

STATE OF	PROJECT	SHEET	TOTAL SHEETS
DAKOTA	089-492	1	9
Plotting Date:	04/23/2019		

INDEX OF SHEETS

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General Layout with Index Plan Notes Legend Plan Sheet Standard Plates Cross Section



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ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0749	Remove High Tension 4 Cable Guardrail Anchor Assembly	2	Each
110E4106	Salvage High Tension 4 Cable Guardrail	538	Ft
230E0020	Contractor Furnished Topsoil	347	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
632E3520	Remove, Salvage, Relocate, and Reset Traffic Sign	1	Each
634E0010	Flagging	80.0	Hour
634E0110	Traffic Control Signs	137.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Section A Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified 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.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: http://www.sddot.com/resources/Manuals/EnvironProcManual.pdf

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Office at 605-773-3098 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

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 pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW. The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for 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) will 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 Environmental Office and the Project Engineer.

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

Construction and/or demolition debris consisting of concrete, asphalt 1. concrete, or other similar materials will be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with 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) will be incidental to the various contract items.

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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

State Historical Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities require a cultural resource review prior to scheduling the pre-construction meeting. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. 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 if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view of 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 will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. 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.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office to determine an appropriate course of action.

The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

UTILITIES

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

Utilities are not planned to be affected on this project. 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 Project Engineer to determine modifications that will be necessary to avoid utility impacts.

SALVAGE HIGH TENSION CABLE GUARDRAIL

The cables and posts shall become the property of the State and shall be removed, hauled, and neatly stacked at the Edgemont maintenance vard located along US18 south of Rapid City as approved by the Engineer.

The remaining guardrail items shall become the property of the Contractor and shall be removed from the project limits. Payment for removing, hauling, and stacking the salvaged guardrail items shall be incidental to the contract unit price per foot for "Salvage High Tension Cable Guardrail".

REMOVE AND REPLACE TOPSOIL

Topsoil will be salvaged and stockpiled prior to placement of Contractor Furnished Borrow. The topsoil stockpile shall be located just inside the work limits in the 3:1 zone of the inslope grading as per the cross sections. Limits of this work, depth of salvage, and stockpile location will be directed by the Engineer. Following completion of construction, topsoil shall be spread evenly over the disturbed areas.

All costs associated with removing and replacing the topsoil shall be incidental to the contract lump sum price for "Remove and Replace Topsoil".

CONTRACTOR FURNISHED TOPSOIL

The Contractor shall furnish and place topsoil to construct slopes as per the cross sections shown in these plans. It is estimated that 347 cuyds will be needed to complete the work.

Contractor furnished topsoil will be free from clay lumps, stones, coarse gravel, or similar objects larger than 2 inch in diameter. Brush, stumps, roots, wood, objectionable weeds, litter, or any other material which may be harmful to plant growth will not be allowed. Organic material will be decomposed.

All costs to furnish and place the Contractor furnished topsoil will be incidental to the contract unit price per cubic yard for "Contractor Furnished Topsoil".

EROSION CONTROL

All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, Mycorrhizal inoculum, fertilizing, and fiber mulching shall be incidental to the contract lump sum price for "Erosion Control".

The limits of erosion control work will be determined by the Engineer during construction.

Mycorrhizal Inoculum

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species claimed and the live propagule count. The inoculum will include the following fungal species:

25% 25% 25% Glomus mosseae 25% Glomus etunicatum

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

The mycorrhizal inoculum will be as shown below or an approved equal:

Product MycoApply

AM 120 Multi Species Blend

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Glomus intraradices Glomus aggregatum or deserticola

Manufacturer

Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com

Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 www.reforest.com

EROSION CONTROL (CONT.)

Fertilizina

The Contractor will apply an all-natural slow release fertilizer prior to seeding. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH. a low salt index. a low biological oxygen demand. contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer's recommended method of application.

The all-natural slow release fertilizer will be as shown below or an approved equal:

Product	<u>Manufacturer</u>
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 <u>www.sustane.com</u>
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 www.perfect-blend.com

Permanent Seeding

The area to be seeded consist of all newly graded areas within the project limits.

Type F Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Oats or Spring Wheat: April through May;		10
Winter Wheat: August through November		
	Total:	26

FIBER MULCHING

Fiber mulch will be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier will be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier will be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier will be synthetic.

The Contractor will allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

The fiber mulch provided will be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

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

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

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

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following completion of project.

INVENTORY OF TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT		137.0	

All fluorescent orange background material on traffic control signs, all temporary delineators, and all temporary STOP (R1-1), YIELD (R1-2), DO NOT ENTER (R5-1), and WRONG WAY (R5-1a) signs will conform to the requirements of ASTM D4956 Type IX or XI. All other traffic control signs and background colors will conform to the requirements of ASTM D4956 Type IV.

