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ESTIMATE OF QUANTITIES

BID ITEM	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0500	Remove Pipe Culvert	8	Ft
110E0510	Remove Pipe End Section	7	Each
110E7500	Remove Pipe for Reset	48	Ft
110E7510	Remove Pipe End Section for Reset	25	Each
110E7802	Remove Fence for Reset	350	Ft
120E4100	Reprofiling Ditch	10.2	Sta
250E0010	Incidental Work	Lump Sum	LS
450E0123	18" RCP Class 3, Furnish	8	Ft
450E0130	18" RCP, Install	8	Ft
450E2008	18" RCP Flared End, Furnish	5	Each
450E2009	18" RCP Flared End, Install	5	Each
450E2016	24" RCP Flared End, Furnish	1	Each
450E2017	24" RCP Flared End, Install	1	Each
450E2024	30" RCP Flared End, Furnish	1	Each
450E2025	30" RCP Flared End, Install	1	Each
450E8900	Cleanout Pipe Culvert	13	Each
450E9000	Reset Pipe	48	Ft
450E9001	Reset Pipe End Section	25	Each
620E0510	Type 1 Temporary Fence	2,100	Ft
620E4100	Reset Fence	350	Ft
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	180	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS
734E0103	Type 3 Erosion Control Blanket	227	SqYd
734E0510	Shaping for Erosion Control Blanket	195	Ft
734E0602	Low Flow Silt Fence	200	Ft

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

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ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance or involve work around structures.

Action Taken/Required:

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

The Contractor shall adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State".

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT: http://www.sddot.com/business/environmental/stormwater/Default.aspx

DENR: http://www.denr.sd.gov/des/sw/stormwater.aspx

EPA: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Contractor Certification Form:

The "Department of Environmental and Natural Resources - Contractor Certification Form" (SD EForm - 2110LDV1-ContractorCertification.pdf) shall be completed by the Contractor or their certified Erosion Control Supervisor after the award of the contract. Work may not begin on the project until this form is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

The online form can be found at: http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the Public ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58. SDCL 34A-6-1.13, and ARSD 74:27:10:06.

1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

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Construction and/or demolition debris may not be disposed of within the

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the US Army Corps of Engineers for the permanent actions associated with this project.

Action Taken/Required:

The Contractor shall comply with all requirements contained in the Section 404 permit.

The Contractor shall also be responsible for obtaining a Section 404 permit for any dredge, excavation, or fill activities associated with staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands or waters of the United States.

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SCOPE OF WORK

The work required within this project includes, but is not limited to, the following items, not listed in order of execution.

- 1. Pipe Cleanout
- 2. Erosion Repair
- 3. Ditch Shaping
- 4. Resetting or Replacing some sections of Pipe.

The Contractor is encouraged to inspect the project site prior to bidding to evaluate the extent of work that will be required for construction.

SEQUENCE OF OPERATIONS

The Contractor may perform work on the erosion areas during daylight hours only, unless additional hours are approved by the Engineer.

The Contractor shall submit his/her proposed sequence of operations for the Engineer's approval at least two weeks prior to the preconstruction meeting.

Traffic shall be maintained through the project at ALL Times.

Once work that inconveniences traffic has commenced on a cleanout site, it shall be pursued in a near continuous, expeditious manner to its completion. Any work that restricts the motorist from driving the posted speed limit, reduces existing roadway width, or causes a potentially unsafe condition due to Contractor operations such as frequent movement of equipment or materials on or through the project, is considered to be an inconvenience to traffic.

UTILITIES

If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor shall contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

All traffic control sign locations shall be set in the field by the Contractor and verified by the Engineer prior to installation.

Traffic Control units, as shown in the Estimate of Quantities, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

REFLECTORIZED SHEETING REQUIREMENTS FOR TEMPORARY TRAFFIC CONTROL DEVICES

Delete the first paragraph of Section 984.1 and replace with the following:

Temporary traffic control devices, including signs, drums, cones, tubular markers, barricades, vertical panels, and direction indicator barricades shall be reflectorized with sheeting applied to a satisfactory backing. For all temporary traffic control warning signs, the reflective sheeting shall meet or exceed the standards of Type VII, Type VIII, Type IX, or Type XI as defined by AASHTO M 268 (ASTM D4956). For all other temporary traffic control signs, the reflective sheeting shall meet or exceed the standards of Type VII, Type IX, or Type XI as defined by AASHTO M 268 (ASTM D4956). For all other temporary traffic control signs, the reflective sheeting shall meet or exceed the standards of Type IV, Type V, Type VII, Type VIII, Type IX, or Type XI as defined by AASHTO M 268 (ASTM D4956). For barricades, vertical panels, and direction indicator barricades; the reflective sheeting shall meet or exceed the standards of Type III as defined by AASHTO M 268 (ASTM D4956). Round surfaced temporary traffic control devices including, but not limited to; drums, cones, and tubular markers shall be reflectorized with reflectorized sheeting meeting or exceeding the standards of Type IV as defined by AASHTO M 268 (ASTM D4956). All orange colored material shall be fluorescent.

