STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	1	44

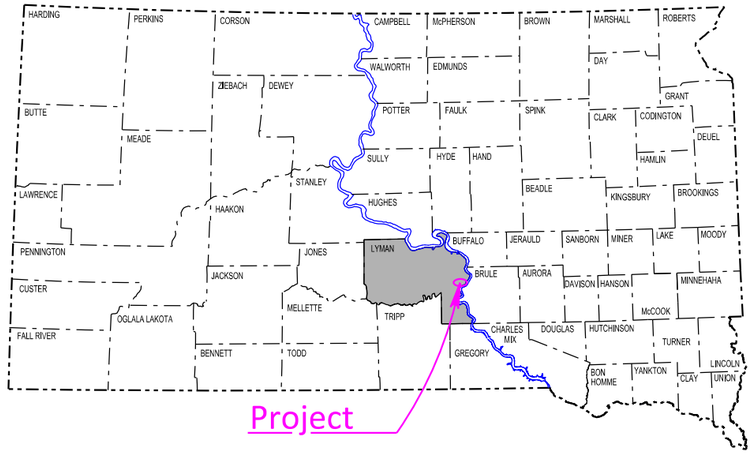
Plotting Date: 06-05-2025

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

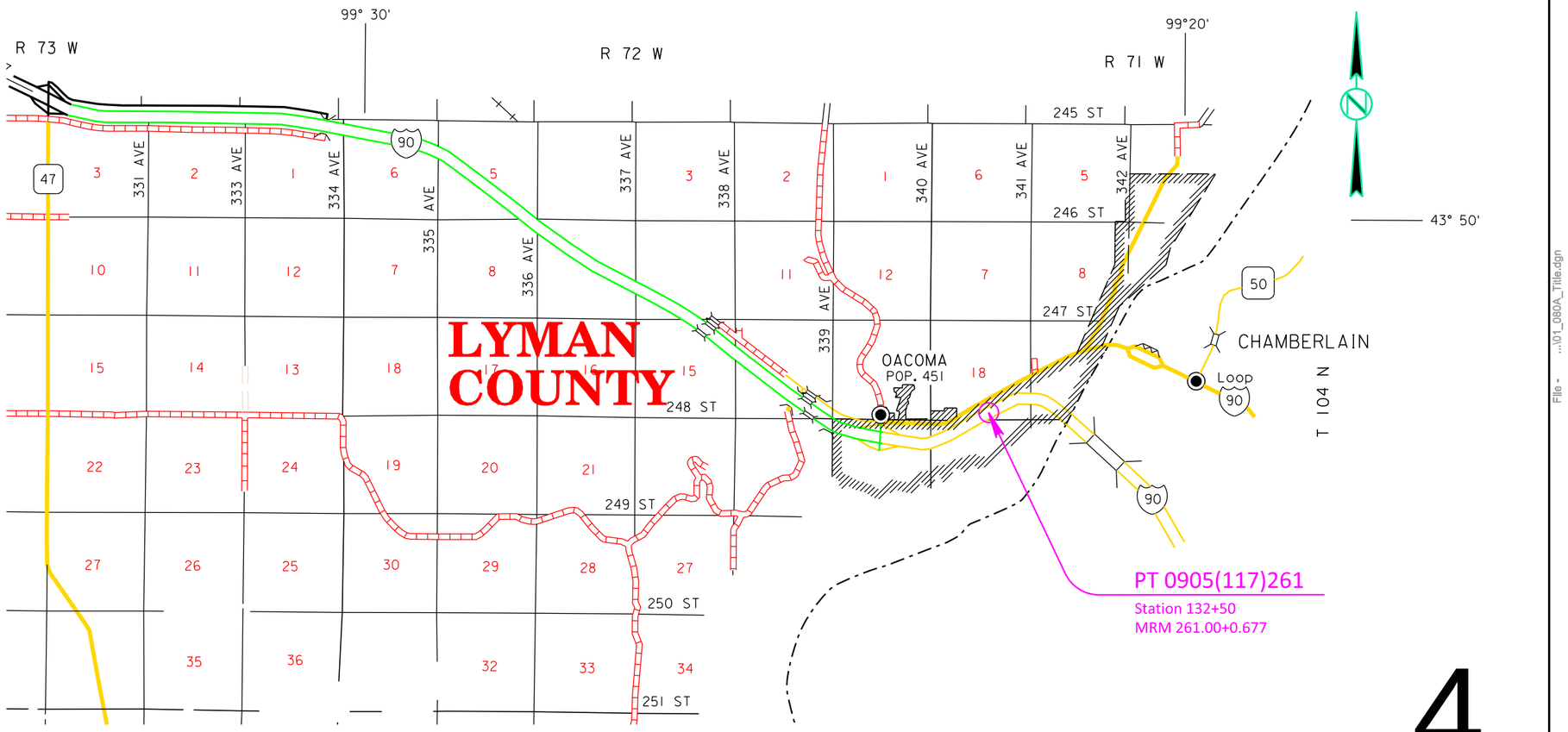
PLANS FOR PROPOSED

PROJECT PT 0905(117)261
INTERSTATE 90
LYMAN COUNTY

PIPE WORK, STRUCTURES & ROW
PCN 080A



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHOLTZ
SOUTH DAKOTA
2025-06-06



DESIGN DESIGNATION	I-90 EB	I-90WB	I-90 Business Loop
AADT (2022)	4190	4190	2189
AADT (2042)	5983	5983	3093
DHV	990	990	416
D	50%	50%	50%
DHV T%	11.1%	11.1%	1.4%
AADT T%	24.3%	24.3%	3.0%
V	80 mph	80 mph	50 mph

STORM WATER PERMIT

Major Receiving Body of Water: Lake Francis Case (Missouri River)
Area Disturbed: 7.34 ac
Total Project Area: 14.25 ac
Approx. Begin Lat,Long: Latitude=43°48'21" N, Longitude=99°22'23" W

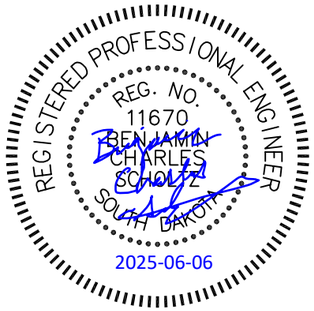
July 16, 2025

Plot Scale - 1:7000
Plotting Date:
Plotted From - BSCHOLTZ
File - ...\01_080A_Title.dgn

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3303	LiDAR Preconstruction Survey	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0600	Remove Fence	682	Ft
110E1010	Remove Asphalt Concrete Pavement	944.0	SqYd
110E1700	Remove Silt Fence	2,000	Ft
120E0010	Unclassified Excavation	12,048	CuYd
120E1000	Muck Excavation	84	CuYd
120E6300	Water for Vegetation	1,052.2	MGal
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	674.5	Ton
260E3500	Temporary Gravel Surfacing	1,500.0	Ton
260E6010	Granular Material	467.0	Ton
320E1200	Asphalt Concrete Composite	263.8	Ton
420E0400	Structure Excavation, Miscellaneous	44.9	CuYd
421E0100	Pipe Culvert Undercut	454	CuYd
450E7708	108" Steel Pipe, Furnish	170	Ft
450E7709	108" Steel Pipe, Install	170	Ft
450E7732	132" Steel Pipe, Furnish	686	Ft
450E7733	132" Steel Pipe, Install	160	Ft
450E8450	Storm Sewer Video Inspection	1,370	Ft
450E8910	Cleanout for Culvert Treatment	1	Each
450E9250	Slipline 108" Pipe	516	Ft
450E9382	132" Trenchless Pipe Installation	526	Ft
451E7520	Exploratory Excavation	12.0	Hour
462E0100	Class M6 Concrete	14.4	CuYd
462E0250	Cellular Grout	690.0	CuYd
464E0100	Controlled Density Fill	799.0	CuYd
480E0100	Reinforcing Steel	2,348	Lb
600E0100	Type I Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	546	Ft
620E0510	Type 1 Temporary Fence	942	Ft
620E1020	2 Post Panel	3	Each
621E0160	6' Chain Link Fence with Tension Wired Top	136	Ft
621E0600	Chain Link Fence Post	2	Each
632E2510	Type 2 Object Marker Back to Back	2	Each
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	567.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	12	Each
634E0330	Temporary Raised Pavement Markers	4,500	Ft
634E0420	Type C Advance Warning Arrow Board	4	Each

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0525	Linear Delineation System Panel, Barrier Mounted	60	Each
634E0700	Traffic Control Movable Concrete Barrier	60	Each
634E0750	Temporary Concrete Barrier End Protection	1	Each
634E0760	Temporary Concrete Barrier End Protection Module Set or Repair Kit	1	Each
634E1002	Detour and Restriction Signing	944.9	SqFt
634E1020	Temporary Business Signing	138.3	SqFt
700E0510	Class E Riprap	851.4	Ton
734E0010	Erosion Control	Lump Sum	LS
734E0103	Type 3 Erosion Control Blanket	1,800	SqYd
734E0154	12" Diameter Erosion Control Wattle	335	Ft
734E0510	Shaping for Erosion Control Blanket	200	Ft
734E0604	High Flow Silt Fence	2,000	Ft
734E0610	Mucking Silt Fence	170	CuYd
734E0620	Repair Silt Fence	530	Ft
734E5010	Sweeping	8	Hour
831E0110	Type B Drainage Fabric	202	SqYd
900E1310	Concrete Washout Facility	2	Each
900E1320	Construction Entrance	2	Each



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 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. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. 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: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.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 Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.54 acres of wetlands becoming temporarily impacted. Refer to the plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
26a	132+50 R	0.00	0.00	0.00	0.42	0.42
26b	132+50 R	0.00	0.00	0.00	0.03	0.03
26c	132+50 R	0.00	0.00	0.00	0.09	0.09

Action Taken/Required:

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be re-established as designated in the plans. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.21 D of the Specifications.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any wetland. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any wetlands beyond the work limits and easements shown in the plans.

COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.17 acres of stream (includes temporary and permanent) becoming temporarily impacted. Refer to the Nonsection plans for location and boundaries of the impacted streams.

Table of Impacted Streams

Stream Name	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
OW 3a	132+ 50 L	0.00	0.00	0.04	0.00	0.04
OW 3b	132+50 R	0.00	0.00	0.00	0.13	0.13

Action Taken/Required:

Temporary impacts identified in the Table of Impacted Streams will not be mitigated as the disturbed areas will be restored to their original contours and elevations after construction is complete as designated in the plans.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any stream. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any streams beyond the work limits and easements shown in the plans.

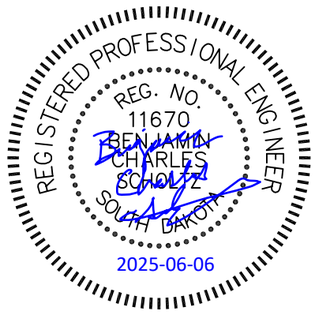
COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

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 B5: NORTHERN LONG-EARED BAT

This project is within the range of suitable habitat for the Northern Long-Eared Bat (NLEB) and project work will avoid conflicts with NLEB roosting habitat.

Action Taken/Required:

Project activities that include tree removal, structure work, and/or work within one-quarter mile of a known hibernacula or 150 feet of a known maternity roost tree, or suitable habitat should not occur within the location(s) listed below during the NLEB seasonal work restriction timeframe without approval from the SDDOT Environmental Office.

Station	NLEB Seasonal Work Restriction
132+50 L	April 1 to October 31

Tree removal will occur between November 1st and March 31st. For the purposes of this note, a tree is defined as a live, dying, or dead woody plant, with a trunk three inches or greater in diameter at a height of 4.5 feet about the ground surface, and with a minimum height of 13 feet.

The following avoidance, minimization, and mitigation measures are required:

General AMM 1: Ensure all operators, employees, and contractors working in areas of known presumed bat habitat are aware of all Transportation Agency environmental commitments, including applicable AMMs.

Lighting AMM 1: Direct temporary lighting away from suitable habitat during active season.

Tree Removal AMM 1: Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to the extent practicable to avoid tree removal in excess of what is required to implement the project safely.

Tree Removal AMM 2: Apply time of year (TOY) restrictions for tree removal when bats are not likely to be present.

Tree Removal AMM 3: Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field. (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure Contractors stay within clearing limits.

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:
https://sdleastwanted.sd.gov/maps/default.aspx

South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species:
https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

The Missouri River is classified as a warm water permanent fishery with a total suspended solids standard of less than 90 mg/L 30-day average, less than 158 mg/L daily maximum.

This project may be in the vicinity of multiple streams and wetlands. These waters are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that this water body is not impacted.

Action Taken/Required:

The Contractor is advised that the South Dakota Surface Water Quality Standards, administered by the South Dakota Department of Agriculture and Natural Resources (DANR), apply to this project. Special construction measures will be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

The DANR General Permit for Temporary Discharge is required for temporary dewatering and discharges to waters of the state. The effluent limit for total suspended solids will be 90 mg/L 30-day average. The effluent limit applies to discharges to all waters of the state except discharges to waters classified as cold water permanent fish life propagation waters according to the ARSD 74:51:01:45. For discharges to waters of the state classified as cold water permanent fish life propagation waters, the effluent limit for total suspended solids will be 53 mg/L daily maximum.

The permittee has the option of completing effluent testing or implementing a pollution prevention plan for compliance with this permit. If the permittee develops a pollution prevention plan instead of total suspended solids sampling, the plan must be developed and implemented prior to discontinuing total suspended solids sampling. Refer to Section 4.0 of the permit. If any pollutants are suspected of being discharged, a sample must be taken for those parameters listed in Section 3.4 of the permit.

Refer to Commitment D1: Surface Water Quality for stream classification.

Action Taken/Required:

If construction dewatering is required and this project is currently covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the contractor will need to submit the dewatering information to the SDDANR using the following form:

https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_AddTempInfoFillable.pdf

The Contractor will provide a copy of the approved permit or the submitted dewatering information to the Project Engineer prior to proceeding with any dewatering activities. The approved permit or submitted dewatering information must be kept on-site and as part of the project records.

Effluent monitoring, as a result of dewatering activities, will be summarized for each month and recorded on a separate Discharge Monitoring Report (DMR) and submitted to DANR monthly. Additional information can be found at:

https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/swdpermitting/Ereporting.aspx

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance and/or work in a waterway.

Action Taken/Required:

The DANR General Permit for Stormwater Discharges Associated with Construction Activities is required for construction activity disturbing one or more acres of earth and work in a waterway. The SDDOT is the owner of this permit and will submit the NOI to DANR 15 days prior to project start in order to obtain coverage under the General Permit. Work can begin once the DANR letter of approval is received.

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

The Contractor will complete the DANR Contractor Certification Form prior to the pre-construction meeting. The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the permit for this project. Work may not begin on this project until this form is signed and submitted to DANR.

The form can be found at:

https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_CGPAppendixCCA2018Fillable.pdf

The Contractor is advised that permit coverage may also be required for off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

Storm Water Pollution Prevention Plan

The Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to the submittal of the NOI and will be implemented for all construction activities for compliance with the permit. The SWPPP must be kept on-site and updated as site conditions change. Erosion control measures and best management practices will be implemented in accordance with the SWPPP.

The DOT 298 Form will be used for site inspections and to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents and retained for a minimum of three years.

The inspection will include disturbed areas of the construction site that have not been finally stabilized, areas used for storage materials, structural control measures, and locations where vehicles enter or exit the site. These areas will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP will be observed to ensure that they are operating correctly, and sediment is not tracked off the site.

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

SDDOT: https://dot.sd.gov/doing-business/environmental/stormwater

DANR: https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/default.aspx

EPA: https://www.epa.gov/npdes

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 Agriculture 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:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench 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 not to exceed the duration of the project. Prior to project completion, the waste will 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.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

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.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historic Preservation Office (SHPO) 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 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 in 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 within 150 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

SHPO review does not relieve the Contractor of the responsibility 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.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULZ
SOUTH DAKOTA
2025-06-06

COMMITMENT J: CONSTRUCTION PRACTICES FOR TEMPORARY WORKS IN WATERWAYS OF THE U.S.

The Contractor is advised that special construction measures must be taken to ensure that the waterways of the U.S. are not impacted.

Action Taken/Required:

Excavation will not occur below the ordinary high-water elevation in waterways outside of caissons, cribs, cofferdams, steel piling, or sheeting. The natural streambed will not be disturbed unless specified by the plans and under the observation of the Project Engineer. Refer to the Table of U.S. Waterways to Protect for ordinary high-water elevations. Any structure work over or within the waterway will be constructed according to Section 7.21 C of the Specifications.

All dredged or excavated materials will be placed at a site above the ordinary high-water elevation in a confined area (not classified as a wetland) that is a minimum of 50 feet away from concentrated flows of storm water, drainage courses, and inlets to prevent return of such material to the waterway.

The construction of temporary work platforms, crossings, or berms below the ordinary high-water elevation will be allowed if all material placed below the ordinary high-water elevation consists of Class B or larger riprap.

All temporary caissons, cribs, cofferdams, steel piling, sheeting, work platforms, crossings, and berms will be removed with minimal disturbance to the streambed. Proper construction practices will be used to minimize increases in suspended solids and turbidity in the waterway.

Bridge berms, wing dams, traffic diversions, channel reconstruction, stream diversions, grading, etc. will be constructed in close conformity with the plans to ensure that the hydraulic capacity of the waterway is not changed.

Temporary waterway crossings required for the Contractor's construction operations will be constructed with an adequate drainage structure size and minimum fill height to reduce the potential for upstream flooding. The Contractor will be responsible for sizing the temporary drainage structure for these crossings.

All temporary works in waterways of the US are required to be covered in the Corp of Engineers 404 Permit. At the time of the preconstruction meeting, the Contractor will submit documentation for all temporary works for the purpose of complying with the 404 Permit requirements in accordance with Section 423.3 A of the Specifications.

If an on-site construction crossing is used at Sta. 132+50 L/R, the temporary crossing will need to be designed so it will not increase the Q_{100} water surface elevation. The Contractor will submit the proposed temporary crossing geometric layout and structure size at Sta. 132+50 L/R to the Project Engineer during the preconstruction meeting. This information will be forwarded to the SDDOT Hydraulics Office and Environmental Office for review. Construction of the temporary crossing is not allowed until approval of the proposal is obtained from the SDDOT Hydraulics Office and Environmental Office.

Table of U.S. Waterways to Protect

Station	Waterway	Ordinary High-Water Elevation
132+50 L/R	Unnamed Tributary to the Missouri River	1343.1'

Stream channel excavation within "Waters of the US" is subject to USACE regulatory jurisdiction. Stream channel excavation cannot exceed the permitted quantities and/or surface area. The 404 Permit is included in the Special Provisions.

The Contractor will take all precautions necessary to prevent any incidental discharges associated with the excavation and hauling of material from the stream channel. This pertains to any excavation operations such as, foundation, pier, or abutment excavation, channel cleanout, excavation for riprap protection, and removal of any temporary fill associated with construction activities.

COMMITMENT M: SECTION 4(f)/6(f) RESOURCES

COMMITMENT M1: SECTION 4(f) PROPERTY

A Section 4(f) Evaluation concluded there are no feasible and prudent alternatives to avoiding Section 4(f) property located within the project.

Station	Section 4(f) Property
127+00 – 132+50 L/R	Oacoma Game Production Area (SDGF&P)

Action Taken/Required:

The following measures are required to minimize harm to the above Section 4(f) property:

- The duration of occupancy is temporary and less than the time needed for construction of the project, and no permanent change in ownership of the land will occur;
- The scope of work is minor, in that both the nature and magnitude of the changes to the existing 4(f) property are minimal;
- There are no anticipated permanent adverse physical impacts, nor interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis;
- And any land to be disturbed will be fully restored and returned to a condition which is at least as good as that which existed prior to the project.

The Contractor is not permitted to stage equipment or materials outside of areas of temporary easement within the Oacoma Game Production Area. The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 4(f) property. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any Section 4(f) property.

COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the USACE for the permanent actions associated with this project.

Action Taken/Required:

The Contractor will comply with all requirements contained in the Section 404 Permit.

The Contractor will also be responsible for obtaining a Section 404 Permit for any dredge, excavation, or fill activities associated with material sources, storage areas, waste sites, and Contractor work sites outside the plan work limits that affect wetlands, floodplains, or waters of the United States.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULTZ
SOUTH DAKOTA
2025-06-06

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 15 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 165 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of “Unclassified Excavation”.

Temporary fence and/or permanent fence will be placed ahead of the grading operation unless otherwise directed by the Engineer.

TYPE I FIELD LABORATORY

The lab will be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection will be provided with a multi-port wireless router. The internet connection will be a minimum speed of 10 Mbps unless limited by job location and approved by the DOT. Prior to installing the wireless router, the Contractor will submit the wireless router’s technical data to the Area Office to check for compatibility with the state’s computer equipment. The internet connection is intended for state personnel usage only. The Contractor’s personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. These items will be incidental to the contract unit price per each for “Type I Field Laboratory”.

UTILITIES

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

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 will contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

EXPLORATORY EXCAVATION

There are several private and public utilities located within the extents of the I-90 Business Loop and Interstate ROW that may be found within the excavation limits as illustrated in the plans.

The location of these utilities as illustrated in the plans are approximate and provided for reference only. It is the Contractor’s responsibility to coordinate with South Dakota One Call and the utility owners, as noted above to avoid damage to existing facilities.

An estimated 12 Hours of time has been included in the estimate of quantities to compensate the Contractor for “Exploratory Excavation” to aid in efforts to locate these underground utilities within the excavation limits.

UNCLASSIFIED EXCAVATION

Plan quantities will be the basis of payment for Unclassified Excavation.

Excavation required to complete the deep pipe culvert removal and preparation for the installation of the parallel culvert pipe will be paid for at the contract unit price per cubic yard for “Unclassified Excavation”.

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Exc. for Deep Pipe Removal	12,048
Total	12,048

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity will be used for final payment and the plans quantity of Topsoil and salvaged surfacing items listed in the Table of Unclassified Excavation will not be adjusted according to field measurements.

The following paragraph pertains to general earthwork information and information in regard to computing the Unclassified Excavation quantity when final cross sections are taken in the field:

The volume of in-place Asphalt Surfacing removed will NOT be paid for as Unclassified Excavation.

The excavation quantities in the Table of Unclassified Excavation have been reduced by the volume of in-place Asphalt Surfacing that will be removed.

ASPHALT CONCRETE PAVEMENT REMOVAL

An estimated 944 cubic yards of the in-place asphalt concrete surfacing will be removed from the existing I-90 Business Loop highway according to the in-place surfacing typical sections and wasted as directed by the Engineer.

The quantity of removed asphalt material is estimated from the in-place typical sections. This estimated quantity is not included in the unclassified excavation quantities.

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
1556+37		1558+35	L/R	944.0
			Total:	944.0

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULZ
SOUTH DAKOTA
2025-06-06

TOPSOIL

Topsoil is excluded from the Table of Unclassified Excavation. An estimated quantity of 1,316 (CuYd) is anticipated to be removed, salvaged, and replaced within the project extents. No measurement will be made for Topsoil excavation or placement.

All costs for removing topsoil and replacement of topsoil within the disturbed areas of the project will be incidental to the contract lump sum price for “Remove and Replace Topsoil”.

UNSTABLE MATERIAL EXCAVATION

Due to recent embankment failures at the upstream end of the existing pipe culvert unstable material may be encountered. However, the extent of unstable material is not known.

Any unstable material excavated on this project must be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Excavation of unstable material will be classified as Unclassified Excavation or Muck Excavation, as determined by the Engineer. When finaling a project, the Unstable Material Excavation quantity will be added to the associated Excavation quantity to compute both the Unclassified Excavation and Muck Excavation Quantity.

MUCK EXCAVATION

Muck material is anticipated to be encountered surrounding the downstream end of the existing pipe within the existing drainage channel.

The estimated quantity of 84 cubic yards of muck excavation will be paid for at the contract unit price per cubic yard for “Muck Excavation”.

Muck excavation consists of the removal of highly organic and/or highly saturated material. Highly organic muck material will not be used in the embankment but may be used as topsoil. Non-organic muck material may be used as embankment outside of the fill subgrade shoulder if it is properly handled and dried prior to placement in the embankment.

Field measurement of muck excavation will not be made unless the Engineer orders additional excavation, or when the Engineer determines, in accordance with Section 120.3 A.1 of the Specifications, that the classification of excavation be changed.

If the areas designated as muck excavation can be removed with similar equipment and procedures as used for unclassified excavation, the material will be measured and paid for as “Unclassified Excavation”.

INCIDENTAL WORK, GRADING

Removal of all pipe culvert segments will be incidental to the contract lump sum price for “Incidental Work, Grading”.

EXCAVATION FOR DEEP PIPE REMOVAL

Included in the quantity of “Unclassified Excavation” is 12048 cubic yards of excavation for removal of deep pipe culverts. Deep pipes are existing mainline pipes at depths of 10 feet or greater (measured from the flow line to the lowest elevation of either the existing ground line, undercut line, or bottom of removed or salvaged surfacing).

All work necessary to excavate and backfill the deep pipes including labor, equipment, and incidentals will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”. Payment for deep pipe excavation will be based only on plans quantity and measurement of these excavation quantities during construction will not be performed.

The quantities computed for excavation of the deep pipes are based on the limits shown in the drawing below. The drawing shows a box culvert for illustration purposes only; the limits are similar for a pipe.

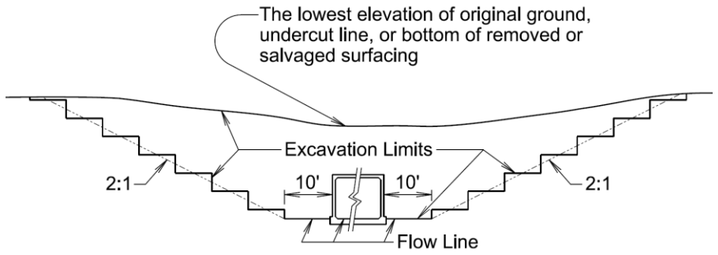


TABLE OF EXCAVATION FOR DEEP PIPE REMOVAL

Station	Location	Type	Quantity (CuYd)
133+89 (1557+40)	L (upstream)	Pipe	11,238
131+10	R (downstream)	Pipe	810
		Total:	12,048

* The excavation quantities above include excavation for the installation of the new 132” parallel pipe at Station 133+67 (1557+20).

TEMPORARY SLOPES

Temporary 1 ½:1 excavation slopes required for bore and jacked pipe will be unstable over the long-term. However, the slopes should remain globally stable over the short-term during construction if measures are taken to divert runoff away from the slope and construction activities are sequenced to minimize the amount of time the temporary excavation slopes are left exposed and unsupported. Regular monitoring of the temporary slopes is required during construction. If a temporary slope becomes unstable, excavation will cease, and the slope will be evaluated by the Engineer.

PIPE CULVERT UNDERCUT

The table below includes undercut for large diameter pipe culverts. The depth of undercut is an estimate and the actual depth necessary will be determined during construction. Pipes listed may or may not require undercutting. The Engineer will determine which pipes will be undercut in accordance with Section 421 of the specifications.

Station	Undercut Depth (Ft)	Pipe Culvert Undercut (CuYd)	Granular Material (Ton)
133+57	2	454	467
	Totals:	454	467

Granular material may be required for backfilling the pipe culvert undercut areas where site conditions warrant. Granular material will conform to the gradation requirements in Section 421.2.A of the Specifications and will be paid for at the contract unit price per ton for “Granular Material”. A quantity of 467 tons of granular material is included in the estimate of quantities for use where it is determined to be needed. The quantity will be adjusted or eliminated by construction change order, depending on field conditions.

CLEANOUT FOR CULVERT TREATMENT

Cleanout of pipe culvert will be done in advance of the culvert lining.

Due to a recent (partial) pipe failure at the upstream end of this pipe in conjunction with the age of the pipe, it is anticipated that sedimentation has accumulated within the pipe invert that must be removed as part of the cleanout process.

Field investigation of the pipe invert conditions was indeterminate as a majority of the pipe invert was submerged during inspection.

Material in the existing pipe culvert will be cleaned out by water flushing or other approved methods.

Material removed from the pipe culvert will become property of the Contractor for disposal.

The Contractor will implement appropriate sediment control measures prior to water flushing to prevent discharges from the project boundaries.

The pipe culvert will be cleaned to the satisfaction of the Engineer.

All costs to dewater, clean pipe, and dispose of removed materials will be incidental to the contract lump sum price for “Cleanout for Culvert Treatment”.

LiDAR PRECONSTRUCTION SURVEY

Following the cleanout pipe activity, the existing 132” multi-plate Corrugated Metal Pipe (CMP) culvert must be inspected by the Contractor to determine inside pipe conditions, invert stability, and inside pipe dimensions to verify the specified diameter of the slipliner can be accommodated within the host pipe.

Survey documentation of the inspection must be provided to the Engineer within 14 days following the inspection.

A multi-sensor inspection survey such as a LiDAR pipe scan or laser profiling must be collected, processed, and submitted to the Engineer in LAS or LAZ format.

A summary memo containing the findings of the multi sensor inspection survey must also be prepared by the contractor and accompany the electronic file deliverable. The summary memo must be submitted in PDF format.

All work necessary to survey, process, and deliver the electronic data and summary memo including labor, equipment, and incidentals will be incidental to the contract lump sum price for “LiDAR Preconstruction Survey”.

CONTROLLED DENSITY FILL FOR PIPE

Controlled density fill will be in conformance with Section 464 of the Specifications.

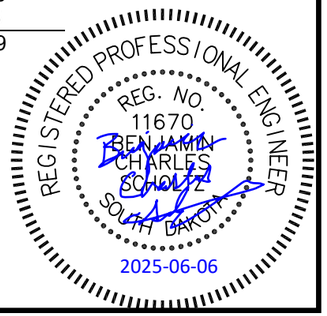
The controlled density fill will be placed between the pipes from the base of pipe elevation to the haunch of the pipes and extend to the back of the cutoff walls.

Controlled density fill between metal pipes will require the pipes to be anchored to resist floating. Anchoring methods will be determined by the Contractor and approved by the Engineer. Payment for anchoring the pipes will be incidental to the pipe installation contract item.

An additional quantity of controlled density fill has been included in the plan quantities for placement within the invert of the existing 132” host pipe to fill voids within the pipe invert and provide for a smooth surface to support the installation of the slipliner.

TABLE OF CONTROLLED DENSITY FILL FOR PIPE

Station	Location	Quantity (CuYd)
134+48	L (Upstream)	594
131+30	R (Downstream)	140
Pave Pipe Invert	L/R	65
Total:		799



PIPE SCHEDULE

	108” Diameter		132” Diameter	
	Open Cut [1]	Trenchless Rehab (Slip line) [2]	Open Cut [1]	Trenchless Installation [2]
Pipe Length	170 LF	516 LF	160 LF	526 LF
Allowable Pipe Material	Steel			

Notes:

1. All Open Cut pipe work to be performed through the I-90 Business Loop only
2. All Trenchless work (slip line rehab & boring/tunneling) to be performed through (beneath) I-90

PIPE MATERIALS

Steel Pipe (Open Cut)

Steel pipe will meet the same requirements, including pipe specifications, welding and coal tar epoxy coating as the steel pipe used in the trenchless installation.

Pipe wall thickness will be determined by pipe manufacturer based on installation loadings and final buried conditions loadings.

- 1/2” minimum wall thickness for 132” steel pipe
- 3/8” minimum wall thickness for 108” steel pipe

Steel Pipe (Trenchless)

Steel pipe for trenchless installation will meet the requirements of AWWA C200, ASTM A252 Grade 3, or ASTM A1097. Hydrostatic testing will not be required for this application.

The exterior of the steel pipe will be coated with a fusion bonded epoxy coating and an abrasion resistant overcoat or a two-component coal tar epoxy. The coal tar will meet the requirements of Sherwin-Williams Targuard, Tnemec Hi-Build Tnemec-Tar, or an approved equal. Applications of the coatings will be in conformance with the manufacturer’s recommendations.

The pipe joints may be mechanically connected with watertight seal such as Tri-Loc, Permalok, or Engineer approved equal, or must be welded by a certified welder in accordance with Section 410.3 D of the Specifications and shall be qualified in Position 5G . After the welding has been completed, the exposed area will be coated with 3M Scotchkote Liquid Epoxy 328 or a two-component coal tar epoxy meeting the requirements of Sherwin-Williams Targuard, Tnemec Hi-Build Tnemec-Tar, or an approved equal.

SPECIAL PROVISIONS

The following requirements are provided in the Special Provisions:

- Settlement Instrumentation and Monitoring
- Shaft Excavation and Support
- Contact Grouting
- Microtunneling
- Internal Inspection of Pipelines and Pipe Cleaning

PIPELINE UNDERCROSSINGS

Work will be conducted during dry weather period. The Contractor is responsible for providing conveyance capacity equal to the existing culvert for the duration of the construction period. Contractor may phase work as required to maintain drainage within work limits.

Observe work requirements stipulated in any permit condition.

Consult Contract Drawings for limitation of construction right-of-way.

The Contractor may be required to protect the downstream end of the crossing from flooding due to high river stage conditions through the use of cofferdams or other acceptable protective measures.

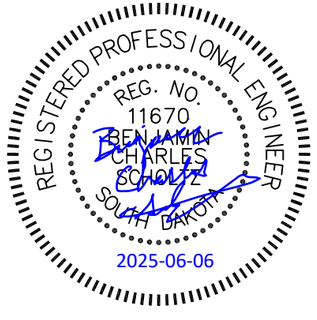
EXISTING PIPE REHABILITATION

Removal, replacement and rehabilitation of the existing pipe will be conducted as specified herein unless an alternate plan is submitted in writing and approved by the Engineer.

Slipline materials shall not be ordered until the existing pipe is cleaned, surveyed, and interior dimensions are verified.

Open cut extents will be limited to the I-90 business loop and must not impact the I-90 embankment.

The Contractor will provide pipe design signed and sealed by a SD registered professional engineer and require an independent check design. The design and check design must conform to the AASHTO LRFD Bridge Design Specifications and any requirements for jacking. The calculations must be submitted to the SDDOT Office of Bridge Design prior to construction.



SLIPLINE 108” PIPE

This work consists of installing a slip liner inside the existing pipe and grouting the void between the liner and the existing pipe.

The Contractor will slipline 516 feet of the existing 132” diameter CMP. The 132” in-place host pipe is fully deteriorated and the liner must be designed to take all pipe loading.

The Contractor will submit a proposed procedure for slip line installation, including the grouting procedure, to the Engineer at least two weeks prior to beginning this work.

The diameter specified in the bid item description is the minimum inside diameter of the new slip line pipe. The Contractor will provide the largest diameter slip line pipe that will fit into the existing pipe to maximize flow capacity.

Slipliner pipe will have a smooth interior surface.

Slipliner pipe will be joined into a continuous length with joints that are adequate to push or pull the liner pipe through the existing pipe that do not damage the slipliner pipe or the host pipe. The slipliner pipe will be clean and substantially dry before insertion. The joints will not allow seepage during pressure grouting. To allow for unrestricted insertion of the liner, the outside diameter of the liner pipe will not be increased at the joints.

Prior to sliplining, the Contractor will clean the existing pipe of all debris, silt, and obstructions to ensure that the slipliner pipe can be inserted. Refer to Special Provisions.

To minimize the change in flowline, slipliner pipe will be held down during the grouting operation. This may be accomplished by attaching fasteners or blocks at the top of the pipe, adding weight to the inside of the slipliner pipe, placing multiple grout lifts, or other means as approved by the Engineer.

Bulkheads will be constructed at each end of the pipe. Each bulkhead will be constructed to withstand the pressure of the grouting operation. The bulkhead will extend from the end of the existing pipe inward a minimum depth of 18 inches. The bulkhead will be free from leaks and the exterior surface will be given a smooth trowel finish.

Pressure grouting will be done to ensure all the voids are filled between the slipliner pipe and the existing pipe including all breaks or holes in and around the existing pipe. Grouting pressures used will ensure all voids are filled, but do not collapse or deform the slipliner pipe more than 5 percent of the diameter. Multiple grout lifts may be necessary to minimize pipe deflection in accordance with the pipe manufacturer’s recommendations.

TRENCHLESS PIPE INSTALLATION

Installation of a second pipe parallel to the existing pipe will be conducted as specified herein unless an alternate plan is submitted in writing and approved by the Engineer.

The Contractor must provide pipe design signed and sealed by a SD registered professional engineer and require an independent check design. The design and check design will conform to the AASHTO LRFD Bridge Design Specifications and any requirements for jacking. The calculations must be submitted to the SDDOT Office of Bridge Design prior to construction.

Trenchless methods include but are not limited to the following: Earth Pressure Balance Machine (EPBM) and Open Shield Pipe Jacking (OSPJ).

Steel casing will be installed horizontally through approximately 526 feet of embankment. The pipe will be placed through an approximate 23' - 46' vertical depth of silt clay embankment fill material. The parent formations from which the embankment materials were excavated include beds of shale, claystone, and sandstone. Large boulders are not anticipated to be encountered within the bore and jack envelope.

Borings were completed near the inlet, midpoint, and outlet of the proposed pipe in August 2022. Borings were advanced thru the I90 and I90 Business Loop embankments to a depth approximately 20 feet below the flowline of the proposed bore and jacked pipe. Borings indicated a varying thickness of shale derived embankment over shale wash (alluvium) and Niobrara Chalk at depth. Groundwater will be encountered in the bore and jack envelope. Dewatering will be required for bore and jack operations. (See subsurface sheet for soil and groundwater elevations).

Refer to Special Provisions for further guidance on Trenchless Pipe Installation.

CELLULAR GROUT

The Contractor will submit a proposed grouting procedure to the Engineer at least two weeks prior to beginning this work.

Bulkheads will be constructed at each end of the pipe. Each bulkhead will be constructed to withstand the pressure of the grouting operation. The bulkhead will extend from the end of the existing pipe inward a minimum depth of 18 inches and will be free from leaks.

Pressure grouting will be done to ensure all the voids are filled including all breaks or holes in and around the existing pipe.

The grout will be a cellular grout (grout with pre-generated foam) with a minimum 28-day compressive strength of 100 pounds per square inch. If water is not present within the pipe a low-density grout with a minimum of 30 pounds per cubic foot wet density may be used. When it is not possible to dewater the existing pipe, a high-density grout with a minimum of 70 pounds per cubic foot will be used which may include approved sand. The foaming agent used will meet the requirements of ASTM C869 when tested in accordance with ASTM C796.

Both of the cellular grout mix designs will be submitted to the SDDOT Concrete Engineer for approval prior to use. The mix design submittal will include the base cement slurry mix per cubic yard, expansion factor from the foaming agent, and the cellular grout wet density (pounds per cubic foot).

The Contractor will install a bypass valve adjacent to the location where the pressure grouting hose is attached for obtaining samples to be checked for wet density. The wet density of the cellular grout will be checked by the Contractor to verify the proper minimum wet density before the cellular grout filling operations begin and at a minimum once every two hours during production. The SDDOT will document the results of the density checks.

Cellular grout will be wasted until the cellular grout meets the minimum wet density required; however, if 0.5 cubic yards or more of base cement slurry is wasted trying to meet density requirements, then that quantity will not be included for payment.

If grout holes are utilized, cylindrical wooden plugs or other approved plugs will be inserted to plug holes until the grout has set. After the plugs are removed the holes will be filled with concrete.

The quantity of cellular grout was estimated based on volume of the existing pipe and voids outside the existing pipe.

