obtainable at optimum moisture content for those areas under and within 10 feet of a roadway. Those areas where the utility is crossing open fields and yards shall be compacted to 90% of the maximum density as determined by ASTM D698 and a moisture content of between 4% below and 4% above optimum moisture.
  2. In areas under road surfacing, sidewalks, curb and gutter, and other adjacent improvements to a point 8 feet (8') from the edge of the road surface and as otherwise noted on the plans, be placed in uniform layers and compacted throughout the entire depth of the backfill. Each layer, except the upper 6 inches of subgrade underlying the pavement, shall be spread uniformly and tamped with a hand tamper or other approved device until thoroughly compacted to at least 95% of the maximum density obtainable at optimum moisture content as determined by ASTM D698 and a moisture content of between 4% below and 4% above optimum moisture. The upper 6-inch layer, forming the subgrade for surfacing shall be compacted to at least 95% of the maximum density obtainable at optimum moisture content for flexible pavements and to at least 90% of the maximum density obtainable at optimum moisture content for rigid pavements and gravel. Density of backfill shall be determined based on Standard Proctor Test, ASTM Test Designation D698.
- H. The Contractor shall moisten or aerate the backfill material to obtain the moisture content required to obtain the specified compaction.
- I. Any settlement of the trench within a period of 1 year from the date of substantial completion shall be brought back to the finished grade with the appropriate cover material. The Contractor shall be responsible for all costs related to this work.
- J. Where sufficient excavated material is not available for backfilling and grading, the Contractor shall at no additional cost to the Owner, be responsible for locating, obtaining and placing additional materials as may be requested. Borrow of topsoil by stripping areas adjacent to the trench will not be allowed.

- K. No more than 300 feet of trench shall be left open at any time. Open trenches shall be properly marked and/or attended. Trenches shall be closed at the end of each day.

### 3.11 EXCESS EXCAVATION

- A. Materials shall not be wasted without the permission of the Engineer. No payment will be made for any excavated material which is used for purposes other than those designated. All spoil areas shall be leveled or shaped to:
  - 1. the designated uniform line and section as directed by the Owner;
  - 2. provide for proper drainage of the spoil area and surrounding area;
  - 3. a condition and slope to allow maintenance by the Owner; and,
  - 4. present a neat appearance before project acceptance by the Owner
- B. The contractor shall be responsible for securing and maintaining an adequate area where excess material can be stockpiled for future use or waste.
- C. The Owner's approval of the site selection shall be required.
- D. The Contractor shall be responsible for the final cleanup of the site chosen. The site shall be cleaned to the satisfaction of the property owner, and a lien waiver or a letter of satisfaction written by the property owner and addressed to the Owner.
- E. Excess material not required for embankment shall be removed from the project site or stockpiled at a site designated by the Owner for later use. Such removal, disposal and/or stockpiling shall be at the Contractor's expense.

\* \* \* END OF SECTION \* \* \*

## SECTION 02605 MANHOLES AND CASTINGS

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.
- B. Related Work Specified Elsewhere:
  - 1. Trenching, Backfilling and Compacting - Section 02224
  - 2. Wastewater Piping and Fittings - Section 02730

#### 1.02 DESCRIPTION OF WORK

- A. The Work covered under these specifications shall include the furnishing of all material, labor, tools, and equipment necessary to furnish, install, and construct complete in place all manholes as shown on the drawings and specified herein.
- B. When the term "manhole" is used in these specifications, it shall mean a structure which is placed on the sewer line to permit entry, inspection, cleaning, and repair of the sewer, and shall apply to all types of manholes.

#### 1.03 MEASUREMENT

- A. Manholes and castings shall be measured in units as specifically called for in the Bid Form.

#### 1.04 BASIS OF PAYMENT

- A. The price bid for manholes, complete in place, shall be full compensation for furnishing all materials, labor, equipment, and incidentals necessary to construct and place in satisfactory operating condition the manholes, including seals, excavation, backfill, and concrete foundations.
- B. The price bid shall include and constitute full compensation to furnish and install the base, barrel section(s), cone section, adjusting ring(s) and other appurtenances as required therein.
- C. Inside manhole drop systems will be paid for on the basis of each drop installed. Payment shall be considered full compensation to furnish and install all necessary materials and equipment required for the installation of the inside drop system.
- D. The removal and disposal of existing manholes shall be measured and paid for based on the unit price listed in the Bid Form. The payment shall include compensation for all costs associated with removal, hauling and disposal of the materials.
- E. The price bid for manhole castings shall be full compensation for furnishing and installing the casting and lid as required to the proper elevation.

## 1.05 JOB CONDITIONS

- A. Existing underground utilities, as shown on the drawings, are located in accordance with available data, but locations may vary and cannot be guaranteed. The exact locations shall be determined by the Contractor as work proceeds. Excavation work shall be done carefully so as to avoid damaging existing work.
- B. Contractor shall provide for protection, temporary removal and replacement or relocation of said obstructions as required for the performance of the work required in these contract documents.

## 1.06 SUBMITTALS

- A. The Contractor shall submit for review copies of shop drawings for the materials as specified herein in accordance with the requirements of Section 01340.

## PART 2 PRODUCTS

### 2.01 MANHOLES

- A. Manholes shall be constructed of concrete or precast concrete with bases, rings, and covers according to the dimensions and details as shown on the plans or as called for in the specifications.
- B. The materials used for precast manhole section and bases shall be of the size as shown on the drawings and shall conform to ASTM C-478.

### 2.02 MANHOLE CASTINGS

- A. Gratings and covers shall be of the standard design of the manufacturer. All castings shall be of uniform quality, free from blow holes, shrinkage, cracks, distortion, or other defects affecting strength and appearance. They shall be smooth and well cleaned.
- B. Metal used in the manufacture of castings shall conform to ASTM A48-76, Class 35B for gray iron or ASTM A536-80, Grade 65-45-12 for ductile iron.
- C. All castings shall be manufactured true to pattern; component parts shall fit together in a satisfactory manner. Round frames and covers shall have continuously machined bearing surfaces to prevent rocking and rattling.
- D. All cast dimensions may vary 1/2 the maximum shrinkage possessed by the metal or plus or minus 1/16 inch per foot.
- E. All weights shall not exceed the manufacturer's published weights by plus or minus 5%.
- F. All castings shall meet the load bearing requirements as shown on the plans. The proof load test results shall be furnished upon request. The proof load test procedure shall be in accordance with Federal Specification RR-F-621C.
- G. The manhole casting shall be Model R-1733 (7") as manufactured by Neenah Foundry Company; Model 1261, as manufactured by Deeter Foundry Company; or approved equal. Covers shall be solid with concealed pick holes.

2.03 INSIDE DROP SYSTEM

- A. The inside manhole drop system shall consist of PVC pipe and fittings in conformance with Section 02730 and as shown in the plans. All fasteners, bolts and straps shall be stainless steel.

2.04 MANHOLE WALL JOINT SEALANT

- A. Flexible gasket material for sealing manhole wall joints shall be RAM-NEK as manufactured by K.Y. Snyder Company, Inc., Houston Texas; ConSeal CS-202 as manufactured by Concrete Sealants, Inc., New Carlisle, Ohio; or approved equal.

2.05 MANHOLE WALL - CASTING SEALANT

- A. Unless otherwise shown on the plans, sealant material meeting the requirements of Paragraph 2.04-A above shall be used to make a watertight seal between the manhole wall and casting.

2.06 PIPE OPENING GASKET

- A. Unless otherwise shown on the plans, the pipe opening in the manhole wall shall be made watertight with a rubber gasket assembly meeting the requirements of ASTM C-923 and the following:

<b>GASKET</b>	
	Minimum Thickness of Gasket Material
8" Holes thru 16" Hole Sizes	290" +/- .025
18" Holes and Larger Hole Sizes	300" +/- .025
Minimum Compound Tensile Strength of Rubber	1800 PSI
Elongation of Rubber	450% - 550%
Shore A Durometer of Rubber	42 +/- 5
<b>EXPANSION SLEEVE</b>	
Material	Type 304 Stainless Steel
Tensile Strength of Steel	85,000 PSI
Yield Strength of Steel	35,000 PSI
8" thru 26" Hole Sizes	1.5" Wide 11 Gauge
28" Hole Sizes and Larger	1.5" Wide 10 Gauge
<b>TAKE UP CLAMPS</b>	
Materials	Stainless Steel
Band, Saddle and Housing	Type 302
Screw	Type 305

## PART 3 EXECUTION

### 3.01 LOCATIONS

- A. Manholes shall be constructed at the locations and grades indicated on the plans.

### 3.02 EXCAVATION

- A. The requirements of Section 02224 shall apply to the excavation, backfilling and compaction for manholes.

### 3.03 GENERAL CONSTRUCTION

- A. Concrete shall be placed and shaped in all manholes or storm water inlet structures in such a manner so as to create a smooth, accurately shaped invert channel in accordance with the plan elevations. The floor and invert channel of the manhole and storm water inlet structure shall be constructed in such a manner as to drain into the invert properly.
- B. Sanitary sewer invert channels may be:
  - 1. Preformed directly in the concrete of the manhole base;
  - 2. Formed using a section of PVC of the required size, shape and length and pouring concrete in accordance with Paragraph A above; or
  - 3. Constructed by laying full section sewer pipe straight through the manhole and cutting out the top half after the manhole floor is constructed and sufficiently set in accordance with Paragraph A above.
- C. Manholes shall be built up so that the cover, when placed, will be at the grade required in the plans or as set by the Engineer.

### 3.04 PRECAST CONCRETE MANHOLES

- A. Monolithic precast concrete manholes shall be constructed in accordance with the details shown on the plans, as required by ASTM specification C478 and as specified hereinafter.
- B. Monolithic concrete and precast concrete manholes shall have offset cones; that is, one side shall be vertical.
- C. Precast base sections may be a base riser section and separate base slab or base section with integral floor. Cast in place bases shall be furnished as shown on the plans.
- D. Precast concrete manholes shall be placed using present acceptable construction methods.
- E. The openings in monolithic precast manhole sections shall be sealed using a rubber sleeve gasket to make a flexible water tight connection.
- F. All lifting holes in the manhole walls shall be carefully grouted with non-shrink grout prior to backfilling.

### 3.05 BACKFILLING

- A. After completion of footings, walls, and other construction below the elevation of the final grades and prior to backfilling, all forms shall be removed and the excavation cleaned of all trash and debris.
- B. The Contractor shall protect the manhole from all elements and from displacement during backfill operations. If any displacement of a manhole occurs, the Contractor shall repair all resulting damage and return the manhole to the original position required at his own expense.
- C. The backfill material shall conform to the requirements of Section 02224.

### 3.06 CASTING PLACEMENT

- A. The manhole casting and cover shall be carefully centered and sealed in the opening manhole wall-casting. Sealant methods and material shall be as shown on the plans and as specified herein. Concrete adjusting rings shall be used as required to set the casting to the proposed grade.

### 3.07 SURFACE FINISH

- A. The surface of the area shall be finished and smoothed to the lines and grades as shown on the plans.
- B. The requirements for the surface finish of the surrounding area shall conform to the requirements of the specifications relating to the surface to be replaced.

\* \* \* END OF SECTION \* \* \*

# SECTION 02640 VALVES AND APPURTENANCES

## PART 1 GENERAL

### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.
- B. Related requirements specified elsewhere:
  - 1. Water Piping and Fittings - Section 02665
  - 2. Thrust Restraints - Section 02667

### 1.02 DESCRIPTION OF WORK

- A. This section covers the furnishing and installation of valves and appurtenances as specified herein and as shown on the plans.

### 1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All valves and related appurtenances shall be shipped in accordance to the appropriate requirements of the AWWA. Valve ends shall be sealed to prevent the entry of foreign matter into the valve body. The boxes and crates in which valves are shipped shall completely enclose and protect the valve and accessories from foreign matter.
- B. Valves and accessories shall be stored in a manner so as to be protected from weather, moisture and other possible damage. Materials shall not be stored directly on the ground.
- C. All material shall be handled in a manner that will prevent damage to the interior and exterior surfaces.

### 1.04 SUBMITTALS

- A. The Contractor shall submit for review copies of shop drawings for materials specified herein in accordance with the requirements of Section 01340 and the requirements as hereinafter specified.
- B. Certification of performance, leakage, and hydrostatic tests, as described in AWWA C515 shall be furnished when requested by the Engineer.

### 1.05 MEASUREMENT AND PAYMENT

- A. All valves shall be measured and paid for at the contract unit price for the size and type of valve specified. Payment for each valve shall be full compensation for furnishing material, labor and incidentals as required to install the valve, thrust restraints and valve boxes with adaptors. Valve removals shall also be measured and paid for at the contract unit price. The price paid for removal of valves shall include the costs associated with removal and disposal of the valve.

## PART 2 PRODUCTS

### 2.01 GATE VALVES

- A. Gate valves shall be resilient wedge type manufactured to meet all applicable requirements of AWWA Standard for Resilient Seated Gate Valve C515. Gate valves shall be furnished with mechanical joint connections. Bolts and nuts for valve to pipe connection shall be fluorocarbon coated T bolts and nuts.
- B. All valves shall have non-rising stems, opening by turning left and provided with 2 inch "square" nut with arrow cast in metal to indicate direction of opening.
- C. Ductile iron wedge shall have sealing surfaces of the wedge permanently bonded with resilient material to meet ASTM tests for rubber to metal bond ASTM D429-08. Each valve shall have a smooth unobstructed waterway free from any sediment pockets. Stuffing boxes shall be O Ring seal type with 2 rings located in stem above thrust collar and one below.
- D. Body and cover bolts and nuts shall be type 304 stainless steel. Interior and exterior shall be coated with a fusion bonded epoxy coating that is non-toxic and safe for potable water. Interior coating shall conform to AWWA C550 (latest revision) Standard for Protective Epoxy Interior Coatings for Valves and Hydrants.
- E. Non-rising stems shall be in full compliance with AWWA specification with cast integral stem collar and furnished of bronze conforming to ASTM B584. Stem nuts shall be independent of wedge and shall be made of solid bronze or copper alloy conforming to ASTM B62 or ASTM B763.
- F. Valves shall have hydrostatic shell test of 500 psi and shut-off test of 250 psi. At the 250 psi shut-off test, valve must be bubble-tight with a zero (0) leakage allowance.
- G. Resilient wedge gate valves shall be American Flow Control model 2500; or approved equal to conform to the City's existing inventory.

### 2.02 VALVE BOXES

- A. Valve boxes shall be cast iron, 5-1/4" inside diameter, adjustable valve boxes of the screw type with sufficient length for the pipe bury as shown.
- B. Covers for water valves shall have the word "WATER" cast on the top.
- C. Valve boxes and covers shall be as manufactured by Tyler Pipe Utilities Division, Tyler, Texas; Mueller Co., Decatur, Illinois; Clow Corporation, Oak Brook, Illinois; or approved equal.
- D. Valve boxes shall be installed on the valve with the use of valve box adaptor manufactured from a rubber compound. The valve box adaptor shall be Valve Box Adaptor II as manufactured by Adaptor, Inc. or approved equal.

## PART 3 EXECUTION

### 3.01 VALVE INSTALLATION

- A. All valves shall be installed in locations as shown on the plans or as directed by the Owner's Resident Project representative.
- B. The valve and joints shall be installed in accordance with the manufacturer's recommendations. The bolts and nuts used to install the valves shall be stainless steel.
- C. Valves installed in buried locations shall be encased in low density polyethylene. The polyethylene material shall have a minimum thickness of not less than 8 mils. The polyethylene material shall be marked and installed according to AWWA C105.

### 3.02 VALVE BOX INSTALLATION

- A. All foreign material and debris shall be removed from the top of the valve operator prior to setting the valve box.
- B. Valve boxes shall be centered and plumb over the operating nut of the valve and shall be set so that no shock or stress will be transmitted to the valve.
- C. Tops of the valve boxes shall be set flush with the proposed surface unless otherwise directed.

\* \* \* END OF SECTION \* \* \*

## SECTION 02645 HYDRANTS

### PART I GENERAL

#### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.
- B. Related requirements specified elsewhere:
  - 1. Water Piping and Fittings - Section 02665
  - 2. Mechanical Thrust Restraints – Section 02667

#### 1.02 DESCRIPTION OF WORK

- A. This section covers the furnishing and installation of hydrants as specified herein and as shown on the Drawings.

#### 1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All hydrants shall be prepared for shipping and handled during shipping in accordance with the requirement of AWWA C502.
- B. Hydrants shall be stored in areas protected from weather, moisture and possible damage. Hydrants and related materials shall not be stored directly on the ground.
- C. Hydrants and related material shall be handled in a manner that will not damage interior or exterior surface.

#### 1.04 SUBMITTALS

- A. The Contractor shall submit for review copies of shop drawings for materials specified herein in accordance with the requirements of Section 01340 and the requirements as hereinafter specified.
- B. Certification of performance, leakage, and hydrostatic tests, as described in Section 5 of AWWA C502, shall be furnished when requested by the Engineer.

#### 1.05 MEASUREMENT AND PAYMENT

- A. All hydrants, hydrant removals and related appurtenances as described herein shall be measured and payment made at the units and prices bid on the Bid Form.

### PART 2 PRODUCTS

#### 2.01 FIRE HYDRANTS

- A. Hydrants shall be Model Super Centurion 250 as manufactured by Mueller Company, Decatur Illinois to match the city's existing hydrants and inventory unless otherwise approved by the

Owner . Hydrants shall be furnished with mechanical joint base elbow. Connecting bolts and nuts shall be fluorocarbon coated T-bolts and nuts.

- B. Hydrant shall be dry barrel types as manufactured in accordance with AWWA Standard C502. Hydrant shall be designed for 250 pounds working pressure and shop tested to 500 pounds hydrostatic pressure prior to shipment to the project site.
- C. Hydrant body shall be constructed from cast or ductile iron. Hydrants shall be of the "break-away" design. Valves, when closed, shall remain reasonably tight when the upper portion of the barrel and operating mechanism is broken away. The barrel sections shall be bolted, not screwed, to the lower section. Hydrant body shall be of proper length to provide a minimum of 6' of bury or the specified depth of cover over the service main. The base elbow flange connection bolts shall be type 304 stainless steel.
- D. The main valve seat ring and drain ring shall be bronze. The main valve shall be compression type. Hydrant shall be furnished with a stop nut to prevent over travel and compression of the main valve. The hydrant shall be constructed in a manner which permits removal of internal working parts without digging or destruction of barrel or casing.
- E. Valve opening shall be at least 5¼" diameter and be designed so that removal of all working parts can be accomplished without excavating.
- F. Each hydrant shall have one or more drain holes to drain the barrel. Construction shall be such that the drain holes will be closed when the main valve is open and open when the main valve is closed.
- G. The direction of the opening shall be to the left and markings shall be cast on the head thereof to so indicate.
- H. Hydrant shall have one 4-1/2" steamer nozzle and two 2-1/2" hose nozzles. Nozzle threads shall conform to the pattern and type currently used by the Owner. Operating nuts and nozzle lugs shall conform to the size and pattern currently used by the Owner. The Contractor shall be responsible for verifying sizes, types and patterns prior to ordering material. Permanent chains connected to the nozzle caps shall be provided.
- I. Hydrants shall be furnished with External surfaces above grade factory coated with catalyzed two-part epoxy primer and red polyurethane top coating.

## PART 3 EXECUTION

### 3.01 HYDRANT INSTALLATION

- A. All hydrants shall be installed in locations as shown on the plans or as directed by the Owner.
- B. Care shall be taken to thoroughly clean valves and hydrants of sticks, stones, dirt, or trash of any kind prior to setting.
- C. All moving parts shall be examined and found to be in working order prior to setting.
- D. Hydrants shall be set truly vertical upon flat prefabricated concrete blocks with the minimum thickness of 4 inches and not less than 16 inches square. A thrust block, consisting of

prefabricated concrete block(s), shall be placed between the backside of the hydrant and the undisturbed trench wall.

- E. Approximately ten (10) cubic feet of crushed rock which is free of cementing material shall be placed below the hydrant and above the hydrant drain holes.
- F. Hydrants shall be set in all cases at such a location and grade that a minimum of 18" clearance is maintained between the ground line grade and the centerline of the lowest nozzle.
- G. Backfill shall be carefully placed and compacted to insure no displacement of a properly set hydrant.
- H. The portion of the hydrant that is below ground shall be encased in low density polyethylene. The polyethylene material shall have a minimum thickness of 8 mils. The polyethylene material shall be marked and installed according to AWWA C105, latest revision.

\* \* \* END OF SECTION \* \* \*

# SECTION 02665 WATER PIPING AND FITTINGS

## PART 1 GENERAL

### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.
- B. Related Work Specified Elsewhere:
  - 1. Trenching, Backfilling and Compacting - Section 02224
  - 2. Valves and Appurtenances - Section 02640
  - 3. Mechanical Thrust Restraints - Section 02667
  - 4. Cleaning and Disinfection of Water Distribution Systems - Section 02675
  - 5. Testing of Water Distribution Systems - Section 02676

### 1.02 DESCRIPTION OF WORK

- A. The work covered under these specifications shall include the furnishing of all labor, material, tools, and equipment necessary to furnish and install, complete in place, all piping and fittings as shown on the drawings and as specified herein.

### 1.03 SUBMITTALS

- A. The Contractor shall submit for review copies of shop drawings for materials specified herein in accordance with the requirements of Section 01340 and the requirements as hereinafter specified.
- B. Certificates, upon request, from the manufacturer that the materials meet or exceed specified requirements.
- C. The manufacturer's installation recommendations, upon request, including types and amounts of gasket lubricant, where applicable, to be used.

### 1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All materials shall be packed, loaded, transported, unloaded and handled in such a manner so as to prevent damage to the materials. Pipe shall be transported from the factory to the job site with front ends tarped and covered. Pipe shall be delivered on pallets with protective boards to prevent damage from banding. Bands and boards shall be placed according to the manufacturer's standard arrangement so as to provide adequate support for material. No loose or unpalletted pipe shall be delivered to the project site.
- B. All material shall be loaded and unloaded by lifting with slings or hoists or skidding so as to avoid shock or damage. Dropping or rolling will not be permitted. The use of end hooks to install or move piping will not be allowed.
- C. All materials shall be stored on the site in accordance with the manufacturer's recommendations. Do not store materials directly on the ground.

- D. All materials shall be kept clean and dry. The insides of all piping and fittings shall be kept free of dirt and debris.

#### 1.05 MEASUREMENT AND PAYMENT

- A. Piping of the different types and classes as called for on the Bid Form shall be measured and paid for on a lineal foot in place basis at the unit prices bid on the Bid Form.
- B. Bedding material will be considered incidental to the unit price bid with no separate measurement or payment.
- C. Incidental items associated with the piping materials for which no separate measurement and payment will be made include but are not limited to:
  - 1. Gaskets
  - 2. Lubricants
  - 3. Protective Coatings
  - 4. Linings
  - 5. Poly wrap
- D. Fittings shall be measured and payment made at the contract unit price as shown on the Bid Form.
- E. Connections to existing water mains and/or appurtenances of different sizes as called for on the Bid Form shall be measured and paid for at the unit price as shown on the Bid Form. Payment shall be compensation for furnishing all material, equipment and labor to make the necessary connections.
- F. Tracer wire will not be measured. Payment for tracer wire will be considered incidental and included in the unit prices for piping as appropriate. All fasteners splice kits and other appurtenances shall be considered incidental.
- G. Tracer wire access boxes will be measured on a per each basis. Payment for tracer wire access boxes will be on the basis of each tracer box installed as called for on the Bid Form. PVC conduit, wire fasteners, splice kits, adjusting to grade and other appurtenances shall be considered incidental to tracer wire access boxes.
- H. Temporary water service shall not be measured for payment. Payment for temporary water service will be considered incidental and included in the unit prices for piping and appurtenances as appropriate.
- I. PVC encasement pipe shall be measured and paid for on a lineal foot in place basis at the contract unit price. Payment shall be full compensation for the encasement pipe, centering devices and end seals as required by DENR.
- J. The removal and disposal of existing water piping, encasement pipe and fittings will not be measured for payment but shall be considered incidental to the project.

## PART 2 PRODUCTS

### 2.01 DUCTILE IRON FITTINGS

- A. Ductile iron fittings shall conform to the requirements of ANSI Specifications A21.10 or A21.53.
- B. Ductile iron fittings to be installed underground shall be mechanical joint type conforming to the requirements of ANSI A21.11 unless shown otherwise. Bolts and nuts shall be fluorocarbon coated T-bolts and nuts.
- C. All ductile iron fittings shall be lined with cement mortar in accordance with ANSI Specification A21.4. The exterior finish on fittings to be installed in buried locations shall be a coal tar varnish coating not less than 1 mil. thick.

### 2.02 PRESSURIZED POLYVINYL CHLORIDE (PVC) PIPE

- A. Polyvinyl Chloride pipe shall be pressure Class 200, DR 18 rated pipe conforming to the requirements of AWWA C-900 for pipe sizes four inch and larger. Pipe sizes smaller than four inch shall be pressure Class 200, IPS SDR 21 conforming to the requirements of AWWA C-900.
- B. The pipe shall be made from Type 1, Grade 1, Class 12454B compounds conforming to ASTM D1784.
- C. All pipe shall be marked with the following: Nominal pipe size, material code designation, DR, pressure rating, manufacturer's name or trademark, NSF seal and ASTM numbers.
- D. The PVC pipe shall be furnished in 20 foot laying lengths. Longer lengths will be allowed only if the Contractor certifies that he will provide equipment on the project to fully support the pipe while being transported and distributed over the project.
- E. All PVC pipe shall be furnished with gasket joints conforming to ASTM D3139. Rubber gaskets shall conform to the requirement of ASTM F477.
- F. Manufacturer's proof of design tests and joint dimensions shall be submitted to the Engineer for gasket joints which do not maintain SDR throughout the joint.
- G. Gasket joint couplings used for plain end pipe shall have a pressure rating equal to the pipe on which used. Centering of pipe within the coupling will be assured by means of an integral positive stop in the coupling. All couplings must be of the double gasket type. Couplings requiring welds will not be allowed.
- H. All gasketed joints shall have a seating depth equal to at least 50% of the nominal pipe diameter.
- I. The ends of the pipe to be inserted into couplings or joints shall be factory marked to allow field checking of the depth of setting of the pipe in the joint socket.
- J. The gasket lubricant shall be furnished by and approved for the intended use by the pipe manufacturer.