PIPE CLEANOUT

Material in existing mainline pipe as listed in the Pipe Cleanout Table shall be cleaned out by water flushing or other approved methods. Each culvert shall be cleaned such that the bottom of the pipe is visible throughout its length so as to re-establish the flow line.

NOTE: Some pipe locations included in the Pipe Cleanout Table clearly have issues with some degree of pipe separation. Although it is evident that repair work will be needed at these locations, it may still be necessary to clean these pipe to fully determine the condition of the remainder of the pipe.

The need for cleaning will be determined in the field by the Engineer.

It is the responsibility of the Contractor to visit the site to determine the extent of the pipe cleaning work required.

The Contractor shall implement appropriate sediment control measures prior to water flushing in order to prevent discharges beyond the project boundaries.

All costs for this work shall be included in the contract unit price per each for "Cleanout Pipe Culvert".

NOTE: Each pipe's location is measured from the nearest MRM south of the pipe to be worked on. The displacement shown in the Pipe Cleanout Table is the distance measured in miles from the respective MRM to each pipe.

REINFORCED CONCRETE PIPE (RCP)

The Contractor shall not order pipe without prior approval of the Engineer, and is responsible for verifying the size of each pipe prior to ordering any pipe.

All pipe or end sections that are shown as being "removed" on the project shall become the property of the Contractor. Pipe shall be removed and not in view from the project upon completion of the project.

TIE BOLTS AND DRAINAGE FABRIC FOR RCP/RCP ARCH

Tie Bolts shall be installed at the inlet and outlet of any sections that are new or reset pipe sections and on new or reset pipe end sections (requires connection from existing pipe to new end or reset section).

For informational purposes: Field drilling will be required to install the tie bolts on reset pipe, on reset pipe ends and on existing pipe when installing a new or reset end section.

The pipe joints for each new or reset pipe section and new or reset pipe end section shall be effectively protected against infiltration of backfill soil by a full circumferential wrap with a 1 foot wide strip of drainage fabric around the perimeter of the pipe. The drainage fabric shall be centered over the joint.

Cost for drilling tie bolt holes and furnishing and installing tie bolts along with the costs to furnish and install the drainage fabric around the pipe joints shall be incidental to the various contract unit prices involving the installation of new or reset pipe sections or end sections.

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INCIDENTAL WORK, DRAINAGE GRATES

At MRM 193.00 + 0.857, the drop inlet grates (left and right) will need to be removed to allow for the rock to be cleaned from the inlets and the 24" mainline cross pipe. The existing inlet grates shall become the property of the contractor.

Each inlet's grate shall be constructed and supported as stated below and as detailed on the sheet entitled "Drop Inlet Grate Assembly".

- 1. Fit a 6'W x 10'L opening. The grate's Bearing Bars shall run in the long dimension.
- 2. The grate's Bearing Bar size shall be 2 $^{1}/_{2}$ " Tall x $^{3}/_{16}$ " Wide x 10' Long and shall be spaced 1 $^{3}/_{16}$ " on center. Cross bars shall be spaced at 4" on center. Grating Pacific's Model 19-WS-4 is an approved product. NOTE: 2 - 16 bar grates along with 2 - 15 bar grates will nicely fit (accommodate) the width of the inlet's opening. Any other grating used shall be an approved equal as determined by the Engineer.
- 3. The grates shall be supported uniformly on each of the following bearing locations: 1) on the concrete, 2) on the W Beam, and 3) on the Angle. The grating assembly is shown on the sheet entitled "Drop Inlet Grate Assemblev".
- 4. Each 20" Long UA 5"x3"x1/2" shall be anchored to the concrete with 3 - 5/8" x 9" anchor bolts, nuts and washers.
- 5. The 6' Long UA 5"x3"x1/2" shall be anchored to the concrete with 6 - 5/8" x 9" anchor bolts. nuts and washers.
- 6. The W Beam shall be anchored to the angle using the plates, 5/8" x 2 ³/₄" bolts, nuts, and washers as shown in the inset on the "Drop Inlet Grate Assembly".
- 7. All the grating, angles, W Beam, plates, bolts, anchors, nuts, and washers shall be Stainless Steel (304).
- 8. Submit the plan and product information for approval by the Engineer.