The quantity of base cement slurry ordered will be approved by the Engineer. The quantity of base cement slurry needed will be calculated to the nearest tenth of a cubic yard using the approved mix design, expansion factor of the foaming agent, and estimated amount of cellular grout. The quantity for payment to the nearest tenth of a cubic yard of "Cellular Grout" is a calculated quantity based on the amount of base cement slurry used on the project to the nearest tenth of a cubic yard, expansion factor of the foaming agent, and approved mix design.

All costs for furnishing and installing the cellular grout including bulkhead construction, inlet bevel construction, and incidentals necessary to satisfactorily complete the work will be included in the contract unit price per cubic yard for "Cellular Grout".

TABLE OF CELLULAR GROUT

Station		Quantity (CuYd)
132+50		690
	Total:	690

The quantity at each location includes an additional 15% to account for void volume outside the existing pipe.

TABLE OF RIPRAP AND DRAINAGE FABRIC

Station	L/R	Class E Riprap (Ton)	Type B Drainage Fabric (SqYd)
130+91	R	851.4	202
	Totals:	851.4	202

TEMPORARY FENCE

The Contractor will verify the location of the temporary fence with the landowner prior to installation of the fence.

BRACE PANELS FOR ROW FENCE

The E-Z Brace or an approved equal may be utilized as an alternate horizontal brace in the brace panels if approved by the Engineer. The E-Z Brace will be attached to each wood post utilizing two 5/16" x 3" lag screws. Holes of appropriate diameter, based on wood post condition, will be drilled before placement of lag screws. The following is the contact regarding the E-Z Brace:

Charlie Mack
Macksteel E-Z Braces
415 20th Ave. SE.
Watertown, SD 57201
605-882-2177

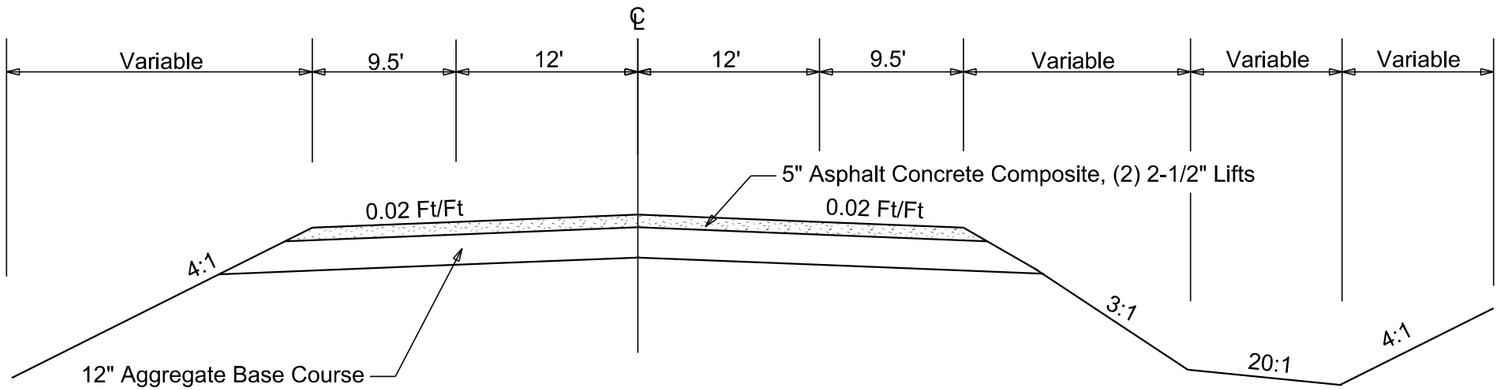
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULTZ
SOUTH DAKOTA
2025-06-06

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	11	44

FOR BIDDING PURPOSES ONLY

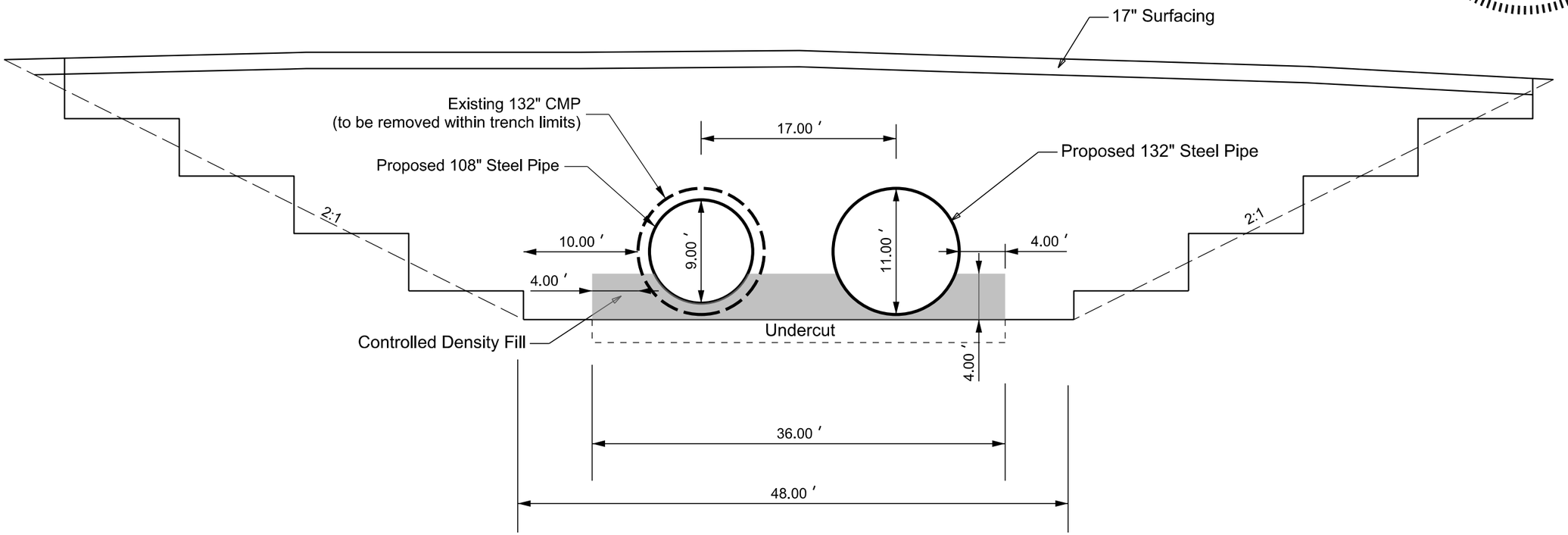
TYPICAL SURFACING SECTION

I-90 Business Loop
Sta. 1556+43 to Sta. 1558+29

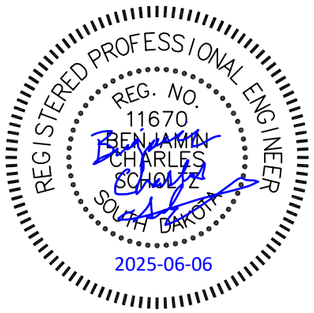


TYPICAL GRADING SECTION

I-90 Buisness Loop, Pipe Trench Excavation



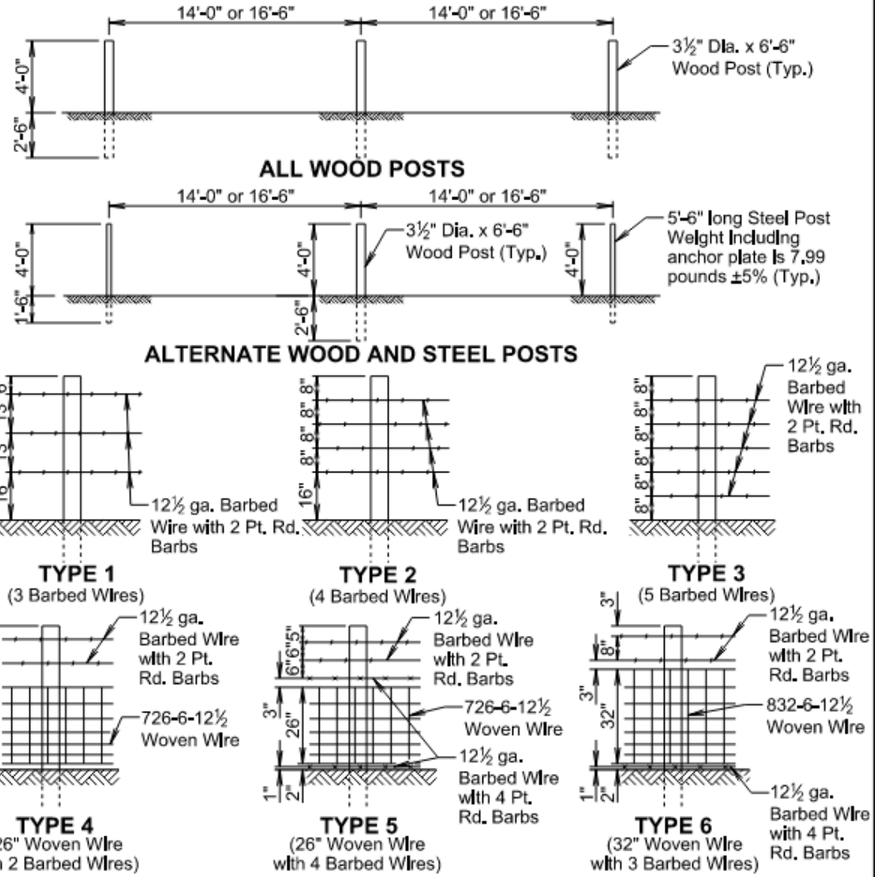
Plotting Date:



FENCE QUANTITIES

Station to Station		Side (L/R)	Remove Fence (Ft)	Temporary Fence Type 1 (Ft)	Right-of-Way Fence Type 2 (Ft)	6' Chain Link Fence with Tension Wire Top (Ft)	Chain Link Fence Post (Each)	Post Panels 2 Post Panel (Each)
124+00	125+33	R	136			136	2	
133+44	138+90	L	546	942	546			3
		TOTALS:	682	942	546	136	2	3

Post Type and Sequence:
Right-of-way fence will be constructed using alternate wood and steel posts except as noted.



TYPE OF FENCE		LINE POST SPACING	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION		WIRE GAGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12½	2 Point Round	—
2	4 Barbed Wires	16'-6"	12½	2 Point Round	—
3	5 Barbed Wires	16'-6"	12½	2 Point Round	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12½	2 Point Round	726-6-12½
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12½
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	832-6-12½

GENERAL NOTES:

Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All radius of curvature stated for fence are at centerline of roadway.

April 8, 2025

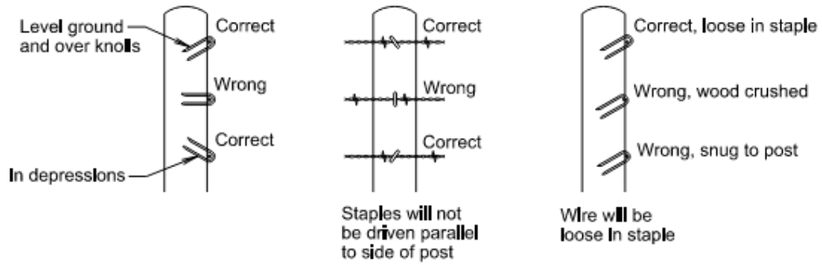
Published Date: 2026

SDDOT

RIGHT-OF-WAY FENCE

PLATE NUMBER 620.01

Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence will consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire will be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts will be used for brace panels. Gates will be of the type designated in the plans or as otherwise directed by the Engineer. Fence will be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects will be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs will be fabricated from zinc coated 14 ga. wire. Two point barbs will be wrapped twice around one main strand at four-inch spacings and the four point barbs will be interlocked and wrapped around both main strands at five-inch spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

June 26, 2019

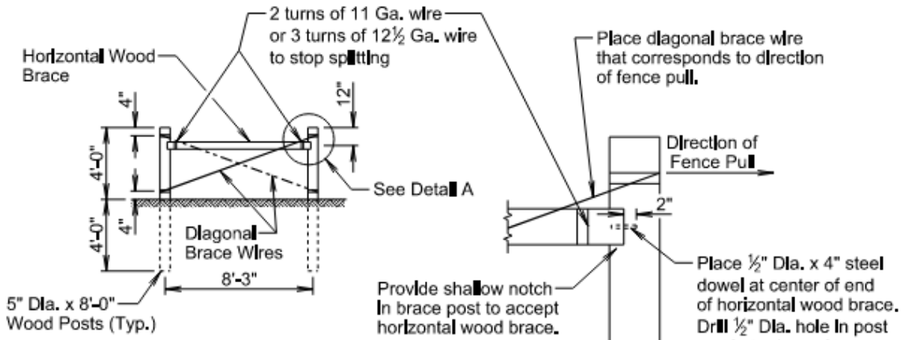
Published Date: 2026

SDDOT

STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES

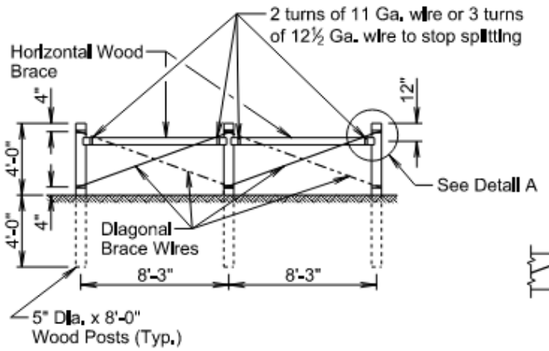
PLATE NUMBER 620.02

Sheet 1 of 1

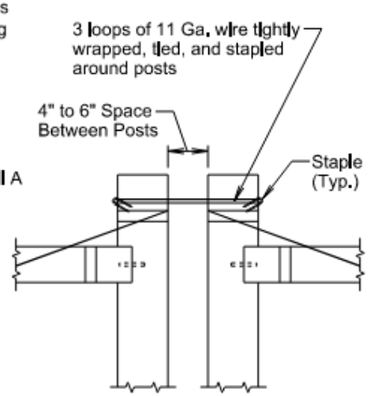


ELEVATION VIEW
(2 Post Panel)

DETAIL A



ELEVATION VIEW
(3 Post Panel)



DETAIL B

GENERAL NOTES:

Two Post Panels will be installed at least every 1320' between corners.

Two Post Panels will be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces will consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires will be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires will be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
RADIUS OF CURVE	SPACING OF 2 POST PANEL
Greater than 1800 Ft.	** 1320'
Less than 1800 Ft.	**At P.C., P.T., and at every 1320' between P.C. and P.T.

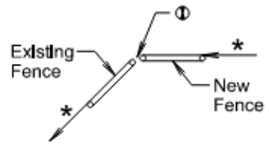
** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

① See Detail B on Sheet 1 of 3.

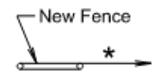
GENERAL NOTE:

All radius of curvature stated for fence are at centerline of roadway.

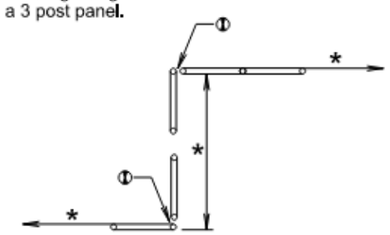
If fence length is less than 600' to next corner use a 2 post panel.
* If fence length is greater than 600' to next corner use a 3 post panel.



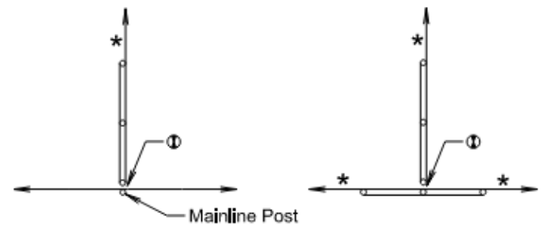
BEGIN OR END FENCE
(Where new fence ties into existing fence)



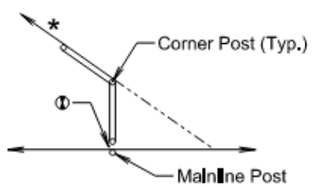
Open ended fence no existing fence

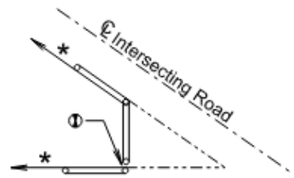


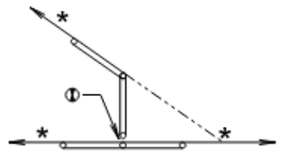
SHORT JOGS IN FENCE



CROSS FENCE

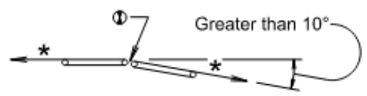






SHARP ANGLES IN CROSS FENCE

Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.

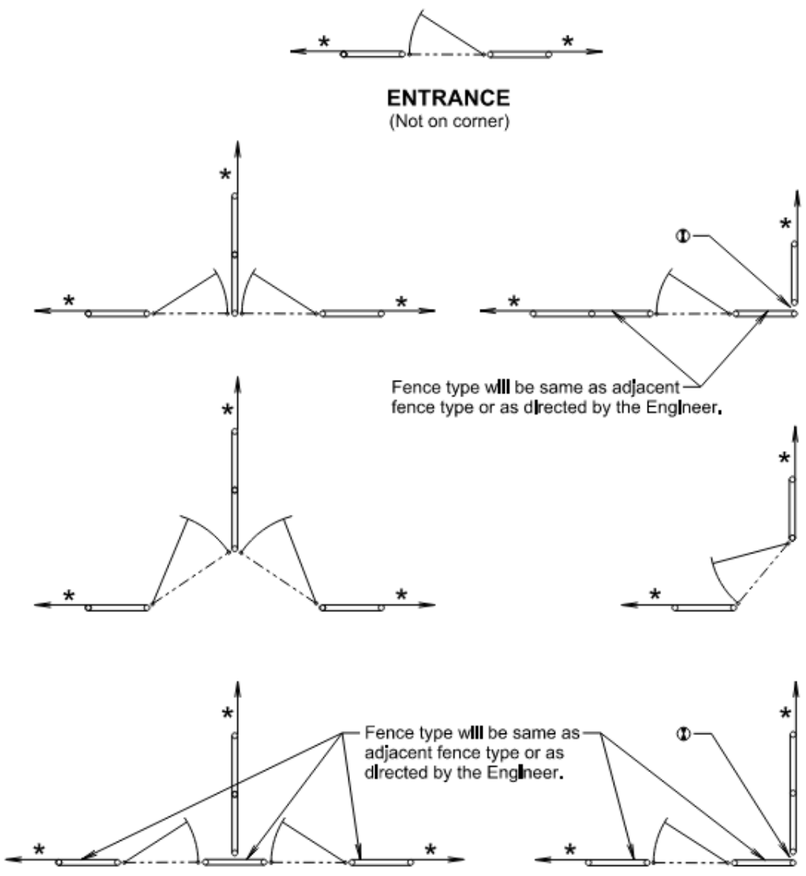


Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 2 of 3



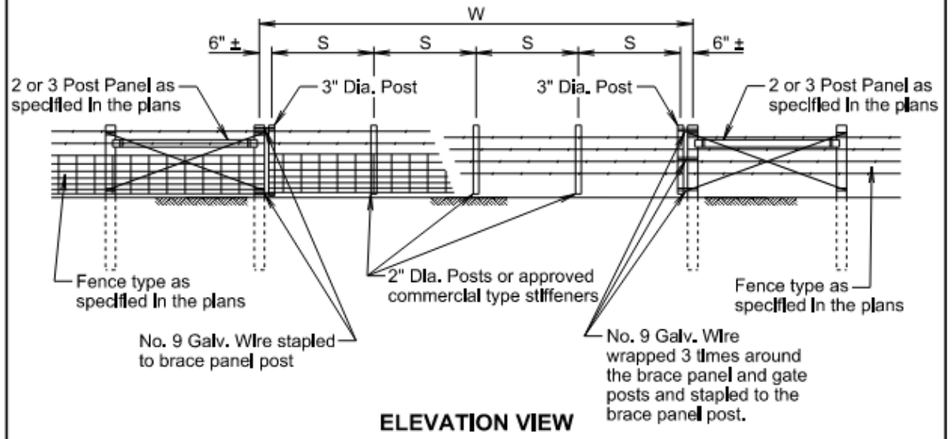
GATES

* If fence length is less than 600' to next corner use a 2 post panel.
If fence length is greater than 600' to next corner use a 3 post panel.