### 2.03 FITTINGS FOR PRESSURIZED PVC PIPE

- A. Fittings for use on PVC pipe shall be ductile iron fittings conforming to the requirements of Paragraph 2.01 above.

### 2.04 COUPLINGS

- A. Couplings shall be gasketed, sleeve type of a diameter to properly fit the pipes being joined. Each coupling shall consist of one (1) steel sleeve, two (2) end ring followers, two (2) rubber compound gaskets and sufficient bolts to properly compress the gaskets to make a watertight coupling.
- B. The sleeve shall be ASTM A53, ASTM 512 or carbon steel or ASTM 536 ductile iron with a minimum yield of 30,000 psi. The steel sleeve shall have a minimum wall thickness of one quarter (1/4) inch and a minimum length of seven (7) inches. The carbon steel sleeves shall be furnished with a fusion bonded epoxy with a minimum dry thickness of 12 mils suitable for potable water service. Ductile iron sleeves may be furnished with the manufacturer's standard shop coating.
- C. The end rings shall be Ductile Iron, ASTM A536 or steel, AISI C1018, and of such design to provide confinement of the gaskets. The end rings shall be furnished with fusion bonded epoxy with a minimum dry thickness of 12 mils.
- D. The coupling bolts and nuts shall be stainless steel. The manufacturer shall furnish information as to recommended torque for the proper tightening of the bolts.
- E. Gaskets shall be minimum grade 30 gaskets composed of new crude or synthetic rubber base compounded with other products to produce a material which will not deteriorate from age, from heat, or exposure to air under normal storage conditions. It shall also possess the quality of resilience and ability to resist cold flow of the material so that the joint will remain sealed and tight indefinitely when subjected to shock, vibration, pulsation and temperature or other adjustments of the pipe line.
- F. The couplings shall be assembled on the job in a manner to insure permanently tight joints under all reasonable conditions of expansion, contraction, shifting and settlement, unavoidable variations in trench gradient, etc. The coupling shall be Dresser, Style 38, as manufactured by Dresser Manufacturing Division; Rockwell, Style 411, as manufactured by Rockwell International; Ford, Style FC3, as manufactured by Ford Meter Box Company; or JCM Style 201 as manufactured by JCM Industries.

### 2.05 ENCASEMENT PIPE

- A. Encasement shall be PVC pipe and shall be a size that is at least two times the diameter of the carrier pipe..

2.06 BEDDING MATERIAL

- A. Borrowed granular bedding material shall conform to the gradation indicated below.

SIEVE OPENING	BEDDING MATERIAL (Percent Passing)
No. 4	95-100
No. 16	45-85
No. 50	10-40
No. 100	2-10
No. 200	< 5

- B. Borrowed granular bedding material for unstable trench bottom shall conform to the gradation indicated of size 67 Course Aggregate, ASTM C33 which is indicated below.

<u>Sieve Opening</u>	<u>Bedding Material (Percent Passing)</u>
1"	100
3/4"	90-100
3/8"	20-55
No. 4	0-10
No. 8	0-5

2.07 TRACER WIRE

- A. Tracer Wire shall be a direct bury wire that meets or exceeds the following requirements:
- B. Conductor: 12 AWG solid strand soft drawn copper per ASTM B-3, or B-8. The breaking pounds of the wire shall be a minimum of 124 with an O.D. of 0.154. All wire shall be spark tested at 7500 VAC.
- C. Insulation: Conductor shall be insulated with low density high molecular weight polyethylene insulation suitable for direct bury applications per ASTM D-1248. The minimum insulation thickness shall be 0.045. The color of the insulation shall be blue with a print line saying "water".
- D. Splices and or Connectors: Splices and or Connectors should be capable of handling from 2 to 4 wires per connector and designated as "water-proof". PVC adhesives or sealing compounds are not acceptable.
- E. Tracer Wire Access Box: Tracer wires shall be terminated using a small terminal box suitable for flush burial with a 2½ inch cast iron top, integral stainless terminals and a minimum 12 inch long ABS bottom section.
- F. Tracer Wire System Manufactures:
- Tracing Wire – Kris Tech Wire Co. Inc., Paige Electric Corporation, or equal.
  - Splice Kit/Connectors -3M epoxy type compounds, fusible heat shrink tubing, 3M DBY connectors, or Snaploc LV 9000 direct bury wire connectors, or equals.

- Tracer Wire Access Box – Valvco Pipe Tracer Wire Terminal Box or equal. Access Box shall be labeled “WATER”

- G. The terminal box shall be rated for an H-20 load rated. The cast iron casting shall be manufactured in accordance with ASTM A 48 Class 30. The ABS pipe shall be manufactured in accordance with ASTM D 1788.

## PART 3 EXECUTION

### 3.01 GENERAL

- A. The areas to receive piping shall be examined for defects that may adversely affect the execution and quality of Work. Prior to the start of piping installation, all measurements shall be checked for deviations from allowable tolerances for piping.

### 3.02 BURIED PIPING INSTALLATION

- A. All piping and fittings shall be laid true to line and grade as shown on the plans. Each section of pipe shall be so laid and fitted together that when complete the piping will have a smooth uniform flow line. The inside of all pipe shall be cleaned before installation and kept thoroughly clean during and after the laying. Pipe ends shall be cleaned inside and outside.
- B. All pipe and fitting shall be examined for defects before being lowered into the trench. The interior and exterior protective coating shall be inspected and field repaired, if required and possible in accordance with applicable standards. If repair is not possible, the defective pipe section shall be removed.
- C. The pipe shall be handled and installed in accordance with manufacturer's recommendations and the requirements of ASTM D2774 for PVC pressure piping .
- D. When pipe laying is not in progress, including the noon hours, the open ends of pipe shall be closed. No trench water, animals, or foreign material shall be permitted to enter the pipe.
- E. Bedding material shall be used with all piping. After each pipe has been graded, aligned, and placed in final position on the bedding material and shoved home, sufficient pipe embedment material shall be deposited and compacted under and around each side of the pipe and back of the bell or end thereof to hold the pipe in proper position and alignment during subsequent pipe joining and embedment operations.
- F. The pipe shall be laid upon properly placed bedding material so that the barrel of the pipe will have a bearing for its full length. Bell holes and depressions for joints shall be excavated after the trench bedding has been graded.
- G. The Contractor shall provide and maintain all necessary means and devices at all times to remove and dispose of all water entering the trench during the process of pipe laying. The trench shall be kept dry until the pipe laying and jointing are completed. Removal of water shall comply with Section 02224.
- H. Thrust blocks and restraining fittings shall be used as specified in Section 02667.

- I. All piping and fittings shall be installed in the locations as shown on the plans and directed by the Resident Project Representative. Each section of pipe shall be so laid and fitted together that when complete the piping will have a smooth uniform flow line. The inside of all pipes shall be cleaned before installation and kept thoroughly clean during and after the installation. Pipe ends shall be cleaned inside and outside.
- J. No dirt, vegetation or other foreign material shall be in the bell. If there is any evidence of dirt, vegetation or other foreign material in the pipe joints, the Contractor shall disconnect the piping to remove the material prior to placing the pipe in the trench. If the carrier pipe was field cut, the end must be beveled prior to installation.

### 3.03 MECHANICAL JOINTS AND COUPLINGS

- A. Mechanical joints shall be carefully assembled in accordance with the manufacturer's recommendations. If effective sealing is not obtained, the joint shall be disassembled, thoroughly cleaned, and reassembled or replaced. Overtightening bolts to compensate for poor installation practice will not be permitted.
- B. The holes in mechanical joints with tie rods shall be carefully aligned to permit installation of the tie rods. In flange and mechanical joint pieces, holes in the mechanical joint bells and the flanges shall straddle the top (or side for vertical piping) centerline. The top (or side) centerline shall be marked on each flange and mechanical joint piece at the foundry.

### 3.04 ENCASEMENT PIPE

- A. Encasement pipe shall be installed at the locations indicated in the plans or as directed by the Engineer. When Encasement pipe is required, it shall include the use of centering devices and end seals.

### 3.05 TESTING

- A. All piping shall be tested in accordance with Section 02676.
- B. All piping shall be cleaned and flushed in accordance with the requirements of Section 02675.

### 3.06 TRACER WIRE

- A. Tracer wire, ground rods and access boxes shall be installed in accordance with the details shown in the plans or as directed by the Engineer.
- B. The tracer wire shall be installed along with the pipe. The wire shall be installed along the top of the pipe and shall be securely anchored to the pipe at a minimum on both sides of every joint and at intervals not longer than ten (10) feet as detailed in the plans. Tracer wire shall be installed along all water mains.
- C. Terminal boxes shall be installed in the boulevard area at locations approved by the Engineer. Where applicable, both the upstream and downstream tracer wires shall be installed in the box. The wire shall be extended at least three (3) feet above the top of the access box. The contractor shall connect the wire to the access box lid and carefully fold the wires for insertion into the access box for storage. The wires shall be easily accessible for connecting to for subsequent tracing of the pipeline.

- D. All tracer wire connections shall be accomplished with “pig tails”. All splices and “pig-tails” shall be made by stripping the wires to be connected, twisting the wires together, securing the connection by using an appropriately sized wire nut and installing a direct bury splice kit.

\* \* \* END OF SECTION \* \* \*

# SECTION 02666 WATER SERVICE PIPING, FITTINGS AND VALVES

## PART 1 GENERAL

### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.
- B. Related requirements specified elsewhere:
  - 1. Trenching, Backfilling and Compacting - Section 02224
  - 2. Water Distribution Piping and Fittings - Section 02665
  - 3. Cleaning and Disinfection of Water Distribution System - Section 02675
  - 4. Testing of Water Distribution Systems - Section 02676

### 1.02 DESCRIPTION OF WORK

- A. The Work covered under these specifications shall include the furnishing of all labor, materials, tools and equipment necessary to furnish and install, complete in place, all water service piping, fittings, valves and related appurtenances as shown on the drawings and as specified herein.

### 1.03 SUBMITTALS

- A. The Contractor shall submit for review copies of shop drawings for materials specified herein in accordance with the requirements of Section 01340 and the requirements as hereinafter specified.
- B. Certificates from the manufacturer that the materials meet or exceed specified requirements shall be submitted upon request.

### 1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All materials shall be packed, loaded, transported, unloaded and handled in such a manner so as to prevent damage to the materials.
- B. All material shall be loaded and unloaded so as to avoid shock or damage. Dropping or rolling will not be permitted. The use of end hooks to install or move piping will not be allowed.
- C. All materials shall be stored on the site in accordance with the manufacturer's recommendations. Do not store materials directly on the ground.
- D. All materials shall be kept clean and dry. The inside of all piping and fittings shall be kept free of dirt and debris.

### 1.05 MEASUREMENT AND PAYMENT

- A. Piping of the different sizes, type and classes as called for on the Bid Form shall be measured and payment made at the Contract Unit Price on a lineal foot in place basis. Measurement will be made to the nearest foot.

- B. Valves of the different types and sizes as called for on the Bid Form shall be measured and payment made at the Contract Unit Price on a per each in place basis.
- C. All fittings of the different types and sizes as called for on the Bid Form shall be measured and payment made at the Contract Unit Price on a per each in place basis. When not specifically called for on the Bid Form, fittings and related appurtenances shall be considered incidental and included in the unit prices bid for piping and appurtenances as appropriate with no separate payment made.
- D. Connection to existing service lines shall be measured and paid for on a unit basis as called for on the Bid Form.

## PART 2 PRODUCTS

### 2.01 WATER SERVICE PIPE

- A. Water service pipe to be installed between the new water main piping and the existing services shall be Type K soft copper where shown in the plans.
- B. PVC pipe conforming to Section 02665 shall be used where indicated in the plans.

### 2.02 SERVICE SADDLES

- A. Water service saddle bodies shall be cast from high strength ductile iron. The body shall be coated with a fusion bonded epoxy coating not less than 12 mils total thickness. Saddle body shall be furnished with AWWA Type CC corporation threads conforming to AWWA C800 (latest revision) Standard for Underground Service Line Valves and Fittings.
- B. Saddle band shall be stainless steel with a minimum width of 2". Nuts, washers and bolts shall be Type 304 Stainless Steel.
- C. Water service saddles shall be Style FC202 as manufactured by Ford Meter Box Company, Inc., Style 101N as manufactured by Romac Industries or approved equal.

### 2.03 CORPORATION STOPS

- A. Corporation stop valves shall be ball type valves of the size as shown on the plans or as directed by the Engineer. Valves shall be as manufactured by Ford Meter Box Company, Inc., or approved equal.
- B. Corporation stop valves shall conform to the requirements of AWWA C800 (latest revision) Standard for Underground Service Line Valves and Fittings.
- C. Inlet threads of the corporation stop shall be AWWA Type CC. Outlet connection shall be furnished with flared copper outlet as appropriate for the service line material size and type to be connected to the valve.

### 2.04 SERVICE LINE VALVES/CURB STOPS

- A. Service line valves shall be ball type valves of the size as shown on the plans or as directed by the Engineer. Valves shall be as manufactured by Ford Meter Box Company, Inc., or approved equal.

- B. Service line valves shall conform to the requirements of AWWA C800 (latest revisions) Standard for Underground Service line Valves and Fittings.
- C. Valves shall be furnished with pack-joint type connections on both inlet and outlet. The connections shall be appropriate for the service line material size and type to be connected to the valve.
- D. Service line valves shall be Minneapolis pattern.

#### 2.05 SERVICE LINE VALVES BOXES

- A. Valve boxes for service line valves shall be furnished for Minneapolis pattern. Valve boxes shall be manufactured by the manufacturer of the service valves.
- B. Valve boxes shall be furnished with 1 1/4" steel pipe upper section and cast iron base and lid. Boxes shall be coated with asphalt base paint. Valve box lids shall be provided with a pentagon head plug.

#### 2.06 MISCELLANEOUS COUPLINGS

- A. Couplings for water service pipe and tubing shall be brass body with pack joint connections on both ends. The connections shall be appropriate for the service line materials size and type to be connected.
- B. Couplings shall be as manufactured by Ford Meter Box Company, Inc., or approved equal.

### PART 3 EXECUTION

#### 3.01 GENERAL

- A. The areas to receive piping shall be examined for defects that may adversely affect the execution and quality of work. Prior to the start of piping installation, all measurements shall be checked for deviations from allowable tolerances for piping.

#### 3.02 BURIED PIPING INSTALLATION

- A. All piping and fittings shall be laid true to line and grade as shown on the plans. All pipe and fittings shall be examined for defects before being lowered into the trench. The inside of all pipe shall be cleaned before installation and kept thoroughly clean during and after the laying. Pipe ends shall be cleaned inside and outside.
- B. When pipe laying is not in progress, including the noon hours, the open ends of pipe shall be closed. No trench water, animals or foreign material shall be permitted to enter the pipe.
- C. The Contractor shall provide and maintain all necessary means and devices at all times to remove and dispose of all water entering the trench during the process of pipe laying. The trench shall be kept dry until the pipe laying and jointing are completed. Removal of water shall comply with Section 02224.

### 3.03 SADDLE AND CORPORATION STOP INSTALLATION

- A. All saddles and corporation stops shall be installed in the locations as shown on the plans or as directed by the Owner. Saddles and corporation stops shall be installed in accordance with the details shown on the plans and the manufacturer's recommendations.

### 3.04 CURB STOP INSTALLATION

- A. All curb stops and service line valves shall be installed in the locations as shown on the plans or as directed by the Owner. Curb stops and service line valves shall be installed in accordance with the details shown on the plans and the manufacturer's recommendations.

### 3.05 CURB STOP/SERVICE LINE VALVE BOX INSTALLATION

- A. All foreign material and debris shall be removed from the top of the valve operator prior to setting the valve box. Valve boxes shall be centered and plumb over the operating nut of the valve.
- B. The tops of the curb stops/service line valve boxes shall unless otherwise directed by the Owner, be installed flush with the surrounding surface.

### 3.06 TESTING

- A. All piping shall be cleaned and disinfected in accordance with the requirements of Section 02675.
- B. All piping shall be tested in accordance with Section 02676.

### 3.07 COMPACTION METHOD INSTALLATION - (OPTIONAL)

- A. This type of installation may be completed by a pneumatic piercing tool "Hole-Hog" and/or by pulling a reaming cone to create a pre-bored hole.
- B. The maximum diameter of the pre-bored hole shall be 1.5 times the diameter of the carrier pipe.
- C. Damage caused by the boring operation to underground utilities shall be repaired by the contractor as required by the utility owner.
- D. The boring shall be adjusted as necessary to stay within tolerances of 2 feet in horizontal alignment and 0.5 feet in vertical alignment as called for on the plans or as otherwise approved by the engineer.

\* \* \* END OF SECTION \* \* \*

# SECTION 02667 THRUST RESTRAINTS

## PART 1 GENERAL

### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.
- B. Related requirements specified elsewhere:
  - 1. Valves and Appurtenances - Section 02640
  - 2. Hydrants - Section 02645
  - 3. Water Piping and Fittings - Section 02665

### 1.02 DESCRIPTION OF WORK

- A. This Section covers the furnishing and installation of thrust restraints and concrete blocks where necessary.

### 1.03 SUBMITTALS

- A. The Contractor shall submit for review copies of shop drawings for mechanical restraints, if required, as specified herein in accordance with the requirements of Section 01340 and the requirements as hereinafter specified.

### 1.04 LOCATION

- A. Thrust restraints and concrete blocks shall be furnished at locations including, but not limited to, the following:
  - 1. Tees
  - 2. Crosses
  - 3. Elbows
  - 4. Valves
  - 5. Hydrants
  - 6. Dead ends

### 1.05 MEASUREMENT AND PAYMENT

- A. Concrete blocks are considered incidental to the cost of the project with no separate measurement and payment to be made.
- B. Mechanical thrust restraint devices will be considered incidental to the cost of the project with no separate measurement and payment to be made.

## PART 2 PRODUCTS

### 2.01 CONCRETE

- A. All Concrete shall be Class M-6 concrete conforming to Section 462- Concrete for Incidental Construction of the South Dakota Department of Transportation Standard Specifications for Roads and Bridges, latest revision.

### 2.02 PVC PIPE RESTRAINTS

- A. Restraints for PVC pipe shall be designed for use on pipe material being installed. Bolts and nuts shall be stainless steel. Mechanical joint restraint glands for PVC pipe shall be Series 2000 PV mechanical joint restraint gland as manufactured by EBAA Iron Sales, Inc., Eastland, Texas; or equal
- B. PVC bell restraint shall be used where specified. The restraint shall be manufactured of ductile iron conforming to ASTM A536. A split serrated ring shall be utilized behind the pipe bell. A split serrated ring shall be used to grip the pipe, and a sufficient number of stainless steel bolts shall be used to connect the bell ring to the gripping ring. The restraint devices shall be fusion bonded epoxy coated. The restraint shall be the Series 1500, as manufactured by EBAA Iron, Inc., or equal.

## PART 3 INSTALLATION

### 3.01 THRUST BLOCK INSTALLATION

- A. The thrust blocks shall be constructed and/or placed so that the bearing surface is in direct line with the major force created by the pipe or fitting.
- B. Cast-in-place thrust blocks shall be constructed by pouring concrete between the fitting and the undisturbed trench shall be the bearing surface. The concrete shall not be allowed to cover the bolts of any fitting or anchor.
- C. Concrete blocks shall be provided to support fittings and valves as detailed in the plans.

### 3.02 THRUST RESTRAINT INSTALLATION

- A. All locations listed in Paragraph 1.04 shall be mechanically restrained in accordance with the manufacturer's recommendations, AWWA C600 and all other applicable AWWA standards. The restraint lengths indicated below shall be provided. Any joints within the length indicated below from the fitting shall be mechanically restrained.

Fitting Type	Pipe/Fitting Size		Restraint Length	
	Nominal, Large or Run (in)	Branch or Small (in)	Each Side of Elbow or Valve, Large Side of Reducer or Run Side of Tee (ft)	Branch Side of Tee (ft)
Dead End, Hydrant or Valve	4	-	23	-
	6	-	33	-
	8	-	43	-
	10	-	52	-
Tee	10	8	5	1
	10	6	3	3
Reducer	6	4	17	-
	8	6	18	-

\*\*\* END OF SECTION \*\*\*

## SECTION 02675 CLEANING AND DISINFECTION OF WATER DISTRIBUTION SYSTEMS

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.

#### 1.02 DESCRIPTION OF WORK

- A. This section covers flushing of new and existing water lines, and disinfection of the installed piping.
- B. The Contractor shall furnish all water required for flushing and disinfection work as specified in the temporary facilities section.
- C. The Contractor shall provide, at his own expense, all means required for draining and disposing of water used in flushing and disinfection. This shall include, but not be limited to, additional drain valves, temporary piping and pumping equipment. Waste water shall be stored and/or treated, if required, so as to cause the water quality to meet the requirements of the S.D. Department of Environment & Natural Resources for discharge. Refer to the Storm Water Discharge Permit referenced in Section 01170.

#### 1.03 SUBMITTALS

- A. Copies of all bacteriological test reports shall be furnished to the Engineer and Resident Project Representative.

#### 1.04 MEASUREMENT AND PAYMENT

- A. Cleaning and disinfection will be considered incidental work pertaining to the contract with no direct measurement or compensation made for this work.

### PART 2 PRODUCTS

#### 2.01 CHLORINE

- A. Liquid chlorine shall conform to the latest edition of AWWA Specification B-301.
- B. Hypochlorites shall conform to the latest edition of AWWA Specification B-300.

### PART 3 EXECUTION

#### 3.01 CLEANING AND FLUSHING

- A. All lines shall be thoroughly flushed at a minimum flow velocity of 2.5 ft/sec prior to acceptance. If flushing water source conditions are inadequate to allow the minimum flow velocity of 2.5 ft/sec to be reached, the Contractor shall be required to clean the water main with a cleaning

pig to assure that all traces of construction materials, soil or other foreign matter have been removed.

- B. Flushing shall continue until the turbidity of the flushed water is equal to or less than 0.5 NTU or until the turbidity of the flushed water equals the turbidity of the source water.
- C. The Contractor shall take all necessary measurements to protect adjacent facilities and property. Damages caused by flushing water or water carried material shall be the responsibility of the Contractor.
- D. All flushing shall be completed prior to the initiation of the disinfection process described herein.
- E. When flushing the new water lines, the water used for flushing the water line must not reach a stream, river or other waterway if chlorine is detected in the water. Dechlorination shall be required before discharge to any such waterway. Contact the department's Surface Water Quality Program at (605) 773-3351 for more information.

### 3.02 PIPELINE DISINFECTION

- A. Each unit of completed supply line and distribution system shall be sterilized with chlorine before acceptance.
- B. The amount of chlorine applied shall be such as to provide a dosage of not less than 50 parts per million. The chlorinating material shall be introduced to the water lines and distribution system in an approved manner. If possible to do so, the lines shall be thoroughly flushed before introduction of the chlorinating material.
- C. After a contact period of not less than 24 hours, the system shall be flushed with clean water until the residual chlorine content is equal to or less than the chlorine content of the flushing water supply but in no case shall the chlorine content of the flushed water be less than 1.0 parts per million. All valves in the lines being sterilized shall be opened and closed several times during the contact period.
- D. Prior to final flushing, the treated water shall contain at least 25 ppm chlorine as per the latest edition of AWWA Specification C651.
- E. After disinfection, the water lines must be flushed and the disinfected line must be sampled. Two consecutive samples of water from the end of the disinfected line must be collected at least 24 hours apart. These samples must be submitted to the State Health Laboratory in Pierre, or other laboratory acceptable to the department and tested for coliform bacteria. The samples must be free of coliform bacteria before the system is placed into service. Should the sample collected indicate a positive test indicating the presence of coliform bacteria, the disinfection process shall be repeated until negative samples are obtained.
- F. When flushing the new water lines, the water used for disinfecting the water line must not reach a stream, river or other waterway if chlorine is detected in the water. Dechlorination shall be required before discharge to any such waterway. Contact the department's Surface Water Quality Program at (605) 773-3351 for more information.

\* \* \* END OF SECTION \* \* \*

## SECTION 02676 TESTING OF WATER DISTRIBUTION SYSTEMS

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.

#### 1.02 DESCRIPTION OF WORK

- A. All water distribution piping and related appurtenances shall be subjected to pressure and/or leakage tests as specified herein and as directed by the Engineer.
- B. The required pressure and leakage tests shall be made by the Contractor and witnessed by the Engineer. All tests shall be completed after all pipe installation has been completed. All concrete reaction blocks and bracing shall be in place at least 7 days before the initial pressure testing of the lines, except where mechanical thrust restraint devices are used.
- C. The Contractor shall perform the necessary work to fill the pipeline with test water as specified. The Contractor shall furnish all water, pumping equipment, water meter, pressure gage and other equipment, materials and facilities required for the tests.