All costs associated with the furnishing and installing of the Angles, W Beam, Grating, anchors/bolts, nuts, washers, labor, drilling, epoxy, and any other ancillary items will be done at the Lump Sum price for "Incidental Work, Drainage Grates".

RE-PROFILING DITCH

The Contractor shall re-profile the ditch to restore the drainage profile into and out of the mainline pipe. This work will require removing sedimentation along with placing the removed material where areas need borrow material. The quantities and locations of re-profiling may change depending on the degree of erosion/sedimentation that has taken place from time of the survey to the time of construction. The re-profiling length and width has been estimated for those locations where Re-profiling Ditch work is needed. These areas are shown in the "Pipe Cleanout Table". All work shall be within the Right-of-Way/Temporary Easement limits. Pipe cleanout material may be used as borrow material for filling in erosion. Placement and location of the cleanout material shall be approved by the Engineer.

Prior to re-profiling, the contractor shall also remove 4" of topsoil from the affected areas. The Contractor shall stockpile the topsoil material at a site approved by the Engineer, and/or windrow the material near the disturbed areas to control potential sediment runoff as determined by the Engineer. The replacement of topsoil shall be spread evenly throughout all disturbed areas upon completion of the work. Any clumps larger than 3 inches shall be broken up prior to seeding the areas.

All costs associated with clearing and reshaping of the existing ditch, including topsoil removal/replacement, labor, excavation, placing material, equipment, and incidentals shall be paid for at the contract unit price per station for "Re-profiling Ditch". NOTE: A station is defined as 100 feet of channel cleanout length.

RIGHT-OF-WAY (ROW) FENCE ALIGNMENT

Where fence is being removed and reset at mainline pipe sites, fence shall be installed on the same alignment as prior to removal. It shall be the Contractor's responsibility to preserve the fence alignment.

TEMPORARY FENCE

When Right-Of-Way fence is to be removed and reset, temporary fence shall be installed when livestock is present. Once ditch re-profiling is complete, temporary fence shall be removed and Right-Of-Way fence shall be reset.

LOW FLOW SILT FENCE

The low flow silt fence fabric provided shall be from the approved product list. The approved product list for low flow silt fence may be viewed at the following internet site:

http://apps.sd.gov/Applications/HC54ApprovedProducts/main.asp

Low flow silt fence shall be used as directed by the Engineer. A quantity of 200 feet of low flow silt fence has been included in these plans for temporary sediment control. Refer to Standard Plate 734.04 for installation details.

PERMANENT SEEDING

The areas to be seeded shall be all disturbed areas at the pipe ends and areas where excavated material may have been wasted.

All permanent seed shall be planted in the topsoil at a depth of $\frac{1}{4}$ " to $\frac{1}{2}$ ".

All broadcasted seed must be raked or dragged in (incorporated) within the top 1/4" to 1/2" of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Type F Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Green Needlegrass	Lodorm	4
Sideoats Grama	Butte, Killdeer, Pierre, Trailway	3
Little Bluestem or Buffalograss or Blue Grama	Badlands, Itasca, Bowie, Cody, Tatanka, Bad River, Willis	2
Regreen or Quick Guard: all year; Oats or Spring Wheat: April through May; Winter Wheat: August through		10
November		
	Total:	26

The areas to be seeded are estimated at 0.60 acres.

Application of fertilizer will not be required on this project.

Mulch will not be required on this project.

All costs associated with furnishing and placing the seed, including labor. equipment and incidentals shall be included in the contract Lump Sum price for "Erosion Control".

SHAPING FOR EROSION CONTROL BLANKET

The ditches shall be shaped for the erosion control blanket as specified on Standard Plate 734.01. All costs for shaping the ditches for erosion control blanket including labor and equipment shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

EROSION CONTROL BLANKET

Erosion control blanket shall be installed at the locations stated in the "Pipe Cleanout Table". The exact limits and other locations of blanket shall be determined by the Engineer at the time of construction.

The erosion control blanket provided shall be from the approved product list. The approved product list for erosion control blanket may be viewed at the following internet site:

The Contractor shall install erosion control blanket according to the manufacturer's installation instructions.

All costs associated with furnishing and placing the Erosion Control Blanket, including labor, equipment and any ancillary items shall be incidental to the contract price per Square Yard for "Type 3 Erosion Control Blanket".