① See Detail B on Sheet 1 of 3.

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 3 of 3



ELEVATION VIEW

W Gate Width (Ft.)	S Post Spacing
16	3 @ 5'-0" ±
20	4 @ 4'-9" ±
24	4 @ 5'-9" ±
30	5 @ 5'-10" ±
40	6 @ 6'-6" ±

GENERAL NOTES:

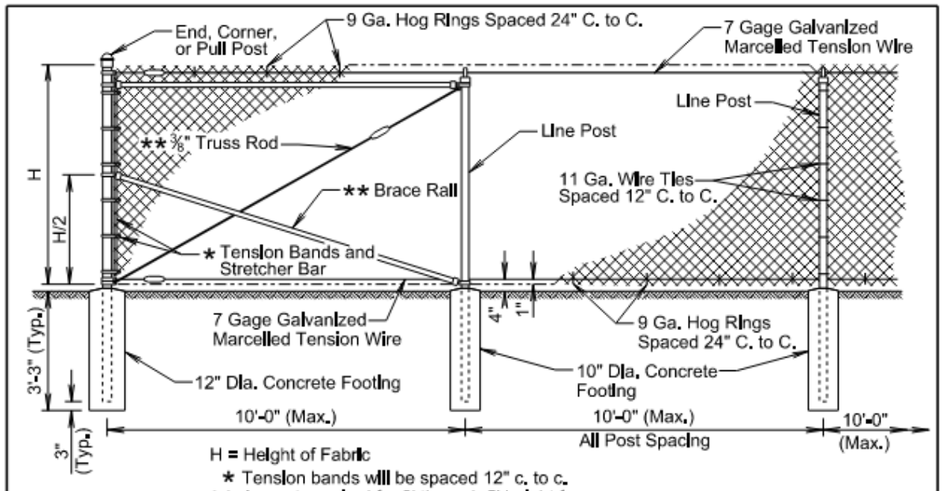
Creosote treatment of the gate posts will not be accepted.

The type of fencing in the gate will be of the same type as specified for the adjacent Right-of-Way fence.

All costs for furnishing and constructing the wire gate(s) will be incidental to the contract unit price per foot for the respective Right-of-Way fence contract item.

June 26, 2019

Published Date: 2026	SDDOT	WIRE GATES	PLATE NUMBER 620.20
			Sheet 1 of 1



H = Height of Fabric
* Tension bands will be spaced 12" c. to c.
** Are not required for 3' through 5' height fences.
⬭ Tightening device such as shown on standard plate 621.03

COMPONENT	END, CORNER, and PULL POST		LINE POST			BRACE RAIL	
Type of Fabrication	Round Pipe Nominal	Roll Formed Steel	Round Pipe Nominal	"C" Section	H Beam Steel	Round Pipe Nominal	Roll Formed Steel
Size	3.00" O. D.	3.5"x3.5"	2.50" O. D.	1.875"x1.625"	2.25"x1.70"	1.625" O. D.	1.625"x1.25"
Weight (lb. / Ft.)	5.79 or 4.64	5.14	3.65 or 3.12	2.34	3.43	2.27 or 1.84	1.35

GENERAL NOTES:

Specific details of the component parts of the fence will be approved by the Engineer. Commercially available items produced specifically for the use intended will be used wherever possible in the construction of the fence.

Height of the fabric will be as shown in the plans. Fabric is available at the following heights: 36", 42", 48", 60", 72", 84", 96", 108", 120", and 144". Fabric heights 60 inches and less will be knuckled at both selvages. Fabric heights 72 inches and higher will be knuckled at one selvage and twisted at the other selvage.

Chain link fabric will be 2-inch mesh, No. 9 gage galvanized wire securely fastened to tension wire, line post, rails, braces, and stretcher bars.

Fence may be constructed with either round pipe, "C" section, "H" beam, or roll formed steel components as shown in the table above. Line posts may be round pipe, "C" section, or "H" beam. The corner post and rails will be either round pipe or roll formed steel. The type of components used must be approved by the Engineer prior to installation.

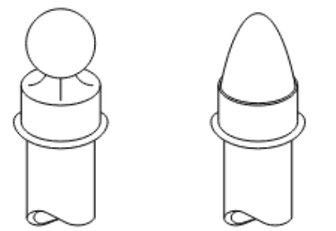
All posts will have a means to securely hold the top tension wire in position and allow for the removal and replacement of a post without damaging the top tension wire.

Where fence must cross small bodies of water such as drainage areas or ponds that could freeze during the winter, use 11 gage hog rings. Provide only two ties per tension wire between line posts.

Fence grounding will be as shown on standard plate 620.11.

November 19, 2022

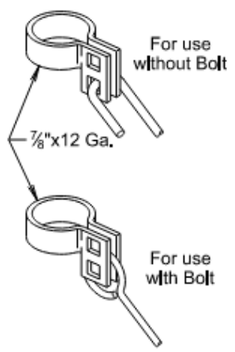
Published Date: 2026	SDDOT	CHAIN LINK FENCE WITH TENSION WIRED TOP	PLATE NUMBER 621.02
			Sheet 1 of 1



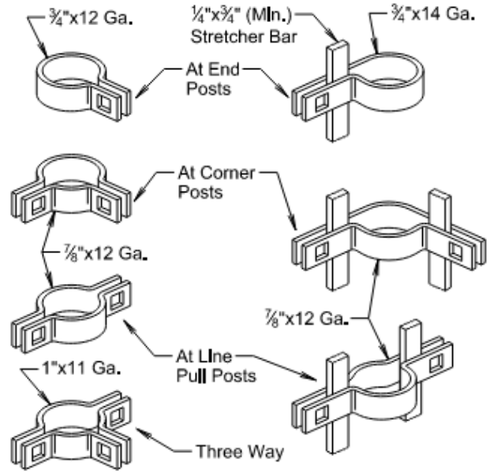
For End, Corner, and Pull Posts

TYPICAL POST TOPS
(Shown for example only)

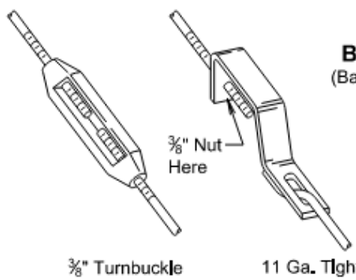
For Line Posts



BRACE AND TRUSS BANDS



BRACE BANDS **TENSION BANDS**
(Bands will be rectangular for "C" Section and "H" Beam Posts.)

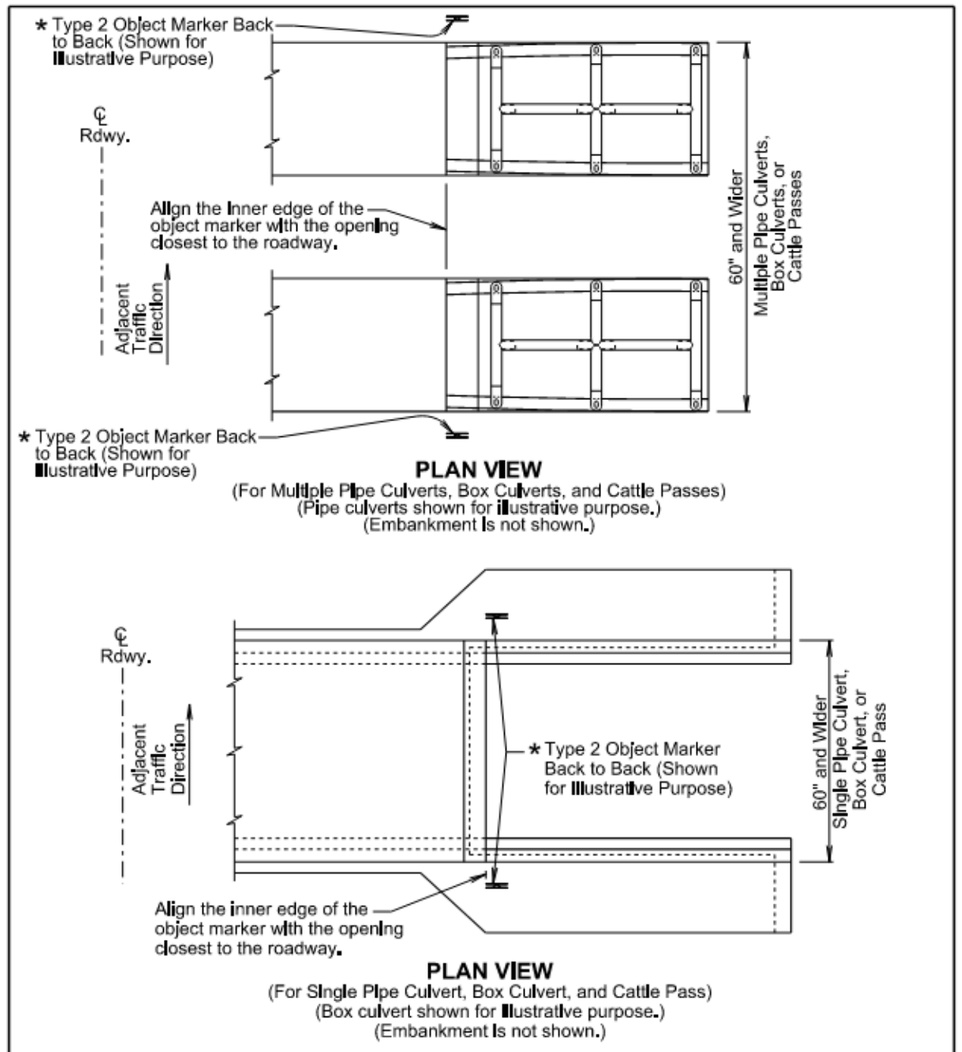


TIGHTENING DEVICES

RAIL ENDS

June 26, 2019

Published Date: 2026	SDDOT	HARDWARE FOR CHAIN LINK FENCE	PLATE NUMBER 621.03
			Sheet 1 of 1



GENERAL NOTES:

This standard plate will be used in conjunction with standard plate 632.01.

* The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

Published Date: 2026	SDDOT	TYPE 2 OBJECT MARKER AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES (60" and Greater Overall Width)	PLATE NUMBER 632.04 Sheet 1 of 1

LEGEND

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	18	44

Plotting Date:

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush/Hedge
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Concrete Symbol
- Control Point
- 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
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Miscellaneous
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Gutter
- Guy Pole
- Haystack
- 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 — OH —
- 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
- Retaining Wall
- Riprap
- River Edge
- Rock And Wire Baskets
- Rockpiles
- Satellite Dish
- Septic Tank
- Shrub Tree
- Sidewalk
- Sign Face
- Sign Post
- Slough Or Marsh
- Spring
- Stream Gauge
- Street Marker
- Subsurface Utility Exploration Test Hole
- Telephone Fiber Optics — T/F —
- Telephone Junction Box
- Telephone Pole
- Television Cable Jct Box
- Television Tower
- Test Wells/Bore Holes
- Traffic Sign Double Face
- Traffic Sign One Post
- Traffic Sign Two Post
- Traffic Signal
- Trash Barrel
- Tree Belt
- Tree Coniferous
- Tree Deciduous
- Tree Stumps
- 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 — T —
- Underground Television Cable — TV —
- Underground Water Line — W —
- Water Fountain
- Water Hydrant
- Water Meter
- Water Tower
- Water Valve
- Water Well
- Weir Rock
- Windmill
- Wingwall
- Witness Corner

- State and National Line
- County Line
- Section Line
- Quarter Line
- Sixteenth Line
- Property Line
- Construction Line
- ROW Line
- New ROW Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)

- Drainage Arrow

- Remove Concrete Pavement
- Remove Concrete Driveway Pavement
- Remove Asphalt Concrete Pavement
- Remove Concrete Sidewalk
- Remove Concrete Median Pavement
- Remove Concrete Curb and/or Gutter

- Detectable Warning
- Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULZ
SOUTH DAKOTA
2025-06-06

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	19	44

FOR BIDDING PURPOSES ONLY

133+91 R
Take Out 132" - 38' CMP
(Incidental Work, Grading)

134+52 L
Take Out 132" - 180' CMP
(Incidental Work, Grading)

133+64
Retain 132" - 516' CMP

130+91 - 262' R
Install Class E Riprap (851.4 Tons)
& Type B Drainage Fabric (202 SqYd)

132+31 (3.96 sq mi.)
Skewed 30° LHF
Trenchless 132"- 526' Steel Pipe
Install 132" - 160' Steel Pipe
and concrete cutoff walls
(See Structural Detail Sheet)

132+50 (3.96 sq mi.)
Skewed 30° LHF
Slipline 108"- 516' CMP
Install 108" - 170' Steel Pipe
and concrete cutoff walls
(See Structural Detail Sheet)

Linda L. Donahue 2019 Revocable Trust

S1/2 SE1/4
Section 18 - T104N - R71W

134+86-592'
137+12-592'
138+07-592'
138+90-592'

Parcel A3
Parcel 1
Parcel A3

1/4 Line
1/16 Line
Section Line

133+96-341' & 368'
133+44-341'
133+44 L
Begin Type 2 Fence 2 PP

134+80-341' & 368'
136+70-342'
2 PP
138+90-342'
138+90 L
2 PP End Type 2 Fence

OH

N60°00'27"E
N60°04'01"E
N59°58'38"E
Present Interstate 90 Business Loop

1540+00 1545+00 1550+00 1555+00 1560+00 1565+00 1570+00

N60°01'59"E
Present Interstate 90

120+00 125+00 130+00 135+00 140+00 145+00

125+33 R
End Chain Link Fence
1 P 1 P

124+00 R
Begin Chain Link Fence

124+00-254' & 400'
131+60-319' & 400'

Parcel A1
Parcel A2
Parcel 1

124+99-400'
125+70-272'
130+25-352'
131+09-400'

1/4 Line

State of South Dakota
(Department of Game, Fish & Parks)

NE1/4 NW 1/4
Section 19 - T104N - R71W

State of South Dakota
(Department of Game, Fish & Parks)

NW1/4 NE 1/4
Sec 19 - T104N - R71W

State of South Dakota
(Department of Game, Fish & Parks)

S1/2 SE 1/4
Sec 18 - T104N - R71W

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULTZ
SOUTH DAKOTA
2025-06-06

Plotting Date:

Parcel A1
124+00 to 125+70 R
Temporary Easement containing
0.5 ac, more or less

Parcel A2
124+99 to 131+09 R
Temporary Easement containing
0.7 ac, more or less

Parcel 1
130+25 to 131+60 R
Temporary Easement containing
0.2 ac, more or less

Parcel A3
133+44 to 137+12 L
Temporary Easement containing
0.7 ac, more or less

Parcel 1
133+44 to 138+07 L
Temporary Easement containing
1.2 ac, more or less

Parcel A3
136+70 to 138+90 L
Temporary Easement containing
0.9 ac, more or less

TRAFFIC CONTROL ESTIMATE OF QUANTITIES

Bid Item Number	Item	Total	Unit
260E3500	Temporary Gravel Surfacing	1,500.0	Ton
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	567.0	SqFt
634E0120	Traffic Control, Miscellaneous	1	LS
632E0275	Type 3 Barricade	12	Each
634E0330	Temporary Raised Pavement Markers	4,500	Ft
634E0420	Type C Advance Warning Arrow Board	4	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	60	Each
634E0700	Traffic Control Movable Concrete Barrier	60	Each
634E0750	Temporary Concrete Barrier End Protection	1	Each
634E0760	Temporary Concrete Barrier End Protection Module Set or Repair Kit	1	Each
634E1002	Detour and Restriction Signing	945.0	SqFt
634E1020	Temporary Business Signing	139.0	SqFt

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work.

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 pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.
At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment will be repaired at no expense to the Department.

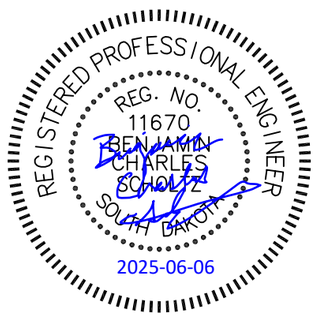
The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for "Traffic Control Signs".

If inappropriate or conflicting pavement markings exist, the markings will be removed and replaced with applicable temporary pavement markings when the work duration is more than 3 days. When the work duration is less than 3 days, the channelizing devices in the area where the pavement markings conflict will be placed at one-half of the normal channelizing device spacing. Pavement marking removals will be incidental to the contract unit price per foot for "Remove Pavement Marking, 4" or equivalent". Temporary pavement marking will be paid for at the contract unit price per foot for "Temporary Pavement Marking". The additional channelizing devices will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

Construction vehicles will exit or enter the construction work zone at locations identified by the Engineer. At no time will construction vehicles utilize the maintenance crossovers or the Interstate median to exit or enter Interstate traffic.

LANE CLOSURES

Lane closures are allowed to be installed only when installing or removing the temporary concrete barriers, mobilization, and temporary access road installation and removals. It is anticipated that four lane closures will be installed for the project.



DETOUR SIGNING

The Contractor will furnish and install the detour signs as shown in these plans. Prior to installing the signs, the Contractor will mark the sign locations and review them with the Engineer. Detour signs will be installed on fixed location, ground mounted, breakaway supports. It will be the responsibility of the Contractor to maintain and reinstall these signs during the project as required by the construction progress. Upon completion of the project, the Contractor will remove the detour signs.

All costs for furnishing the signs, posts, and mounting hardware, and for installing, maintaining, covering, and removing the detour signs will be incidental to the contract unit price per square foot for "Detour and Restriction Signing".

FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for "Flagging".

WORK ZONE SPEED REDUCTION

The Department is required to obtain a speed reduction resolution prior to the installation of any SPEED LIMIT (R2-1) signs shown on standard plate 634.63. To provide adequate time for the resolution to be enacted, the Contractor will inform the Engineer a minimum of 3 weeks prior to the scheduled installation of any work zone speed reduction signs on the project. The information provided by the Contractor will include the anticipated date of sign installation, the newly reduced speed limit, the location of the work zone, and the anticipated completion date of work requiring the speed reduction.

TEMPORARY RAISED PAVEMENT MARKERS

Temporary raised pavement markers will be used for marking edge lines, lane lines, and centerlines. Temporary raised pavement markers will be used on all new permanent surfacing sections of roadway and on existing surfacing where temporary marking locations are different than existing marking locations, unless noted or as directed by the Engineer.

Temporary raised pavement markers will be attached to the roadway surface with a flexible non-permanent bituminous adhesive capable of being removed from the roadway surface or with an adhesive approved by the Engineer.

All costs to furnish, install, replace if necessary, and remove the markers will be incidental to the contract unit price per foot for "Temporary Raised Pavement Markers".

TEMPORARY GRAVEL SURFACING (TRAVEL GRAVEL)

An estimated 1500 tons of Temporary Gravel Surfacing may be used on this project for the proposed 15' wide access road once all topsoil has been stripped or on the existing surface as determined necessary by the Engineer.

The Contractor will also be responsible for removing the temporary gravel surfacing from the site. This cost will be incidental to the contract unit price per ton for "Temporary Gravel Surfacing".

INCIDENTS

An incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic such as a crash, hazardous materials spill, or other event.

The Contractor will set up a meeting prior to start of work to plan and coordinate responses to an incident. The Contractor will invite the Department of Transportation, the South Dakota Highway Patrol, the Lyman County Sheriff and local emergency response entities to the meeting.

The Contractor will assist to maintain traffic as required by these plan notes and as agreed to at that meeting.

Emergency vehicle access through the project will be considered and discussed at the meeting.