#### 1.03 SUBMITTALS

- A. Prior to filling and testing the system, the proposed procedures shall be submitted for review by the Engineer.
- B. Pressure test forms completed in the field shall be submitted to the Engineer and Owner.

#### 1.04 MEASUREMENT AND PAYMENT

- A. Pipeline testing will not be measured for direct payment and will be considered subsidiary work pertaining to the contract.

### PART 2 PRODUCTS - None

### PART 3 EXECUTION

#### 3.01 TEST SECTIONS

- A. The pressure and leakage tests shall be applied to all sections of the line. The maximum length of any section being tested shall be 1,500 feet unless otherwise authorized by the Engineer.
- B. The Contractor shall be solely responsible for any and all damage to the pipeline, and to public and private property, which may result from defective material or workmanship.

### 3.02 FILLING AND VENTING OF WATER MAINS

- B. The section of line to be tested shall be slowly filled with water and all air expelled from the pipe. Care shall be taken that all valves and facilities for the venting of air from the pipeline are installed and open in the section being filled. Care is to be taken to insure that the rate of filling does not exceed the venting capacity of the air venting devices.

### 3.03 TEST EQUIPMENT AND FACILITIES

- A. Test pressures shall be applied by means of a force pump of such design and capacity that the required pressure can be applied and maintained without interruption for the duration of each test.
- B. The water meter and the pressure gage shall be accurately calibrated and shall be subject to the approval of the Engineer.

### 3.04 PRESSURE TEST

- A. Test pressures shall be applied to each section of pipeline with all connections, valves and fittings along the length of the test section in place.
- B. The pressure test shall be initiated by bringing the hydrostatic pressure in the section being tested to a minimum of 120 psi, as measured at the highest point of the section being tested.
- C. After the section of the line to be tested has been filled with water and brought to the specified level, the test pressure shall be maintained for a period of not less than one hour, or for whatever longer period as may be necessary for the Engineer to complete the inspection of the line under test, or for the Contractor to locate any and all defective joints and pipeline materials.
- D. If repairs are needed, such repairs shall be made, the line refilled and the test pressure applied as before; this operation shall be repeated until the line and all parts thereof withstand the test pressure in a satisfactory manner.

### 3.05 LEAKAGE TEST

- A. After the specified pressure test has been completed, the line being tested shall be subjected to a leakage test under the same hydrostatic pressure specified. The pressure shall be maintained constant (within a maximum variation, plus or minus, of 5%) during the entire time that line leakage measurements are being made so that the allowable leakage rate may be determined accurately from the leakage rate formula.
- B. Leakage testing shall not be started until a constant test pressure has been established. After the test pressure has been established and stabilized, the line leakage shall be measured by means of a water meter installed on the line side of the force pump.

- C. Line leakage is defined as the total amount of water introduced into the line as measured by the meter during the leakage test. The pipeline or tested section thereof will not be accepted if and while it has a leakage rate in excess of the rate as determined by the following formula set forth in AWWA Section C605 for PVC piping:

$$Q = \frac{LD(P)^{0.5}}{148,000}$$

in which: Q = Maximum permissible leakage rate, in gallons per hour, throughout the entire length of line being tested.

L = Length of line under test in feet.

D = Nominal diameter (in inches) of the pipe in the line.

P = The average test pressure, in psig, in the tested portion of the line.

- D. Where the leakage rate is in excess of the permissible maximum, the Contractor shall be responsible for the location and the repair of all leaks to the extent required to reduce the total leakage to an acceptable amount.
- E. All joints in piping in non-buried locations shall be watertight and free from visible leaks during the prescribed tests.
- F. Each and every leak which may be discovered at any time prior to the expiration of one year from and after the date of final acceptance of the work by the Owner shall be located and repaired by and at the expense of the Contractor regardless of any amount that the total line leakage rate during the specified leakage test may be below the specified maximum rate.

\* \* \* END OF SECTION \* \* \*

## SECTION 02730 WASTEWATER PIPING AND FITTINGS

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.
- B. Related Work Specified Elsewhere:
  - 1. Trenching, Backfilling and Compacting - Section 02224
  - 2. Pipeline Testing - Section 02731
  - 3. Cleaning of Sanitary Sewer Systems -Section 02732

#### 1.02 DESCRIPTION OF WORK

- A. The work covered under these specifications shall include the furnishing of all labor, material, tools, and equipment necessary to furnish and install, complete in place, all piping and fittings as shown on the drawings and as specified herein.

#### 1.03 SUBMITTALS

- A. The Contractor shall submit for review copies of shop drawings for materials specified herein in accordance with the requirements of Section 01340 and the requirements as hereinafter specified.
- B. Certificates from the manufacturer that the materials meet or exceed specified requirements shall be submitted upon request.

#### 1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. All materials shall be packed, loaded, transported, unloaded and handled in such a manner so as to prevent damage to the materials.
- B. All material shall be loaded and unloaded by lifting with slings or hoists or skidding so as to avoid shock or damage. Dropping or rolling will not be permitted. The use of end hooks to install or move piping will not be allowed.
- C. All materials shall be stored on the site in accordance with the manufacturer's recommendations. Do not store materials directly on the ground.
- D. All materials shall be kept clean and dry. The insides of all piping and fittings shall be kept free of dirt and debris.

#### 1.05 MEASUREMENT AND PAYMENT

- A. Piping of the different types and classes as called for on the Bid Form shall be measured and paid for on a lineal foot, complete in place. Measurement shall be to the nearest lineal foot. Payment shall be made at the unit prices bid as shown on the Bid Form.

- B. All fittings, caps, plugs and other appurtenances shall, unless specifically called for on the Bid Form, be considered incidental and included in the unit prices bid for piping as appropriate with no separate payment made.
- C. Incidental items associated with the piping materials for which no separate measurement and payment will be made include but are not limited to:
  - 1. Gaskets
  - 2. Lubricants
  - 3. Protective Coatings and Encasements
  - 4. Linings
  - 5. Bedding Material
- D. Connections to existing lines of the different sizes as called for on the Bid Form shall be paid for each connection actually made.
- E. Connections to existing service lines of the different sizes will be paid for as called for on the Bid Form. Payment shall be paid for each connection actually made.
- F. Payment for temporary bypass pumping shall be full compensation for all labor, materials and equipment required to provide a bypass of the sewage in order to allow the installation of the open trench. Payment shall be made at the lump sum price indicated on the Bid Form and shall be inclusive for the entire project.
- G. The removal and disposal of existing sanitary sewer piping and fittings will not be measured for payment but shall be considered incidental to the project.
- H. Tracer wire will not be measured. Payment for tracer wire will be incidental to the sewer service pipe. All fasteners splice kits and other appurtenances shall also be considered incidental.
- I. Tracer wire access boxes will be measured on a per each basis. Payment for tracer wire access boxes will be on the basis of each tracer box installed as called for on the Bid Form. Tracer wire, PVC conduit, wire fasteners, splice kits, adjusting to grade and other appurtenances shall be considered incidental to tracer wire access boxes.

## PART 2 PRODUCTS

### 2.01 GRAVITY PVC SEWER PIPE

- A. Polyvinyl Chloride (PVC) gravity sewer pipe shall be SDR 35 conforming to the requirements of ASTM Specification D 3034 for Rigid Poly (Vinyl Chloride) Sewer pipe.
- B. Gasketed type joints shall be made with rubber gaskets conforming to the requirements of ASTM F-477.
- C. The pipe shall be capable of withstanding trench loads imposed on it.

### 2.02 GRAVITY PVC SEWER FITTINGS

- A. Fittings for Polyvinyl Chloride (PVC) Gravity sewer fittings shall be of PVC with material and dimensions conforming to the requirements of ASTM Specification D 3034.

B. Gaskets for elastomeric joints shall conform to the requirements of ASTM F-477.

### 2.03 TRANSITION COUPLINGS FOR GRAVITY PIPING

- A. Couplings used for transitions between piping of different materials shall be made from elastomeric polyvinyl chloride (PVC). Clamp bands, band screw and housing shall be made from stainless steel. Couplings shall provide an infiltration and exfiltration proof and root proof joint. Couplings shall be designed as a flexible coupling specifically for the sizes and types of materials being joined.
- B. Transition couplings and adaptors for new and existing piping shall be RC Series "Strong-Back" as manufactured by Fernco, Inc. or approved equal

### 2.04 BEDDING MATERIAL

A. Borrowed granular bedding material shall conform to the gradation indicated below.

<u>Sieve Opening</u>	<u>Bedding Material (Percent Passing)</u>
No. 4	95-100
No. 16	45-85
No. 50	10-40
No. 100	2-10
No. 200	< 5

B. Borrowed granular bedding material for unstable trench bottom shall conform to the gradation listed in Section 02665.

### 2.05 TRACER WIRE

A. Tracer Wire and access boxes shall conform to the requirements of Section 02665 except the color of the wire insulation shall be green with a print line saying "Sewer" and the cover of the access box shall be labeled with the Word "Sewer".

## PART 3 EXECUTION

### 3.01 GENERAL

A. The areas to receive piping shall be examined for defects that may adversely affect the execution and quality of Work. Prior to the start of piping installation, all measurements shall be checked for deviations from allowable tolerances for piping.

### 3.02 BURIED PIPING INSTALLATION

A. All piping and fittings shall be laid true to line and grade as shown on the plans. Each section of pipe shall be so laid and fitted together that when complete the piping will have a smooth uniform flow line. The inside of all pipe shall be cleaned before installation and kept thoroughly clean during and after placing the pipe. Pipe ends shall be cleaned inside and outside.

- B. All pipe and fitting shall be examined for defects before being lowered into the trench. The interior and exterior protective coating shall be inspected and field repaired, if required, and possible accordance with applicable standards.
- C. The pipe shall be handled and installed in accordance with manufacturer's recommendations and the requirements of ASTM 2321 for PVC gravity sewer piping.
- D. When pipelaying is not in progress, including the noon hours, the open ends of pipe shall be closed. No trench water, animals, or foreign material shall be permitted to enter the pipe.
- E. Borrowed granular bedding material shall be used with all piping and installed according to the detail in the plans.
- F. The bedding material under and around the pipe shall be deposited in layers not to exceed six inches (6") and carefully compacted to a degree of compaction at least equal to 90% maximum dry density as determined by Standard Proctor Test, ASTM Test Designation D698 throughout the entire depth of each layer. Where the pipe has a protective coating, care shall be taken not to damage the coating.
- G. The pipe shall be laid upon properly placed bedding material so that the barrel of the pipe will have a bearing for its full length. Bell holes and depressions for joints shall be excavated after the trench bedding has been graded.
- H. After each pipe has been graded, aligned, and placed in final position on the bedding material and shoved home, sufficient pipe embedment material shall be deposited and compacted under and around each side of the pipe and back of the bell or end thereof to hold the pipe in proper position and alignment during subsequent pipe joining and embedment operations.
- I. The Contractor shall provide and maintain all necessary means and devices at all times to remove and dispose of all water entering the trench during the process of pipelaying. The trench shall be kept dry until the pipelaying and jointing are completed. Removal of water shall comply with Section 02224.

### 3.03 TRACER WIRE INSTALLATION

- A. The tracer wire and access box installation shall be as detailed in the plans and as specified in Section 02665.

### 3.04 BYPASS PUMPING

- A. The Contractor shall provide temporary bypass pumping as required to allow for the construction of the sanitary sewer main and manholes while maintaining the City's sanitary sewer in continuous operation.
- B. The Contractor shall be responsible for any damage resulting from a back-up of sewage during the installation of the facilities.
- C. Wastewater flows shall not be conveyed in open trenches or in the trench excavation, and at no time shall wastewater be allowed on the ground surface, streets, gutters, storm sewers, or other places which may constitute a health hazard.

### 3.05 TESTING AND CLEANING

- A. All piping shall be tested in accordance with Section 02731.
- B. All piping shall be cleaned and flushed in accordance with the requirements of Section 02732.

\* \* \* END OF SECTION \* \* \*

## SECTION 02731 PIPELINE TESTING

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.

#### 1.02 DESCRIPTION OF WORK

- A. All piping and related appurtenances shall be subjected to alignment and pressure and/or leakage tests as specified herein and as directed by the Engineer.
- B. The Engineer will complete the test for displacement of gravity sewer lines as specified herein. The Contractor will be responsible for all subsequent tests as specified herein.
- C. The required pressure and leakage tests shall be made by the Contractor and witnessed by the Engineer. All tests shall be completed after all pipe laying has been completed.
- D. The Contractor shall perform the necessary work to fill the pipeline with test water as specified. The Contractor shall furnish all water, pumping equipment, water meter, pressure gage, and other equipment, materials, and facilities required for the tests.

#### 1.03 SUBMITTALS

- A. Prior to filling, flushing and testing the system, the proposed procedures shall be submitted for review by the Engineer.
- B. Pressure test forms completed in the field shall be submitted to the Engineer and Owner.

#### 1.04 MEASUREMENT AND PAYMENT

- A. Pipeline testing will not be measured for direct payment and will be considered subsidiary work pertaining to the contract.
- B. No direct compensation will be made for this work. Payment will be included in the contract bid prices as shown on the Bid Form.

### PART 2 PRODUCTS - None

### PART 3 EXECUTION

#### 3.01 TEST SECTIONS

- A. The alignment tests of all gravity sewer lines shall be carried out on sections of sewer line located between manholes.

- B. The pressure and leakage tests shall be applied to all sections of the line with a section being the shortest practical length between manholes.
- C. The Contractor shall be solely responsible for any and all damage to the pipeline, and to public and private property, which may result from defective material or workmanship.

### 3.02 TEST EQUIPMENT AND FACILITIES

- A. Test pressures shall be applied by means of a force pump of such design and capacity that the required pressure can be applied and maintained without interruption for the duration of each test.
- B. The water meter and the pressure gage shall be accurately calibrated and shall be subject to the approval of the Engineer.

### 3.03 GRAVITY SEWER LINE DISPLACEMENT AND DEFLECTION

- A. All tests for alignment and displacement of the gravity sewer lines will be made not sooner than thirty (30) days after the pipe has been laid and the trench backfilled and compacted as specified.
- B. The test procedure shall consist of a light being shined between manholes by means of a flashlight or by reflecting sunlight with mirrors.
- C. If the illuminated interior of the gravity sewer line shows apparent displaced pipe or misalignment which prevents seeing less than 50% of the pipe opening at the other end of the section being tested, the Contractor, unless otherwise approved by the Owner and Engineer, shall be required to remedy the defect at his own expense.
- D. The Contractor shall conduct such tests as may be necessary to insure that the long term pipe deflection does not exceed 5%. Pipe deflections exceeding 5% will require corrective action by the Contractor at his own expense.
- E. Acceptable methods for testing deflection are:
  - 1. Electronic deflectometer.
  - 2. Rigid "Go - No Go" device of the size, dimensions and construction as recommended by the pipe manufacturer for the pipe size being tested.
- F. The Engineer may require the Contractor to conduct random deflection tests between successive manholes in areas where unstable trench walls or bottoms, heavy rainfall, frozen soil, high ground water levels, deep lines or difficulty in achieving compaction is experienced.

### 3.04 GRAVITY SEWER LINE INFILTRATION TEST

- A. The gravity sewer line, sewer service lines, its connections and manholes shall be subjected to an infiltration test when the ground water levels are two (2) feet or more above the top of sewer pipe and the appurtenance being tested.

- B. The maximum allowable rate of infiltration shall be 50 U.S. gallons per mile of sewer per inch of diameter for twenty-four (24) hours as measured by a flow measuring device acceptable to the Engineer.

### 3.05 GRAVITY SEWER LINE EXFILTRATION TEST

- A. An exfiltration test of the gravity sewer line will be accepted when the ground water table is less than two feet below the top of the pipe or appurtenance being tested.
- B. The maximum allowable rate of exfiltration shall be 50 U.S. gallons per mile of sewer per inch of diameter for twenty-four (24) hours.
- C. During the exfiltration testing, the internal water head must be two (2) feet higher than the top of the pipe, or ground water level, whichever is higher at the highest point of the test section. At no time may the internal-external pressure differential exceed 25 feet (10.8 psi) at the lowest point on the system being tested.
- D. The exfiltration test process shall be conducted for a period of not less than 2 hours on each section being tested.

### 3.06 GRAVITY SEWER LINE AIR TEST

- A. In lieu of an infiltration/exfiltration test, a low pressure air test may be used to evaluate the watertightness of the gravity sewer line. The low pressure air test shall conform to the requirements of the recommended practice for low pressure air testing of installed sewer pipe, Uni-Bell Plastic Pipe Assoc. specification UNI-B-6-98.
- B. The monitoring gauge shall be accessible from the ground surface and shall provide a maximum psig interval of 0.5 psig.
- C. When the tested pipe invert is below the groundwater table, the normal test starting pressure must be adjusted by the following formula:

$$P = 3.5 \text{ psig} + \frac{W}{2.31}$$

Where P = Test Starting Pressure (psig)

W = Average vertical height of groundwater above the invert of the sewer pipe to be tested (ft).

NOTE: In no case shall the test pressure exceed 9.0 psig.

- D. A constant pressure of 4.0 psig (greater than the average groundwater back pressure) shall be maintained for at least 2 minutes prior to beginning the test.
- E. The test may begin any time that the test pressure is between 3.5 psig and 4.0 psig.
- F. Maximum allowable air loss shall be  $Q = 0.0015$  cubic feet per minute per square foot of internal surface area.

- G. The minimum allowable time (T), in seconds, for the air pressure to drop 1.0 psig shall be based on the following:

$$T = \frac{[0.085 DK]}{Q}$$

Where K = 0.000419 DL, but not less than 1.0  
Q = 0.0015 cubic feet/min/sq.ft. of internal surface  
D = Nominal pipe diameter in inches  
L = Length of pipe being tested in feet

NOTE: If a 0.5 psig pressure drop is used, the appropriate required test times shall be exactly half as long as those using the above equation. If there has been no leakage (zero psig drop) after one hour of testing, the test section shall be accepted and the test complete.

### 3.07 MANHOLE TESTING

- A. Sanitary sewer manholes must be tested by the Contractor before final acceptance. The maximum allowable exfiltration will be 0.1 gallon per hour foot of diameter per foot of head in the manhole. Head shall be measured as the depth of the water from the top of the concrete manhole structure to the invert of the sewer in the manhole
- B. In lieu of an exfiltration test for sanitary sewer manholes, a vacuum test may be used when performed in accordance with the following procedures.
1. Each manhole shall pass two tests; the first test shall be after assembly but prior to backfilling and the second shall be after backfilling.
  2. The vacuum shall include testing to the top of the manhole, excluding the adjusting rings and the cast iron rings.
  3. Plug all pipes entering the manhole at least eight inches (8") into the sewer pipe. The plug must be inflated at a location past the manhole/pipe gasket.
  4. Brace all plugs to prevent the plug or pipe from being dislodged and drawn into the manhole.
  5. A vacuum of at least ten and one-half inches (10½") of mercury shall be drawn on the manhole. Shut the valve on the vacuum line to the manhole and disconnect the vacuum line. Open the vacuum line valve and adjust the vacuum to ten inches (10") of mercury.
  6. The pressure gauge shall be liquid filled having a 3.5 inch diameter face with a reading from zero to 30 inches of mercury.

7. The time for the vacuum to drop from ten inches of mercury to nine inches of mercury must be equal to or greater than the following values for the manhole to be considered as passing the vacuum test:

Minimum Test Times for Various Manhole Diameters in Seconds									
Depth (ft.)	Diameter, in.								
	30	33	36	42	48	54	60	66	72
	Time, in seconds								
8	11	12	14	17	20	23	26	29	33
10	14	15	18	21	25	29	33	36	41
12	17	18	21	25	30	35	39	43	49
14	20	21	25	30	35	41	46	51	57
16	22	24	29	34	40	46	52	58	67
18	25	27	32	38	45	52	59	65	73
20	28	30	35	42	50	53	65	72	81
22	31	33	39	46	55	64	72	79	89
24	33	36	42	51	59	64	78	87	97
26	36	39	46	55	64	75	85	94	105
28	39	42	49	59	69	81	91	101	113
30	42	45	53	63	74	87	98	108	121

8. If a manhole fails the vacuum test, the manhole shall be uncovered and patched on the exterior of the manhole, retested prior to backfilling when the leak has been patched and retested after the backfill is completed.
9. Manhole vacuum tester assembly and vacuum pumps shall be as manufactured by Cherne Industries Inc., P.A. Glazier Inc., or approved equal.
10. Pneumatic plugs shall be provided and installed in accordance with the manufacturer's recommendations.

## SECTION 02732 CLEANING OF SANITARY SEWER SYSTEMS

### PART 1 GENERAL

#### 1.01 RELATED DOCUMENTS

- A. The General Provisions as set forth in the SD DOT Standard Specifications for Road and Bridges, 2004 Edition, as supplemented and amended shall apply to and govern the work of all persons engaged in the performance of the contract and shall form a part of the contract.

#### 1.02 DESCRIPTION OF WORK

- A. This section covers cleaning and flushing of the new sewer lines.
- B. The Contractor shall furnish all water and facilities required for flushing and cleaning work as specified hereinafter.
- C. The Contractor shall provide, at his own expense, all means required for draining and disposing of water used in flushing and cleaning. This shall include, but not be limited to, additional drain valves, temporary piping and pumping equipment. Waste water shall be stored and/or treated, if required, so as to cause the water quality to meet the requirements of the S. D. Department of Environment & Natural Resources for discharge.

#### 1.03 MEASUREMENT AND PAYMENT

- A. Cleaning and flushing will be considered incidental work pertaining to the Contract with no direct measurement or compensation made for this work.

### PART 2 PRODUCTS - None

### PART 3 EXECUTION

#### 3.01 CLEANING AND FLUSHING

- A. All lines shall be thoroughly flushed and cleaned before acceptance until all traces of construction materials, soil or other foreign matter have been removed.
- B. The Contractor shall take all necessary measures to protect adjacent facilities and property. Damages caused by flushing water or water carried material shall be the responsibility of the Contractor.
- C. All flushing and cleaning shall be completed prior to the initiation of the testing process described in Section 02731.

\* \* \* END OF SECTION \* \* \*



**STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

**SPECIAL PROVISION  
FOR  
CONTRACTOR ADMINISTERED PRECONSTRUCTION MEETING**

**APRIL 18, 2013**

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**I. DESCRIPTION**

This work consists of the Contractor scheduling and conducting a preconstruction meeting prior to beginning work on this contract. Additionally this work consists of the Contractor providing the Area Engineer a completed list of required submittals.

**II. MATERIALS (Not Specified)**

**III. CONSTRUCTION REQUIREMENTS**

For the purposes of this special provision, a business day is any calendar day except Saturdays, holidays, and days designated by the Governor of this State as an administrative leave day for state employees.

The Department will provide the Contractor a list of required submittals and the Authorization Form for Preconstruction Meeting (Form DOT-270) within five (5) business days of the date of the Notice to Proceed.

The Contractor's Required Submittals Form (Form DOT-272) is a document outlining information required prior to the completion of the project. This list will include two types of submittals; 1) information required before scheduling a preconstruction meeting and 2) information required before the Contractor begins related work. The Department reserves the right to request additional information not included in the original list of required submittals. The list of required submittals will include, but is not limited to, proposed sequence changes, shop drawings, permits, certifications, mix designs, labor compliance, equal employment opportunity, and disadvantaged business enterprise documents.

Prior to scheduling the preconstruction meeting, the Contractor will complete and provide the Area Engineer all items on the list of required submittals that are required as described in 1) above. If the Contractor cannot complete and provide a submittal item required prior to scheduling the preconstruction meeting, the Contractor will contact the Area Engineer to establish a mutually agreed upon

date when the required submittal will be completed and provided to the Area office.

The Contractor will not begin work on an item until the Contractor has provided the Area Engineer with all required information for the applicable work item and the appropriate office has approved the information, if necessary. The Contractor will make every reasonable effort to deliver the required submittals at the earliest possible time.

The Contractor's authorized representative as indicated on the Signature Authorization Form (Form DOT-209) will complete, in its entirety, the first page of the Authorization Form for Preconstruction Meeting and will initial each proceeding section. By initialing each section, the Contractor is confirming comprehension of each section.

When the Contractor has provided the Area Engineer all required submittals, unless the Contractor and Department have established an agreement in writing providing future dates of outstanding required submittal items, the Contractor will schedule a preconstruction meeting with the Area Engineer.

Within two (2) business days following the Contractor scheduling the preconstruction meeting, the Area Engineer will prepare and send the Contractor a meeting confirmation and the Preconstruction Meeting Outline (Form DOT-271) of discussion items including specific Department items.

The Contractor will complete the Contractor's portion of the Preconstruction Meeting Outline and will add additional discussion items as needed. The Contractor will send the meeting notice and final Preconstruction Meeting Outline to the Area Engineer, all subcontractors, utility companies, and all suppliers at least five (5) business days prior to the preconstruction meeting.

The Area Engineer will send the notice of the meeting and the final Preconstruction Meeting Outline of discussion items to any other government entities and other principle stakeholders involved in the project at least three (3) business days prior to the preconstruction meeting.

At the discretion of the Area Engineer, the preconstruction meeting may be held in person, videoconference, or over the phone. The Contractor's competent superintendent, as required by Section 5.5, who will be working on this project, is required to attend the preconstruction meeting.

The Contractor will lead the meeting discussion as described in the Preconstruction Meeting Outline. The Area Engineer will prepare the meeting minutes including any unresolved items and distribute them to all attendees and principle stakeholders within five (5) business days following the preconstruction meeting.

**IV. METHOD OF MEASUREMENT**

The Department will not make a separate measurement for the preconstruction meeting.