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http://sddot.com/business/certification/products/Default.aspx

STORM WATER POLLUTION PREVENTION **PLAN CHECKLIST**

(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES

♦ SITE DESCRIPTION (4.2 1)

- Project Limits: See Title Sheet (4.2 1.b)
- \triangleright Project Description: See Title Sheet (4.2 1.a.)
- \triangleright Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))
- \geq Major Soil Disturbing Activities (check all that apply)
 - Clearing and grubbing
 - Excavation/borrow •
 - Grading and shaping .
 - Filling
 - Cutting and filling .
 - Other (describe):
- Total Project Area 627.80 ACRES (4.2 1.b.) \triangleright
- Total Area To Be Disturbed 0.60 ACRES (4.2 1.b.) \triangleright
- Existing Vegetative Cover (%) 70 \triangleright
- Soil Properties: AASHTO Soil or USDA-NRCS Soil Series \triangleright Classification Wendte Clay (4.2 1. d.)
- Name of Receiving Water Body/Bodies Missouri River (4.2 1.e.)
- **ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)** *

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- > Special sequencing requirements (see sheet).
- \geq Install stabilized construction entrance(s).
- \triangleright Install perimeter protection where runoff sheets from the site.
- Install channel and ditch bottom protection. \geq
- Clearing and grubbing. \geq
- Remove and store topsoil. \geq
- \geq Stabilize disturbed areas.
- \geq Install utilities, storm sewers, curb and gutter.
- \triangleright Install inlet and culvert protection after completing storm drainage and other utility installations.
- \triangleright Complete final grading.
- \triangleright Complete final paving and sealing of concrete.
- Complete traffic control installation and protection devices. \geq
- Reseed areas disturbed by removal activities. \triangleright
- EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f)) * (Check all that apply)
- Stabilization Practices (See Detail Plan Sheets) \geq

- Temporary Seeding (Cover Crop Seeding)
- . Permanent Seeding
- . Sodding
- Planting (Woody Vegetation for Soil Stabilization)
- Mulching (Grass Hay or Straw)
- Hydraulic Mulch (Wood Fiber Mulch) . Soil Stabilizer
- .
- Bonded Fiber Matrix . Erosion Control Blankets or Mats
- . Vegetation Buffer Strips
- . Roughened Surface (e.g. tracking)
- Dust Control
- Other:

> Structural Temporary Erosion and Sediment Controls

- Silt Fence .
- Floating Silt Curtain
- Straw Bale Check
- Temporary Berm
- Temporary Slope Drain
- Straw Wattles or Rolls .
- . Turf Reinforcement Mat
- Rip Rap
- Gabions
- . Rock Check Dams
- Sediment Traps/Basins
- Inlet Protection .
- . Outlet Protection
- . Surface Inlet Protection (Area Drain)
- . Curb Inlet Protection
- Stabilized Construction Entrances
- . Entrance/Exit Equipment Tire Wash
- . Interceptor Ditch
- Concrete Washout Area
- . Temporary Diversion Channel
- Work Platform
- Temporary Water Barrier
- Temporary Water Crossing
- Other:

\triangleright Wetland Avoidance

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes \square No \boxtimes If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

- Storm Water Management (4.2 2.b., (1) and (2)) \geq Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.
- Other Storm Water Controls (4.2 2.c., (1) and (2)) \geq
 - . Waste Disposal

All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating

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♦ Maintenance and Inspection (4.2 3. and 4.2 4.)

Maintenance and Inspection Practices

- - report.

activities.

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proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.

Hazardous Waste

All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed. Sanitary Waste

Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.

All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection

Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches $\frac{1}{3}$ of the height of the silt fence.

Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction. Check dams will be inspected for stability. Sediment will be removed when depth reaches 1/2 the height of the dam.

All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.

Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents. The SDDOT Project Engineer and contractor's site

superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

* Non-Storm Water Discharges (3.0)

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

Discharges from water line flushing.

Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.

Uncontaminated ground water associated with dewatering

Materials Inventory (4.2. 2.c.(2))

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- Concrete and Portland Cement \geq
- \triangleright Detergents
- ≻ Paints
- ≻ Metals
- \triangleright Bituminous Materials
- \triangleright Petroleum Based Products
- \geq Cleaning Solvents
- \triangleright Wood
- \triangleright Cure
- \triangleright Texture
- \triangleright Chemical Fertilizers
- \triangleright Other:

Spill Prevention (4.2 2.c.(2))

> Material Management

Housekeeping

- Only needed products will be stored on-site by the contractor.
- Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the • manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The contractor's site superintendent will inspect materials • storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.
- Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.
- Hazardous Materials
 - Products will be kept in original containers unless the container is not re-sealable.
 - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
 - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
 - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
 - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.

Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

Product Specific Practices (6.8)

Petroleum Products

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

Fertilizers

Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

Paints

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

Concrete Trucks

Contractors will provide designated truck washout areas on the site. These areas must be self-contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

Spill Control Practices (4.2 2 c.(2)) \geq

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- . For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

Spill Response (4.2 2 c.(2))

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water

- at the site.

- activities.

Spill Notification

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- safety.
- .

The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons). To report a release or spill, call DENR at 605-773-3296 during regular office

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runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

 The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The

superintendent will assess the situation and determine the appropriate response.

If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized. Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor

If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.

If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.

Personnel with primary responsibility for spill response and cleanup will receive training by the contractor's site

superintendent or designee. The training must include

identifying the location of the spill kits and other spill response equipment and the use of spill response materials.

Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures: > A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately if any one of the following conditions exists:

The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).

The discharge causes an immediate danger to human health or

The discharge exceeds 25 gallons.

The discharge causes a sheen on surface water.

The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.

The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.

The discharge of any substance that harms or threatens to harm wildlife or aquatic life.

hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

Construction Changes (4.4)

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

♦ CERTIFICATIONS

> Certification of Compliance with Federal, State, and Local Regulations

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

South Dakota Department of Transportation

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that gualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Ton hall

Authorized Signature (See the General Permit, Section 6.7.1.C.)

Prime Contractor

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will

be revised or maintained under my direction or supervision in

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accordance with a system designed to assure that gualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

CONTACT INFORMATION

- \triangleright Contractor Information:
 - Prime Contractor Name:
 - Contractor Contact Name:
 - Address:
 - Address:
 - City: State: Zip: .
 - Office Phone: Field:
 - Cell Phone: Fax:
- **Erosion Control Supervisor**
- Name:
- Address:
- Address:
- City: State: Zip: .
- Office Phone: Field: .
- Cell Phone: Fax:
- SDDOT Project Engineer
- Name:
- **Business Address:**
- Job Office Location:
- City: State: Zip:
- Office Phone: Field:
- Fax:
- Cell Phone:

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SD DENR Contact Spill Reporting

 Business Hours Monday-Friday (605) 773-3296 Nights and Weekends (605) 773-3231

SD DENR Contact for Hazardous Materials.

(605) 773-3153

National Response Center Hotline (800) 424-8802.

SIGN TABULATION

SIGN CODE	SIGN DESCRIPTION	NUMBER		SIGN SIZE	SQFT PER SIGN	SQFT				
W16- 2P	FEET (supplemental distance plaque)	2	30''	x	24"	5	10			
W20-1	ROAD WORK AHEAD	2	48''	х	48"	16	32			
W20-4	ONE LANE ROAD AHEAD	2	48''	х	48"	16	32			
W20-7	FLAGGER (symbol)	2	48''	х	48"	16	32			
W21-5	SHOULDER WORK	4	48''	х	48"	16	64			
G20-2	END ROAD WORK	2	36"	х	18"	5	10			
		C TRAF	ONVEN	NTIONAL	ROAD	QFT	180			