The Contractor may be required to modify messages on portable changeable message signs or relocate portable changeable message signs, and to provide flaggers to direct or detour traffic. The Contractor should be prepared to relocate advance warning signs if determined to be necessary for a major traffic incident lasting more than two hours. Fixed location ground mounted signs may be covered and additional portable signs provided.

No additional payment will be made for the modification of portable changeable message sign messages or the relocation of portable changeable message signs. Cost for the relocation of an advance warning sign due to an incident will be 50% of the designated sign rate. Flaggers will be paid for at the contract unit price per hour for “Flagging”.

TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS

Concrete barriers will be provided by the State and are available for pickup from the SDDOT Chamberlain Maintenance Yard located at 1500 King Rd in Chamberlain. The barriers will be hauled back to the SDDOT Chamberlain Maintenance Yard when they are no longer needed on the project.

Barriers to be adjusted or moved will be disconnected from adjacent barriers to minimize damage to connecting pins. Pins damaged by the Contractor will be replaced at no cost to the Department.

Concrete barrier sections will be placed as depicted in the plans to comply with clear zone requirements and as required by the Engineer. The barriers will be pinned and bolted together as directed by the Engineer.

All costs associated with picking the barriers up from the SDDOT Maintenance Yard, transporting, setting, connecting, and hauling them back to the SDDOT Maintenance Yard will be incidental to the contract unit price per each for Traffic Control Movable Concrete Barrier.

After the initial placement, the concrete barriers may need to be adjusted. Adjustment of the barriers, where they do not need to be loaded on a truck for transport, will be incidental to the contract unit price per each for Traffic Control Movable Concrete Barrier.

TEMPORARY CONCRETE BARRIER END PROTECTION

Crash attenuators meeting the requirements of NCHRP 350 or MASH TL-3 will be furnished and installed by the Contractor. Attachment of the attenuators to the concrete barriers will be by approved methods.

All costs associated with furnishing, transporting, initial setup, connecting, maintaining, and removing the crash attenuators will be incidental to the contract unit price per each for Temporary Concrete Barrier End Protection.

All costs associated with moving and resetting crash attenuators to accommodate traffic flows after initial set-up will be paid for at the contract unit price per each for Remove & Reset Temporary Concrete Barrier End Protection. All costs associated with removing from initial placement and resetting at a new location will be incidental to the contract unit price per each. No additional payment will be made for crash attenuators that are not immediately reset at a new location on the project and stored on-site until they are either reset or removed from the project as determined by the Engineer. No additional payment will be made for minor adjustments.

The Contractor will have replacement hardware available so that in the event the crash attenuator is hit and made unusable, the crash attenuator can be made functional within 24 hours. The cost of replacement will be incidental to the contract unit price per each for Temporary Concrete Barrier Module Set or Repair Kit. No payment will be made for the Temporary Concrete Barrier Module Set or Repair Kit if no repairs are necessary. Upon completion of the project, crash attenuators will remain the property of the Contractor.

BARRIER MOUNTED LINEAR DELINEATION SYSTEM PANELS

A linear delineation system (LDS) panel will be attached to each barrier section. The color will be the same as the nearest pavement marking, white along outside edgelines or yellow for the left side on one way traffic sections. The LDS will be 34 inches long and 6 inches in height and be constructed of aluminum formed into a shape to provide retroreflective properties across a wide range of angles. It will be sheeted with sheeting meeting the requirements of ASTM D4956 Type XI. The panels will be evenly spaced, with the top of the panel 4 inches below the top of the barrier. Installation will be as per the manufacturer’s recommendations. This will allow for easy removal for replacement of damaged panels or to replace with an alternate color. The Contractor will furnish and install one panel along each side of the barrier if any panels are missing from the barriers. Replacement of damaged linear delineation system panels will be furnished and replaced by the Contractor. All costs associated with furnishing, installing, and replacing, if needed, will be incidental to the contract unit price per each for Linear Delineation System Panel, Barrier Mounted.

All LDS panels will remain attached to the barrier sections and will become the property of the State of South Dakota upon completion of the project.

The Contractor will verify the number of LDS panels that will need to be installed or replaced on the Traffic Control Movable Concrete Barriers. The contract amount of LDS panels is an estimate and the full contract amount may not be needed.

Maintaining the linear delineation system, including moving LDS panels from one side of the barrier to the other side of the barrier to match the applicable color of the nearest pavement marking will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

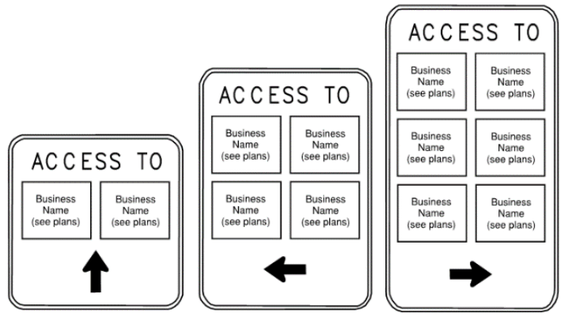
ACCESS TO BUSINESS SIGNS

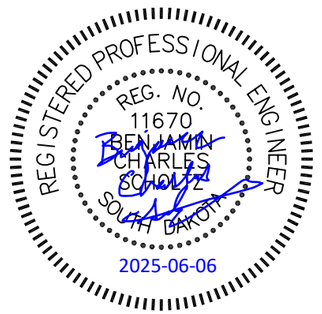
The Contactor will install the ACCESS TO business signs per the details and at the locations shown on the plans. Below are examples of these signs.

Business names shown on the ACCESS TO business signs may be requested to be changed or removed after the sign has been erected in the field. The business name lettering on the signs will be of material that easily allows for these changes.

At locations on the signs where a square on the sign has been left blank, it is intended that a business name can be added to this square after the sign has been erected in the field. The business name lettering on the signs will be of material that easily allows for these additions.

All costs for the ACCESS TO business signs will be included in the contract unit price per square foot for “Temporary Business Signing". This will include any changing, removing or adding of business names after the sign has been erected in the field.





I-90 Business Loop Detour

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	22	44

TABLE FOR DETOUR SIGNING (SqFt)

Sign Description	Symbol	Sign Code	Width (in)	Height (in)	Sign Quantity (SqFt)	I-90 Business Loop Detour No. of Signs	I-90 Business Loop Detour Total SqFt	Field Determined No. of Signs	Field Determined Total SqFt	Estimated Quantity* No. of Signs	Estimated Quantity* Total SqFt
DETOUR	A1	M4-8	24	12	2.0	13	26.0	2	4.0	15	30.0
EAST	B1	M3-2	24	12	2.0	8	16.0	2	4.0	10	20.0
WEST	C1	M3-4	24	12	2.0	7	14.0	2	4.0	9	18.0
END DETOUR	D1	M4-8a	24	18	3.0	2	6.0	2	6.0	4	12.0
LEFT ARROW	E1	M6-1L	21	15	2.2	6	13.1	2	4.4	8	17.5
RIGHT ARROW	F1	M6-1L	21	15	2.2	4	8.8	2	4.4	6	13.1
UP ARROW	G1	M6-3	21	15	2.2	2	4.4	4	8.8	6	13.1
UP-RIGHT SKEWED ARROW	H1	M6-2R	21	15	2.2	1	2.2			1	2.2
ARROW RIGHT W/ DETOUR	I1	M4-10R	48	18	6.0	1	6.0	2	12.0	3	18.0
I-90 BUSINESS LOOP SHIELD (WHITE ON GREEN)	J1	M1-2	24	24	4.0	12	48.0	2	8.0	14	56.0
ROAD CLOSED (WITH DISTANCE)	K1	W20-3	36	36	9.0			4	36.0	4	36.0
ROAD CLOSED	L1	R11-2	48	30	10.0	2	20.0	2	20.0	4	40.0
ROAD CLOSED TO THRU TRAFFIC	M1	R11-4	60	30	12.5	3	37.5	2	25.0	5	62.5
I-90 BUSINESS LP EAST CLOSED DOUGAN AVE TO RIVER ST... USE I-90	N1	SPECIAL	60	114	47.5	3	142.5	2	95.0	5	237.5
I-90 BUSINESS LP WEST CLOSED RIVER ST TO DOUGAN AVE... USE I-90	O1	SPECIAL	60	114	47.5	4	190.0	2	95.0	6	285.0
INTERSTATE SIZED DETOUR SIGNING (SqFt)											
DETOUR	P1	M4-8	30	15	3.1	4	12.5			4	12.5
EAST	Q1	M3-2	36	18	4.5	2	9.0			2	9.0
WEST	R1	M3-4	36	18	4.5	2	9.0			2	9.0
UP-RIGHT SKEWED ARROW	S1	M6-2R	30	21	4.4	2	8.8			2	8.8
UP-RIGHT ADVANCED SKEWED ARROW	T1	M5-2R	30	21	4.4	2	8.8			2	8.8
I-90 BUSINESS LOOP SHIELD (WHITE ON GREEN)	U1	M1-2	36	36	9.0	4	36.0			4	36.0
					Total		618.4		326.5		944.9

*Only the largest quantity installed during any phase plus the Field Determined Signs will be used for the estimated quantity.

TABLE FOR TEMPORARY BUSINESS SIGNING (SqFt)

Sign Description	Symbol	Sign Code	Width (in)	Height (in)	Sign Quantity (SqFt)	I-90 Business Loop Detour No. of Signs	I-90 Business Loop Detour Total SqFt	Field Determined No. of Signs	Field Determined Total SqFt	Estimated Quantity** No. of Signs	Estimated Quantity** Total SqFt
ACCESS TO... 4 BUSINESS SIGN	A2	SPECIAL	60	83	34.6	2	69.2	2	69.2	4	138.3
					Total		69.2		69.2		138.3

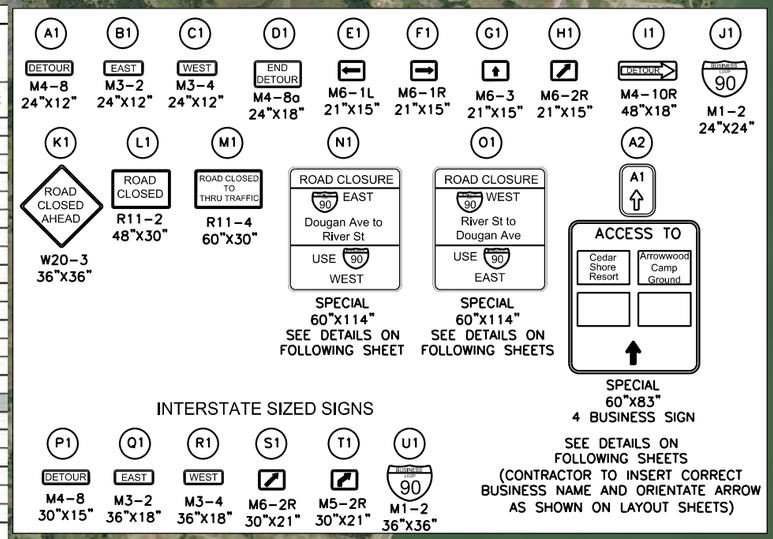
**Only the largest quantity installed during any phase plus the Field Determined Signs shall be used for the estimated quantity.

TYPE 3 BARRICADES, 8' DOUBLE SIDED

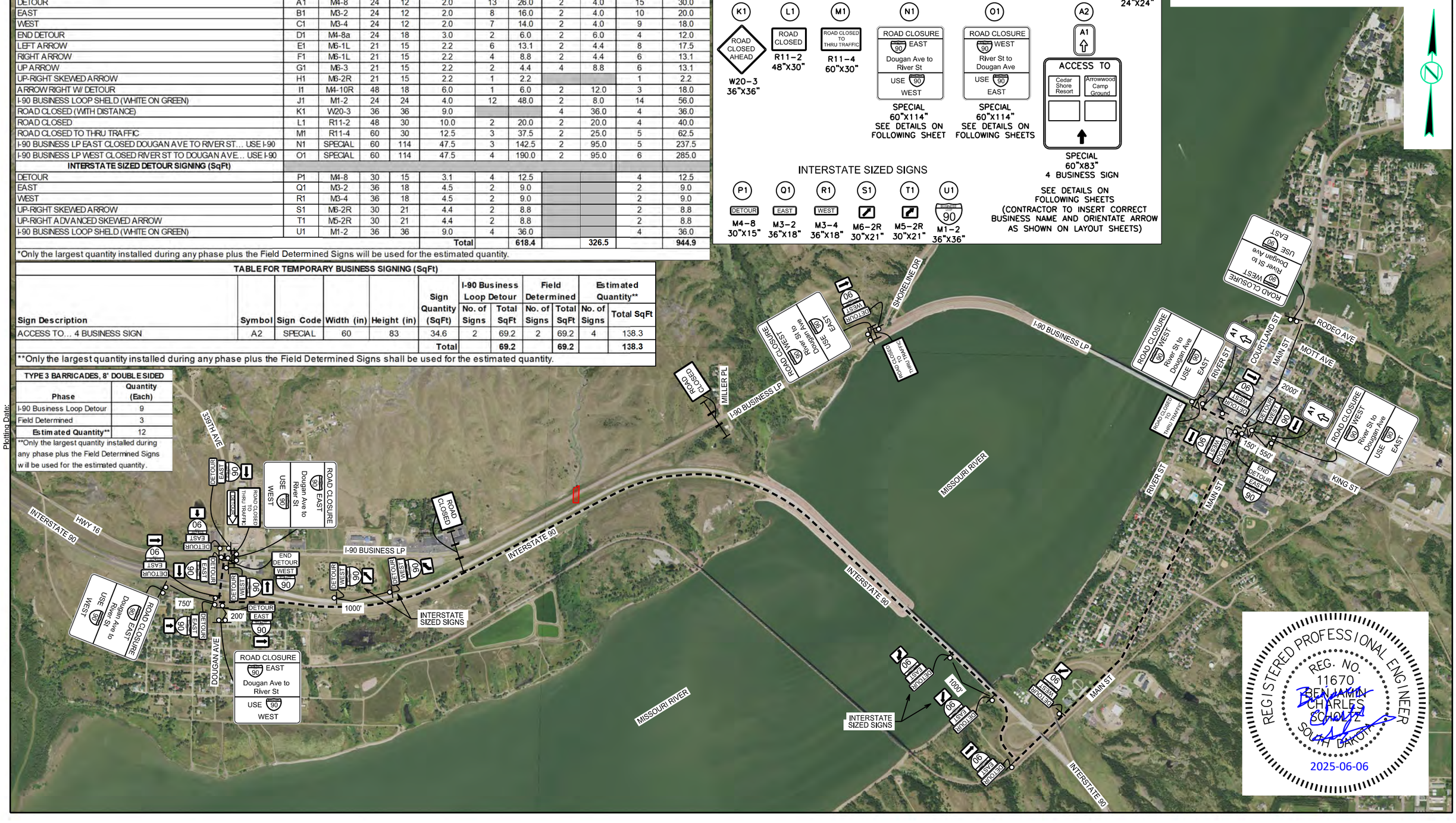
Phase	Quantity (Each)
I-90 Business Loop Detour	9
Field Determined	3
Estimated Quantity*	12

**Only the largest quantity installed during any phase plus the Field Determined Signs will be used for the estimated quantity.

Plotting Date:



SCALE IN FEET
0 750 1500



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHOLZ
SOUTH DAKOTA
2025-06-06

I-90 & 1-90 Business Loop
Traffic Control Layout

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	23	44

Plotting Date: 06-05-2025

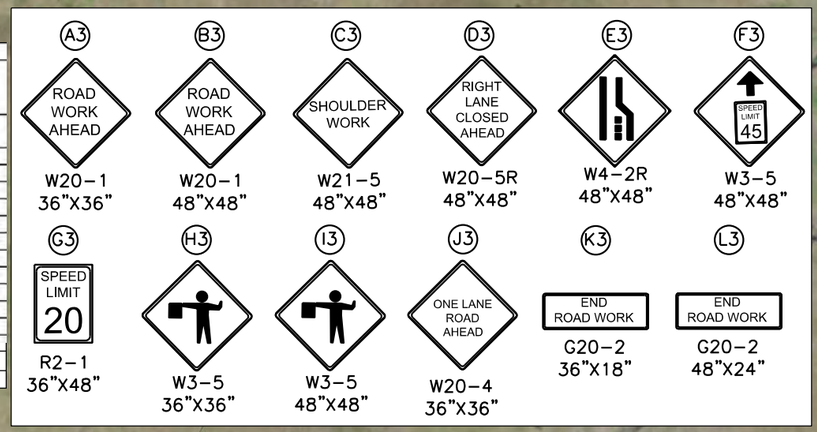
SCALE IN FEET
0 100 200

Plot Scale - 1:200

TABLE FOR TRAFFIC CONTROL SIGNS (SqFt)

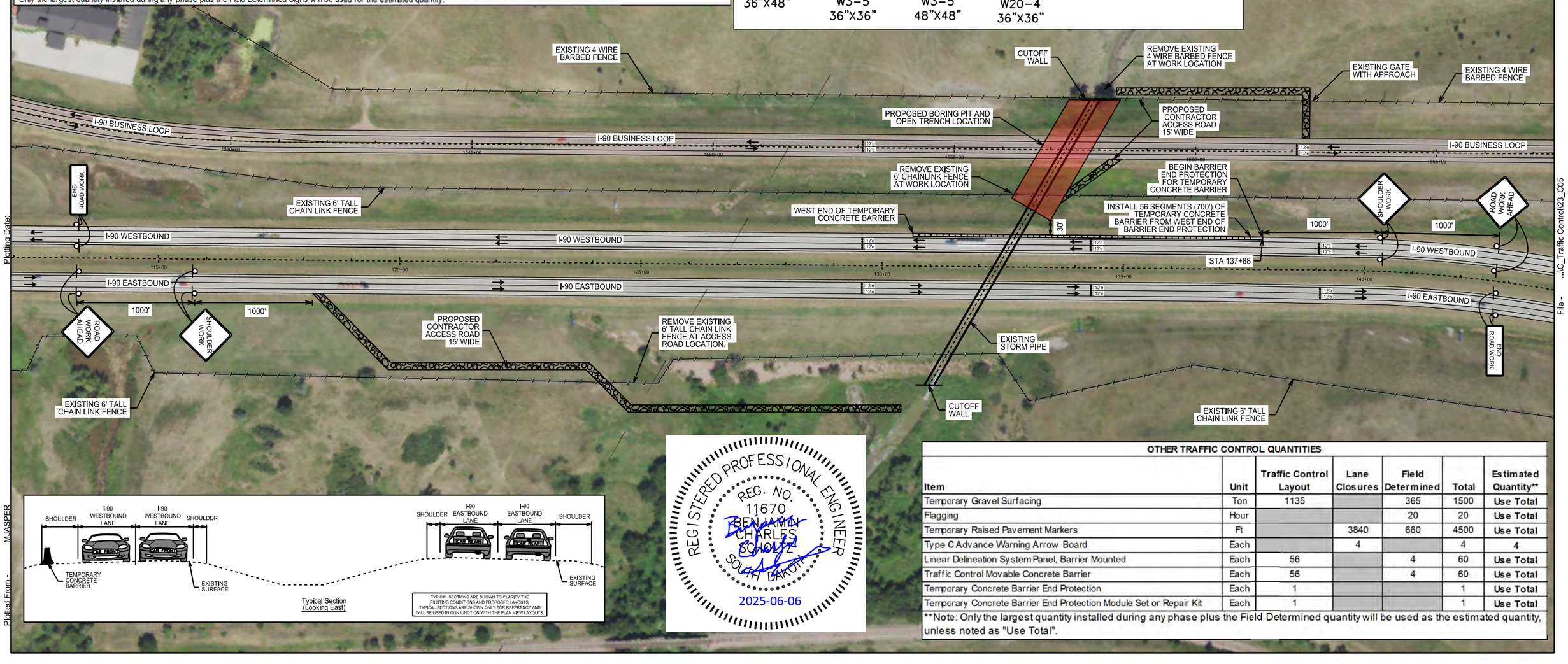
Sign Description	Symbol	Sign Code	Width (in)	Height (in)	Sign Quantity	Traffic Control Layout No. of Signs	Traffic Control Layout Total SqFt	Standard Plate 634.23 Lane Closures No. of Signs	Standard Plate 634.23 Lane Closures Total SqFt	Standard Plate 634.63 Lane Closures No. of Signs	Standard Plate 634.63 Lane Closures Total SqFt	Standard Plate 634.64 Lane Closures No. of Signs	Standard Plate 634.64 Lane Closures Total SqFt	Field Determined Signs No. of Signs	Field Determined Signs Total SqFt	Estimated Quantity* No. of Signs	Estimated Quantity* Total SqFt
ROAD WORK AHEAD	A3	W20-1	36	36	9.0			2	18.0							2	18.0
ROAD WORK AHEAD (FREEWAY)	B3	W20-1	48	48	16.0	4	64.0			2	32.0	2	32.0			4	64.0
SHOULDER WORK	C3	W21-5	48	48	16.0	4	64.0							2	32.0	6	96.0
RIGHT LANE CLOSED AHEAD	D3	W20-5R	48	48	16.0					2	32.0	2	32.0	2	32.0	4	64.0
RIGHT LANE ENDS	E3	W4-2R	48	48	16.0					2	32.0	2	32.0	2	32.0	4	64.0
REDUCE SPEED LIMIT AHEAD	F3	W3-5	48	48	16.0					2	32.0			2	32.0	4	64.0
SPEED LIMIT	G3	R2-1	36	48	12.0					2	24.0			4	48.0	6	72.0
FLAGGER (SYMBOL)	H3	W20-7	36	36	9.0			2	18.0							2	18.0
FLAGGER (SYMBOL) (FREEWAY)	I3	W20-7	48	48	16.0					1	16.0			2	32.0	3	48.0
ONE LANE ROAD (WITH DISTANCE)	J3	W20-4	36	36	9.0			2	18.0							2	18.0
END ROAD WORK	K3	G20-2	36	18	4.5			2	9.0							2	9.0
END ROAD WORK (FREEWAY)	L3	G20-2	48	24	8.0	4	32.0			2	16.0	2	16.0			4	32.0
					Total		**160.0**		**63.0**		**184.0**		**112.0**		**208.0**		**567.0**

*Only the largest quantity installed during any phase plus the Field Determined Signs will be used for the estimated quantity.