**V. BASIS OF PAYMENT**

The Department will not make a separate payment for the preconstruction meeting. All costs associated with the preconstruction meeting will be incidental to other contract items.

\* \* \* \* \*



**STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

**SPECIAL PROVISION  
FOR  
ELECTRONIC BIDDING REQUIREMENTS**

**DECEMBER 18, 2013**

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The South Dakota Department of Transportation requires all bid proposals submitted for this project be prepared and submitted using the latest version of the South Dakota Electronic Bidding System (SDEBS).

A prospective bidder may obtain the latest version of the SDEBS software from the SDDOT Website:

<http://apps.sd.gov/hc65bidletting/ebsInstall.aspx>

**MAKE THE INDICATED CHANGES TO THE FOLLOWING SPECIFIED SECTIONS OF THE STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES:**

**Delete Section 2.1 and replace with the following:**

**2.1**

- A. PREQUALIFICATION OF BIDDERS** - Prequalification on state highway construction contracts is required unless the amount being bid is less than \$200,000.

A prospective bidder must be prequalified prior to the time and date specified for bid opening. A prospective bidder may apply for prequalification by completing and executing a Contractor's prequalification statement on a form approved by the Department. This application must be received by the Department's classification and rating committee at least 14 calendar days prior to the letting date.

Once prequalified, the Department will issue a notice to the prospective bidder stating the prospective bidder's approved work classification or work classifications, the prospective bidder's bidding capacity, and the prospective bidder's expiration date for prequalification status.

A prospective bidder may obtain the prequalification requirements contained in South Dakota Administrative Rules from the website:

<http://legis.sd.gov/rules/DisplayRule.aspx?Rule=70:07>

**B. ELECTRONIC IDENTIFICATION** – A prospective bidder must register as a new user on the Department’s website to obtain a company identification and password. Certain bidding documents will only be available for download with proper company identification and password. Each company will receive one company identification and password.

In addition to the company identification and password, a prospective bidder must obtain a bidder identification and password for each individual who will be authorized to submit a bid proposal on behalf of the company. To authorize an individual to submit a bid proposal on behalf of the company, and obtain the bidder identification(s) and password(s), the company must complete a Bidding Authorization Form (available on the Department’s website), furnishing all required information and all appropriate notarized signatures, and submit the form to the Department no later than 48 hours prior to the bid opening.

The individual receiving this bidder identification and password must be an authorized agent of the company having legal authority to do business for the company.

**Delete Section 2.2 and replace with the following:**

**2.2 CONTENTS OF BIDDING PACKAGE** - The bidding package consists of the proposal booklet, plans, electronic design files, specifications, special provisions, supplemental specifications, addenda, project question and answer (Q&A) forum, and electronic bid files. The bidding package will state the location and description of the contemplated construction, show the estimate of the various quantities and type of work to be performed or materials to be furnished, and will have a schedule of items for which unit bid prices are invited. The bidding package will state the time in which the contract work must be completed, the time and date deadline for submitting the required bid proposals, and prequalification requirements.

Prospective bidders must refer to the SDDOT Website to acquire the bidding package. The prospective bidder will be responsible for all costs associated with utilizing the SDEBS and electronic bonds through the bond management company.

The Department will open the project Q&A forum when the project is advertised for letting. Prospective bidders are responsible for periodically checking the project Q&A forum for new questions and answers. The Department will post questions and answers, but will provide no additional notification of posted questions and answers. Prospective bidders may post new questions to the project Q&A forum until 10:00 AM CT on the Friday prior to the letting, at which time prospective bidders will be locked from further posting. The Department may post new questions and answers to the project Q&A forum up until 10:00 AM CT

on the Tuesday prior to the letting, at which time the project Q&A forum will be final and locked from all editing. In submitting a complete and final bid, a prospective bidder must account for any and all information posted to the final project Q&A forum regardless of when the prospective bidder submits a bid proposal.

**Delete Section 2.3 and replace with the following:**

**2.3 ISSUANCE OF BIDDING PACKAGE** - The Department will not place restrictions on who may download the bidding package from the website, except that certain documents will require the company identification described in Section 2.1 B. The bidder must verify the bidder's prequalification status prior to bidding. The Department will verify bidder status in accordance with Section 3.1 prior to opening bids.

**Delete Section 2.5 and replace with the following:**

**2.5 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, PROJECT Q&A FORUM, AND SITE OF WORK** - The bidder must examine the project site, and the entire bidding package for the work contemplated. The submission of a bid proposal will be considered conclusive evidence the bidder has investigated and is satisfied as to the conditions to be encountered, the character, quality, and quantities of work to be performed, and materials to be furnished, according to all contract documents.

Boring logs and other records of subsurface investigations are available for inspection by prospective bidders. Prospective bidders must understand this information was obtained and is intended for Department design and estimating purposes and the Department cannot guarantee the accuracy of this information. This information is made available so all prospective bidders have access to the same subsurface information available to the Department. The furnishing of this information is not intended as a substitute for the prospective bidder's personal investigation, interpretation, and judgment.

The Department will not be bound by any statement or representation made by any Department employee or agent prior to the execution of the contract, unless included in the bidding package.

A prospective bidder must request any explanation regarding the meaning or interpretation of the bidding package in adequate time to allow a Department reply to reach all prospective bidders before submission of final bid proposals. The bidder will contact the Department by submitting a request for explanation to the project Q&A forum. If the deadline for submitting questions to the project Q&A forum has passed, the bidder will submit the request for explanation to the Department Bid Letting office. The Department may answer the request for explanation on the project Q&A forum or issue an addendum to all prospective

bidders, as appropriate, in the Department's sole discretion. The Department will furnish any addendum to all prospective bidders by electronic addendum before the time specified for opening of bid proposals.

The bidder will not take advantage of any apparent error, omission, or ambiguity in the bidding package. If the bidder discovers an error, omission, or ambiguity, the bidder will immediately notify the Department of the apparent error, omission, or ambiguity and its perceived consequences. The bidder will notify the Department by submitting a question to the project Q&A forum. If the deadline for submitting questions to the project Q&A forum has passed, the bidder will notify the Department Bid Letting office. The Department may certify the error, omission, or ambiguity and may answer the question on the project Q&A forum or issue an addendum to all prospective bidders, as appropriate, in the Department's sole discretion. The Department will furnish any addendum to all prospective bidders by electronic addendum before the time specified for opening of bid proposals.

The Contractor will not take advantage of any apparent error, omission, or ambiguity in the contract. If the Contractor discovers an error, omission, or ambiguity, the Contractor will immediately notify the Department of the apparent error, omission, or ambiguity and its perceived consequences. The Contractor will notify the Engineer. The Engineer will make corrections and interpretations as necessary to fulfill the intent of the Contract.

**Delete Section 2.6 and replace with the following:**

**2.6 PREPARATION OF PROPOSAL** - The bidder must submit the proposal using the SDEBS.

The bidder must specify a unit price, in numerals, for each bid item for which a quantity is given. A unit price cannot be "\$0.00."

When the bidding package contains an alternate bid item or group(s) of alternate bid items, the bidder must indicate a choice for each available group by entering unit prices for all bid items within the alternate chosen.

The bidder must complete all required fields in the SDEBS. If the bidder does not completely fill out all required fields the Department may consider the bid irregular and reject the bid proposal in accordance with Section 2.7.

For bidding purposes, in case of a discrepancy between the line number, bid item description, or quantity shown in the SDEBS and the corresponding item shown in the plans, the bid item description and the quantity shown in the SDEBS will govern.

**2.7 IRREGULAR BID PROPOSALS** – The Department will consider a bid proposal irregular and may reject the bid proposal for any of the following reasons:

- A. The bid proposal is incomplete, or is submitted on a form other than the Department’s latest version of the SDEBS;
- B. The bid proposal contains unauthorized additions, conditional or alternate bids, or other irregularities, which may tend to make the bid proposal incomplete, indefinite, or ambiguous as to its meaning;
- C. The bid proposal contains provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award (this is not intended to exclude a bid proposal limiting the maximum gross amount of awards acceptable to a bidder at one bid letting. The Department will select awards in its sole discretion.);
- D. The bid proposal does not contain a unit price in numerals for each pay item listed, except in the case of authorized alternate pay items;
- E. The bid proposal is signed with an invalid bidder identification;
- F. The Department determines, in its sole discretion, that any of the unit bid prices are significantly unbalanced to the potential detriment of the Department; or,
- G. Confirmation of receipt of all addenda issued by the Department is not included in the bid proposal.

**Delete Section 2.8 and replace with the following:**

**2.8 PROPOSAL GUARANTY** - The Department will not consider any bid proposal unless the bidder has furnished the Department a guaranty in the amount of five percent of the total amount of the bid prior to opening of the bids. Satisfactory forms of proposal guaranties are certified checks, cashier’s checks, bank drafts issued upon a national or state bank, and bid bonds issued in accordance with South Dakota law. If the bidder uses an electronic bid bond, the bidder must submit the bid bond identification number with the bid proposal. Unless otherwise specified in the bidding package, the proposal guaranty must be made payable at sight to the “South Dakota Department of Transportation.”

**Delete Section 2.9 and replace with the following:**

**2.9 SUBMISSION OF BID PROPOSALS** – A bidder must submit a bid proposal electronically using the SDEBS to the Department’s secure bid submission site prior to the time and date specified by the Notice to Contractors in the bidding

package. The Department will not accept any bid proposal received after the time specified for opening of bids.

**Delete Section 2.10 and replace with the following:**

**2.10 WITHDRAWAL OR REVISION OF PROPOSALS** - A bidder may withdraw a proposal after it has been submitted, if the withdrawal is made before the time set for opening the proposals.

A bidder may revise and resubmit a bid proposal any time prior to the time set for opening the proposals. The Department will consider only the last bid proposal submitted as a valid bid proposal for that project. A bidder may revise a bid only through the SDEBS.

**Delete Section 3.1 and replace with the following:**

**3.1 CONSIDERATION OF BID PROPOSALS** - After the bids are received, but prior to opening, the Department will verify the bidder is prequalified for the specified work type. After the bids are opened, the Department will verify the bidder's status at that time is sufficient to handle the work for which the bidder submitted a bid. The Department reserves the right to refuse to accept a bid proposal for any of the following reasons:

- A.** Lack of competency or adequate machinery, plant, and other equipment, as shown by the Contractor's Prequalification Statement;
- B.** Uncompleted work which the Department determines, in its sole discretion, may hinder or prevent the prompt completion of additional work;
- C.** Failure to pay or satisfactorily settle any legal obligation due for labor or material on any contract at the time of issuance of proposals;
- D.** Failure to comply with the Department's prequalification regulations;
- E.** Default under any previous contract or contracts;
- F.** Debarment by the Department or the federal government;
- G.** Lack of bidding capacity as established by the Contractor's prequalification statement, considering the uncompleted work currently under contract; or,
- H.** Unsatisfactory performance on previous work or any current contract or contracts consisting of, but not limited to:
  - 1.** Noncompliance with contract specifications, contract requirements, or Engineer's directives;

2. Failure to complete work on time;
3. Instances of substantial corrective work prior to acceptance;
4. Instances of completed work that requires acceptance at reduced pay;
5. Production of work or materials not meeting required specifications, and when applicable, requiring price reductions or corrective work;
6. Failure to provide adequate safety measures or appropriate traffic control that endangers the safety of the work force and public;
7. Questionable moral integrity as determined by the Attorney General of the State, or the Department; or,
8. Failure to reimburse the State for monies owed on any previously awarded contract including any contract where the prospective bidder is a party to a joint venture and the joint venture has failed to reimburse the State for monies owed.

After the bid proposals are opened, the Department will compare the bids on the basis of the summation of the products of the quantities shown in the bid proposal by the unit bid prices. The results of such comparisons will be available to the public via the Department's Internet Website.

The Department reserves the right to reject any bid proposal, the right to waive technicalities, and the right to reject all bid proposals and advertise for new bid proposals, if in the sole judgment of the Department the rejection or waiver will promote the best interest of the Department.

**Delete Section 3.4 and replace with the following:**

- 3.4 PROPOSAL GUARANTY** - The Department will retain the proposal guaranties of the two lowest responsible and competent bidders. The Department will release the remaining proposal guaranties following opening and checking of bid proposals. The Department will release the proposal guaranties of the two low bidders when the contract has been executed.

**Delete Section 5.4 and replace with the following:**

- 5.4 COORDINATION OF CONTRACT DOCUMENTS** – The contents of the bidding package are essential parts of the contract. A requirement occurring in one is as binding as though occurring in all. The contents of the bidding package are intended to be complimentary and to describe and provide for a complete work.

If any discrepancy exists, the governing ranking is:

1. Addenda
2. Project Q&A forum
3. Special provisions
4. Plans
5. Supplemental specifications
6. Standard specifications
7. Electronic design files

Notwithstanding the above governing ranking, addenda will govern over the project Q&A forum unless specifically addressed by a Department response in the project Q&A forum.

In case of a discrepancy between questions on the project Q&A forum regarding the same topic, the most recent question and answer will govern over previous questions and answers. Questions will be numbered on the project Q&A forum in order of date and time posted.

In addition, calculated dimensions will govern over scaled dimensions.

**Delete Section 570**

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**STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

**SPECIAL PROVISION  
FOR  
DIFFERING SITE CONDITIONS**

**DECEMBER 19, 2013**

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During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the site is disturbed and before the affected work is performed.

Upon written notification, the Engineer will investigate the conditions, and if it is determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding anticipated profits, will be made and the contract modified in writing accordingly. The Engineer will notify the Contractor of the determination whether or not an adjustment of the contract is warranted.

No contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.

No contract adjustment will be allowed under this clause for any effects caused on unchanged work.

This section does not apply to material sources shown on the plans and as defined in Section 6.

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**STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

**SPECIAL PROVISION  
FOR  
SUSPENSION OF WORK**

**FEBRUARY 13, 2004**

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The following shall apply when suspension of the work is ordered by the Engineer.

If the performance of all or any portion of the work is suspended or delayed by the Engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation and/ or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

Upon receipt, the Engineer will evaluate the contractor's request in accordance with Section 5.17 and/or Section 8.6 of the Standard Specifications. If the Engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The Contractor will be notified of the Engineer's determination whether or not an adjustment of the contract is warranted.

No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.

No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this contract.

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**STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

**SPECIAL PROVISION  
FOR  
STANDARD TITLE VI ASSURANCE**

**JANUARY 15, 2004**

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**TITLE VI – NONDISCRIMINATION:**

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

- (1) Compliance with Regulations: The contractor shall comply with the Regulations relative to nondiscrimination in Federally or State assisted programs of the South Dakota Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended (hereinafter referred to as the “Regulations”), incorporated by reference and made a part of this contract.
- (2) Nondiscrimination: The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, religion, national origin, sex, age or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
- (3) Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor’s obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, religion, national origin, sex, age or disability.
- (4) Information and Reports: The contractor shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the South Dakota Department of Transportation or the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the South Dakota Department of Transportation, or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain this information.
- (5) Sanctions for Noncompliance: In the event of the contractor’s noncompliance with the nondiscrimination provisions of this contract, the South Dakota Department of Transportation shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including but not limited to:
  - (a) withholding of payments to the contractor under the contract until the contractor complies, and/or
  - (b) cancellation, termination or suspension of the contract, in whole or in part.
- (6) Incorporation of Provisions: The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the South Dakota Department of Transportation or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for non-compliance. Provided, however, that, in the event of a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the South Dakota Department of Transportation to enter into such litigation to protect the interest of the State, and, in addition, the contractor may request the United States to enter such litigation to protect the interests of the United States.

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**STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

**SPECIAL PROVISION FOR  
IMPLEMENTATION OF CLEAN AIR ACT  
AND  
FEDERAL WATER POLLUTION CONTROL ACT**

**SEPTEMBER 1, 1997**

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By signing this bid, the bidder will be deemed to have stipulated as follows:

- a) That any facility to be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub. L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub. L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR, Part 15), is not listed on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.
- b) That the State Transportation Department shall be promptly notified prior to contract award of the receipt by the bidder of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility to be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

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**STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
SUPPLEMENTAL SPECIFICATION FOR  
ERRATA**

**MARCH 3, 2010**

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**MAKE THE INDICATED CORRECTIONS TO THE FOLLOWING SPECIFIED SECTIONS:**

**Section 491.5 A, B, C, D, E – Page 290 – Add the following to the end of the first sentence of each of these sections:**

(square meter).

**Section 629.4 C – Page 351 – Replace the first sentence with the following:**

Remove Three Cable Guardrail will be measured to the nearest foot (0.1 meter) along the centerline of the cable.

**Section 629.4 D – Page 351 – Replace the first sentence with the following:**

Removal of Anchor Assembly will be measured by the each.

**Section 630.3 D – Page 354 – Replace the fourth sentence with the following:**

The drawings shall contain all components of the W beam end terminal.

**Section 634.2 – Page 371 – Replace the second paragraph with the following:**

Traffic control devices shall meet the crashworthy requirements of the National Cooperative Highway Research Program Report 350 (NCHRP 350) for Category I, II and III devices.

**Section 635.3 L – Page 383 – Delete and replace with the following:**

**L. Luminaires:** Luminaires shall be adjusted on the support so the lamina sets level as indicated by a small bubble level. Bolts shall be firmly tightened.

**Section 635.4 K – Page 385 – Delete and replace with the following:**

**K. Luminaires:** Measurement will be by the actual count of the various types and sizes of luminaires furnished and installed.

**Section 635.5 K – Page 387 – Delete and replace with the following:**

**K. Luminaires:** Payment for luminaires of the various types and sizes will be at their respective contract unit prices per each. Payment will be full compensation for furnishing and installing luminaires.

**Section 984.3 H – Page 504 – Replace the first paragraph with the following:**

Temporary road markers shall consist of a yellow or white plastic body providing a horizontal width and length of approximately 3 ½ inches (90 mm) in both dimensions and approximately ¾ inches (20

mm) high. If flexible vertical markers are used they shall be approximately 4 inches (100 mm) wide and approximately 2 inches (50 mm) high.

**Index – Page 532 – Under Portland Cement Concrete Pavement – Delete “Dowel and Tie Bars...517” and replace with the following:**

Dowel and Tie Bars..... 519

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**STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

**SUPPLEMENTAL SPECIFICATION TO  
STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES**

**MARCH 3, 2010**

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All items included in this supplemental specification will govern over the Errata.

**MAKE THE INDICATED CHANGES TO THE FOLLOWING SPECIFIED SECTIONS:**

**Section 2.6 D – Page 11 – Delete and replace with the following:**

D. PCN

**Section 3.6 – Page 15 – Delete and replace with the following:**

**3.6 EXECUTION AND APPROVAL OF CONTRACT** - The contract shall be signed and returned by the successful bidder, together with the contract bond, within 20 calendar days after the receipt of the Notice of Award. If the contract is not executed by the Department within 15 calendar days following the receipt from the bidder of the signed contract and related documents, the bidder shall have the right to withdraw the bid without penalty. A contract will not be considered in effect until it has been executed by all parties to the contract.

**Section 3.7 – Page 15 – Delete the first sentence and replace with the following:**

Failure to execute the contract and file acceptable bonds within 20 calendar days after bidder's receipt of the Notice of Award shall be just cause for the cancellation of the award and the forfeiture of the proposal guaranty which shall become the property of the Department, for liquidation of damages sustained.

**Section 4.6 – Page 19 – Delete and replace with the following:**

**4.6 FINAL CLEANING UP** - Before Acceptance of Field Work is made by the Area Office, the highway and areas occupied by the Contractor in connection with the work shall be cleaned of rubbish, excess materials, temporary structures, and equipment; and the work left in an acceptable condition, unless otherwise approved by the Engineer.

**Section 5.6 – Page 24 – Delete the last sentence of the seventh paragraph and replace with the following:**

The depth applies to the existing grade or ditch flowline within the right-of-way.

**Section 5.6 – Page 24 – Delete the last two sentences of the eighth paragraph and replace with the following:**

Contractors shall give at least 48 hour notice prior to commencement of excavation, excluding Saturdays, Sundays, and legal holidays of the state. South Dakota One Call phone number is **1-800-781-7474** or **811** within the State of South Dakota.

**Section 5.6 – Page 24 – Add the following to the list of items on page 25:**

Tunneling or Boring  
Duration of Excavation  
Nearest Cross Street

**Section 5.6 – Page 24 – Delete the third sentence of the last paragraph on page 25 and replace with the following:**

The utility shall as soon as possible but not longer than two hours from the notification time during the business day and not longer than four hours from the notification time outside of the business day or by the start time on the ticket, whichever is later provide all reasonably available practical information to the Contractor.

**Section 5.10 – Page 27 – Add the following sentence to this section:**

Neither the Department's authority to inspect all work nor any actual inspections performed by the Department during the course of construction shall constitute an acceptance of work performed, or operate to relieve the Contractor of its obligation to construct the project in compliance with the plans and specifications.

**Section 5.14 – Page 28 – Delete the first sentence of the first paragraph and replace with the following:**

The Contractor shall maintain the work during construction and until the Area Office issues the Acceptance of Field Work.

**Section 5.14 – Page 28 – Delete the last paragraph and replace with the following:**

Cost of maintenance work during construction and before the Area Office issues the Acceptance of Field Work shall be included in the unit price bid on the various pay items and the Contractor will not be paid an additional amount for such work.

**Section 5.16 – Page 29 – Delete and replace with the following:**

**5.16 ACCEPTANCE OF FIELD WORK** - When the contract work, including authorized modifications and final cleanup has been completed, the Area Engineer or his designee will, within fourteen days, make a final inspection of the work. When provided in the Contract, the Area Engineer or his designee may make inspections following completion of portions of the contract. If the work is found to conform with the requirements of the Contract, the Area Engineer or his designee will issue written notification to the Contractor of Acceptance of Field Work. Such notice is not to be construed as an acceptance by the Area Engineer or his designee of previously noted defective or unauthorized work, or of unauthorized work subsequently determined during the final computations of field measurements. Should the work fail to conform with requirements of the Contract, a written statement of the features to be remedied will be given the Contractor. Final Acceptance will not be made until the Contractor advises the Engineer that the corrections have been made and the requirements have been met.

**Section 5.17 – Page 29 – Delete the first paragraph and replace with the following:**

**5.17 CLAIMS FOR ADJUSTMENT AND DISPUTES** - If the Contractor deems that additional compensation is warranted for work or materials not covered in the Contract and not ordered as extra work as defined herein, the Contractor shall give the Area Engineer written notice of the claim for additional compensation.

**Section 5.17 – Page 29 – Delete the fourth paragraph and replace with the following:**

Under no circumstances will a claim be considered if written notification is made more than 30 days after the final payment is made.

**Section 5.17 – Page 30 – Delete the sixth and seventh paragraphs and replace with the following two paragraphs:**

The Contractor hereby agrees to waive any claim for additional compensation if timely written notification is not furnished and the Area Engineer is not provided the opportunity to keep account of or determine costs, to incorporate alternate methods of accomplishing the disputed work or to otherwise resolve the claim.

A Claims Documentation Form, furnished by the Department, shall be completed by the Contractor and submitted to the Area Engineer after completion of the work on which the claim is based. The Claims Documentation Form shall be completed within 120 calendar days after completion of the work unless an extension is granted, in writing, by the Area Engineer.

**Section 5.17 – Page 30 – Delete the last three paragraphs of this section and replace with the following five paragraphs:**

Claims which are properly submitted, but which are not approved, will be automatically escalated to the next higher authority level within the Department for review. The Secretary of Transportation has final resolution authority on all submitted claims.

Claims may be submitted by the Department to a third-party claim investigator for further review and investigation. The report prepared by the claim investigator shall not be shared with the Contractor, nor shall the report be used in subsequent administrative or legal proceedings. Failure to fully cooperate with the third-party investigator may result in

denial of the claim. After the Secretary of Transportation receives the report, the parties, by mutual agreement, may initiate a non-binding mediation to attempt to resolve the claim.

If the claim is determined completely or partially valid, those portions determined valid, plus interest computed at the rate of 4.25% per annum for the time period between the date shown on the Region Engineer's letter of Final Acceptance and the date the claim was resolved, will be paid.

If a claim is determined completely or partially valid in a subsequent proceeding in circuit court and pre-judgment interest is awarded by the court on all or a portion of the judgment, that interest shall be computed at the rate of 4.25% per annum.

Nothing in this section shall be construed as establishing any claim contrary to the terms of Section 4.2.

**Section 7.6 – Page 37 – Add the following paragraph to this section:**

All workers within the right of way who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel intended to provide conspicuity during both daytime and nighttime usage, and meeting the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled "American National Standard for High-Visibility Safety Apparel and Headwear".

**Section 7.12 – Page 39 – Delete the last sentence of the second paragraph and replace with the following:**

The Contractor's responsibility will not be released until completion of the project and Final Acceptance is made, as noted by the date shown on the Region Engineer's letter of Final Acceptance.

**Section 7.14 – Page 39 – Delete this section and replace with the following:**

**7.14 RESPONSIBILITY FOR DAMAGE CLAIMS** - The Contractor shall hold harmless and indemnify the Department, its officers and employees, from all suits, actions, or claims of any character brought because of any injuries or damages received or sustained by any person, persons or property arising from the operations of the said Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act", or any other law, ordinance, order, or decree; and so much of the money due the said Contractor under and by virtue of his contract as may be considered necessary by the Department for such purpose may be retained for the use of the State; or in case no money is due, his surety may be held until such suit or suits, action or actions, claim or claims for injuries or damages as aforesaid shall have been settled and suitable evidence to that effect furnished to the Department; money due the Contractor will not be withheld when the Contractor produces satisfactory written confirmation from its insurer that adequate public liability insurance and property damage insurance providing coverage for such particular claims as may be made is in force; a copy of a certificate of insurance, without further confirmation of coverage for the particular claim being made, will not be sufficient to satisfy the requirement of written confirmation.