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												I	Pipe	Cleanout Table									
MRM	Displacement ###	Pipe Diameter	Pipe Length	Type of Pipe	# of Pipe(s)	Land Owner Lt.	Section, Township & Range Lt.	Temporary Ease the Lt.	mporary Easement Needed on Fer the Lt. \$\$\$ Fer		Lt. End Section	Pipe Section	Sets of Tie Bolts	Comments for Lt. End	Comments for Rt. End	Sets of Tie Bolts	Pipe Section	Rt. End Section	Remove Fence/Temp. Fence/Reset Fence	Temporary Easen the Rt.	nent Needed on \$\$\$	Section, Township & Range Rt.	Land Owner RT.
	(miles)	(in)	(ft)					Transverse (ft)	Longitudinal (ft)	(ft)									(ft)	Transverse (ft)	Longitudinal (ft)		
189.00	0.831	96	84	Structural Plate Pipe	3		Sec. 5-T5N- R31E							RD (30'Lx33'W); Seed	RD (50'Lx33'W); Seed					50	75	Sec. 5-T5N- R31E	USA
190.00	0.262	58x38	54	CMP Arch	4		Sec. 5-T5N- R31E							RD (10'Lx 35'W); Seed	RD (50'Lx30'W); Seed					50	75	Sec. 5-T5N- R31E	USA
190.00	0.368	29x18	70	CMP Arch	1		Sec. 5-T5N- R31E							RD (70'Lx20'W); Seed								Sec. 5-T5N- R31E	
190.00	0.818	29x18	32	CMP Arch	2		Sec. 31-T6N- R31E							RD (10'Lx20'W); Seed								Sec. 31-T6N- R31E	
191.00	0.610	18	54	CMP	1		Sec. 32-T6N- R31E							CP; RD (75'Lx10'W); S&B(8'x75')	CP; RD (20'Lx20'W); Seed							Sec. 32-T6N- R31E	
192.00	0.310	18	67	CMP	1		Sec. 30-T6N- R31E							CP; RD (20'Lx20'W); Seed	CP; RD (120'Lx12'W); S&B(12'x120')					50	50	Sec. 30-T6N- R31E	USA
193.00	0.210	18	78	CMP	1		Sec. 35-T6N- R31E							CP; RD (10'Lx10'W); Seed	СР							Sec. 35-T6N- R31E	
193.00	0.857	30	60 plus 292	RCP & CMF	1		Sec. 26-T6N- R30E							*** CP (Drop inlet and pipe full of rock on the west side of the Emergency Spillway.)	*** CP (Drop inlet and pipe full of rock on the west side of the Emergency Spillway.)							Sec. 26-T6N- R30E	
194.00	0.536	24	272	RCP	1	Mark Hanson	Sec. 35-T6N- R30E	300	50	50 / 650 / 50				CP; Excavate to find pipe; Seed	СР				50 / 300 / 50	125	50	Sec. 35-T6N- R30E	JDK Partnership
194.00	0.885	18	82	RCP	1		Sec. 35-T6N- R30E							RD (25'Lx10'W); Seed								Sec. 35-T6N- R30E	
195.00	0.041	24	96	CMP	1		Sec. 35-T6N- R30E							RD (20'Lx10'W); Seed								Sec. 35-T6N- R30E	
195.00	0.434	18	90	RCP	1		Sec. 35-T6N- R30E				Remove and Reset End		1	Seed	Seed	1		Remove and Reset End				Sec. 35-T6N- R30E	
195.00	0.903	18	52	RCP	1		Sec. 3-15N- R30E							CP; RD (15'Lx10'W); Seed	СР							R30E	
196.00	0.728	18	54 +Dspout	RCP	1		Sec. 34-16N- R30E				Remove and Reset End		1	Seed								R30E	
197.00	0.378	18	46	RCP	1		R30E				Demonstrat			CP; RD (50'Lx20'W); Seed	СР			Demonstration				R30E	
197.00	0.864	18	50	RCP	1		R30E				Reset End		1	Seed	Seed	1	Demous and	Remove and Reset End				R30E	
198.00	0.525	18	48	RCP	1		R30E				Reset End		1	CP; Seed	CP; RD (20'Lx10'W); Seed	2	Reset 1st Sect	Reset End				R30E	
199.00	0.132	24	198	RCP	1		R30E				Reset End		1	Seed	RD (150'Lx50'W); Seed	1		Reset End	50 / 350 / 50	150	50	R30E	Marlys Keller
199.00	0.768	18	50	RCP	1		R30E				Romovo and			CP; RD (45'Lx10'W); Seed	СР			Romovo and				R30E	
200.00	0.004	18	84	RCP	1		Sec 1 TEN				Reset End		1	RD (15'Lx15'W); Seed	Seed	1		Reset End				Sec 1 TEN	
200.00	0.958	18	52	RCP	1		R29E				Reset End		1	CP; Seed	CP; Seed	1		Install New End				R29E	
201.00	0.589	18	52	RCP	1		R29E				Reset End		1	CP; RD (20'Lx10'W); Seed	CP; RD (10'Lx10'W); Seed			Romovo and				R29E	
201.00	0.950	18	52	RCP	1		R29E				Reset End		1	CP; RD (20'Lx10'W); Seed	СР	1		Reset End				R29E	
202.00	0.947	24	80	RCP	1		R29E				Install New End		1	RD (50'Lx10'W); Seed	Seed	1		Reset End				R29E	
203.00	0.730	18	50	RCP	1		R29E				Install New End	Romovo and	1	RD (20'Lx10'W); Seed	Seed	1		Reset End				R29E	
203.00	0.988	18	64	RCP	1	RDO Co.	R29E	50	50		Install New End	Reset 1st Sect	2	Seed	Seed	1	Remove and	Reset End				R29E	
204.00	0.356	18	64	RCP	1		R29E				Reset End	Reset 1st Sect	2	RD (20'Lx10'W); Seed	Seed	2	Reset 1st Sect	Reset End				R29E	Alvin & Lois Nelson
205.00	0.397	18	100	RCP	1		R29E				Install New End		1	Seed	line. The contractor shall take possession of it.	2	Install New	Install New End	50/150/50	50	50	R29E	Trust
205.00	0.925	18	74	RCP	1	Taylor & Sarah	R29E				Reset End	Remove and	1	Seed	Seed	1		Reset End				R29E	
208.00	0.216	30	186	RCP	1	Sonnenchein	R29E	150	50	50 / 350 / 50	Install New End	Reset 1st Sect	3	pipe (which is a 4 footer) and tie to 3rd pipe.	Seed	1		Reset End	50 / 150 / 50	50	50	R29E	LG McQuistion
208.00	0.276	18	112	RCP	1	Sonnenchein	R29E	50	50	50 / 150 / 50	Reset End	Reset 1st Sect	2	Seed	Seed	1		Reset End				R29E	
209.00	0.929	18	82	CMP	1		R28E							CP; RD (20'Lx20'W); Seed								R28E	