LEGEND

KEY	ITEM
	TRAFFIC FLOW
12'e 11'm	LANE WIDTH e = USE EXISTING LANE WIDTH m = MODIFIED LANE WIDTH
Front of Sign / Sign Post	SIGN LOCATION/ORIENTATION
	PROJECT CL
	CONSTRUCTION AREA



OTHER TRAFFIC CONTROL QUANTITIES

Item	Unit	Traffic Control Layout	Lane Closures	Field Determined	Total	Estimated Quantity**
Temporary Gravel Surfacing	Ton	1135		365	1500	Use Total
Flagging	Hour			20	20	Use Total
Temporary Raised Pavement Markers	Ft		3840	660	4500	Use Total
Type C Advance Warning Arrow Board	Each		4		4	4
Linear Delineation System Panel, Barrier Mounted	Each	56		4	60	Use Total
Traffic Control Movable Concrete Barrier	Each	56		4	60	Use Total
Temporary Concrete Barrier End Protection	Each	1			1	Use Total
Temporary Concrete Barrier End Protection Module Set or Repair Kit	Each	1			1	Use Total

**Note: Only the largest quantity installed during any phase plus the Field Determined quantity will be used as the estimated quantity, unless noted as "Use Total".

Plotting Date: MJASPER
Plotted From - ...\C_Traffic Control\23_C05
File -

Traffic Control Details

FOR BIDDING PURPOSES ONLY

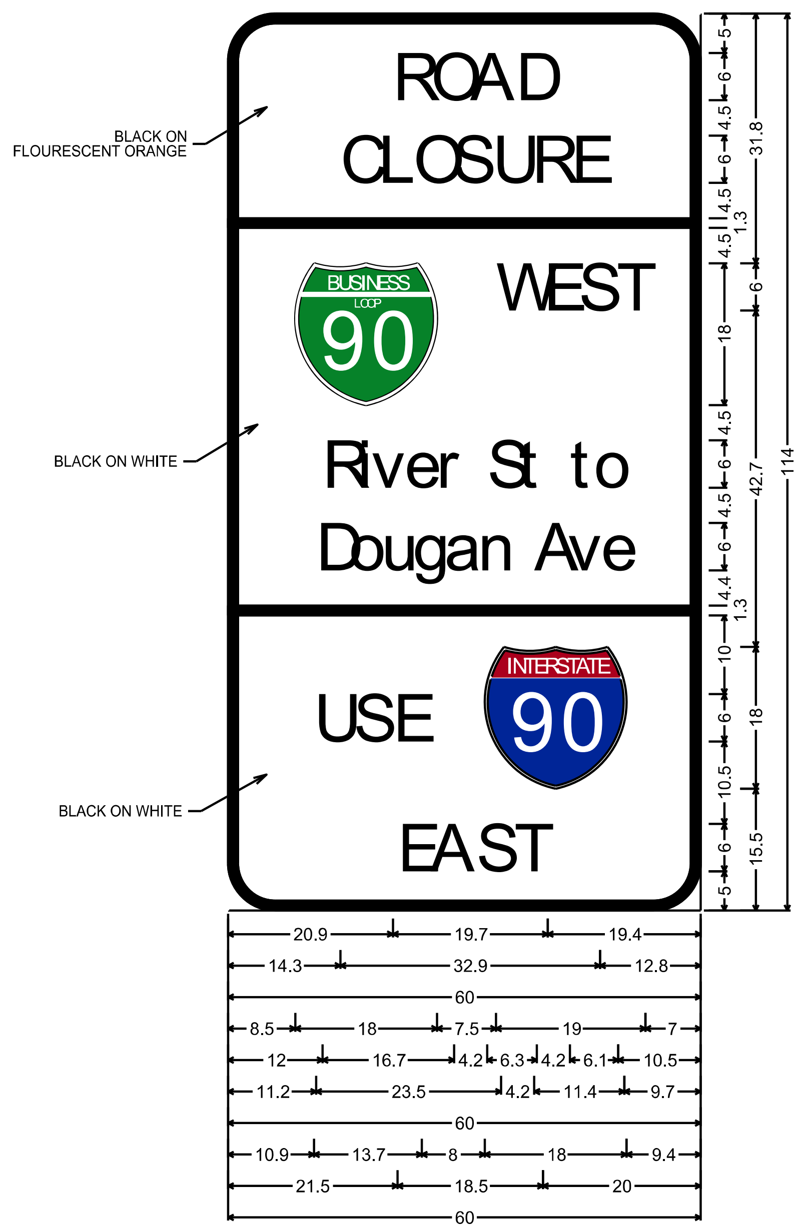


Table of distances between letter and object lefts

20.9	R 4.8	O 5.0	A 5.8	D 4.1	19.4					
14.3	C 4.8	L 4.4	O 5.0	S 5.0	U 5.1	R 5.0	E 3.6	12.8		
0.0	— 60.0	0.0								
8.5	[Business Loop 90 shield] 25.5	W 6.1	E 4.4	S 4.8	T 3.7	7.0				
12.0	R 4.4	i 1.8	v 4.2	e 4.1	r 6.4	S 4.0	t 6.5	t 3.1	o 3.0	10.5
11.2	D 4.2	o 4.1	u 4.0	g 4.0	a 4.2	n 7.2	A 4.3	v 4.2	e 2.9	9.7
-0.0	— 60.0	0.0								
10.9	U 5.0	S 5.0	E 11.7	[Interstate 90 shield] 18.0	9.4					
21.5	E 4.2	A 5.8	S 4.8	T 3.7	20.0					

6.0" Radius, 1.3" Border, Black on White;
"ROAD", D 70% spacing;
"CLOSURE", D 70% spacing;
"WEST", D 70% spacing;
"River St to", C 70% spacing;
"Dougan Ave", C 70% spacing;
"USE", D 70% spacing; "EAST", D 70% spacing;

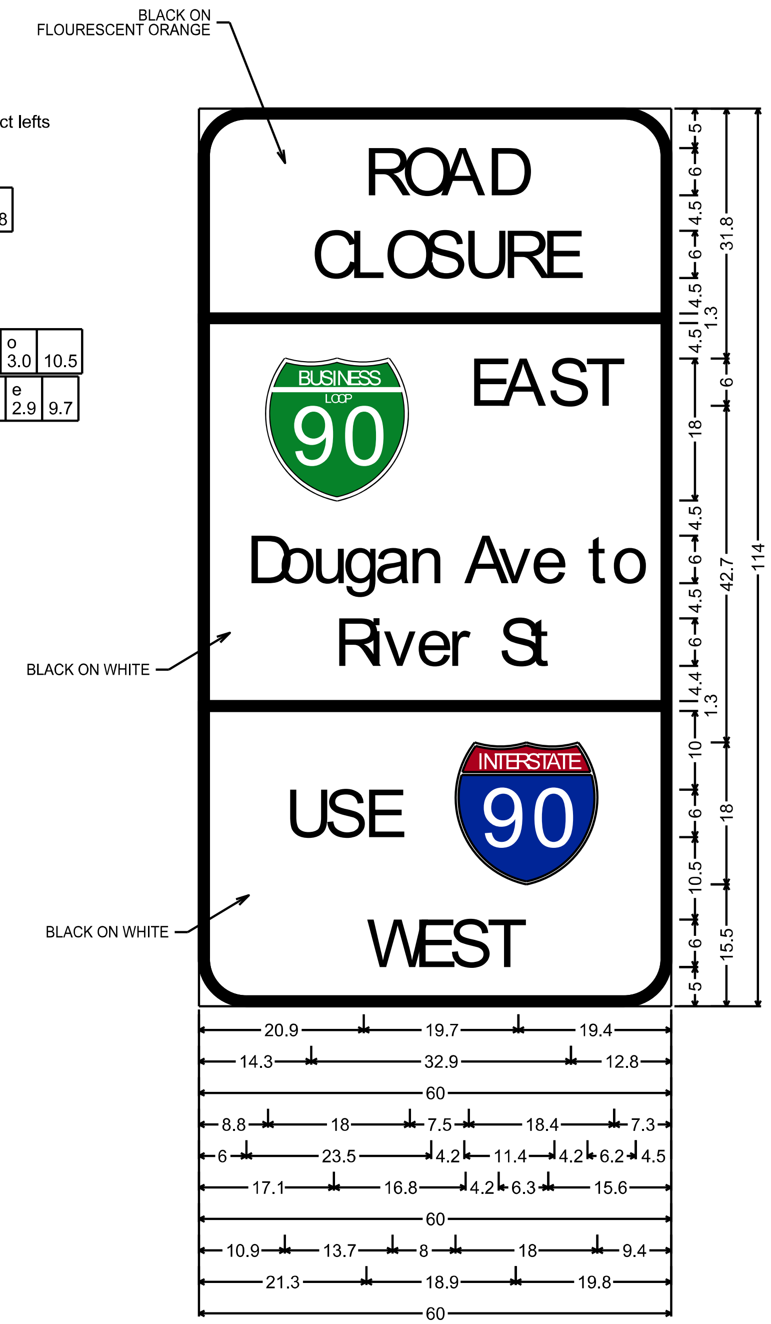
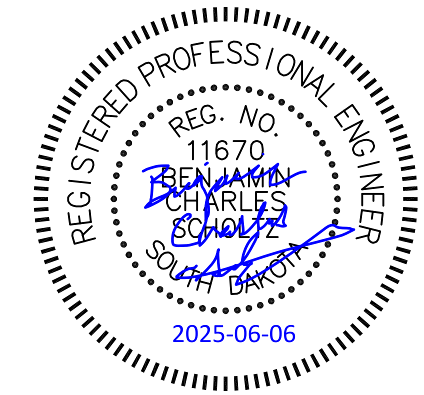
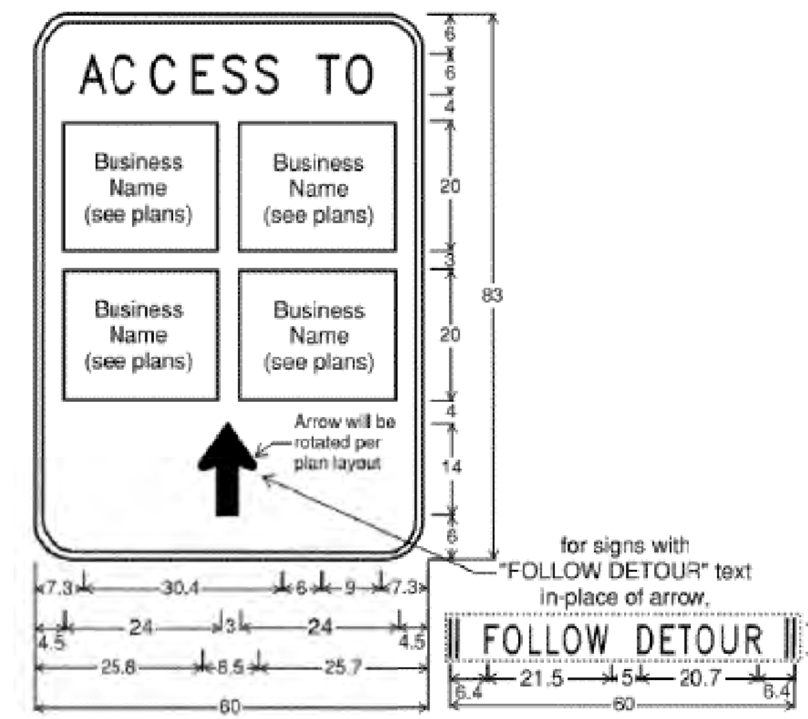


Table of distances between letter and object lefts

20.9	R 4.8	O 5.0	A 5.8	D 4.1	19.4							
14.3	C 4.8	L 4.4	O 5.0	S 5.0	U 5.1	R 5.0	E 3.6	12.8				
0.0	— 60.0	0.0										
8.8	[Business Loop 90 shield] 25.5	E 4.2	A 5.8	S 4.8	T 3.6	7.3						
6.0	D 4.2	o 4.1	u 4.0	g 4.0	a 4.3	n 7.1	A 4.3	v 4.2	e 7.1	t 3.1	o 3.1	4.5
17.1	R 4.5	i 1.8	v 4.2	e 4.0	r 6.5	S 4.0	t 2.3	15.6				
-0.0	— 60.0	0.0										
10.9	U 5.0	S 5.0	E 11.7	[Interstate 90 shield] 18.0	9.4							
21.3	W 6.0	E 4.5	S 4.8	T 3.6	19.8							

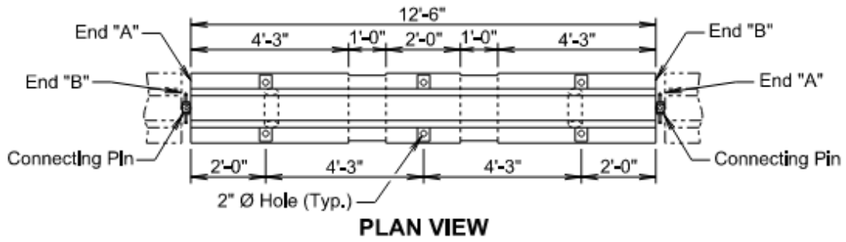
6.0" Radius, 1.3" Border, Black on White;
"ROAD", D 70% spacing;
"CLOSURE", D 70% spacing;
"EAST", D 70% spacing;
"Dougan Ave to", C 70% spacing;
"River St", C 70% spacing; "USE", D 70% spacing;
"WEST", D 70% spacing;



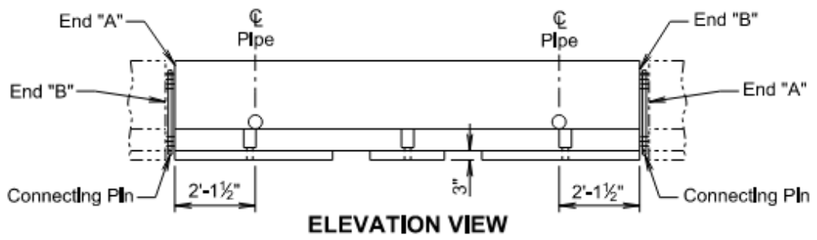


"FOLLOW DETOUR"
White Type C Font

6.0" Radius, 1.3" Border, White on Blue;
"ACCESS TO" White Type D Font;
0.5" White Outline for Rectangles;
4" White Type C Font within Rectangles;
White Standard Arrow Custom 14.0" X 8.5";



PLAN VIEW



ELEVATION VIEW

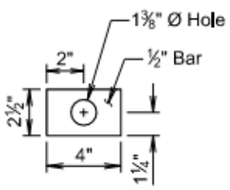
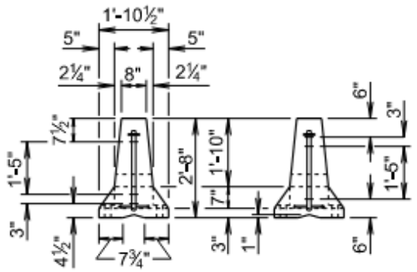
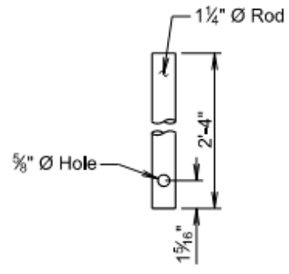


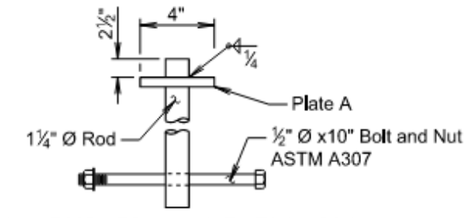
PLATE A



VIEW END A **VIEW END B**



CONNECTING PIN DETAIL



ASSEMBLED CONNECTING PIN

September 14, 2018

Published Date: 2026	SDDOT	TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS (F SHAPE INTERIOR SECTION)	PLATE NUMBER 628.01
			Sheet 1 of 2

GENERAL NOTES:

The detailed drawings are for illustrative purpose and depicts the current version of the F shape concrete barrier. If new movable concrete barriers are requested on a project, they will be constructed according to the F shape movable concrete barrier details on standard plate 628.10.

Each movable concrete barrier section weighs 5030 ± pounds.

Each movable concrete barrier section is detailed to provide end "A" to end "B" connection by insertion of a pin through steel loops.

The Jersey shape or any version of the F shape traffic control movable concrete barriers may be used on a project, however, only the same type or version will be used for each run of barriers.

Movable concrete barrier sections will be placed to provide uniform bearing of the sections with the paved surface as approved by the Engineer.

Movable concrete barrier sections will never be moved or lifted using the end loops.

Movable concrete barrier sections that have been damaged will not be used. Barrier sections are considered damaged if the loops are end welded onto existing damaged loops, loops are fractured, or there is exposed rebar from fractured concrete.

All cost for transporting the barriers from the specified location to the project site, installing, and returning the barriers to the specified location will be incidental to the contract unit price per each for "Traffic Control Movable Concrete Barrier".

If the concrete barriers need to be moved and reset on the project, requiring the barriers to be transported by truck, all cost for removing, transporting, and resetting the barriers will be incidental to the contract unit price per each for "Remove and Reset Traffic Control Movable Concrete Barrier". All cost for small shifts in alignment of the barriers, not requiring the barriers to be transported by truck, will be incidental to various contract items.

September 14, 2018

Published Date: 2026	SDDOT	TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS (F SHAPE INTERIOR SECTION)	PLATE NUMBER 628.01
			Sheet 2 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	26	44

Plotting Date: 5/12/2025

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

■ Flagger

■ Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

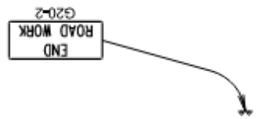
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) will be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices will be drums or 42" cones.