**Section 7.15 – Page 40 – Delete the first sentence and replace with the following:**

**7.15 LIABILITY INSURANCE** - The Contractor shall procure and maintain at the Contractor's expense, during duration of the Contract, liability insurance with an insurance company authorized to do business in the state of South Dakota, for damages imposed by law.

**Section 7.16 – Page 40 – Delete the second sentence of the last paragraph and replace with the following:**

In such event, the Contractor shall not be relieved of liability or responsibility during the period the work is so opened and prior to Acceptance of Field Work.

**Section 7.17 – Page 40 – Delete the first paragraph and replace with the following two paragraphs:**

**CONTRACTOR'S RESPONSIBILITY FOR WORK** - The Contractor is responsible for the work until the Acceptance of Field Work is made by the Area Office, except as set forth in Section 4.4 B.1. The Contractor shall protect the work against injury or damage from all causes, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and replace all work that is injured or damaged prior to the Acceptance of Field Work, at no additional cost to the Department. Damage to work due to unforeseeable

causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God, acts of the public enemy, or acts of governmental authorities shall be restored by the Contractor at the Department's expense according to subsection 4.2 or 4.3, as applicable.

Following the Acceptance of Field Work, but prior to Final Acceptance as described in Section 9.9, the Contractor shall be responsible for damage to work resulting from an act, omission, neglect, or misconduct in the Contractor's manner or method of executing the work, or due to defective work or materials at no additional cost to the Department.

**Section 8.1 – Page 45 – Delete and replace with the following:**

**8.1 SUBLETTING OF CONTRACT** - The Contractor shall not sublet, sell, transfer, assign, or dispose of the contract or contracts or any portion of them, without written consent of the Engineer. Each request to sublet shall be submitted on the form provided by the Engineer. The Contractor shall submit a request to sublet for any contracting firms a subcontractor proposes to use as a lower tier subcontractor. The Contractor shall obtain approval of each subcontractor before the start of the work performed by the subcontractor.

The Contractor will be permitted to sublet up to 50 percent of the contract amount, based on the contract unit prices, but shall perform work amounting to not less than 50 percent of the total contract amount with his own organization.

The Department will consider the Contractor's own organization to include only workers employed and paid directly by the Contractor, equipment owned or rented by the Contractor, and materials purchased by the Contractor for its use in performing Contract work. This does not include employees, equipment, or materials purchased by or incorporated into work of any subcontractor, assignee, or agent of the Contractor.

The Department will not consider as subcontracting the following; 1) any material produced outside the project limits including but not limited to the production of sand, gravel, crushed stone, batched concrete aggregates, ready mix concrete, off-site fabricated structural steel, other off-site fabricated items, and any materials delivered by established and recognized commercial plants; or 2) delivery of these materials to the work site from an off-site location in vehicles owned or operated by such plants or by recognized independent or commercial hauling companies. Project limits is defined as being within a 1/2 mile radius of the project proper.

Any items designated in the contract as "specialty items" may be performed by subcontract and the cost of designated specialty items performed by subcontract will be deducted from the total contract amount before computing the amount of work required to be performed by the Contractor's own organization.

The Contractor shall give assurance to the Engineer that all pertinent provisions of the prime contract including minimum wage for labor shall apply to the work sublet. Subcontract, or transfer of contract, shall not relieve the Contractor of his responsibilities and liability under the contract and bonds.

**Section 8.2 – Page 45 – Delete and replace with the following:**

**8.2 NOTICE TO PROCEED** - The Notice to Proceed shall consist of written notification to the Contractor to proceed with the work. Such notification will be issued within 15 calendar days following the receipt from the bidder of the signed contract and related documents. The contract time will start on the date the Contractor actually starts construction work or 30 calendar days after the date of the Notice to Proceed, whichever date is earlier. The Contractor shall not begin work prior to the date of the Notice to Proceed.

**Section 8.6 A – Page 48 – Delete the first paragraph on page 48 and replace with the following:**

If for reasons beyond the Contractor's control the work cannot be completed within the contract time as specified or as extended according to the provisions of this section, the Contractor may make a written request for an extension of contract time. The written request shall be made at any time prior to the expiration of the contract time as extended. The Contractor's time extension request shall set forth the reasons which will justify an extension of time.

A Time Extension Request Form, furnished by the Department, shall be completed by the Contractor and submitted to the Area Engineer. If the written request was properly filed in accordance with the requirements of this section, the time extension request will be forwarded through the proper channels, to the Secretary of Transportation for final resolution.

The Time Extension Request Form shall be fully completed and will contain the following:

1. A narrative justification citing the basis for the time extension.
2. A statement of the amount of extra compensation, including liquidated damages, incentive, or disincentive associated with the time extension.
3. A signed and notarized statement that the information furnished is true and fully documented.
4. Permission for the Department or its authorized representative to examine all Contractor records concerning this time extension request.

The Secretary of Transportation may submit the time extension request to a third-party investigator for further review and investigation. The report prepared by the investigator shall not be shared with the Contractor, nor shall the report be used in subsequent administrative or legal proceedings. Failure to fully cooperate with the third-party investigator may result in denial of the time extension request. After the Secretary of Transportation receives the report, the parties, by mutual agreement, may initiate a non-binding mediation to attempt to resolve the time extension request.

**Section 8.6 A – Page 48 – Delete the first sentence of the second to last paragraph and replace with the following:**

If the Secretary of Transportation finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, the Secretary may extend the time for completion in such amount as the conditions justify.

**Section 8.6 A – Page 48 – Delete the last paragraph and replace with the following:**

When Acceptance of Field Work has been duly made as prescribed in Section 5.16, the daily time count/assessment will cease. The daily time count/assessment may resume if the Contractor fails to provide, in a timely manner, required project documentation as ordered by the Area Engineer. The daily time count/assessment may also resume when in accordance with Section 7.17, repairs, rework, or other activities are ordered for work that the Contractor is responsible for.

**Section 8.6 B – Page 50 – Delete the second paragraph on page 50 and replace with the following:**

If for reasons beyond the Contractor's control the work cannot be completed within the contract time as specified or as extended according to the provisions of this section, the Contractor may make a written request for an extension of contract time. The written request shall be made at any time prior to the expiration of the contract time as extended. The Contractor's time extension request shall set forth the reasons which will justify an extension of time.

A Time Extension Request Form, furnished by the Department, shall be completed by the Contractor and submitted to the Area Engineer. If the written request was properly filed in accordance with the requirements of this section, the time extension request will be forwarded through the proper channels, to the Secretary of Transportation for final resolution.

The Time Extension Request Form shall be fully completed and will contain the following:

1. A narrative justification citing the basis for the time extension.
2. A statement of the amount of extra compensation, including liquidated damages, incentive, or disincentive associated with the time extension.
3. A signed and notarized statement that the information furnished is true and fully documented.
4. Permission for the Department or its authorized representative to examine all Contractor records concerning this time extension request.

The Secretary of Transportation may submit the time extension request to a third-party investigator for further review and investigation. The report prepared by the investigator shall not be shared with the Contractor, nor shall the report be used in subsequent administrative or legal proceedings. Failure to fully cooperate with the third-party investigator may result in denial of the time extension request. After the Secretary of Transportation receives the report, the parties, by mutual agreement, may initiate a non-binding mediation to attempt to resolve the time extension request.

**Section 8.6 B – Page 51 – Delete the last sentence of the second to last paragraph and replace with the following:**

If the Secretary of Transportation finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, the Secretary may extend the time for completion in such amount as the conditions justify. The extended time for completion shall then be in full force and effect the same as though it were the original time for completion.

**Section 8.6 B – Page 51 – Delete the last paragraph and replace with the following:**

When Acceptance of Field Work has been duly made as prescribed in Section 5.16, the daily time count/assessment will cease. The daily time count/assessment may resume if the Contractor fails to provide, in a timely manner, required project documentation as ordered by the Area Engineer. The daily time count/assessment may also resume when in accordance with Section 7.17, repairs, rework, or other activities are ordered for work that the Contractor is responsible for.

**Section 8.7 – Page 51 – Delete the last sentence of the second paragraph and replace with the following:**

This sum shall be considered and treated not as a penalty but as liquidated damages due the Department from the Contractor by reason of added cost of engineering and supervision resulting from failure to complete the work within the time specified in the contract.

**Section 9.1 B – Page 56 – Delete the fourth paragraph on page 57 and replace with the following:**

Loader Scales - Loader scales will be allowed to be used on contracts when the quantity per line item of granular material to be weighed for payment is less than 10,000 tons (10,000 metric tons).

**Section 9.1 B – Page 56 – Add the following sentence to the end of the sixth paragraph on page 57:**

The accuracy check shall be performed prior to weighing the material for payment and then once per week thereafter.

**Section 9.4 – Page 61 – Delete and replace with the following:**

**9.4 COMPENSATION FOR ALTERED QUANTITIES** - When the accepted quantities of work vary from the estimated quantities in the Contract, the Contractor shall accept as payment in full, payment at the original contract unit prices for the accepted quantities of work. Allowance will not be made for increased expense, except as provided in Section 4.2. Allowance will also not be made for loss of expected reimbursement or loss of anticipated profits.

**Section 9.5 D – Page 62 – Delete the first paragraph of this section and replace with the following:**

**D. Equipment:** For machinery or special equipment including fuel and lubricants, plus transportation costs, authorized by the Engineer, the Contractor shall be paid in accordance with the provisions and rates set forth in the South Dakota Equipment Rental Rates Book which is currently established as the “Rental Rate Blue Book” published by EquipmentWatch, a division of Penton Media, Inc. For purposes of determining an hourly rate, the monthly rate divided by 176 shall be used. This rate will be adjusted for regional factors, age and operating expenses as set forth in the “Rental Rate Blue Book”.

**Section 9.7 – Page 64 – Add the following sentence to the end of the second to last paragraph:**

Progress payments shall not constitute acceptance of the work.

**Section 9.9 - Page 65 - Delete this section and replace with the following:**

**9.9 FINAL ACCEPTANCE AND FINAL PAYMENT** - When Acceptance of Field Work has been made as prescribed in Section 5.16, and all project documentation has been provided, the Engineer will prepare the final estimate of the quantities of the various classes of work performed. After the Engineer determines the final estimate, the Contractor will be paid the entire sum found to be due after deducting previous payments and amounts to be retained or deducted under the provisions of the contract.

Prior partial estimates and payments shall be subject to correction in the final estimate of payment. Final payment will be due 120 days after the date shown on the Region Engineer’s letter of Final Acceptance.

Interest will be added to payments in excess of \$2000 which are due the Contractor and remain unpaid 120 days after the date shown on the Region Engineer's letter of Final Acceptance. Interest will accrue at a rate of 4.25% per annum for the time period after the noted 120 days until final payment is made.

**Section 9.12 – Page 66 – Delete and replace with the following:**

**9.12 THIS SECTION INTENTIONALLY LEFT BLANK**

**Section 120.2 A – Page 73 – Delete and replace with the following:**

- A. Unclassified Excavation:** All materials except those classified as rock excavation, unclassified/rock excavation, muck excavation, option borrow excavation, contractor furnished borrow, or borrow unclassified excavation encountered during the construction of the work, regardless of their nature or manner in which they are removed, will be considered unclassified excavation.

**Section 120.2 – Page 73 – Add the following to the end of this Section:**

- I. Option Borrow Excavation:** Material, furnished by the State, from a pit or other source. The Contractor may use this material at his option.
- J. Contractor Furnished Borrow:** Material, furnished by the Contractor, from a pit or other source.
- K. Borrow Unclassified Excavation:** Material, furnished by the State, from a pit or other source. The Contractor must use this material.

**Section 120.3 – Page 74 – Delete the fifth paragraph and replace with the following:**

The subgrade shall be finished to within minus 0.04 feet (13 mm) to plus 0.08 feet (25 mm) from the design grade and typical section shown in the plans and to within  $\pm 0.5$  percent of the typical section cross slope. The quarter crown within any 12 foot (3.6 m) transverse length shall not exceed 0.04 feet (13 mm) when measured with a straight edge, stringline, or by other suitable equipment.

**Section 120.3 B.3.a – Page 77 – Delete the fifth paragraph and replace with the following:**

Density shall be determined in accordance with SD 105 (AASHTO T 191), SD 106, or SD 114 (AASHTO T 310).

**Section 120.3 B.3.a – Page 78 – Add the following sentence to the end of the second to last paragraph:**

If the material does not contain enough fines to allow for conventional density testing (SD 105 or SD 106), the material shall be compacted as specified for A-2-4(0) and A-3 soils.

**Section 120.4 – Page 79 – Add the following to the end of this Section:**

- I. Borrow Unclassified Excavation:** Borrow unclassified excavation will be measured in its original position by cross sectioning. Volumes will be computed in cubic yards (cubic meters) by the average end area method.

Original cross sections will be taken prior to removal of any material and final sections will be taken following replacement of topsoil. Salvaged topsoil which is stockpiled from the borrow sources will be included as borrow unclassified excavation.

The quantity of topsoil stockpiled and respread on borrow sources will be determined by measuring the stockpiles prior to removal of the material from the stockpiles.

**Section 120.5 – Page 81 – Add the following to the end of this Section:**

- I. Borrow Unclassified Excavation:** Borrow unclassified excavation will be paid for at the contract unit price per cubic yard (cubic meter). Payment will be full compensation for excavation and furnishing the material on the project, construction and compaction of embankments, shaping of slopes, finishing of surface, completion of subgrade, shoulders, and roadway, and maintenance, and for furnishing materials (except topsoil), labor, and incidentals required for restoration of the pit.

Topsoil which is stockpiled from the borrow source will be respread and paid for at the contract unit price per cubic yard (cubic meter) of borrow unclassified excavation and placing topsoil.

**Section 120.5 F – Page 82 – Delete the last sentence and replace with the following:**

Topsoil, seed, fertilizer and mulch for the restoration of the pit shall be incidental to the unit price per cubic yard (cubic meter) of contractor furnished borrow.

**Section 210.3 – Page 85 – Delete the second to last paragraph and replace with the following:**

The subgrade shall be finished to within minus 0.04 feet (13 mm) to plus 0.08 feet (25 mm) from the design grade and typical section shown in the plans and to within  $\pm 0.5$  percent of the typical section cross slope. The quarter crown within any 12 foot (3.6 m) transverse length shall not exceed 0.04 feet (13 mm) when measured with a straight edge, stringline, or by other suitable equipment.

**Section 260.3 A – Page 93 - Delete the first paragraph and replace with the following:**

**A. Subbase and Base Course:** Roadway shaping shall be performed in accordance with Section 210.3 B prior to placement of the material.

**Section 260.3 A – Page 94 - Delete the last paragraph and replace with the following:**

Recycled Portland cement concrete pavement used as a granular base material shall not be used for Base Course, Salvaged Base Course, or in areas where drainage fabric, edge drains, or other similar drainage systems are present.

**Section 270.1 – Page 97 – Delete and replace with the following:**

**270.1 DESCRIPTION**

This work consists of salvaging, processing or crushing, and stockpiling salvaged material from the existing roadway. Salvaged material shall consist of granular material, asphalt concrete mix material, or asphalt mix and granular base material.

**Section 270.2 – Page 97 – Delete this section and replace with the following:**

**270.2 MATERIALS**

The salvaged material shall be processed or crushed to provide material meeting the following gradation.

<u>Sieve Size</u>	<u>% Passing</u>
1 ½ inch (37.5 mm)	100
1 inch (25.0 mm)	95-100

**Section 270.3 – Page 97 – Delete and replace with the following:**

**270.3 CONSTRUCTION REQUIREMENTS**

**A. Salvage and Stockpile Granular Material or Asphalt Mix and Granular Base Material:**

- 1. Salvaging:** The salvaged material shall be moved and loaded in a manner that minimizes waste and avoids contamination of the salvage material with underlying subgrade soil. Scrapers shall not be used for the removing or loading operations, but may be used to haul the material. Salvaging of material shall not exceed two miles (3.2 kilometers) in advance of the grading operation, unless otherwise directed. The material shall be moved toward the center of the road, to the extent necessary to ensure that salvage material is not lost down inslopes.
- 2. Processing:** Processing and blending may be accomplished in place, provided the Contractor's method meets the blending and gradation requirements and has positive depth control.

3. **Stockpiling:** Asphalt concrete mix and granular material shall be processed or crushed and stockpiled together so that a uniform blend is obtained. The salvaged material may be stockpiled at contractor provided sites. Prior to stockpiling, the stockpile site shall be prepared by removal of the top six inches (150 mm) of topsoil and the area bladed smooth.

**B. Salvage and Stockpile Asphalt Mix Material:**

1. **Salvaging:** The salvaged material shall be moved and loaded in a manner that minimizes waste and avoids contamination of the salvage material. Scrapers shall not be used for the removing or loading operations, but may be used to haul the material. Salvaging of material shall not exceed two miles (3.2 kilometers) in advance of the grading operation, unless otherwise directed. The material shall be moved toward the center of the road, to the extent necessary to ensure that salvage material is not lost down inslopes.
2. **Stockpiling:** Salvaged asphalt mix material shall be processed or crushed and stockpiled so that a uniform blend is obtained. Prior to stockpiling, the stockpile site shall be prepared by removal of the top six inches (150 mm) of topsoil and the area bladed smooth. Stockpiles shall be constructed in accordance with Section 320. The stockpiles shall not contain dirt, grease, oil, brick, paving fabric, clay balls, organic debris, and other foreign material.

**Section 270.4 – Page 97 – Delete and replace with the following:**

**270.4 METHOD OF MEASUREMENT**

Salvage and stockpile granular material, salvage and stockpile asphalt mix and granular base material, and salvage and stockpile asphalt mix material will be measured to the nearest 0.1 ton (0.1 metric ton) or 0.1 cubic yard (0.1 cubic meter) at the time it is hauled to the road.

When less than 5000 tons (4500 metric tons) of salvaged material is generated on a project, the material may be measured in a stockpile and converted to tons (metric tons) using a factor of 1.5 tons per Cu. Yd. (1.78 metric tons per cubic meter), in lieu of weighing the material.

Alternate measurement techniques may be allowed if agreed upon by the Contractor and Engineer prior to salvaging operations commencing.

Material stockpiled for future use will be measured in the stockpile and converted to tons (metric tons) using a factor of 1.50 tons per Cu. Yd. (1.78 metric tons per cubic meter).

The unclassified excavation quantities will not be increased or decreased to reflect whether salvaged material was taken from cut or fill sections.

**Section 270.5 – Page 97 – Delete and replace with the following:**

**270.5 BASIS OF PAYMENT**

Salvage and stockpile granular material, salvage and stockpile asphalt mix and granular base material, and salvage and stockpile asphalt mix material will be paid for at the contract unit price per ton (metric ton) or cubic yard (cubic meter). Payment will be full compensation for work required to salvage, haul, process or crush, and stockpile the material.

Removal of this material is included in and paid for under the item of unclassified excavation.

**Section 280.2 – Page 99 – Delete this section and replace with the following:**

**280.2 MATERIALS**

The asphalt mix and granular material shall be processed to provide material meeting the following gradation.

<u>Sieve Size</u>	<u>% Passing</u>
1 ½ inch (37.5 mm)	100
1 inch (25.0 mm)	95-100

**Section 320.3 B.1 – Page 103 – Delete the first sentence of the fourth paragraph and replace with the following:**

Burner fuel used for production of asphalt concrete shall be propane, butane, natural gas, Grade 1 fuel oil, Grade 2 fuel oil, Grade 4 fuel oil, Grade 4 (light) fuel oil, Grade 5 (light or heavy) fuel oil, or Grade 6 fuel oil.

**Section 320.3 B.1 – Page 103 – Add the following to the end of the seventh paragraph:**

An accurate thermometer must be installed in the tank so the temperature can be monitored.

**Section 320.3 B.4 – Page 104 – Delete the third sentence of the first paragraph.**

**Section 320.3 B.4 – Page 105 – Delete the last sentence of the third paragraph and replace with the following:**

The system shall be capable of manually controlling the transverse slope and the screed height.

**Section 320.3 B.5 – Page 105 – Delete the last sentence of the first paragraph and replace with the following:**

The rollers shall be capable of being reversed smoothly, without shoving or tearing the asphalt concrete.

**Section 320.3 C.3.d – Page 106 – Delete and replace with the following:**

- d. A one-gallon (four liter) sample of asphalt binder intended for use shall be obtained from the designated supplier for the project.

**Section 320.3 D – Page 107 – Delete the last sentence of the fifth paragraph and replace with the following:**

A water spray system must be installed at the discharge end of the pug mill. This water system must be used when directed by the Engineer to prevent fugitive lime dust from being released into the air.

**Section 320.3 E – Page 107 – Add the following after the fourth sentence in the first paragraph:**

No material shall be used which could adversely affect the asphalt concrete.

**Section 320.3 F – Page 107 – Add the following new paragraph after the first paragraph:**

Surfaces which have been primed with cutback asphalt shall be allowed to cure for a minimum of 72 hours prior to being covered.

**Section 320.3 F – Page 107 – Add the following to the end of the third paragraph:**

In lieu of a self-propelled paver, asphalt concrete may be placed by a shouldering machine on shoulders less than 6 feet (2 m) in width.

**Section 320.3 F – Page 110 – Delete the first paragraph at the top of Page 110 and replace with the following:**

Irregularities shall be corrected before the temperature of the asphalt mix drops below 175° F (80° C). The longitudinal profile can only be improved by using a grinder with diamond blades mounted on a horizontal shaft and when approved by the Engineer. Areas that have been ground shall not be left smooth or polished, but shall have a uniform texture equal in roughness to the surrounding unground asphalt concrete. Grinding shall be daylighted to the outside edge of the pavement. Ground surfaces shall be flushed sealed. Under no circumstances shall operations continue when it becomes evident final rolling is not producing a smooth, uniform, compacted surface free from roller marks and other irregularities.

**Section 320.4 A – Page 111 – Add the following after the first sentence:**

Quantities of asphalt binder in excess of the asphalt content listed on the job mix formula plus 0.3% tolerance will not be accepted for payment.

**Section 320.4 B – Page 111 – Delete the last two sentences of the first paragraph and replace with the following:**

The mixture of mineral aggregate, asphalt binder, and hydrated lime, when required, will be weighed after mixing. No deduction will be made for the weight of the asphalt binder or hydrated lime, when required, included in the mixture.

**Section 320.4 E – Page 112 – Add the following after the first sentence:**

Quantities of hydrated lime in excess of the lime content listed on the job mix formula plus 0.1% tolerance will not be accepted for payment.

**Section 320.5 C – Page 112 – Add the following sentence to the end of the paragraph:**

Payment will be full compensation for all labor, equipment, materials, and all other items incidental to sampling and repair of the sample locations to the satisfaction of the Engineer.

**Section 321.3 B – Page 113 – Delete and replace with the following:**

**B. Density:** The minimum density requirement shall be 92 percent of the maximum specific gravity of the test specimens prepared in the field in accordance with SD 312. The compacted density of asphalt concrete shall be determined according to SD 311.

**Section 324.5 – Page 115 and 116 – Delete the last sentence and replace with the following:**

When required, the following shall also be included in the contract unit price per ton (metric ton) for Asphalt Concrete Composite: Asphalt for Prime MC-70, Blotting Sand for Prime, Asphalt for Flush Seal SS-1h or CSS-1h, Sand for Flush seal, Hydrated Lime, equipment, labor and incidentals necessary.

**Section 330.2 – Page 121 – Add the following to the end of this section:**

**D. Sand for Fog Seal:** Section 879

**Section 330.3 A.2.b – Page 121 – Add the following paragraph after the second paragraph:**

Surfaces primed with cutback asphalt shall be allowed to cure for a minimum of 72 hours prior to being overlaid with asphalt concrete.

**Section 330.3 F – Page 123 – Delete the first sentence of the fourth paragraph and replace with the following:**

When applying fog seal coats, a light application of sand may be ordered by the Engineer to prevent material pickup.

**Section 330.4 – Page 124 – Add the following to the end of this section:**

**D. Sand for Fog Seal:** Sand for fog seal will be measured to the nearest 0.1 ton (0.1 metric ton).

**Section 330.5 – Page 124 – Add the following to the end of this section:**

**D. Sand for Fog Seal:** Sand for fog seal will be paid for at the contract unit price per ton (metric ton) complete in place. Payment will be full compensation for furnishing, installing, and all incidentals required to complete the work.

**Section 332.2 – Page 125 – Delete this section and replace with the following:**

**332.2 MATERIALS**

The material produced by cold milling shall be processed or crushed to provide material meeting the following requirements.

<u>Sieve Size</u>	<u>% Passing</u>
1 ½ inch (37.5 mm)	100
1 inch (25.0 mm)	95-100

Cold milled asphalt concrete material used in hot mixed asphalt as recycled asphalt pavement (RAP) shall have the 1 inch sieve size requirement waived.

**Section 332.3 B – Page 125 – Delete the first paragraph and replace with the following:**

- B. Equipment:** The equipment for cold milling shall consist of a rotating drum equipped with teeth capable of removing material to a depth of up to three inches (75 mm) in one pass, producing a uniform surface finish.