It is the responsibility of the Contractor to visit the site to determine the extent of culvert cleaning work required.

LEGEND

 LEGEND

 CP - Clean Pipe

 RD - Reprofile Ditch (L is the length along the channel, W is the channel width)

 ### - All "Displacements" are measured from the "MRM" shown and in the direction of increasing MRM.

 \$\$\$ - For all ROW Needed, the 1st dimension is the distance measured out from the fence line transverse to the pavement's centerline. The 2nd dimension is measured parallel to the road but centered on the pipe's end.

 *** - All rock removed from this site shall become the property of the contractor and be removed from the project.

Seed -- Seeding S&B(W'xL') -- Seed and Blanket (Type 3 Erosion Control Blanket)

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	STATE	E PR(JECT	SHEET	TOTAL
	S.D.	1806	5-351	12	19
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5 - 5/8"x 9" Anchor Bolts at 12" D.C. to anchor the	Stainless (304) spac shall be us e angle and ete.	Steel ced sed d shim			
nless oth 304) NOT ing to be ing. of e grate shall be nat it is flush of the concrete.	E: The shim the full le the angle.	n shall ength			
ess Steel spaced 3/4" Stainle shers and Nu	ss Steel it (304)				

For Information Only







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72 78	12520	1.8:1	7 7 ¹ /5	36 36	78 90	21	99	108	6 6 ¹ /2	1½ 1½			
66	10710	1.7:1	61/2	30	72	27	99	102	51/2	11/2]		
60	8730	1.9:1	5 <u>72</u> 6	35	60	39	99 99	90 96	5/2	1/2			
48	6550	2.5 : I	5	24	72	26	98	84	5	11/2			
42	5380	2.5 I	41/2	21	63	35	98	78	41/2	11/2			
<u>30</u> 36	2190	2.5:1	3'/2 4	12	54 63	19 <u>%</u> 343/	(3%) 973/	60 72	5 ¹ /2	1½ 1½			
27	1930	2.5: I	3 ¹ /4	101/2	491/2	24	$73\frac{1}{2}$	54	3 ¹ /4	1/2			
24	1520	2.5: I	3	9 ¹ /2	431/2	30	731/2	48	3	1/2			
18	990	2.3:1	$\frac{2^{1}}{2^{3}}$	9 9	27 36	46 37 ¹ /2	73	36 42	$\frac{2^{1}}{2^{3}}$	1½ 1½			
15	740	2.4: I	21/4	6	27	46	73	30	21/4	11/2]		
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	15	740	2.4:1	21/4	6	27	46	73	30	21/4 I	/2		
	18	990	2.3:1	$\frac{2!}{2}$	9	27	46	73	36	$\frac{2!}{2}$ 1	/2 /		
	24	1280	2.5.1	27/4 3	9	36 431/2	30	731/2	42	274 1	$\frac{2}{2}$		
	27	1930	2.5:1	3 ¹ ∕₄	101/2	491/2	24	731/2	54	3 ¹ /4 1 ¹	$\frac{2}{2}$		
	30	2190	2 .5: I	31/2	12	54	193⁄4	733/4	60	3 ¹ / ₂ 1	$\overline{\frac{1}{2}}$		
	36	4100	2.5: I	4	15	63	343⁄4	97 3/ 4	72	4 I	/ ₂		
	42	5380	2.5:1	4 ¹ /2	21	63	35	98	78	4'/2 1	/ <u>2</u>		
	48 54	8240	2.5:1	51/2	24	65	331/4	981/4	90	5 1	$\frac{2}{2}$		
	60	8730	1.9:1	6	35	60	39	99	96	5 I	$\frac{2}{2}$		
	66	10710	1.7:I	6 ¹ /2	30	72	27	99	102	5 ¹ / ₂ 1	/2		
	72	12520	1.8:1	7	36	78	21	99	108	6 I	/ ₂		
	78			71/2	36	90	21			6 ¹ /2	/2 /-		
	90	20900	1.0:1	81/2	26 21	30'/2 871/2	21		120	61/2 6	<u>/2</u>		
		20300		0/2	-1	1 01/2	1 27	1.1.12	1.72	0/2 0]		
											June 26, 2015	-	
S PLATE NUMBE									PLATE NUMBER				
						R.C. P	FI ARF	D FNI)S		450.10		
Published Not	Published Nate [,] 1st Atr. 2016					v. I		Chart 1 - f 1	1				
I UNIISIICU DOL	PUDIISNED DATE: IST UTF. 2016										SHEET I OT I		
	_	_	_	_	_	_	_	_	_				