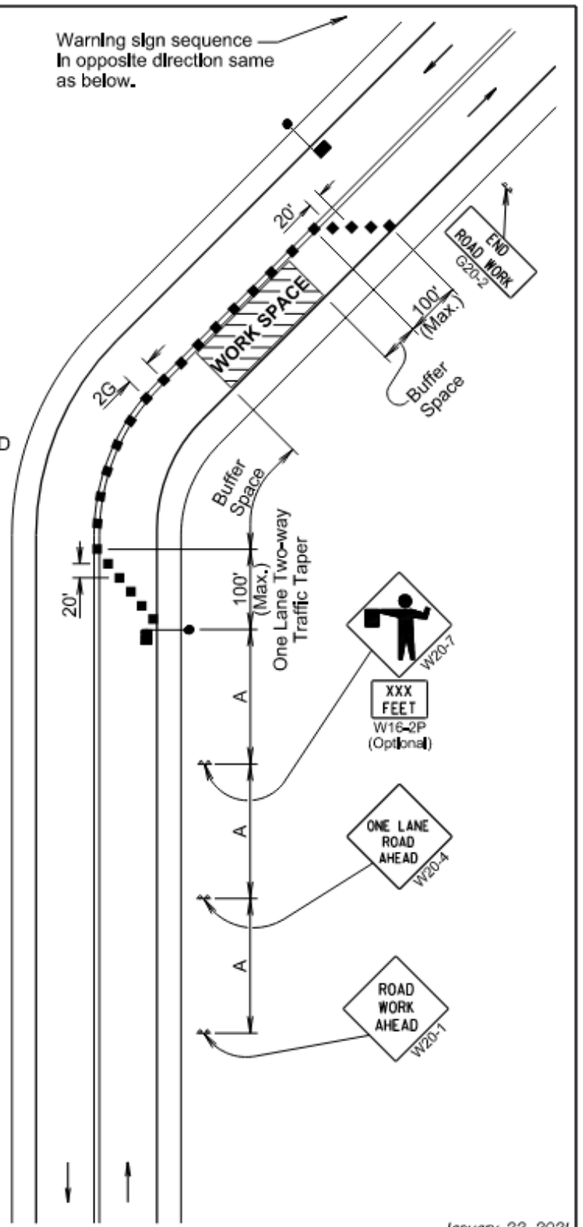
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



Channelizing devices and flaggers will be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.



January 22, 2021

Published Date: 2026	SDDOT	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000

Signing shown for one direction only.

*Use appropriate route marker and number.

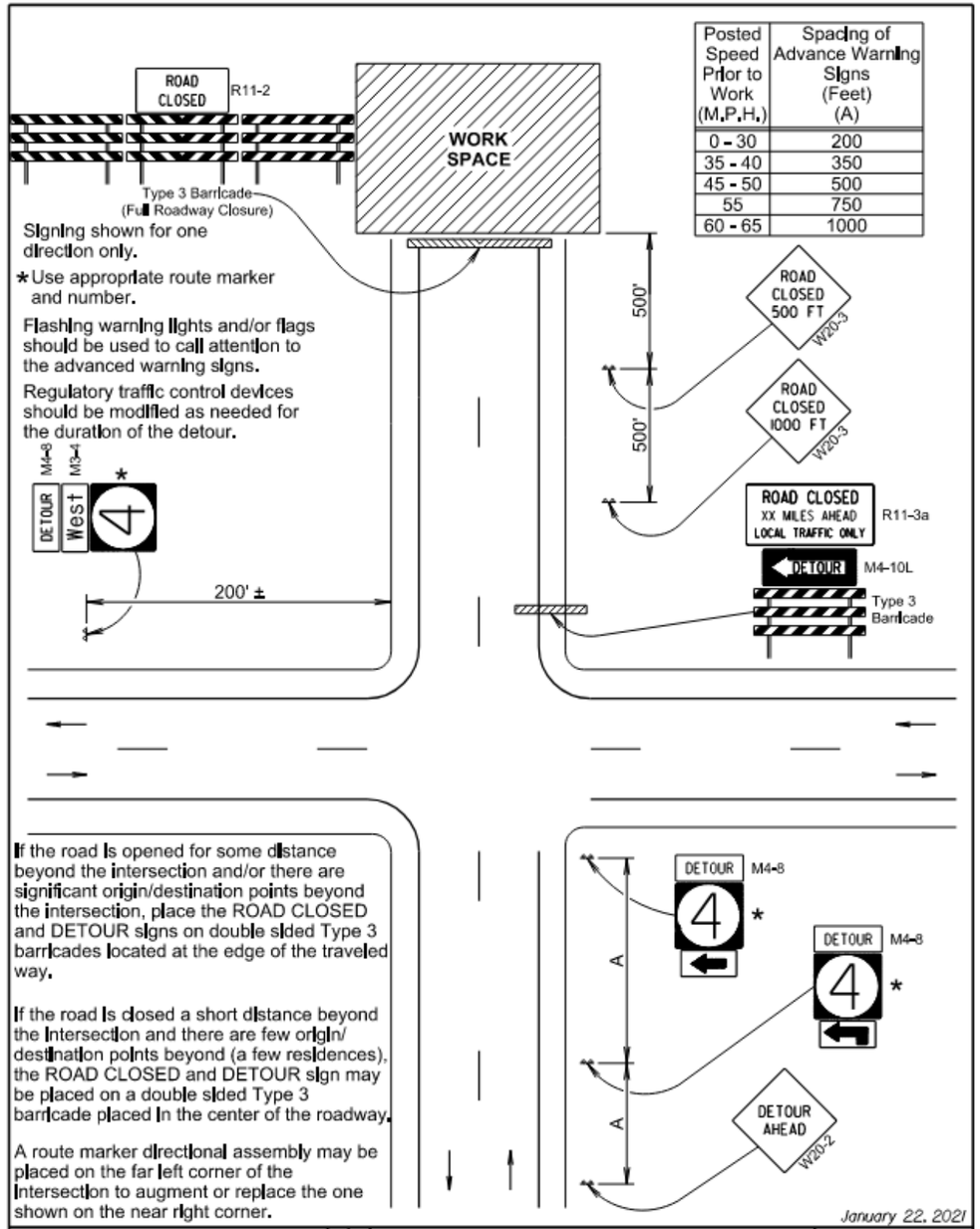
Flashing warning lights and/or flags should be used to call attention to the advanced warning signs.

Regulatory traffic control devices should be modified as needed for the duration of the detour.

If the road is opened for some distance beyond the intersection and/or there are significant origin/destination points beyond the intersection, place the ROAD CLOSED and DETOUR signs on double sided Type 3 barricades located at the edge of the traveled way.

If the road is closed a short distance beyond the intersection and there are few origin/destination points beyond (a few residences), the ROAD CLOSED and DETOUR sign may be placed on a double sided Type 3 barricade placed in the center of the roadway.

A route marker directional assembly may be placed on the far left corner of the intersection to augment or replace the one shown on the near right corner.



January 22, 2021

Published Date: 2026	SDDOT	ROAD CLOSED WITH OFF-SITE DETOUR	PLATE NUMBER 634.29
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	27	44

Plotting Date: 5/12/2025

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000
	(A) (B) (C)
70 - 80	1000 1500 2640

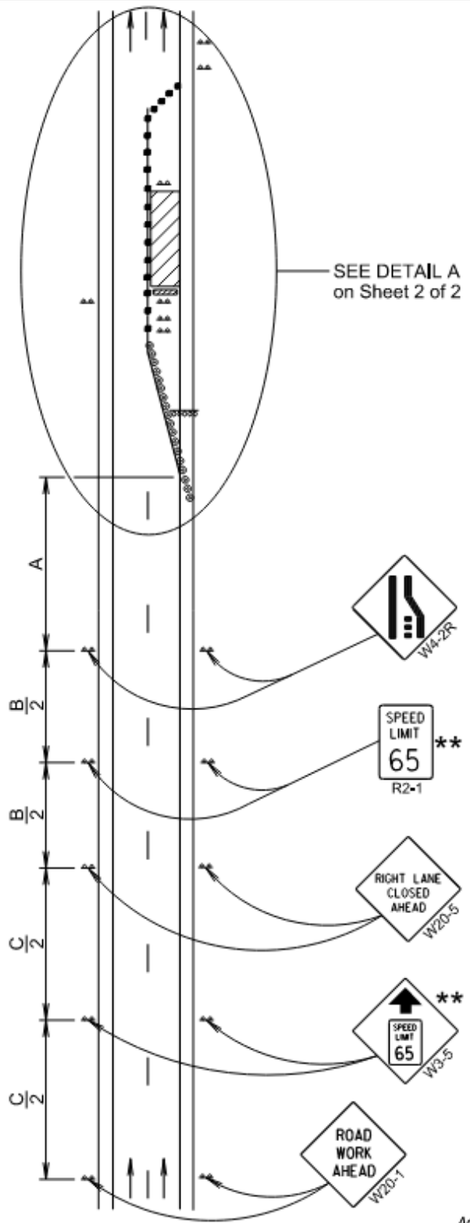
** Speed appropriate for location.

◎ Reflectorized Drum

■ Channelizing Device

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

High speed is defined as having a posted speed limit greater than 45 mph.



April 8, 2025

Published Date: 2026	SDDOT	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
			Sheet 1 of 2

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 -30	25	180
35 - 40	25	320
45	25	600
50	50 *	600
55	50 *	660
60 - 65	50 *	780
70 - 80	50 *	960

* Spacing is 40' for 42" cones.

** Speed appropriate for location.

*** Use speed limit designated for the condition when workers are present in the work space. Signs will be covered or removed when workers are not present.

◎ Reflectorized Drum

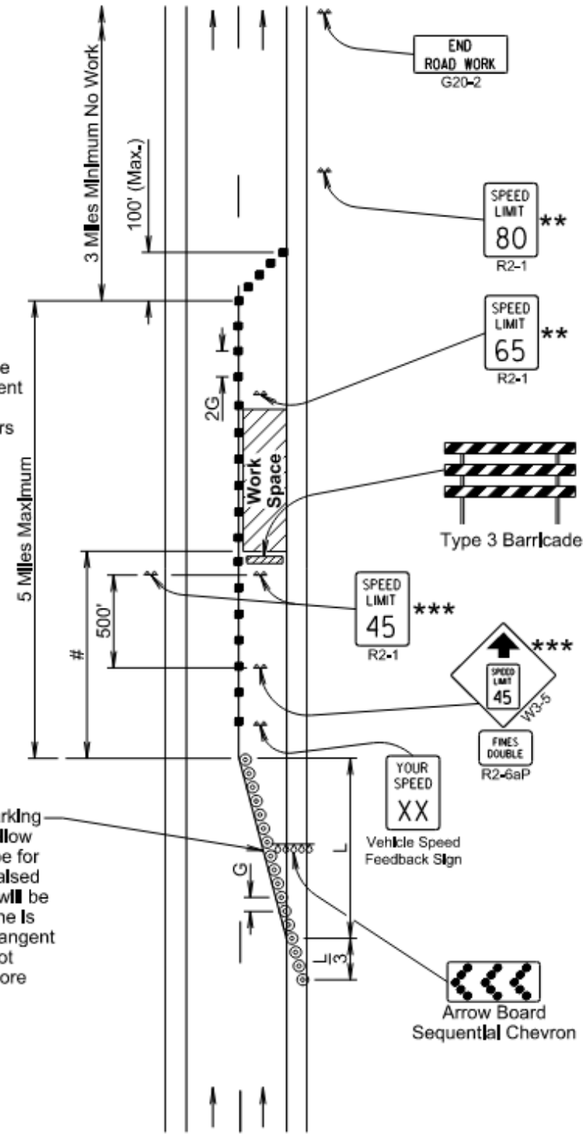
■ Channelizing Device

The Work Space will be a minimum of 500' from the end of the taper.

The channelizing devices will be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

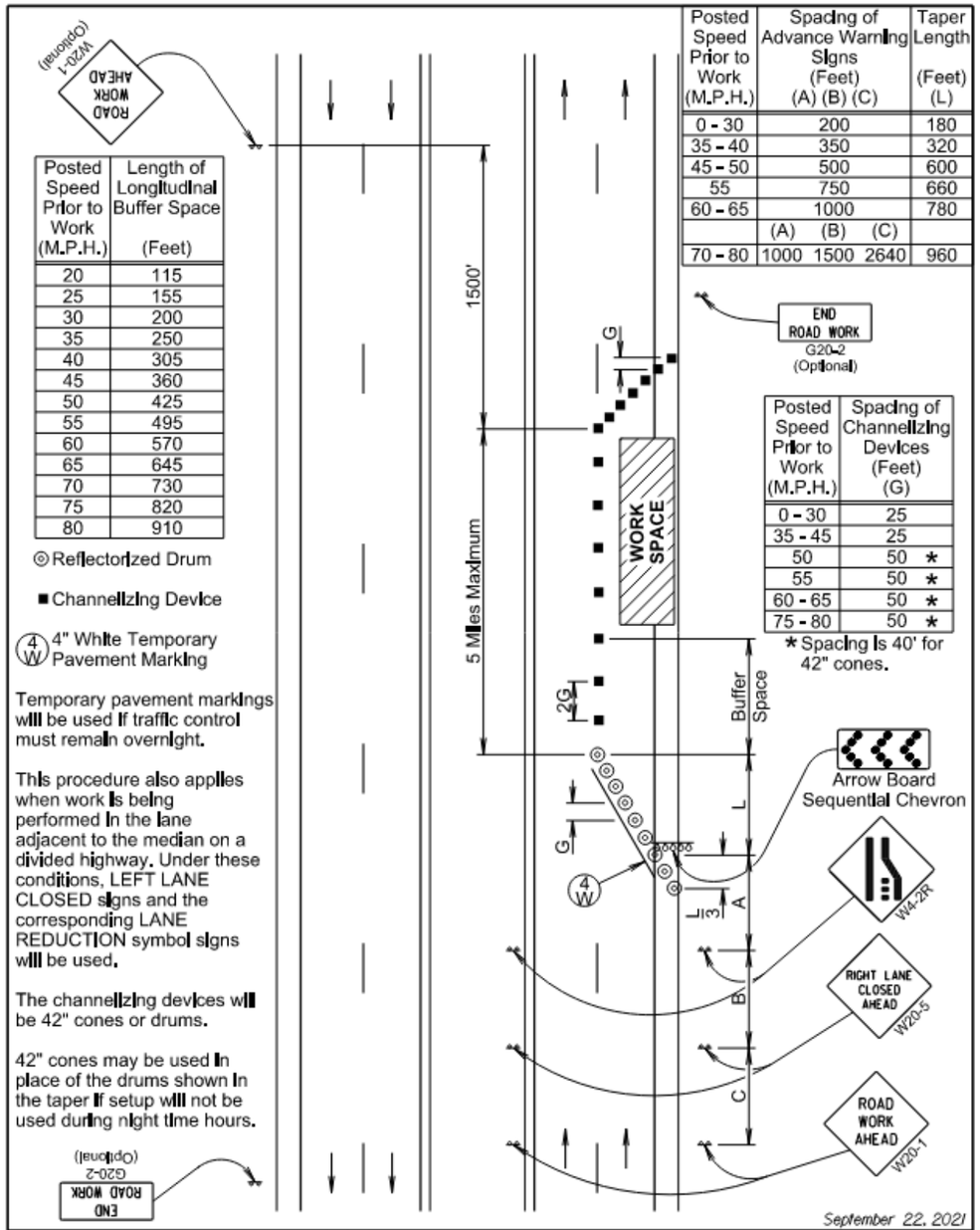
4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary raised pavement markers at 5' spacing will be installed in the taper when the lane is closed overnight, and along the tangent section where the skip lines do not exist and the lane is closed for more than 3 days.



DETAIL A

April 8, 2025

Published Date: 2026	SDDOT	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
			Sheet 2 of 2



Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910

◎ Reflectorized Drum

■ Channelizing Device

(4W) 4" White Temporary Pavement Marking

Temporary pavement markings will be used if traffic control must remain overnight.

This procedure also applies when work is being performed in the lane adjacent to the median on a divided highway. Under these conditions, LEFT LANE CLOSED signs and the corresponding LANE REDUCTION symbol signs will be used.

The channelizing devices will be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

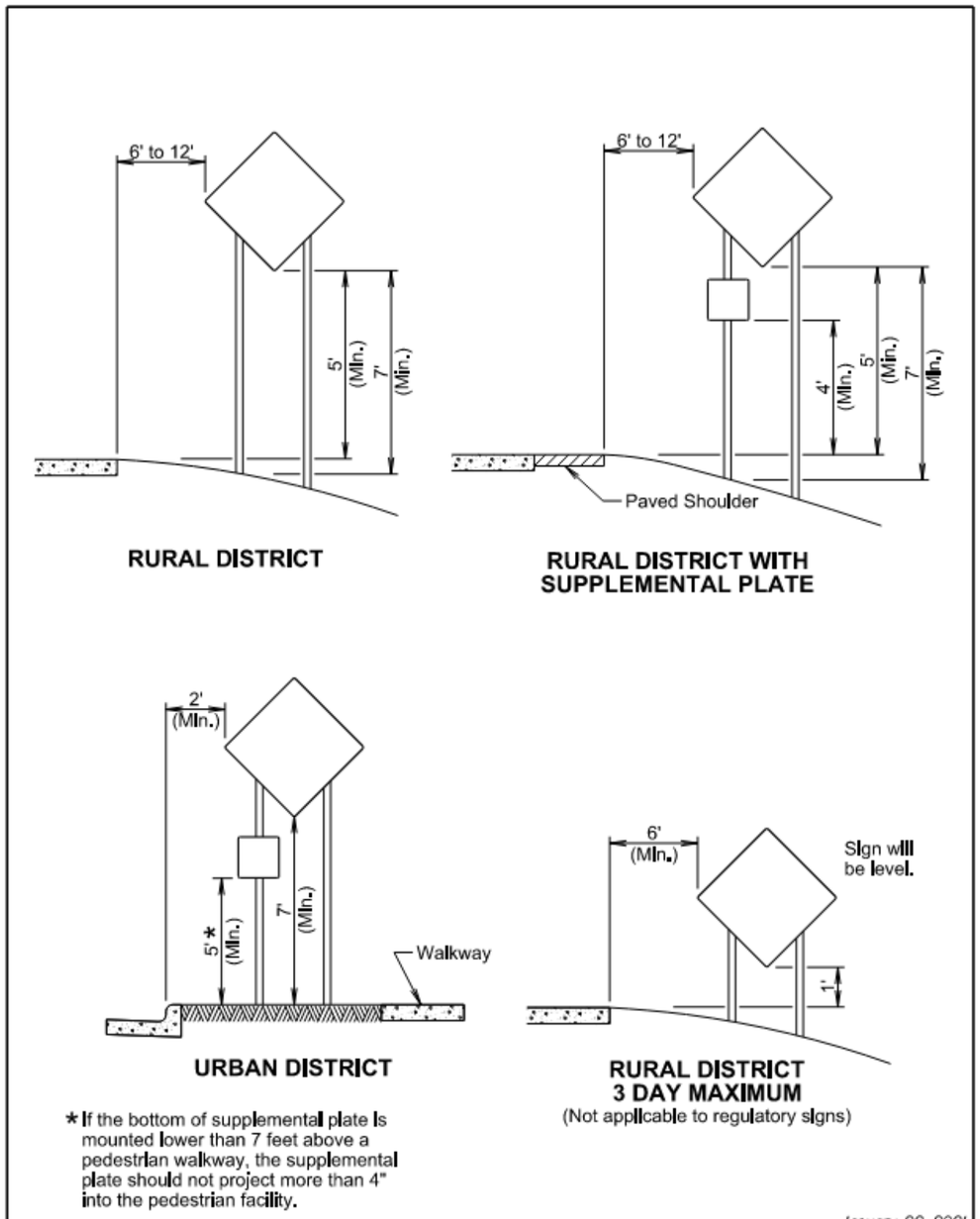
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B) (C)	
70 - 80	1000 1500 2640	960

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 45	25
50	50 *
55	50 *
60 - 65	50 *
75 - 80	50 *

* Spacing is 40' for 42" cones.