**Section 332.3 C – Page 125 – Delete the last paragraph of this section on page 126 and replace with the following:**

When traffic will be exposed to the milled surface, all cold milling asphalt concrete shall be accomplished on one-half of the roadway at a time. The Contractor shall schedule the cold milling asphalt concrete operations so that there are no drop offs, uneven lanes, or windrows of milled material remaining on the roadway overnight. At the end of the day the Contractor shall place cold milled asphalt concrete material to provide temporary ramps as a transition onto or off of the milled surface and the project limits, bridge approaches, and intersecting roads. The resultant transition shall be of sufficient length to provide a slope no steeper than 20:1.

- 1. Cold Milling Asphalt Concrete and Placing Cold Milled Material:** Some areas of the shoulder may require the movement of cold milled asphalt concrete material either ahead or back to achieve the required cross section. No separate payment will be made for the movement of this material.

Material placed on the shoulders shall be compacted according to Section 260.3 B of the Standard Specifications except that a pneumatic tired roller with an effective roller weight of at least 250 pounds per inch (4.5 kilograms per mm) of roller width will be required.

- 2. Cold Milling Asphalt Concrete:** Loose material resulting from the milling shall be immediately picked up, hauled to the stockpile site(s), and stockpiled. Prior to allowing traffic on the milled surface, the surface shall be thoroughly broomed free of remaining loose material.

Cold milled asphalt concrete material shall be processed or crushed and stockpiled so that a uniform blend is obtained. Prior to stockpiling, the stockpile site shall be prepared by removal of the top six inches (150 mm) of topsoil and the area bladed smooth. Stockpiles shall be constructed in accordance with Section 320. The stockpiles shall not contain dirt, grease, oil, brick, paving fabric, clay balls, organic debris, and other foreign material

**Section 332.4 – Page 126 – Delete and replace with the following:**

**332.4 METHOD OF MEASUREMENT**

- A. Cold Milling Asphalt Concrete and Placing Cold Milled Material:** Cold Milling Asphalt Concrete and Placing Cold Milled Material will not be measured. Plans quantity will be used. If changes from the plans quantity are ordered these areas will be measured and the plans quantity will be appropriately adjusted.
- B. Cold Milling Asphalt Concrete:** Cold milling Asphalt Concrete will not be measured. Plans quantity will be used. If changes from the plans quantity are ordered these areas will be measured and the plans quantity will be appropriately adjusted.

**Section 332.5 – Page 126 – Delete and replace with the following:**

**332.5 BASIS OF PAYMENT**

- A. Cold Milling Asphalt Concrete and Placing Cold Milled Material:** Cold Milling Asphalt Concrete and Placing Cold Milled Material will be paid for at the contract unit price per square yard (square meter) or as indicated in the plans. Payment will be full compensation for the removal of grass, weeds, topsoil, etc. from the placement location, milling, removing, placing, and compaction of the cold milled material and the brooming, equipment, labor, and all incidentals required.
- B. Cold Milling Asphalt Concrete:** Cold Milling Asphalt Concrete will be paid for at the contract unit price per square yard (square meter) or as indicated in the plans. Payment will be full compensation for milling, removing, hauling, stockpiling, processing or crushing the cold milled material, brooming, equipment, labor, and all incidentals required.

**Section 350.2 – Page 127 – Delete this section and replace with the following:**

The sealant shall conform to the requirements of ASTM D-6690 Type IV.

The sealant material shall have a unit weight no greater than 9.35 lbs./gal (1124 kilograms per cubic meter).

Only products that meet the above requirements and have performed satisfactorily based on Department analysis may be used. A listing of acceptable products meeting ASTM D-6690 Type IV requirements may be obtained from the Department's Approved Products List. Products on the Approved Products list for Joint Sealant for Asphalt Over Long Jointed Concrete Pavement may also be used.

The blocking medium shall be an inert, compressible material, which is compatible with the sealant.

**Section 350.4 – Page 129 – Add the following sentence to this section:**

Quantities of asphalt concrete crack sealing with a manufacturer's unit weight in excess of the specified unit weight will be reduced to the specified maximum unit weight prior to measurement for payment.

**Section 360.3 A – Page 131 – Delete the minimum temperature and seasonal limitations table and replace with the following:**

Minimum temperatures and seasonal limitations are as follows:

Cover Aggregates	Air and Surface Temp. (In the Shade and Rising)	Seasonal Limitations (Dates are Inclusive)
Type 1	70° F (21° C)	May 15 - Aug. 31
Type 2	70° F (21° C)	May 15 - Aug. 31
Type 3	70° F (21° C)	May 15 - Sept. 15

**Section 360.3 B.3 – Page 131 – Delete the last sentence of this section:**

**Section 370.2 – Page 135 – Delete the first paragraph of this section and replace with the following:**

The RAP material, after processing, shall meet the following gradation.

<u>Sieve Size</u>	<u>% Passing</u>
1 ¼ inch (31.5 mm)	100
1 inch (25.0 mm)	95-100

**Section 380.2 – Page 139 – Add the following to the end of this section:**

- L. Epoxy Resin Adhesive:** Epoxy resin adhesive shall be of the type intended for horizontal applications, and shall conform to the requirements of ASTM C 881, Type IV, Grade 3 (equivalent to AASHTO M235, Type IV, Grade 3).

**Section 380.3 B.1 – Page 140 – Delete the first paragraph on page 141 and replace with the following:**

When automatic moisture sensing equipment is used for an aggregate component, the batch ticket shall show the percent of moisture for the aggregate component with moisture sensing equipment. The results of the most recent two hour moisture test shall be shown for aggregate components without moisture sensing equipment.

The W/C ratio shall be calculated using the following formula and rounded to the nearest 0.01:

$$W / C \text{ ratio} = \left[ \frac{\text{weight of free water} + \text{weight of batch water}}{\text{weight of cement} + \text{weight of supplementary cementitious material}} \right]$$

weight of free water = (% total moisture in aggregate - % absorption of aggregate) x weight of aggregate

weight of batch water = total weight of water added to the batch of concrete either at the plant or in the truck

The weight of free water shall be calculated for both the fine aggregate and the coarse aggregate.

**Section 380.3 D – Page 146 – Add the following paragraph to the end of this section:**

The amount of batch water and aggregates added to the mix shall be adjusted accordingly using the results of the most recent two hour moisture tests. If automatic moisture sensing equipment is used, the Engineer may allow the use of the automatic moisture sensing results to make adjustments.

**Section 380.3 E – Page 146 – Delete the second sentence and replace with the following:**

Truck mixing will be permitted only when approved by the Engineer.

**Section 380.3 E – Page 146 – Delete the fifth paragraph and replace with the following:**

When a concrete batch is transported in a truck mixer or agitator and the batch is smaller than 60 percent of the rated capacity of the truck mixer or agitator, the following percentage of additional cementitious material at the same proportions as listed on the mix design shall be added to the batch:

**Section 380.3 E – Page 146 – Delete the paragraph below the table at the top of page 147 and replace with the following:**

The above provisions regarding additional cementitious material shall also apply to the mixing of small batches in central plants. Additional cementitious material will not be required when the small batch is mixed in a drum that is sufficiently coated with mortar to withstand the loss of cementitious material. Sufficient mortar coating, as determined by the Engineer, may include mortar coating the drum from a previously mixed batch during continuous mixing operations. Additional cementitious material will be required if more than 30 minutes has passed from the mixing of the previous batch, if the drum has been cleaned following the previous batch, or if the mortar coating the drum has been disturbed following the previous batch.

**Section 380.3 E.2 – Page 147 – Delete the second sentence of the second paragraph and replace with the following:**

When approved by the Engineer, additional water or cement may be added to the batch after completion of the original mixing, in which case the batch shall be mixed an additional 30 revolutions at mixing speed.

**Section 380.3 L – Page 149 – Add the following sentence to the end of this section:**

Epoxy coated dowel bars and tie bars shall meet the requirements of Section 480.3 A.

**Section 380.3 M.2 – Page 151 – Delete the first sentence of the last paragraph and replace with the following:**

The Contractor shall load test five percent of the first 500 tie bars that are drilled and epoxied in place.

**Section 380.3 M.3 – Page 151 – Add the following paragraph to this section:**

If a soft cut style saw is used, the soft cut shall remain approximately 1” (25mm) from the edges of the concrete slab to control spalling at the edge. Additionally if a soft cut is used, the Contractor shall complete the initial saw cut for the entire width and to the required depth before the end of the 72 hour curing period.

**Section 380.3 M.4 – Page 151 – Delete the first sentence of the fourth paragraph and replace with the following:**

If an uncontrolled crack develops within six feet (1.8 m) of the contraction joint, a minimum of six feet (1.8 m) of pavement removal and replacement will be required.

**Section 380.3 N.6 – Page 153 – Delete this section and replace with the following:**

6. **Final Finish:** Before the concrete has attained its initial set, the surface shall be given a final finish with a carpet drag drawn over the surface in a longitudinal direction. The drag shall be mounted on a bridge and shall be sized so that a strip of the carpet approximately two feet (600 mm) wide is in contact with the pavement surface while the drag is operated.

The condition of the drag shall be maintained so the resultant surface is of uniform appearance with corrugations approximately 1/16 inch (2 mm) in depth. Drags shall be maintained clean and free of encrusted mortar. Drags that cannot be cleaned shall be discarded and replaced.

The carpet shall meet the following requirements:

- Facing Material - Molded polyethylene pile face
- Blade Length - 7/8", ±1/8" (22 mm, ±3 mm)
- Total Fabric Weight - 70 oz. per square yard min.  
(2.37 kg per square meter min.)

The backing shall be of a strong, durable material, not subject to rot, which is adequately bonded to the facing.

Plain Jointed concrete pavement shall be either longitudinally or transversely tined as specified in the plans.

Continuously reinforced concrete pavement shall be longitudinally tined.

Tining depth and spacing shall be determined according to SD 418.

- a. Transverse Tining:** Immediately following the carpet drag, the surface of the concrete pavement shall be given a transverse metal-tine finish with a separate self-propelled mechanical device. The metal-tine finish shall provide a groove width of 1/8" and a groove depth of 6/32 inch (5 mm) ± 2/32 inch (2 mm). The spacing between the individual tines shall meet the following:

Inches (ten foot tining rake)

2-5/16, 2-15/16, 1-1/4, 2-7/16, 2-1/16, 1-1/4, 13/16, 1, 1-5/16, 1-1/8, 2-5/16  
 2-1/2, 2-7/8, 2-3/4, 1-1/8, 2-3/4, 2-1/8, 1-15/16, 13/16, 7/8, 2-5/8, 3-1/16  
 3-1/16, 7/8, 9/16, 9/16, 1-5/8, 2-3/8, 1, 1-1/4, 1-9/16, 2-15/16, 1-1/8  
 1-15/16, 2-3/16, 2, 2-13/16, 1, 2-11/16, 13/16, 1-7/8, 9/16, 2-5/16, 1-7/8  
 2-1/2, 1-5/16, 3-3/16, 1-3/8, 15/16, 7/8, 1-5/8, 9/16, 1-3/4, 2-7/8, 3  
 1-5/8, 1-5/8, 7/8, 9/16, 5/8, 2-13/16, 1-5/8, 2-7/16, 13/16, 1-1/4, 11/16  
 2-3/4, 2-5/16, 1-1/8

Millimeters (3 meter tining rake)

58, 74, 31, 62, 53, 32, 21, 26, 33, 28, 59  
 64, 73, 70, 29, 70, 54, 49, 20, 22, 67, 78  
 77, 23, 15, 15, 41, 60, 25, 32, 39, 75, 28  
 50, 55, 51, 72, 25, 69, 21, 47, 15, 59, 47  
 64, 34, 55, 35, 24, 22, 42, 14, 45, 73, 76  
 41, 41, 22, 15, 16, 71, 41, 62, 21, 31, 17  
 70, 58, 29

Successive passes of the tining shall not overlap.

Each location, where transverse joint saw cuts are to be made, shall be protected from tining by covering with a metal strip from four inches (100 mm) to six inches (150 mm) or by other methods that produce acceptable results.

Brooming may be used on irregular areas in lieu of the carpet drag and tine finish. The broom shall be drawn transversely across the pavement with adjacent strokes slightly overlapping.

Brooming shall be uniform in appearance and shall produce grooves 1/16 inch (2 mm) deep. Texturing shall be completed while the concrete surface can be broomed without being torn or unduly roughened by the operation.

The finished surface shall be free from rough and porous areas, irregularities, and depressions resulting from improper handling of the broom.

- b. Longitudinal Tining:** Immediately following the carpet drag, the surface of the concrete pavement shall be given a longitudinal metal-tine finish with a wire broom or comb attached to a separate self-propelled mechanical device.

Transverse joints shall not be protected from longitudinal tining, the tining shall be continuous across the joints.

The slab shall not be tined within 3 inches of the edge of the slab, centerline, or rumblestrip.

The longitudinal tining equipment shall have the ability to be raised and lowered, and shall have vertical and horizontal string line controls to ensure straight grooves that are parallel to the longitudinal joint.

The curing unit shall be separate from the tining unit when longitudinal tining is used unless the tining and curing can be accomplished simultaneously with the same piece of equipment at the specified rate to the satisfaction of the Engineer.

The tine bar shall have a single row of tines and shall provide a groove width of 1/8 inch (3 mm)  $\pm$  1/64 inch (0.4 mm) and a groove depth of 6/32 inch (5 mm)  $\pm$  2/32 inch (2 mm). The spacing between the individual tines shall be uniformly spaced at 3/4 inch (20 mm) intervals.

**Section 380.3 N.7 – Page 155 – Delete the first sentence of the first paragraph and replace with the following:**

After the final finish, and while the concrete is still plastic, the edges of the pavement along each side of the slab, and on each side of transverse construction joints, shall be worked with an approved tool and rounded to the specified radius.

**Section 380.3 O – Page 155 – Add the following two sentences to the beginning of this section:**

The pavement surface shall be checked for deviations using either a ten foot (3 meter) straightedge or a profilograph (when specified). When the use of a profilograph is specified, the ten foot (3 meter) straightedge check may also be required in locations determined by the Engineer.

**Section 380.3 O.2.c.2 – Page 157 – Delete the first paragraph and replace with the following:**

Areas excluded from profilograph testing shall be shoulders, transitions, area within 50 feet (15 m) of existing pavement and bridges, existing curb and gutter sections, ramps, pavements on horizontal curves having a centerline radius less than 1,000 feet (300 m) and the superelevation transitions. Pavement sections not subject to profilograph testing shall meet the 10 foot (3 m) straight edge test requirements in Section 380.3 O.1.

**Section 380.3 O.2.c.2 – Page 157 – Add the following to the end of the last paragraph:**

Grinding shall be day lighted to the outside edge of the pavement.

**Section 380.3 O.2.f.1 – Page 158 – Delete this section and replace with the following:**

- 1) Satisfactorily correct deficient area by grinding with equipment meeting the requirements of Section 380.3 O.2.c.2.

**Section 380.3 O.2.h – Page 158 – Delete the last paragraph of this section.**

**Section 380.3 R.2 – Page 161 – Delete the first sentence of the third paragraph and replace with the following:**

The sealant surface shall be tooled to produce a slightly concave surface below the pavement surface.

**Section 380.3 T – Page 162 – Add the following sentence after the first sentence in the second paragraph:**

Equipment operated on a previously constructed pavement that has attained a compressive strength of at least 3000 psi (21 Mpa) but less than 4000 psi (28 Mpa) shall be tracked type equipment.

**Section 390.2 B – Page 167 – Delete and replace with the following:**

**B. Concrete Patches:** Concrete patching material shall be one of the following:

1. A packaged, dry, rapid-hardening cementitious mortar conforming to the requirements of ASTM C 928, Type R-3 containing no chloride ions.
2. A packaged, dry, rapid-hardening concrete materials conforming to the requirements of ASTM C 928, Type R-3 containing no chloride ions.
3. A patching material meeting the following requirements:
  - a. **Cement:** Cement shall be Type III conforming to Section 750.
  - b. **Air Entraining Admixtures:** Air entraining admixtures shall conform to Section 751.
  - c. **Water:** Water shall conform to Section 790.
  - d. **Fine Aggregate:** Fine aggregate shall conform to Section 800.
  - e. **Coarse Aggregate:** Coarse aggregate shall be crushed quarry stone, size five, conforming to Section 820.
  - f. **Curing Compound:** Curing compound shall conform to Section 821.
  - g. **Proportioning:** Materials for concrete patches shall be mixed at the following proportions:

Fine Aggregate.....165 lbs./bag (75 kg/bag) cement  
 Coarse Aggregate.....165 lbs./bag (75 kg/bag) cement  
 Cement (min)..... 8.0 bags/c. y.(10.5 bags/cubic meter) concrete  
 Water (maximum).....5.0 gallon/bag (19 L/bag) cement

- h. **Air and Slump:** The slump and air shall conform to the following:

Air.....7% ± 2%  
 Slump.....1-1/2" (40 mm) maximum

**Section 391.2 A – Page 171 – Add the following paragraph to the end of this Section:**

Alternate design mixes for the grout may be submitted to the Engineer for approval.

**Section 392.2 A – Page 177 – Add the following paragraph to the end of this section:**

Alternate jacking slurry design mixes may be submitted to the Engineer for approval.

**Section 410.3 G.6 – Page 195 – Add the following section to the end of this section:**

- g. The turn-of-nut method for bolt tightening may be used when specified in the plans. When the turn-of-nut installation method is specified, hardened washers are not required except as specified in Section 410.3 G.6.d.

A sufficient number of bolts shall first be placed in the joint and snugged to insure that all faying surfaces are in firm contact, prior to tightening. Snug tight is defined as the tightness attained by a few impacts of an impact wrench or the full effort of a man using an ordinary wrench. Bolts shall be placed in any remaining holes and snugged tight as erection bolts or pins are removed. All bolts in the joint shall then be tightened the amount shown in Table 2 progressing systematically from the center most rigid part of the joint to its free edges. When tightening, the element not turned shall be held with a hand wrench to prevent rotation.

<b>Table 2 Nut Rotation from Snugged Condition<sup>a,b</sup></b>			
<b>Geometry of Outer Faces of Bolted Parts</b>			
Bolt Length Measured From Underside of Head to End of Bolt	Both Faces Normal to Bolt Axis	One Face Normal to Bolt Axis and Other Face Sloped Not More Than 1:20, Bevel	Both Faces Sloped Not More Than 1:20 From Normal to Bolt Axis, Bevel Washers Not

		Washer Not Used	Used
Up to and including 4 diameters	1/3 turn	1/2 turn	2/3 turn
Over 4 diameters but not exceeding 8 diameters	1/2 turn	2/3 turn	5/6 turn
Over 8 diameters but not exceeding 12 diameters <sup>c</sup>	2/3 turn	5/6 turn	1 turn

<sup>a</sup> Nut rotation is relative to bolt, regardless of the element (nut or bolt) being turned. For bolts installed by 1/2 turn and less, the tolerance should be plus or minus 30 degrees; for bolts installed by 2/3 turn and more, the tolerance should be plus or minus 45 degrees.

<sup>b</sup> Applicable only to connections in which all material within grip of the bolt is steel.

<sup>c</sup> No research work has been performed by the Research Council Riveted and Bolted Structural Joints to establish the turn-of-nut procedure when bolt lengths exceed 12 diameters. Therefore, the required rotation must be determined by actual tests in a suitable tension device simulating the actual conditions.

**Section 421.3 A – Page 213 – Delete the second sentence of the second paragraph and replace with the following:**

Backfill shall be compacted to 95% or greater of Maximum Dry Density in horizontal layers not to exceed six inches (150 mm) loose depth.

**Section 423.1 – Page 219 – Delete this section and replace with the following:**

**423.1 DESCRIPTION**

This work consists of the design, construction, and subsequent removal of all temporary works including, but not limited to; falsework, formwork, cofferdams, work berms and platforms, temporary traffic and stream diversions, and temporary retaining structures.

**Section 421.2 A – Page 213 – Delete the sieve analysis specification for the No. 200 (75 µm) sieve and replace with the following:**

No. 200 (75 µm) 0 - 18.0

**Section 421.2 B – Page 213 – Delete the sieve analysis specification for the No. 200 (75 µm) sieve and replace with the following:**

No. 200 (75 µm) 0 - 10.0

**Section 421.3 – Page 213 – Add the following to this section:**

**D. Extruded Insulation Board (Polystyrene):** No equipment will be allowed on the uncovered insulation board. The backfill covering the insulation board shall be spread and compacted in such a manner that the equipment used shall be operated on a minimum of 6 inches (150 mm) of backfill material at all times.

**Section 421.4 – Page 214 – Add the following to this section:**

**C. Extruded Insulation Board (Polystyrene):** Extruded insulation board (polystyrene) will be measured to the nearest square yard (square meter).

**Section 421.5 – Page 214 – Add the following to this section:**

**C. Extruded Insulation Board (Polystyrene):** Extruded insulation board (polystyrene) will be paid for at the contract unit price per square yard (square meter). Payment shall be full compensation for labor, equipment, and incidentals to furnish and install the extruded insulation board (polystyrene).

**Section 423.3 A – Page 219 – Add the following to the end of this section:**

All temporary works in streams or wetlands are required to be covered in the Corp of Engineers 404 Permit. At the time of the preconstruction meeting, the Contractor shall submit documentation for all temporary works for the purpose of complying with the 404 Permit requirements. The documentation shall include at a minimum:

1. A written description of the proposed temporary works including types of materials to be used, how the temporary works will be installed, removed, and what portion, if any, will remain in place after construction.
2. Details showing approximate size and location of the temporary works. Details shall include at a minimum, a Plan View and a Cross-Section View of the temporary works. Details shall provide sufficient dimensions such that the approximate size of the temporary works and location of the temporary works from a known point is shown.
3. Estimated quantities of all temporary fill material below the ordinary high water elevation. If the temporary fill is to be placed in a wetland, the estimated quantity shall be the amount of wetland loss, (in acres).

If during the course of construction there is a need for additional temporary works, the documentation shall be submitted to the Engineer at that time.

The Engineer will submit the documentation to the Corp of Engineers for approval. No construction of temporary works below the ordinary high water mark or in wetlands may begin until Corp of Engineer approval is attained by the Engineer.

**Section 423.3 B – Page 219 – Delete the first sentence and replace with the following two sentences:**

Falsework plans and design calculations for bridges shall be prepared by an Engineer registered in the State of South Dakota. Three (3) copies of the falsework plans and design calculations shall be submitted to the Bridge Construction Engineer for review at least 30 days prior to construction of falsework.

**Section 423.5 – Page 221 – Delete this section and replace with the following:**

**423.5 BASIS OF PAYMENT**

No payment will be made for temporary works. All costs involved in designing, constructing, and removing temporary works shall be incidental to the other contract items.

**Section 430.2 A. – Page 223 – Delete the last sentence of the second paragraph and replace with the following:**

The percentage of material passing a No. 200 (75µm) sieve shall not exceed 2.0 percent.

**Section 430.2 B – Page 223 – Delete this section and replace with the following:**

**B. Granular Bridge End Backfill:** The granular bridge end backfill material shall conform to Section 882.

**Section 430.3 C – Page 225 – Delete the second and third paragraphs and replace with the following:**

Granular bridge end backfill shall not be placed until at least 24 hours after completion of the deck pour. In addition, granular bridge end backfill shall not be placed until the abutments and sills, including wingwalls, have attained full design strength.

Granular bridge end backfill shall be placed in loose lifts not to exceed eight inches (200 mm) and compacted to 97% of maximum dry density. The moisture at the time of compaction shall be within  $\pm 4\%$  of optimum moisture. Maximum dry density and optimum moisture will be determined in accordance with SD 104.

**Section 430.3 C.1 through 6 – Page 225 and 226 – Delete and replace with the following:**

1. Each layer of granular bridge end backfill shall be placed in loose lifts not to exceed eight inches (200 mm). The placement and compaction of each layer must be inspected and approved by the Engineer prior to placement of the next layer.
2. Any equipment used to install the bridge end backfill over the geotextile fabric shall be operated in such a manner that the geotextile fabric is not damaged. To avoid damage to the geotextile fabric, the equipment used to place, spread, and compact the granular bridge end backfill over the geotextile fabric shall not be operated on less than six inches (150 mm) of material.

3. The geotextile fabric may be oriented in any direction. To minimize the horizontal deflection of the mechanically stabilized vertical face, it is extremely important to make sure that the geotextile fabric is taut and free of wrinkles during placement of the granular bridge end backfill.
4. Any geotextile fabric that is torn or punctured shall be repaired or replaced by the Contractor at no additional cost to the Department. The repair shall consist of a patch of the same type of geotextile fabric being placed over the ruptured area such that it overlaps the damaged area a minimum of 3 ft. (1 m) from any damaged edge. A sewn patch meeting the same requirements for seam strength as that of the fabric being repaired is allowed.
5. Seams that are perpendicular to face of the mechanically stabilized backfill may be constructed by overlapping the fabric a minimum of two feet (0.6 m). All other seams, as well as those in which the two foot (0.6 m) minimum overlap cannot be accomplished, shall be sewn. All seams shall be inspected by the Engineer and any deficient seams repaired by the Contractor prior to placement of the next layer of granular bridge end backfill. Geotextile fabric that is joined by sewn seams shall have strength properties at the seam equal to the specified strength requirements of the geotextile fabric. High strength polyester, polypropylene, or kevlar thread shall be used for sewn seams. Nylon threads shall not be used. The edges of the fabric shall be even and shall be completely penetrated by the stitch.
6. During periods of shipment and storage, the geotextile fabric shall be enclosed in a heavy duty opaque wrapping such that the fabric is protected from direct sunlight, ultraviolet rays, dirt or debris. The fabric shall not be subjected to temperatures greater than 140°F (60°C).