		S D D	GUIDE
The lengt fit field	h of A may be conditions.	adjusted to	
so that placed be curve to distance of stopp	er space snould the two-way tro efore a horizont provide adequa for the flagger ed vehicles.	be extend offic taper alor verti te sight and queue	is cal
Channeliz be used control ir required.	ing devices and at intersecting itersecting road	flaggers si roads to I traffic a	s
	CSO-S END MORK END		
Channeliz along the area whe escorting area.	ing devices are e centerline adja n pilot cars are) traffic throug	not requira acent to w a utilized f h the work	ed ork or
The chan or 42" coi	nelizing devices nes.	shall be dr	ums
Flashing may be u advance	warning lights a sed to call atte warning signs.	nd/or flags ntion to tl	
For tack when flac FRESH OIL in advanc areas.	and/or flush so ggers are not b sign (W2I-2)shal ce of the liquid	eal operatic eing used, 1 I be display asphalt	ons, the red
WORK sign duration	operations (1 hc	ed for shor	
For low-v with shor roadways to road direction	volume traffic s t work zones o where the flag users approaching s, a single flagge	ituations n straight ger is visib ng from bo er may be	ble th used.
■ (Channelizing Devi	ce	
•	lagger		
55 60 - 65	750 1000	50 50	
<u>35 - 40</u> 45 - 50	350 500	25 50	_
$(M_P_H_)$ 0 - 30	(A) 200	25	
Prior to Work	Signs (Feet)	Devices (Feet)	in o as t
Posted Speed	Spacing of Advance Warning	Spacing o [.] Channelizin	f Ig Warr





	STATE OF	PROJECT	SHEET	TOTAL							
	SOUTH DAKOTA	1806-351	17	19							
Plotting Date: 03/24/2016											







1	Published Date: 1st Qtr. 2016
	equipment, and materials shall be incidental to the a "Remove Erosion Control Wattle".
	All costs for removing the erosion control wattle
	Sediment removal, disposal, or necessary shaping sh All costs for removing accumulated sediment, dispos shaping shall be incidental to the contract unit pr Sediment".
	The Contractor and Engineer shall inspect the eros week and within 24 hours after every rainfall ever Contractor shall remove, dispose, or reshape the ac necessary as determined by the Engineer.
	Where installing running lengths of wattles, the Co wattle tightly against the first and shall not over
	The stakes shall be 1"x2" or 2"x2" wood stakes, howev rebar may be used only if approved by the Engine 6" from the ends of the wattles and the spacing of shall be 3' to 4'.
	The Contractor shall dig a 3" to 5" trench, install th that daylight can not be seen under the wattle, a from the trench against the wattle on the uphill a
	At ditch installations, point A must be higher than flows over the wattle and not around the ends.
	At cut or fill slope installations, wattles shall be in perpendicular to the water flow.

GENERAL NOTES:

			PROJECT			ΤΟΤΑΙ
	STATE OF SOUTH	1	806_351		SHEET	SHEETS
					19	19
	Plotting	Jate: 03/2	4/2016			
be installed a	long the	contour	and			
than point B t	to ensure	e that v	vater			
all the wattle	tiontly i	n tha t	rench so			
tle, and then cuphill side. See (compact Detail B.	the soil	excavated			
however, other	types o	f stake	s such as			
cing of the st	akes alo	ng the v	wattles			
ne Contractor overlap the e	shall but ends. See	t the s Detail C	econd			
erosion contr		es once	everv			
l event greater	r than 1/ 1 sedimer	2".The				
ng shall be as	directed	by the	Engineer.			
it price per ci	ubic yard	d for "R	emove			
sion control w	attles in	aludina	labor			
the contract	unit pric	e per f	001			
	oro to at	includia				
the contract	unit pric	ce per f	g labor, oot for			
			December 23 21	004		
			PLATE NUMBE	R		
SION CONTROL M	ΙΔΤΤΙ Ε		734.06			
NOW CONTROL W	ATTLE		Sheet C of C	,		
			SHEEL Z OT Z			