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SHEETING FOR TRAFFIC CONTROL SIGNS

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Anchor \leftarrow ¥ Antenna Approach 7 Assumed Corner ▲ Azimuth Marker ▲ BBQ Grill/ Fireplace € Bearing Tree Bench Mark A Box Culvert Bridge Brush 62253 Buildings _____ Bulk Tank ╞══╡ Cattle Guard Cemetery + Centerline C Cistern Clothes Line Commercial Sign Double Face Commercial Sign One Post þ Commercial Sign Overhead المحصا þ Commercial Sign Two Post Concrete Symbol Creek Edge _ _ _ _ Curb/Gutter Curb Dam Grade/Dike/Levee Deck Edge Ditch Block Doorway Threshold _ - _ - -Drainage Profile Drop Inlet Edge Of Asphalt Edge Of Concrete Edge Of Gravel Edge Of Other Edge Of Shoulder Electric Transformer/Power Junction Box P Fence Barbwire Fence Chainlink Fence Electric Fence Miscellaneous Fence Rock Fence Snow Fence Wood Fence Woven Fire Hydrant പ്പ Flag Pole Flower Bed 7777 Gas Valve Or Meter 0 Gas Pump Island **(B**) Grain Bin Guardrail Guide Sign One Post þ Guide Sign Two Post b Gutter 22222 Guy Pole 9 ۲ Haystack Hedge 62633

Highway ROW Marker Interstate Close Gate Iron Pin Irrigation Ditch Lake Edge Lawn Sprinkler Mailbox Manhole Electric Manhole Gas Manhole Miscellaneous Manhole Sanitary Sewer Manhole Storm Sewer Manhole Telephone Manhole Water Merry-Go-Round Microwave Radio Tower Miscellaneous Line Miscellaneous Property Corner Miscellaneous Post Overhang Or Encroachment Overhead Utility Line — ОН — Parking Meter Pedestrian Push Button Pole Pipe With End Section Pipe With Headwall Pipe Without End Section Playground Slide Playground Swing Power And Light Pole Power And Telephone Pole Power Meter Power Pole Power Pole And Transformer Power Tower Structure Propane Tank Property Pipe Property Pipe With Cap Property Stone Public Telephone Railroad Crossing Signal Railroad Milepost Marker Railroad Profile Railroad ROW Marker Railroad Signs Railroad Switch Railroad Track Railroad Trestle Rebar Rebar With Cap Reference Mark Regulatory Sign One Post Regulatory Sign Two Post **Retaining Wall** Riprap River Edge Rock And Wire Baskets Rockpiles Satellite Dish Septic Tank

Shrub Tree	\$
Sidewalk	
Sign Face	
Sign Post	0
Slough Or Marsh	<u>annea</u>
Spring	E)
Stream Gauge	ø
Street Marker	<u> </u>
Subsurface Utility Exploration Test Hole	•
Telephone Fiber Optics	— T/F —
Telephone Junction Box	
Telephone Pole	Ø
Television Cable Jct Box	0
Television Tower	华
Test Wells/Bore Holes	۵
Traffic Signal	‡
Trash Barrel	Ō
Tree Belt	\sim
Tree Coniferous	*
Tree Deciduous	0
Tree Stumps	A
Triangulation Station	▲
Underground Electric Line	— P —
Underground Gas Line	— G —
Underground High Pressure Gas Line	— HG —
Underground Sanitary Sewer	— s —
Underground Storm Sewer	= s $=$
Underground Tank	
Underground Telephone Line	— I —
Underground Television Cable	— IV —
Werning Sign One Dest	— vv —
Warning Sign Two Post	p þ
Wathing Sign Two Post	þ
Water Foundant	1
Water Meter	0
Water Tower	
Water Valve	<u> </u>
Water Well	õ
Weir Rock	
Windmill	8
Wingwall	
Witness Corner	6

	STATE OF	PROJEC	т	SHEET	TOTAL SHEETS
	DAKOTA	089-49	92	5	9
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State and Natio County Line Section Line	onal Line	Ξ		_	
Quarter Line Sixteenth Line Property Line Construction L	ine				
ROW Line New ROW Lin Cut and Fill Lin	ie nits				
Control of Acce New Control of Proposed ROV (After Property	ess f Access V ^r Disposal)	• 0			
Drainage Arrov	N				
Remove Conci	rete Paven	nent			
Remove Conci	rete Drivev	vay Pavement			
Remove Aspha	alt Concret	e Pavement			
Remove Conci	rete Sidew	alk			
Remove Conci	rete Media	n Pavement			
Remove Conc	rete Curb a	and/or Gutter			
Detectable Wa Pedestrian Pu and 30" x 48" with 1.5% slop	arning sh Button Clear Spac be	Pole ce			



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Published Date: 1st Qtr. 2019	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED
The length of A may be adj fit field conditions.	usted to	
The buffer space should be so that the two-way traffi placed before a horizontal curve to provide adequate distance for the flagger ar of stopped vehicles.	extended c taper is or vertical sight nd queue	
Channelizing devices and fla be used at intersecting roc control intersecting road tr required.	ی۔ ggers shall ds to affic as	ROAD WORK AHEAD
END ECO-S END END END		ROAD AHEAD C'h
Channelizing devices are not along the centerline adjace area when pilot cars are u escorting traffic through t area.	required nt to work tilized for the work	WI6-2P (Optional)
The channelizing devices sho or 42"cones.	llbe drums	
Flashing warning lights and/ may be used to call attention advance warning signs.	or flags on to the	
For tack and/or flush seal when flaggers are not being FRESH OIL sign (W2I-2) shall be in advance of the liquid asp areas.	operations, g used, the displayed bhalt	
The ROAD WORK AHEAD and the WORK signs may be omitted t duration operations (I hour	e END ROAD for short or less).	
For low-volume traffic situd with short work zones on s roadways where the flagger to road users approaching directions, a single flagger	ations traight is visible from both may be use	ed.
 Channelizing Device 		
50 500 55 750	50 50	
35 40 350 45 500	25 25	*/• // //
(M.P.H.) (A)	(G) 25	us below.
Speed Advance Warning Cha Prior to Signs I	annelizing Devices	Warning sign sequence — in opposite direction same



Plotted From - trrc11951