**Section 430.5 B – Page 227 – Delete the second sentence and replace with the following:**

Payment will be full compensation for all labor, equipment, materials, water, and all other items incidental to scarifying, reshaping and recompacting the area to be backfilled, furnishing and installing the polyethylene sheeting, drainage fabric, geotextile fabric, and furnishing, placing, and compacting the porous backfill and granular bridge end backfill to the limits shown on the plans.

**Section 450.2 – Page 231 – Add the following to this section:**

**F. High Density Polyethylene Pipe:** Section 990.

**Section 450.3 C – Page 231 – Delete and replace with the following:**

**C. Polyethylene Pipe Culverts:** Corrugated polyethylene pipe culverts and high density polyethylene pipe culverts shall be installed according to manufacturer instructions.

**Section 450.3 G – Page 232 – Delete and replace with the following:**

**G. Backfill Above Bedding Grade:** Moisture and density requirements for backfill shall be as specified in the plans and shall meet the requirements of Section 120. The backfill material shall be pre-moistened if necessary to obtain uniform moisture.

Selected embankment material shall be placed along the pipe in layers not exceeding six inches (150 mm) in depth and thoroughly compacted by mechanical compactors to the specified density before successive layers are placed. The width of the berms on each side of the pipe shall be twice as wide as the external diameter of the pipe or 12 feet (four meters), whichever is less. This method of backfilling shall be continued until the embankment is at least two feet (600 mm) over the top of the pipe.

In trench installations, backfill width shall be equal to trench width. The backfill shall be brought up evenly on both sides of the pipe for its full length. This method of backfilling shall be continued until the embankment is at least two feet (600 mm) over the top of the pipe.

**Section 460.3 A – Page 235 – Delete the first paragraph of this section and replace with the following:**

**Concrete Quality and Proportion:** The Contractor shall design and be responsible for the performance of all concrete mixes used in structures.

All mix designs and any modifications thereto, including changes in admixtures, shall be approved by the Concrete Engineer prior to use. Mix design data and test results shall be recorded on a DOT-24 and submitted to the Engineer.

The mix proportioning selected shall conform to the following requirements:

**Section 460.3 A – Page 236 – Delete the second sentence in Note 1 under Table 1.**

**Section 460.3 A – Page 235 – Delete the second sentence of the first paragraph on page 236 and replace with the following:**

The mix design shall be based upon obtaining an average concrete compressive strength 1200 psi above the specified minimum 28 day compressive strength.

**Section 460.3 A – Page 235 – Delete the last sentence of the second paragraph on page 236 and replace with the following:**

Trial batches shall be conducted in accordance with the American Concrete Institute Publication ACI 211.1, ACI 318, ASTM C192 and the following:

**Section 460.3 A – Page 235 – Delete the first paragraph on page 237 and replace with the following:**

Concrete mix designs previously used will be considered in compliance with the mix design requirements provided all of the following conditions are met:

**Section 460.3 A – Page 235 – Delete the second sentence of item 3 on page 237 and replace with the following:**

These test results and associated batch tickets shall be submitted to the Engineer.

**Section 460.3 A – Page 235 – Add the following to the list of items on page 237:**

4. All supporting information for the mix design including but not limited to, fresh concrete tests and material properties.

**Section 460.3 A – Page 235 – Delete the last two paragraphs of this section on page 237:**

**Section 460.3 B.2 – Page 237 – Delete the last paragraph of this section on page 238 and replace with the following:**

If the average compressive strength of the 28 day and the backup cylinder compressive strength is more than 500 psi (3.5 Mpa) below the specified 28 day compressive strength, the concrete represented by the cylinders shall be removed and replaced.

**Section 460.3 B.3 – Page 238 – Delete the last paragraph of this section and replace with the following:**

If the average core compressive strength is more than 500 psi (3.5 Mpa) below the specified 28 day compressive strength, the concrete represented by the cylinders shall be removed and replaced.

**Section 460.3 B.4 – Page 238 – Delete the last paragraph of this section on page 239 and replace with the following:**

If the average core compressive strength is more than 500 psi (3.5 Mpa) below the specified 28 day compressive strength, the concrete represented by the cylinders shall be removed and replaced.

**Section 460.3 B.5 – Page 239 – Delete the first sentence and replace with the following:**

If the Contractor utilizes the option to core as specified in Section 460.3 B.4, the Contractor shall arrange for an independent testing laboratory to perform the coring and compressive testing within 14 calendar days of notification of the failing compressive strength of the backup cylinder.

**Section 460.3 B.5 – Page 239 – Delete the last sentence of the second paragraph.**

**Section 460.3 B.5.a – Page 239 – Delete this section and replace with the following.**

- a. Include DOT project number, county, & PCN.

**Section 460.3 C.1 – Page 240 – Add the following to the list of items to be included on the printed ticket on page 241:**

W/C ratio

Aggregate Moistures (total moisture & absorption)

**Section 460.3 C.1 – Page 240 – Add the following after the last paragraph of this section on page 241:**

The W/C ratio shall be calculated using the following formula and rounded to the nearest 0.01:

$$W / C \text{ ratio} = \left[ \frac{\text{weight of free water} + \text{weight of batch water}}{\text{weight of cement} + \text{weight of supplementary cementitious material}} \right]$$

weight of free water = (% total moisture in aggregate - % absorption of aggregate) x weight of aggregate

weight of batch water = total weight of water added to the batch of concrete either at the plant or in the truck

The weight of free water shall be calculated for both the fine aggregate and the coarse aggregate.

**Section 460.3 D – Page 242 – Add the following to this section:**

6. The amount of batch water and aggregates added to the mix shall be adjusted accordingly using the results of the most recent two hour moisture tests. If automatic moisture sensing equipment is used, the Engineer may allow the use of the automatic moisture sensing results to make adjustments.

**Section 460.3 E – Page 243 – Delete the third paragraph and replace with the following:**

When a concrete batch is transported in a truck mixer or agitator and the batch is smaller than 60 percent of the rated capacity of the truck mixer or agitator, the following percentage of additional cementitious material at the same proportions as listed on the mix design shall be added to the batch:

**Section 460.3 E – Page 243 – Delete the paragraph below the table on the middle of page 243 and replace with the following:**

The above provisions regarding additional cementitious material shall also apply to the mixing of small batches in central plants. Additional cementitious material will not be required when the small batch is mixed in a drum that is sufficiently coated with mortar to withstand the loss of cementitious material. Sufficient mortar coating, as determined by the Engineer, may include mortar coating the drum from a previously mixed batch during continuous mixing operations. Additional cementitious material will be required if more than 30 minutes has passed from the mixing of the previous batch, if the drum has been cleaned following the previous batch, or if the mortar coating the drum has been disturbed following the previous batch.

**Section 460.3 K.1 – Page 247 – Delete and replace with the following:**

1. The coarse aggregate piles must be flushed with water for a minimum of 24 hours.

**Section 460.3 K – Page 248 – Delete the twelfth paragraph and replace with the following:**

Barrier curbs will not be allowed to be placed with slipform paving equipment.

**Section 460.3 M.4.c – Page 251 – Delete the second sentence of the first paragraph and replace with the following:**

Tining depth and spacing shall be measured according to SD 418. The metal-tine finish shall provide a groove width of 1/8" and a groove depth of 6/32 inch (5 mm) ±2/32 inch (3 mm).

**Section 465.2 A.3 – Page 265 – Add the following sentence to the end of the paragraph:**

Slump loss shall be tested in accordance with SD 423.

**Section 465.2 A.6 – Page 265 – Delete this section and replace with the following:**

6. The mix design shall establish a maximum water cementitious material ratio for the concrete mix (never to exceed 0.44)

The use of a water reducer will be required to achieve the above properties. Water reducers conforming to AASHTO M194 Type C (Accelerating) and Type E (Water-Reducing and Accelerating) will not be permitted.

**Section 480.3 C.1 – Page 280 – Delete the fifth paragraph and replace with the following:**

Welding of reinforcing steel shall not be allowed without written approval of the Bridge Construction Engineer. The request for approval shall list the bars to be welded, welding procedure, type of electrode, joint detail, and mill certificate of the reinforcing steel to be welded.

**Section 480.4 – Page 281 and 282 – Delete the English and Metric Bar Designation tables and replace with the following:**

**Bar Designation**

Size (English)	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 14	No. 18
Weight (lb/ft)	0.376	0.668	1.043	1.502	2.044	2.670	3.400	4.303	5.313	7.65	13.60
Size (Metric)	10	13	16	19	22	25	29	32	36	43	57
Weight (kg/m)	0.560	0.994	1.552	2.235	3.042	3.973	5.060	6.404	7.907	11.38	20.24

**Section 550.3 A.2 – Page 303 – Delete the second sentence of the last paragraph and replace with the following:**

When backfilling extra depth holes in accordance with Section 550.3 C.1.f.2, a grout admixture shall be added to the grout mixture in accordance with the manufacturer’s recommendations.

**Section 550.3 C.1.b – Page 305 – Delete the third sentence of the first paragraph and replace with the following:**

After completion of the Type 1A removal, the Engineer will inspect the deck and mark remaining areas of unsound existing overlay.

**Section 550.3 C.1.c – Page 306 – Delete and replace with the following:**

- c. Type 1B Removal areas will be determined after Type 1A Removal (or Type 2A Removal if specified) has been accomplished. Type 1B Removal shall consist of removing delaminated or unsound concrete by chipping below the Type 1A Removal (or Type 2A Removal if specified) and extending down to the top of the top bar in the top mat of reinforcing steel. Concrete removed below the top of the top bar incidental to Type 1B Removal will be considered a part of the Type 1B Removal.

**Section 550.3 C.1.f.2 – Page 306 – Delete the first sentence and replace with the following:**

**Backfill of Extra Depth Holes:** When Type 1D removal is necessary, or when holes deeper than 4” (100mm) below the top of the scarified surface are encountered, they shall be backfilled as follows:

**Section 550.3 D.2 – Page 309 – Delete the fourth paragraph and replace with the following:**

Concrete placement will not be permitted after October 1 or before May 1 or when the air temperature is above 85°F (29°C) in the shade. It may be necessary to place concrete during evening or early morning hours and not during periods of low humidity and high wind to comply with this requirement.

**Section 550.3 E – Page 310 – Delete and replace with the following:**

- E. **Proportioning and Mixing Concrete Materials:** Proportioning and mixing shall conform to Section 460.3 F.

**Section 560.2 A – Page 317 – Add the following:**

- 6. **Cement:** Section 750. Type II cement shall be used, unless otherwise specified.

**Section 560.3 A – Page 317 – Add the following paragraph after the first paragraph:**

Precast concrete drop inlets shall conform to the requirements of Section 670.

**Section 560.3 A.1 – Page 317 – Delete and replace with the following:**

1. **Fabrication:** The Fabricator shall notify the Area Engineer prior to the fabrication of precast and prestressed concrete items.

**Section 560.3 A.2 – Page 317 – Delete the last sentence of the first paragraph and replace with the following:**

When a plant has been in operation and satisfactorily producing material, the Contractor will not be required to submit a concrete mix design for precast concrete, unless changes have been made to the pre-approved mix design or the material used in the mix design. Concrete mix designs shall be submitted for each project on all prestressed concrete products.

**Section 560.3 B.1 – Page 319 – Delete the second sentence of the fifth paragraph and replace with the following:**

A checked design includes the design calculations and check design calculations performed by an independent Engineer registered in the State of South Dakota.

**Section 560.3 B.2.b – Page 321 – Delete the second paragraph and replace with the following:**

Acceptance of the precast units shall be in accordance with Section 460.3 B except that the fabricator shall be responsible for the sampling, preparing, and properly curing of all concrete cylinders for concrete compressive strength in accordance with the Materials Manual. The precast units will be accepted when the minimum design concrete compressive strength requirements have been met. Accepted precast units represented by that test group of cylinders may be delivered to the project and will not require the 28 day cylinder test.

**Section 600.2 A.17 – Page 333 – Add the following sentence at the end of the paragraph:**

The concrete pad must be securely mounted and solidly supported under the laboratory to minimize vibration while operating the Marshall compactor.

**Section 600.3 – Page 336 – Delete the fourth and fifth sentence and replace with the following:**

On projects that a Type III lab is required, the Engineer may allow a Type I or II lab to be supplied until such a time the Engineer determines the Type III lab is required. If the Engineer allows a temporary Type I or II lab to be furnished, no additional payment for that lab will be made.

**Section 605.3 C – Page 339 – Delete the third sentence of the first paragraph and replace with the following:**

If fly ash is used, the minimum amount of cement to be replaced is 15 percent and the maximum amount is 20 percent at a 1:1 ratio by weight.

**Section 630.4 A – Page 355 – Delete this section and replace with the following:**

- A. **Beam Guardrail:** Each class and type will be measured to the nearest 0.1 foot (0.1 meter) along the centerline of the rail. The length in feet (meters) shall be the overall length center to center of end posts or to connections with bridges.

**Section 630.4 C – Page 355 – Delete this section and replace with the following:**

- C. **Remove Beam Guardrail:** Remove Beam Guardrail will be measured to the nearest 0.1 foot (0.1 meter) along the centerline of the rail.

**Section 630.5 A – Page 355 – Delete this section and replace with the following:**

- A. **Beam Guardrail:** Beam guardrail will be paid for at the contract unit price per 0.1 foot (0.1 meter) for each class and type installed. Payment will be full compensation for labor, materials, equipment, and incidentals required.

**Section 630.5 C – Page 356 – Delete this section and replace with the following:**

- C. **Remove Beam Guardrail:** Remove Beam Guardrail will be paid for at the contract unit price per 0.1 foot (0.1 meter). Payment will be full compensation for the backfill of holes and the removal of the guardrail including end terminals, beam guardrail, posts, blocks, and hardware from the project limits.

**Section 632.3 H.2.c – Page 361 – Delete and replace with the following:**

- c. Anchor bolts shall be provided with leveling nuts, top nuts, and jam nuts. Anchor bolts shall be tightened in accordance with Section 635.3 F.

**Section 633.3 D – Page 368 – In the grooving tolerance tables, replace “Depth of Groove” with the following:**

Depth of Groove	(English) 80 mils	+ 10 mils
Depth of Groove	(Metric) 2.032 mm	+ 0.25 mm

**Section 634.3 A – Page 372 – Delete the first sentence of the fourth paragraph and replace with the following:**

All workers within the right of way who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel intended to provide conspicuity during both daytime and nighttime usage, and meeting the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled “American National Standard for High-Visibility Safety Apparel and Headwear”.

**Section 634.3 A – Page 372 – Delete the first sentence of the fifth paragraph.**

**Section 634.3 C – Page 374 – Add the following paragraph after the first paragraph:**

For 2 lane roadways with average daily traffic volumes of 2500 or less, no passing zones may be identified using DO NOT PASS, PASS WITH CARE, and NO PASSING ZONE signs rather than pavement markings. The DO NOT PASS and NO PASSING ZONE signs shall be used to mark the beginning of each no passing zone, and the PASS WITH CARE signs to mark the end of each zone. These may be utilized in place of the pavement markings normally used to identify no passing zones for no longer than 2 weeks. The placement of the dashed centerline marking and these signs shall be required prior to nightfall.

**Section 635.3 C.3 – Page 380 – Add the following sentence at the end of the first paragraph:**

The contractor shall not use a machine requiring flowing water for installation of conduit under streets or roadways unless approved by the Engineer.

**Section 635.3 F – Page 381 – Delete and replace with the following:**

- F. **Anchor Bolts:** Anchor bolts shall be installed in accordance with the following requirements.
  - 1. **General:** Anchor bolts shall be provided with leveling nuts and top nuts. Anchor bolts for light towers shall be provided with leveling nuts, top nuts, and jam nuts.
  - 2. **Anchor Bolt Installation:** A steel template shall be used to accurately locate and hold the anchor bolts plumb and in proper alignment. This template shall be in place during placement of the concrete base and shall remain in place a minimum of 24 hours after the concrete placement has been completed. Out of position anchor bolts and anchor bolts greater than 1:40 out-of-plumb are cause for rejection of the base. Bending of the anchor bolts to straighten or move into position, or alterations of the pole base plate will not be permitted.
  - 3. **Anchor Bolt Tightening:**
    - a. All leveling nuts (bottom nuts) shall be brought to full bearing on the bottom of the base plate. The bottom of the leveling nuts must be kept as close to the concrete base as practical, and shall not be more than one inch above the top of the concrete base. Leveling nuts must be threaded onto the anchor bolt to provide at least ¼ inch (6 mm) projection of the bolt above the top nut or jam nut if required when in its tightened position.
    - b. A softened beeswax or equivalent shall be applied to the top nut bearing face and top nut internal threads prior to placement on the anchor bolt. All top nuts shall be tightened to a snug tight condition. Snug tight

is defined as the tightness attained by the full effort of a person using a wrench with a length equal to 14 times the diameter of the anchor bolt, except the minimum length shall be 18 inches. The use of adjustable wrenches will not be allowed. The full effort required to achieve a snug tight condition, shall be applied as close to the end of the wrench as possible. Pull firmly by leaning back and using full body weight (brace feet to prevent slipping) on the end of the wrench until the nut stops rotating. This snug tightening shall be accomplished in a minimum of two separate passes of tightening. The sequence of tightening in each pass shall be such that the opposite side nut, to the extent possible, shall be subsequently tightened until all the nuts in that pass have been snugged.

Snug tightness of both the top and leveling nuts shall be checked in the presence of Department personnel after the Contractor has completed nut snugging as described above, but prior to final tightening. Snug tightness of the nuts (top and leveling) shall be checked by applying a torque in a range from 20% to 30% of the verification torque. See Table 1 for verification and snug tight torque values.

**Table 1**

**Anchor Bolt Tightening**

<b>Anchor Bolt Diameter (in)</b>	<b>Anchor Bolt Stress Area (sq in)</b>	<b>Yield Strength (ksi)</b>	<b>Minimum Tensile Strength (ksi)</b>	<b>Verification Torque (ft-lbs)</b>	<b>30% Snug Tight Torque (ft-lbs)</b>	<b>20% Snug Tight Torque (ft-lbs)</b>
1.00	0.61	36.0	58.0	177	53	35
1.25	0.97	36.0	58.0	351	105	70
1.50	1.41	36.0	58.0	613	184	123
1.75	1.90	36.0	58.0	964	289	193
2.00	2.50	36.0	58.0	1449	435	290
2.25	3.25	36.0	58.0	2120	636	424
2.50	4.00	36.0	58.0	2899	870	580
2.75	4.93	36.0	58.0	3930	1179	786
3.00	5.97	36.0	58.0	5192	1558	1038
1.00	0.61	55.0	75.0	274	82	55
1.25	0.97	55.0	75.0	545	163	109
1.50	1.41	55.0	75.0	951	285	190
1.75	1.90	55.0	75.0	1496	449	299
2.00	2.50	55.0	75.0	2249	675	450
2.25	3.25	55.0	75.0	3289	987	658
2.50	4.00	55.0	75.0	4498	1349	900
2.75	4.93	55.0	75.0	6098	1830	1220
3.00	5.97	55.0	75.0	8056	2417	1611
1.00	0.61	75.0	100.0	366	110	73
1.25	0.97	75.0	100.0	726	218	145
1.50	1.41	75.0	100.0	1268	381	254
1.75	1.90	75.0	100.0	1994	598	399
2.00	2.50	75.0	100.0	2999	900	600
2.25	3.25	75.0	100.0	4386	1316	877
2.50	4.00	75.0	100.0	5998	1799	1200
2.75	4.93	75.0	100.0	8131	2439	1626
3.00	5.97	75.0	100.0	10742	3223	2148
1.00	0.61	105.0	125.0	457	137	91
1.25	0.97	105.0	125.0	908	272	182
1.50	1.41	105.0	125.0	1586	476	317
1.75	1.90	105.0	125.0	2493	748	499
2.00	2.50	105.0	125.0	3749	1125	750
2.25	3.25	105.0	125.0	5482	1645	1096
2.50	4.00	105.0	125.0	7497	2249	1499
2.75	4.93	105.0	125.0	10164	3049	2033

3.00	5.97	105.0	125.0	13427	4028	2685
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- c. At this point, the top nut and leveling nut must be in full bearing on the base plate. If any gap exists between either nut (top or leveling) and the base plate, a beveled washer shall be added between the nut washer and the base plate to eliminate the gap. The beveled washer shall be stainless steel Type 304, the same diameter as the hardened washer, and beveled as required to eliminate the gap between the nut and the base plate. All nuts shall be retightened according to steps (a) and (b) above if beveled washers are added. All costs required to remove and re-erect the structure to install beveled stainless steel washers shall be at the Contractor's expense.
- d. Using a hydraulic wrench rotate all top nuts as indicated in Table 2. The additional turn of the nuts shall be accomplished by tightening all the nuts in two separate passes of equal incremental turns (i.e., for 1/3 turn use 1/6 turn each pass). The sequence of nut tightening in each pass shall be such that the opposite side nut, to the extent possible, shall be subsequently tightened until all the nuts in that pass have been turned. There shall be no rotation of the leveling nut during top nut tightening.

In lieu of a hydraulic wrench, torque wrenches and multipliers may be used to achieve the desired nut rotations and tightness.

- e. Tightness of the nuts shall be checked in the presence of Department personnel. Tightness of the nuts shall be checked within a minimum of 48 hours and a maximum of 96 hours after the nuts have been rotated as indicated in Section 635.3 F.3.d above. Tightness of the top nuts shall be checked by applying the verification torque to the nut. See Table 1 for verification torque.

**Table 2**

**Nut Rotation for Turn-Of-Nut Pretensioning**

Anchor Rod Diameter (in)*	Nut Rotation from Snug-Tight Condition a, b	
	F1554 Grade 36, A307	F1554 Grade 55 and 105, A449
< 1 ½	1/6 Turn	1/3 Turn
≥ 1 ½	1/12 Turn	1/6 Turn
a. Nut rotation is relative to anchor rod. The tolerance is plus 20 degrees		
b. Applicable only to double-nut-movement joints.		

Bottom leveling nuts shall be in contact with the base prior to applying the torque. An inability to achieve the verification torque indicates that the threads have stripped and the anchor bolt must be replaced. All costs for replacing anchor bolts shall be at the Contractor's expense.

- f. Install jam nut after verification torque has been applied to top nut. Lubricate threads of jam nut with beeswax or equivalent and tighten to a torque of 100 ft-lb (approximated without the use of a torque wrench).

**Section 635.3 H – Page 382 – Delete the first paragraph and replace with the following:**

Traffic signal conductors shall be continuous from the controller cabinets to the pole bases. Splicing of conductors will not be allowed in the junction boxes.

**Section 635.3 Q.3 – Page 384 – Delete and replace with the following:**

- 3. **Preformed Loops:** Each set of loop wires shall be tagged to identify loop. If installation of the loop is for future use the loop wires in the same lane shall be taped together. If installation is on a signal project, tagging shall be done and wires connected in series.

In new roadways, the preformed loops and lead-in conduits shall be placed in the base course, with the top of the conduit flush with the top of the base, and then covered with hot mix asphalt or Portland cement concrete pavement. Preformed loops and lead-in conduits shall be protected from damage prior to and during pavement placement.

In new reinforced concrete structure decks, the preformed loops shall be secured to the top of the uppermost layer of reinforcing steel using nylon wire ties. The loop shall be held parallel to the structure deck by using PVC or polypropylene spacers where necessary. Conduit for lead-in conductors shall be placed below the upper mat of reinforcing steel.

In existing pavement, the preformed loops shall be placed in a saw slot, 1-1/4 inches minimum width, cut into the existing pavement. The top of the conduit shall be 2 inches, minimum, below the top of existing surface. Sawed Slots shall be filled with an approved loop sealant.

On asphalt or concrete resurfacing projects, the preformed loops shall be placed in a saw slot, 1-1/4 inches minimum width, cut into the existing pavement. The top of the conduit shall be 2 inches, minimum, below the top of existing surface after any required surface removal is completed and prior to the placing of the new surface. Sawed Slots shall be filled with an approved loop sealant.

**Section 635.3 R.3 – Page 384 – Delete the first sentence in the first paragraph and replace with the following:**

All circular red, red arrow, circular yellow, yellow arrow, circular green, green arrow, and pedestrian indications shall be light emitting diode (LED) signal modules.

**Section 635.5 E – Page 386 – Delete and replace with the following:**

**D. Anchor Bolts:** Cost for anchor bolts shall be included in the contract unit price for the concrete for which they are incorporated with.

**Section 651.2 C – Page 391 – Delete the last sentence of this section and replace with the following:**

Not more than 25.0 percent by weight shall pass a No. 200 (75µm) sieve.

**Section 670.3 – Page 393 – Delete and replace with the following:**

**A. General Requirements:** Concrete for drop inlets shall be proportioned, mixed, hauled, and placed in accordance with Section 462.

When the foundation for a drop inlet is in new embankment, the embankment shall be constructed to an elevation at least one foot (300 mm) above the footing before the foundation for the drop inlet is prepared. The foundation shall be compacted as specified for the adjacent embankment.

Castings shall be set in full mortar beds or secured as specified. Castings shall be set accurately to the correct elevation so subsequent adjustment will not be necessary.

Inlet and outlet pipe connections shall be of the same size and kind and shall meet the same requirements as the pipe they connect. Pipe sections shall be flush on the inside of the structure wall and project outside sufficiently for proper connection with the next pipe section. Masonry shall fit neatly and tightly around the pipe. Grouting of the pipe connection may be required as directed by the Engineer if voids exist after form removal.

Drop inlets shall be either cast in place or precast. Precast drop inlets shall be defined as those drop inlets cast outside of the project limits. Drop inlets cast within the project limits will be considered cast in place.

**B. Cast in Place Drop Inlets:** The foundation excavated for drop inlets shall be thoroughly moistened immediately prior to placing concrete.

Steel reinforcement shall be placed in accordance with Section 480.

The finished surface of the concrete shall present a neat and smooth appearance. Concrete shall be protected and cured in accordance with Section 460.3, except the minimum curing time shall be 72 hours.

Upon completion and curing of the unit, the sheeting, bracing, forms, and falsework shall be removed and the excavation backfilled. The unit shall not be backfilled until the completion of the 72 hour curing period, or until the concrete reaches a minimum compressive strength of 3000 psi (21 MPa). Backfill shall be placed in layers not

exceeding six inches (150 mm) thick and compacted to the same degree as specified for the adjacent embankment. Installations shall be finished completed and left in a neat appearing condition.

**C. Precast Drop Inlets:** Precast drop inlets shall conform to the following requirements:

- 1. Notification:** The Contractor shall notify the Engineer 24 hours in advance of all concrete pours for inspection and observation of Contractor testing:
- 2. Design:** Precast drop inlets shall conform to the configurations of the standard plates. Variations from the standard plates may be accepted provided the AASHTO materials, design, fabrication specifications, and the requirements of this section are complied with.

Precast drop inlets shall be designed to specified load conditions. The Design Engineer of the drop inlets must be registered in the State of South Dakota. The design shall conform to the AASHTO design requirements for the depth of fill, including surfacing, etc., as well as live load or specified loading.

The Contractor shall furnish a checked design with the shop drawings. A checked design shall include the design calculations, and check design calculations performed by an independent Engineer registered in the State of South Dakota.

- 3. Shop Drawings:** Fifteen days prior to fabrication, the Contractor shall furnish shop drawings for Department review. The shop drawings shall consist of fabrication details including reinforcing steel and spacer placement and configurations, total quantities for the complete item, and all information for fabrication and erection.
- 4. Forms:** The forms shall be designed to withstand the fluid pressure of the concrete and the added forces due to vibration and impact without distortion. The forms shall be mortar tight and free from warp.

The form surface area in contact with the concrete shall be treated with an approved form oil or wax before the form is set in position. The forms shall be thoroughly cleaned of all other substances.

- 5. Concrete Cure:** The concrete shall be cured by low pressure steam, radiant heat, or as specified in Section 460.3 N. When curing in accordance with Section 460.3 N., the concrete temperature requirements of Section 460.3 O. shall apply.

Low pressure steam or radiant heat curing shall be done under an enclosure to contain the live steam or the heat and prevent heat and moisture loss. The concrete shall be allowed to attain initial set before application of the steam or heat. The initial application of the steam or heat shall be three hours after the final placement of concrete to allow the initial set to occur. When retarders are used, the waiting period before application of the steam or radiant heat shall be five hours. When the time of initial set is determined by ASTM C 403, the time limits described above may be waived.

During the waiting period, the minimum temperature within the curing chamber shall not be less than 50° F (10° C) and live steam or radiant heat may be used to maintain the curing chamber between 50° F (10° C) and 80° F (27° C). During the waiting period the concrete shall be kept moist.

Application of live steam shall not be directed on the concrete forms causing localized high temperatures. Radiant heat may be applied by pipes circulating steam, hot oil, hot water, or by electric heating elements. Moisture loss shall be minimized by covering exposed concrete surfaces with a plastic sheeting or by applying an approved liquid membrane curing compound to exposed concrete surfaces. The top surface of concrete members for use in composite construction shall be free of membrane curing compound residue unless suitable mechanical means for full bond development are provided.

During the initial application of live steam or radiant heat, the concrete temperature shall increase at an average rate not exceeding 40° F (22° C) per hour until the curing temperature is reached. The maximum concrete temperature shall not exceed 160° F (71° C). The maximum temperature shall be held until the concrete has reached the desired strength. After discontinuing the steam or radiant heat application, the temperature of the concrete shall decrease at a rate not to exceed 40° F (22° C) per hour until the concrete temperature is within 20° F (11° C) of the ambient air temperature. The Contractor will not be required to monitor this cool down temperature when the ambient air temperature is 20° F (11° C) or above.

The test cylinders shall be cured with the unit, or in a similar manner (similar curing method and concrete curing temperature, as approved by the Concrete Engineer) as the unit, until minimum compressive strength has been obtained.

- 6. Surface Finish and Patching:** If a precast or prestressed item shows stone pockets, honeycomb, delamination or other defects which may be detrimental to the structural capacity of the item, it will be subject to rejection at the discretion of the Engineer. Minor surface irregularities or cavities, which do not impair the service of the item, and which are satisfactorily repaired will not constitute cause for rejection. Repairs shall not be made until the Engineer has inspected the extent of the irregularities and has determined whether the item can be satisfactorily repaired. If the item is deemed to be repairable, the repair method and procedures shall be agreed upon by the Department and fabricator prior to the work commencing.

Depressions resulting from the removal of metal ties or other causes shall be carefully pointed with a mortar of sand and cement in the proportions, which are similar to the specific class of concrete in the unit. A sack rub finish is required on prestressed beams except for the bottom of the bottom flange and the top of the top flange. A sack rub finish is also required on sloped surfaces of box culvert end sections.

- 7. Fresh Concrete Testing:** The Contractor shall be responsible for performing all fresh concrete testing in accordance with the materials manual Materials Manual. Tests shall be documented on a DOT-54 form and submitted to the Engineer.
- 8. Concrete Compressive Strength:** The Contractor shall make a minimum of one group of test cylinders for each class of concrete for each day's production, not to exceed 150 cubic yard (125 cubic meters) per group of cylinders.

At a minimum, a group of test cylinders shall consist of the following:

- a. Two test cylinders are required for the 28 day compression test.
- b. Two additional cylinders will be required for determining concrete strength, when the Contractor desires to make delivery and obtain acceptance by the Department prior to the 28 day compression test.

Acceptance of the precast units shall be in accordance with Section 460.3 B. The precast units will be accepted when the minimum design concrete compressive strength requirements have been met. Accepted precast units represented by that test group of cylinders may be delivered to the project and will not require the 28 day cylinder test.

The Engineer will be responsible for breaking of all concrete cylinders for concrete compressive strength in accordance with the Materials Manual.

**Section 670.5 – Page 394 – Add the following paragraph after the first paragraph:**

Unless otherwise specified in the plans the cost for removal of existing pipe, if necessary, to facilitate the installation of new drop inlets shall be incidental to the associated drop inlet contract unit prices.

**Section 671.5 – Page 397 – Add the following paragraph to this section:**

Unless otherwise specified in the plans the cost for removal of existing pipe, if necessary, to facilitate the installation of new manholes shall be incidental to the associated manhole contract unit prices.

**Section 680.2 A – Page 399 – Delete the last sentence of the second paragraph and replace with the following:**

The percentage of material passing a No. 200 (75µm) sieve shall not exceed 2.0 percent.

**Section 720.4 – Page 405 – Delete this section and replace with the following:**

- A. Bank and Channel Protection Gabions:** Bank and channel protection gabions will be measured to the nearest 0.1 cubic yard (0.1 cubic meter). If a substitution is made, the dimensions of the bank and channel protection installed shall be equal to or greater than the dimensions specified. Payment will be based on plans quantity, unless changes are ordered in writing by the Engineer.

**B. Drainage Fabric:** Drainage fabric will be measured to the nearest square yard (square meter). The lap at joints will not be included in the measurement.

**Section 720.5 – Page 405 – Delete this section and replace with the following:**

**A. Bank and Channel Protection Gabions:** Bank and channel protection gabions will be paid for at the contract unit price per cubic yard (cubic meter). Payment will be full compensation for materials, equipment, labor, excavating, shaping and incidentals required.

**B. Drainage Fabric:** Drainage fabric will be paid for at the contract unit price per square yard (square meter). Payment will be full compensation for furnishing and installing the drainage fabric as specified. Payment will be for plan quantity unless changes are ordered in writing.

**Section 730.2 C – Page 407 – Delete the fourth sentence and replace with the following:**

If the seed is not planted within the 9 month period, the Contractor shall have the seed retested for germination, as described above, and a new certified test report shall be furnished prior to starting seeding operations.

**Section 734.3 – Page 423 – Add the following paragraph before the first paragraph:**

The Contractor shall designate an employee as Erosion Control Supervisor whose responsibility is the construction and maintenance of erosion and sediment control. This person shall be available to be reached by phone 24 hours a day, 7 days a week, and must be able to respond to emergency situations at the job site within 12 hours. The person so designated must have training and be certified by the South Dakota Department of Transportation in the area of erosion and sediment control. The name, phone number, and location of the person shall be provided to the Department at the preconstruction meeting.

**Section 734.3 B.2 – Page 424 – Delete the second sentence and replace with the following:**

The muck will be removed when the surface of the muck is at approximately one-third the height of the silt fence.

**Section 750 – Page 431 – Add the following after the second paragraph:**

In addition to the certification requirement specified in SD 416, when limestone is used, the manufacturer shall state in writing the amount thereof, the percentage of Calcium Carbonate in the limestone, and shall supply comparative test data on chemical and physical properties of the cement with and without the limestone. The comparative tests do not supersede the normal testing to confirm that the cement meets chemical and physical requirements.

**Section 800.2 D – Page 436 – Add the following sentence to the end of the fourth paragraph:**

Fine aggregate with a 14 day expansion value of 0.400 or greater shall not be used.

**Section 800.2 D – Page 436 – Add the following sentence to the end of the last paragraph:**

The expansion value of the blended sources will be used to determine the type of cement required.

**Section 800.2 F – Page 437 – Delete the last three sentences of the first paragraph and replace with the following:**

If the fineness modulus falls outside this limit the Concrete Engineer shall be notified. A new or adjusted mix design may be provided or approved. The uniformity of grading requirements do not apply to fine aggregate for Low slump Dense Concrete and Class M (I) concrete.

**Section 800.2 F – Page 437 – Delete the first sentence of the second paragraph and replace with the following:**

For determining the FM deviation from the design mix FM, the average of the five most recent FM test shall be used.

**Section 800.2 F – Page 437 – Delete the first sentence of the last paragraph and replace with the following:**

Additionally for Portland Cement Concrete Paving conforming to Section 380; the FM of the fine aggregate, as established by the mix design, will be from 2.40 to 3.10 (wide band).



**TABLE 1**

REQUIREMENTS	CLASS D		CLASS E		CLASS G		CLASS S	
	TYPE 1	TYPE 2	TYPE 1	TYPE 2	TYPE 1	TYPE 2	TYPE 1	TYPE 2
SIEVE	PERCENT PASSING							
1" (25.0 mm)	100		100		100			
3/4" (19.0 mm)	97-100	100	97-100	100	97-100	100		
1/2" (12.5 mm)	75-95	97-100	75-95	97-100	75-95	97-100	86-100	100
3/8" (9.50 mm)							66-80	80-100
No. 4 (4.75 mm)	45-75	60-80	45-75	60-80	45-75	60-80	24-34	24-45
No. 8 (2.36 mm)	30-55	40-60	30-55	40-60	30-55	40-60	10-20	10-22
No. 16 (1.18 mm)	20-45	25-50	20-45	25-50	20-45	25-50		
No. 40 (425 µm)	10-30	15-35	10-30	15-35	10-30	15-35		
No. 200 (75 µm)	3.0-7.0	4.0-8.0	3.0-7.0	4.0-8.0	3.0-7.0	4.0-8.0	4.0-8.0	2.0-5.0
Processing Required	Crushed		Crushed		Crushed		Crushed	
Liquid Limit (max)	25		25		25		25	
Plasticity Index, (max)	3		Non-Plastic		Non-Plastic		Non-Plastic	
L.A. Abra. Loss. (max)	45%		40%		35%		40%	
Sodium Sulfate (Soundness) (Max.)								
+4 (4.75 mm) sieve	15%		15%		12%		12%	
-4 (4.75 mm) sieve	15%		15%		12%		12%	
Lightweight Particles (Max.)								
+4 (4.75 mm) sieve	4.5%		3.0%		1.0%		1.0%	
-4 (4.75 mm) sieve	4.5%		3.0%		1.0%		1.0%	
Crushed Particles (Min.)								
+4 (4.75 mm) sieve	50% 1-FF		70% 2-FF		90% 2-FF		90% 2-FF	
* - 4 Manufactured Fines	NA		20% Min.		70% Min.		95% Min.	

\* - Manufactured fines shall be manufactured solely from material retained on the 3/4 inch (19mm) sieve, unless the aggregate material is produced from a ledge rock source.

**Section 880.2 B.1 – Page 456 – Delete the second sentence and replace with the following:**

The material shall be fine enough that when pulverized for testing, 90 percent by dry weight will pass a No. 40 (425 µm) sieve and 60.0 percent by dry weight will pass a No. 200 (75µm) sieve.

**Section 880.2 B.2 – Page 456 – Delete the sieve analysis specification for the No. 200 (75 µm) sieve and replace with the following:**

Passing a No. 200 (75 µm) sieve ..... 65.0-100%

**Section 882.2 – Page 459 – Delete Table 1 and replace with the following:**

Table 1

REQUIREMENT	Subbase	Gravel Cushion	Granular Bridge End Backfill	Aggregate Base Course	Limestone Ledge Rock		Gravel Surfacing
					Base Course	Gravel Cushion	
SIEVE	PERCENT PASSING						
2" (50 mm)	100						
1" (25.0 mm)	70-100		100	100	100		
3/4" (19.0 mm)		100	80-100	80-100	80-100	100	100
½" (12.5 mm)			68-91	68-91	68-90		
No. 4 (4.75 mm)	30-70	50-75	42-70	46-70	42-70	46-70	50-78
No. 8 (2.36 mm)	22-62	38-64	29-58	34-58	29-53	29-53	37-67
No. 40 (425 µm)	10-35	15-35	10-35	13-35	10-28	10-28	13-35
No. 200 (75 µm)	0.0-15.0	3.0-12.0	0.0-5.0	3.0-12.0	3.0-12.0	3.0-12.0	4.0-15.0
Liquid Limit Max		25	25	25	25	25	
Plasticity Index	0-6	0-6	0-6	0-6	0-3	0-3	4-12
L.A. Abra. Loss, max.	50	40	40	40	40	40	40
Foot Notes		2	1,2	1,2			
Processing Required	crushed	crushed	crushed	crushed	crushed	crushed	crushed

**Section 890.2 G – Page 465 – In the table, under TESTS ON RESIDUE FROM DISTILLATION TESTS, add the following after Elastic Recovery @ 50°F (10°C):**

(see Note 4)

**Section 890.2 G – Page 465 – Add the following after Note 3:**

Note 4: The Elastic Recovery test shall be in accordance with AASHTO T301, except that the residue will be obtained by distillation, not oven evaporation. The distillation temperature shall be as recommended by the emulsion manufacturer.

**Section 972.2 B – Page 479 – Delete the second paragraph and replace with the following:**

For bolts that are 1" (M24) (incl.) in diameter and less, the maximum hardness for AASHTO M164 (ASTM A325) bolts shall be 33 Rc.

**Section 972.2 C – Page 483 – Add the following paragraph before the second to last paragraph:**

Jam nuts shall conform to ASTM A563 Grade A.

**Section 972.2 C – Page 483 – Delete the first sentence of the last paragraph and replace with the following:**

Bolts and nuts shall be hot dipped galvanized in accordance with ASTM F2329 or mechanically galvanized in accordance with ASTM B695. Washers shall be hot dipped galvanized in accordance with ASTM F2329 or mechanically galvanized in accordance with ASTM B695.

**Section 972.2 D – Page 484 – Delete the fourth note under the table as denoted by “\*\*\*\*” and replace with the following:**

\*\*\*\* Anchor bolts conforming to ASTM F1554 Grade 55 (380) shall satisfy Supplemental Requirement S4. Anchor bolts conforming to ASTM F1554 Grade 105 (725) shall satisfy Supplemental Requirement S5.

**Section 980.1 A.1 – Page 485 – Delete this section and replace with the following:**

**1. Quantitative Requirements:** The finished paint shall meet the following quantitative requirements:

	<u>WHITE</u>	<u>YELLOW</u>
<u>Lead</u> , parts per million max. ASTM D 3335 or X-ray fluorescence	100	100
<u>Pigment</u> , percent by weight	60.0 - 62.5	58.5 – 61.0
<u>Pigment</u> , percent by weight; when tested in accordance with ASTM D 3723 (See Note 1)	60.0 - 62.5	56.1 - 58.6
Note 1: The residual extracted pigment upon analysis shall conform to the following quantitative compositional requirements when tested in accordance with ASTM D 1394 or ASTM D 4764.		
Titanium Dioxide ASTM D 476 Type II Rutile 92% min. TiO <sub>2</sub> tested in accordance with ASTM D 1394 or ASTM D 4764	1.00 lb/gal min.	0.20 lb/gal min.
<u>Total Solids</u> , percent by weight; min. when tested in accordance with ASTM D 3723	77.0	76.1
<u>Non-volatile Vehicle</u> , percent by weight vehicle; min. when tested in accordance with FTMS 141c (Method 4051.1)	42.5	42.5
<u>Consistency</u> . Krebs-Stormer Shearing rate 200 r.p.m. Grams	190 to 300	190 to 300
Equivalent K.U. when tested in accordance with ASTM D 562 (See Note 2)	80 to 95	80 to 95
Note 2: The consistency of the paint shall be within the stated specification when determined a minimum 48 hours after packaging the material.		
<u>Weight per Gallon</u> , pounds minimum when tested in accordance with ASTM D 1475 (See Note 3)	Rohm & Haas 13.85 Dow DT 250NA 13.75	13.30 13.20
Note 3: In addition to compliance with the minimum, the weight per gallon shall not vary more than $\pm 0.3$ lbs / gal. between batches.		
<u>Fineness of Dispersion</u> Hegman Scale, min. when tested in accordance with ASTM D 1210	2 min. "B" Cleanliness"	2 min B" Cleanliness
<u>Drying Time</u> , No Pick-Up, Minutes, max. when tested in accordance with ASTM D711, except the wet film thickness shall be $12.5 \pm 0.5$ mils. The applied film shall be immediately placed in a laboratory drying chamber maintaining the relative humidity of $65 \pm 3\%$ , the temperature $73.5 \pm 3.5^{\circ}\text{F}$ ( $23 \pm 2^{\circ}\text{C}$ ), and air flow less than one foot (1') per minute.	12max.	12max.
<u>Drying Time</u> , Dry-through, Minutes	120max.	120max.

max. when tested in accordance with ASTM 1640, except the wet film thickness shall be  $12.5 \pm 0.5$  mils. The applied film shall be immediately placed in a laboratory drying chamber maintaining the relative humidity at  $90 \pm 3\%$ , and the temperature  $23 \pm 2^\circ\text{C}$ . The pressure exerted will be the minimum needed to maintain contact between the thumb and film. A reference-control paint will be run in conjunction with the candidate paint. Rohm and Haas formulation will be referenced-control paint.

Note 4: If either the candidate or reference-control paint exceeds the 120 minute maximum, then the candidate paint shall not exceed the dry time of the reference-control paint by more than 15 minutes.

<u>Field Drying Time</u> , Track-Free, minutes max.	2	2
When applied under the following conditions, the line shall show no visual tracking when viewed from 50 feet after driving a passenger vehicle over the line at a speed of 25-35 mph: Fifteen mils wet film thickness Six lbs. of glass beads per gal. of paint Paint temperature at nozzle between 70 to 120°F Pavement dry, pavement temperature 50 to 120°F Relative humidity of 85% maximum		
<u>Directional Reflectance</u> , minimum.	85	50
when applied at a wet film thickness of 15 mils and when tested in accordance with ASTM E 1347 (Illuminate C 2°)		
<u>pH</u> , minimum.	9.80	9.80
when tested in accordance with ASTM E70		
<u>Dry Opacity</u> , Contrast ratio, min.	0.955	0.880
when applied at a wet film thickness of 6 to 7 mils and when tested in accordance with FTMS 141c (Method 4121 Illuminate C 2°)		
<u>Volatile Organic Content (VOC)</u> , max.	115 g/liter	115 g/liter
in accordance with ASTM D 3960		
<u>Flash Point</u> , closed cup, min.	115°F	115°F

Color: The paint shall meet the color specification limits and luminance factors listed in Tables 1 & 2 when tested in accordance with ASTM E1347 or ASTM E1349. The paint shall not discolor in sunlight and shall maintain the colors and luminance factors throughout the life of the paint. No Bayferrox 3950, iron oxides or other color enhancers will be permitted to achieve the color chromaticity coordinates.

Table 1\*

Color	Chromaticity Coordinates (corner points)								Min. Luminance Factor (Y %)
	X	Y	X	Y	X	Y	X	Y	
White	0.355	0.355	0.305	0.305	0.285	0.325	0.335	0.375	35
Yellow	0.560	0.440	0.490	0.510	0.420	0.440	0.460	0.400	25

\* Daytime Color Specification Limits and Luminance Factors for Pavement Markings Material with CIE 2° Standard Observer and 45/0 (0/45) Geometry and CIE Standard Illuminant D65

Table 2\*\*

Color	Chromaticity Coordinates (corner points)							
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
White	0.480	0.410	0.430	0.380	0.405	0.405	0.455	0.435
Yellow	0.575	0.425	0.508	0.415	0.473	0.453	0.510	0.490

\*\* Nighttime Color Specification Limits for Pavement Marking Retroreflective Material With CIE 2° Standard Observer, Observation Angle = 1.05°, Entrance Angle + 88.76° and CIE Standard Illuminant A.

**Section 981.1 – Page 489 – Delete this section and replace with the following:**

Glass beads for use with pavement marking paint shall be moisture resistant and shall meet the requirements of AASHTO M 247, Type I. The glass beads shall be without floatation properties. The glass beads shall have dual surface treatment consisting of a moisture resistant silicone treatment, and silane adherence surface treatment. The glass beads shall have a minimum of 80% true spheres. Roundness shall be tested in accordance with SD 510.

**Section 983.1 – Page 499 – Delete the third sentence of the first paragraph:**

**Section 983.1 B – Page 499 – Delete this section in it's entirety.**

**Section 983.2 B – Page 500 – Delete this section in it's entirety.**

**Section 985.1 D – Page 506 – Delete the last two sentences of the first paragraph and replace with the following:**

Vertical reinforcement shall be deformed unless otherwise noted and shall conform to the requirements of ASTM A 615/AASHTO M 31 Grade 60 (400). Circular ties, stirrups, and spiral reinforcing may be fabricated from deformed bars conforming to the requirements of ASTM A 615/AASHTO M31 Grade 60 (400). Spiral reinforcing may also be fabricated from cold drawn wire conforming to ASTM A 82 or hot rolled plain bars conforming to ASTM A 615/AASHTO M 31 Grade 60 (400).

**Section 985.1 G.4 – Page 508 – Delete the first sentence and replace with the following:**

Conductor insulation shall be colored in accordance with ICEA S-95-658, Method 1, Table K-2.

**Section 985.1 G.5 – Page 508 – Delete the first sentence and replace with the following:**

Jackets shall be polyvinyl chloride meeting UL requirements for Class 12 jackets and ICEA S-95-658, Section 4.

**Section 985.1 I.1.b – Page 508-509 – Delete the last sentence in the paragraph:**

**Section 985.1 N – Page 514 – Delete the second sentence in the fifth paragraph and replace with the following:**

The flash control circuit shall ensure that remote transfer to flashing from normal stop and go operations occurs during the end of the mainline green interval in the cycle.

**Section 985.1 N.1 and 2 – Page 515 – Delete these two sections and replace with the following sentence:**

The controller furnished shall meet current NEMA TS2 standards for controllers.

**Section 985.1 Q.7 – Page 516 – Delete and replace with the following:**

7. Backplates for Signal Heads: Unless otherwise stated on the plans, backplates may be either 0.050 inch (1.27 mm) thick aluminum or 0.125 inch (3.18 mm) thick polycarbonate. The polycarbonate backplates must be made up from no more than two pieces.

**Section 990.1 – Page 517 – Add the following to this section:**

**G. High Density Polyethylene Pipe:** High Density Polyethylene pipe, couplings, and fittings shall conform to the requirements of AASHTO M 294.

**Section 990.1 A.2.a – Page 517 – Delete and replace with the following:**

- a. Portland cement shall conform to Section 750.

**Section 990.1 A.2.h – Page 517 – Delete and replace with the following:**

- h. Flexible watertight gaskets shall conform to AASHTO M 198.

**Section 990.1 A.3 – Page 517 – Delete and replace with the following:**

3. **Concrete:** The concrete in special sections shall have a minimum compressive strength of 4000 psi (28 MPa). Special sections are those sections of concrete pipe not covered by the class requirement of AASHTO M 170, M 206, or M 207. The strength shall be determined by test cylinders or by cores.

**Section 1010.1 A – Page 519 – Add the following to the end of the first paragraph:**

Bar reinforcement shall be deformed, unless otherwise noted.

**Section 1010.1 C – Page 519 – Delete the second paragraph and replace with the following:**

Dowel bars for concrete pavements shall be epoxy coated and shall conform to AASHTO M 254 Type B except the film thickness shall be from 5 to 12 mils (0.13 to 0.30 mm) after cure. The steel cores shall be plain round bars conforming to AASHTO M 31 Grade 40 or 60, M 227 Grade 70 minimum, or M 255 Grade 75 minimum. The bars shall be the diameter shown in the plans, free from burring or other deformation restricting slippage in the concrete.

**Section 1010.1 C – Page 519 – Add the following sentence after the first sentence of the third paragraph:**

The cut ends do not have to be coated.

\* \* \* \* \*