September 22, 2021

Published Date: 2026	SDDOT	LANE CLOSURE WITHOUT BARRIER	PLATE NUMBER 634.64
			Sheet 1 of 1



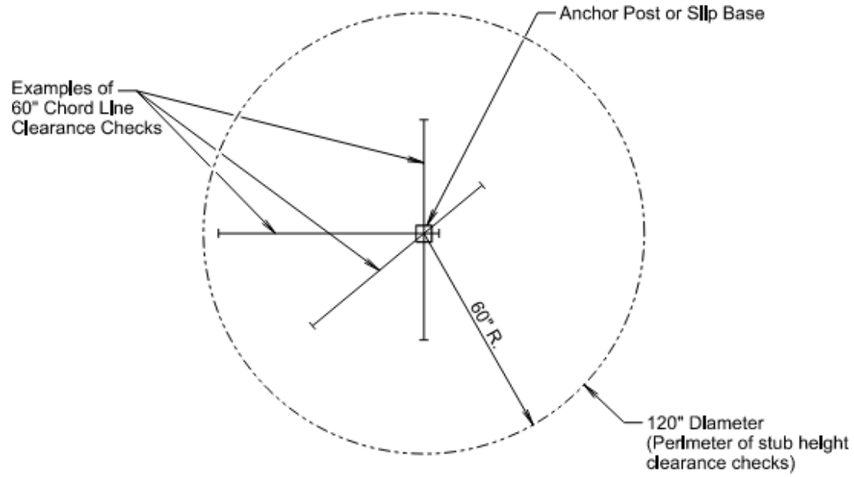
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

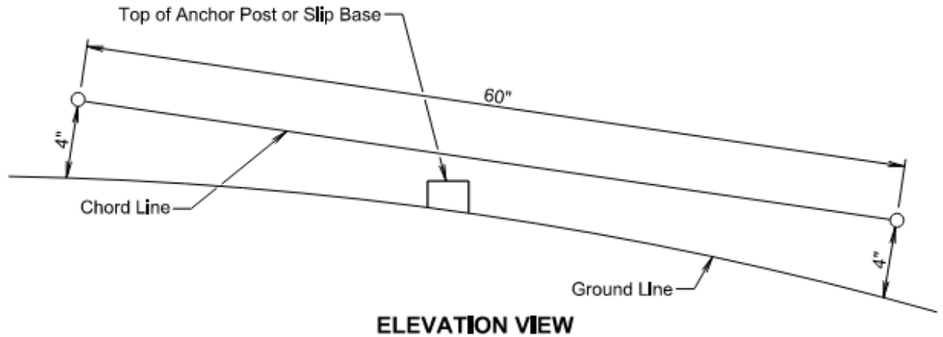
Published Date: 2026	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	29	44

Plotting Date: 5/12/2025



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

Published Date: 2026	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

EROSION CONTROL ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E6300	Water for Vegetation	1,052.2	MGal
230E0100	Remove and Replace Topsoil	1	LS
734E0010	Erosion Control	1	LS
734E0103	Type 3 Erosion Control Blanket	1,800	SqYd
734E0154	12” Diameter Erosion Control Wattle	335	Ft
734E0510	Shaping for Erosion Control Blanket	200	Ft
734E0604	High Flow Silt Fence	2,000	Ft
734E0610	Mucking Silt Fence	170	CuYd
734E0620	Repair Silt Fence	530	Ft
734E5010	Sweeping	8	Hour
900E1310	Concrete Washout Facility	2	Each
900E1320	Construction Entrance	2	Each

EROSION CONTROL

The estimated area requiring erosion control is 150,620 square feet (3.46 ac). All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, fertilizing, and mulching will 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 a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

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

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

Fertilizing

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. 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 Fertilizer provided will be from the approved product list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

Permanent Seeding

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

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; Winter Wheat: August through November		10
	Total:	26

Mulching (Grass Hay or Straw)

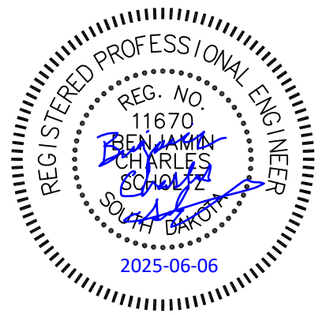
Grass Hay or Straw Mulch for temporary stabilization is to be used on this project at locations noted in the table and at locations determined by the Engineer during construction. Two applications of Grass Hay or Straw Mulch on areas that receive temporary Grass Hay or Straw Mulch will not be required if the Engineer determines that there is sufficient Mulch remaining at the time permanent seeding takes place.

An additional 15 tons of Grass Hay or Straw Mulch has been added for temporary erosion control on areas determined by the Engineer during construction.

If the Contractor uses a no-till drill, mulch may be applied prior to seeding and the mulch can then be punched into the soil by the no-till drill. If the Contractor uses this process, the no-till drill seeding will be completed immediately following the mulch application and the mulch will be punched into the soil at a 3-inch depth.

Table of Mulching (Grass Hay or Straw) Applied at 2 TONS/ACRE

Station	Location	Quantity (Ton)
1556+62 to 1562+43 L	Slope	18.3
1556+11 to 1558+33 R	Ditch	2.1
130+38 to 131+44	Pipe Outlet	0.6
	Additional Quantity:	1.5
	Total Quantity for Temporary Stabilization:	**15**
	Total Quantity for Permanent Stabilization:	**22.5**
	Total Quantity:	**37.5**



WATER FOR VEGETATION

Water for vegetation consists of applying water to seeded areas to enhance germination and/or root growth. When watering, use the following guidelines:

Immediately after seeding:

- Keep the topsoil moist but not excessively wet until the seed has germinated.
- Water a minimum of 3 days a week for 2 weeks preferably watering 2 or 3 times a day in small quantities.
- Use fine spray and low pressure to avoid topsoil wash and to prevent uncovering buried seeds.

After emergence:

- Topsoil will be kept thoroughly moistened by sprinkling, as necessary, for 6 weeks. After the 6-week period, an inspection will be made to determine if grass is established enough to suspend watering. Continue watering until grass has been thoroughly established.
- Never apply water at a rate faster than the topsoil can absorb.
- Water during early morning hours or early evening hours.
- Do not water when rain is forecasted for the area.
- If rainfall occurs, suspend watering according to rainfall amount.

An estimated 60 Gallons of water per square yard of seeding area.

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor will provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles will remain on the project to decompose.

An estimated quantity of erosion control wattles will remain on the project until vegetation has been established. It is estimated that some of the erosion control wattles will remain on the project to decompose.

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

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (Inch)	Quantity (Ft)
133+70 to 135+05 L	Slope	12	135
	Additional Quantity:	12	200
		Total:	335

HIGH FLOW SILT FENCE

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

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

High flow silt fence will be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

An additional quantity of high flow silt fence has been added for temporary sediment control.

TABLE OF HIGH FLOW SILT FENCE

Station	Location	Quantity (Ft)
1556+11 to 1558+33 R	Perimeter Control	330
1556+62 to 1562+43 L	Perimeter Control	950
1558+04 L	Pipe Inlet	100
1558+10 L	Pipe Inlet	100
130+62 R	Pipe Outlet	100
130+78 R	Pipe Outlet	100
	Additional Quantity:	320
	Total:	2,000

EROSION CONTROL BLANKET

Erosion control blanket will be installed 16 feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

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

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF EROSION CONTROL BLANKET

Station	Location	Type	Quantity (SqYd)
1556+11 to 1558+33 R	Ditch	3	1,540
	Additional Quantity:	3	260
	Total Type 3 Erosion Control Blanket:		1,800

SHAPING FOR EROSION CONTROL BLANKET

The ditches will be shaped for the erosion control blanket as specified on Standard Plate 734.01.

STREET SWEEPING

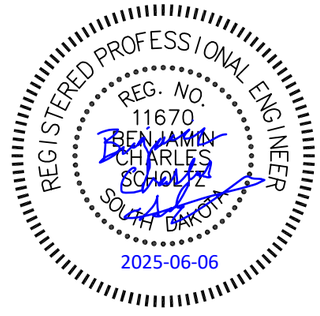
Vehicle tracking of sediment from the construction site will be minimized. Street sweeping will be used if erosion and sediment control best management practices are not adequate to prevent sediment from being tracked onto the street.

The Contractor will use a pickup broom having integral self-contained storage to clean the roadway. The pickup broom used will be a minimum of 6 feet wide and have working gutter brooms.

At a minimum, sweeping will be required:

1. Prior to opening any segment or roadway to traffic.
2. Following pavement grooving operations and prior to the application of the pavement marking tape.
3. When sawing operations are underway in the inside driving lanes, the outside driving lanes and gutter may need to be swept to control dust.
4. As deemed necessary by the Engineer during construction.

All costs for cleaning the roadway with a pickup broom will be incidental to the contract unit price per hour for “Sweeping”.



CONSTRUCTION ENTRANCE

The Contractor will install a Construction Entrance at locations where there is a potential for mud tracking and sediment flow from the construction site and work area onto a paved public roadway.

It is the Contractor's option to use the SDDOT Construction Entrance (See SDDOT Construction Entrance notes and details), a product from the list provided in these notes, or other products or processes as approved by the Engineer during construction.

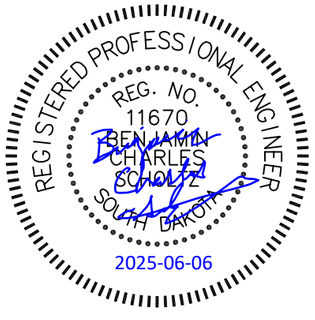
If the Contractor elects to use one of the products listed in the table, then the Contractor will install the construction entrance product in accordance with the manufacturer's installation instructions or as directed by the Engineer.

The Contractor will maintain the construction entrance such that mud tracking and sediment flow will not enter the roadway or adjacent drainage areas. The construction entrance will be routinely inspected, and the Contractor will repair or replace material as deemed necessary by the Engineer.

The Construction Entrance provided will be from the approved product list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

All costs for furnishing, installing, maintaining, and removal of the construction entrance including equipment, labor, materials, and incidentals will be included in the contract unit price per each for "Construction Entrance".



SDDOT CONSTRUCTION ENTRANCE

If the SDDOT Construction Entrance is utilized, then the Contractor will install the SDDOT Construction Entrance in accordance with these notes and the detail drawings.

Pit run material will be obtained from a granular source and will conform to the following gradation:

Sieve Size	Percent Passing
6"	100%
#4	0-60%
#200	0-20%

The pit run material will be compacted to the satisfaction of the Engineer.

The aggregate for the granular material will conform to the following gradation requirements:

Sieve Size	Percent Passing
3"	100%
2 ½"	90-100%
1 ½"	25-60%
¾"	0-10%
½"	0-5%

The granular material will be placed in 6" maximum lifts.

It is anticipated that the granular material will need to be periodically removed and replaced as it becomes inundated with mud and sediment.

The Reinforcement Fabric (MSE) will be in conformance with Section 831 of the Specifications. The Reinforcement Fabric (MSE) will be on the Approved Products List for this material or will be certified by the supplier to meet this specification prior to installation.

The Reinforcement Fabric (MSE) should be kept as taut as possible prior to placing.

Equipment will not be allowed on the Reinforcement Fabric (MSE) until the first lift of granular material is in place.

All seams in the Reinforcement Fabric (MSE) will be overlapped at least 2' and shingled.

CONCRETE WASHOUT

A concrete washout will be installed on the project site at a location approved by the Engineer if concrete trucks deliver concrete to the site. No washout area is necessary if all concrete trucks are going to wash out at approved site constructed by the concrete supplier.

The Concrete Washout provided will be from the approved products list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

STORMWATER POLLUTION PREVENTION PLAN CHECKLIST

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

5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION

To promote stormwater management awareness specific for this project, the Contractor's Erosion Control Supervisor should provide correspondence of how the SWPPP will be implemented. The Contractor's Erosion Control Supervisor is responsible for providing this information at the preconstruction meeting, and subsequently completing an attendance log, which should identify site-specific implementation of the SWPPP and the names of the personnel who attended the preconstruction meeting. Documentation of the preconstruction meeting will be filed with the SWPPP documents.

5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES

- **5.3 (3a): Project Limits** (See Title Sheet)
- **5.3 (3a): Project Description** (See Title Sheet)
- **5.3 (4): Site Map(s)** (See Title Sheet and Plans)
- **Major Soil Disturbing Activities** (check all that apply)
  - ☐ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☐ Filling
  - ☐ Other (describe):
- **5.3 (3b): Total Project Area** 3.46 ac
- **5.3 (3b): Total Area to be Disturbed** 3.46 ac
- **5.3 (3c): Maximum Area Disturbed at One Time**3.46 ac
- **5.3 (3d): Existing Vegetative Cover (%)** 90
- **5.3 (3d): Description of Vegetative Cover** Grass

- **5.3 (3e): Soil Properties:** AASHTO Soil or USDA-NRCS Soil Series Classification A-7-5
- **5.3 (3f): Name of Receiving Water Body/Bodies** Missouri River
- **5.3 (3g): Location of Construction Support Activity Areas**

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

- **Special sequencing requirements** (see sheet).

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install stabilized construction entrance(s).	
Install perimeter protection where runoff may exit site.	
Install perimeter protection around stockpiles.	
Install channel and ditch bottom protection.	
Clearing and grubbing.	
Remove and stockpile topsoil.	
Stabilize disturbed areas.	
Install utilities, storm sewers, curb and gutter.	
Install inlet and culvert protection after completing storm drainage and other utility installations.	
Final grading.	
Final paving.	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report. Include the technical reasoning for selecting each control. (check all that apply)

Perimeter Controls (See Detail Plan Sheets)

Description	Estimated Start Date
☐ Natural Buffers (within 50 ft of Waters of State)	
☒ Silt Fence	
☒ Erosion Control Wattles	
☐ Temporary Berm / Windrow	
☐ Floating Silt Curtain	
☒ Stabilized Construction Entrances	
☐ Entrance/Exit Equipment Tire Wash	
☐ Other:	

Structural Erosion and Sediment Controls

Description	Estimated Start Date
☒ Silt Fence	
☐ Temporary Berm/Windrow	
☒ Erosion Control Wattles	
☐ Temporary Sediment Barriers	
☐ Erosion Bales	
☐ Temporary Slope Drain	
☐ Turf Reinforcement Mat	
☒ Riprap	
☐ Gabions	
☐ Rock Check Dams	
☐ Sediment Traps/Basins	
☒ Culvert Inlet Protection	
☐ Transition Mats	
☐ Median/Area Drain Inlet Protection	
☐ Curb Inlet Protection	
☐ Interceptor Ditch	
☒ Concrete Washout Facility	
☐ Work Platform	
☐ Temporary Water Barrier	
☐ Temporary Water Crossing	
☐ Permanent Stormwater Ponds	
☐ Permanent Open Vegetated Swales	
☐ Natural Depressions to allow for Infiltration	
☐ Sequential Systems that combine several practices	
☐ Other:	

Dust Controls

Description	Estimated Start Date
☐ Tarps & Wind impervious fabrics	
☐ Watering	
☐ Stockpile location/orientation	
☐ Dust Control Chlorides	
☐ Other	

Dewatering BMPs

Description	Estimated Start Date
☐ Sediment Basins	
☐ Dewatering bags	
☐ Weir tanks	
☐ Temporary Diversion Channel	
☐ Other:	

Stabilization Practices (See Detail Plan Sheets)

(Stabilization measures will begin the following work day whenever earth disturbing activity on any portion of the site has temporarily or permanently ceased. Temporary stabilization will be completed as soon as practicable but no later than 14 days after initiating soil stabilization activities (**3.18**))

Description	Estimated Start Date
☐ Vegetation Buffer Strips	
☐ Temporary Seeding (Cover Crop Seeding)	
☒ Permanent Seeding	
☐ Sodding	
☐ Planting (Woody Vegetation for Soil Stabilization)	
☒ Mulching (Grass Hay or Straw)	
☐ Fiber Mulching (Wood Fiber Mulch)	
☐ Soil Stabilizer	
☐ Bonded Fiber Matrix	
☐ Fiber Reinforced Matrix	
☒ Erosion Control Blankets	
☐ Surface Roughening (e.g. tracking)	
☐ Other:	

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULTZ
SOUTH DAKOTA
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Wetland Avoidance
Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☒ No ☐ 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.

5.3 (6): PROCEDURES FOR INSPECTIONS

- Inspections will be conducted at least once every 7 days.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears 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 $^1/_3$ 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 ½ 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 Erosion Control Supervisor are responsible for inspections. Maintenance and 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.

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT
Stormwater management will be handled by temporary controls outlined in "DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES" above, and any permanent controls needed to meet permanent stormwater management needs in the post construction period will be shown in the plans and noted as permanent.

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

➢ **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/or 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.
- Hazardous Materials
  - Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
  - 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, de-greasing 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 stormwater system or stormwater 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 stormwater runoff.

➢ **Spill Control Practices**
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.

➢ **Spill Response**
The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into stormwater runoff and conveyance systems. If the release has impacted on-site stormwater, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens stormwater 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 at the site.
- 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 SDDANR.
- 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 activities.

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5.3 (8b): WASTE MANAGEMENT PROCEDURES

- **Waste Disposal**
  - All liquid waste materials will be collected and stored in approved sealed containers. 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 proper practices will be posted. The Contractor is responsible for ensuring 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 Contractor 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 which must be secured to prevent tipping and serviced in a timely manner by a licensed waste management Contractor or as required by any local regulations.

5.3 (9): CONSTRUCTION SITE POLLUTANTS

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 heading "POLLUTION PREVENTION PROCEDURES" (check all that apply).

- ☒ Concrete and Portland Cement
- ☒ Detergents
- ☒ Paints
- ☒ Metals
- ☒ Bituminous Materials
- ☒ Petroleum Based Products
- ☒ Diesel Exhaust Fluid
- ☒ Cleaning Solvents
- ☒ Wood
- ☒ Cure
- ☐ Texture
- ☐ Chemical Fertilizers
- ☐ Other:

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Product Specific Practices

- **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 stormwater. 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 facilities on the site. These areas must be self-contained and not connected to any stormwater outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

5.3 (10): NON-STORMWATER DISCHARGES

The following non-stormwater 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 activities.

5.3 (11): INFEASIBILITY DOCUMENTATION

If it is determined to be infeasible to comply with any of the requirements of the Stormwater Permit, the infeasibility determination must be thoroughly documented in the SWPPP.

7.0: SPILL NOTIFICATION

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 SDDANR immediately **if any one of the following** conditions exists:
  - The release or spill threatens or is able to threaten waters of the state (surface water or ground water)
  - The release or spill causes an immediate danger to human health or safety
  - The release or spill exceeds 25 gallons
  - The release or spill causes a sheen on surface water
  - The release or spill of any substance that exceeds the ground water quality standards of ARSD Chapter 74:54:01
  - The release or spill of any substance that exceeds the surface water quality standards of ARSD Chapter 74:51:01
  - The release or spill of any substance that harms or threatens to harm wildlife or aquatic life
  - The release or spill is required to be reported according to Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists, Consolidated List of Chemicals Subject to Reporting Under the Emergency Planning and Community Right to Know Act, US Environmental Protection Agency.
- To report a release or spill, call SDDANR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Standard Time). To report the release after hours, on weekends or holidays, call South Dakota Emergency Management at 605-773-3231. Reporting the release to SDDANR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, you must also contact local authorities to determine the local reporting requirements for releases. A written report of the unauthorized release of any regulated substance, including quantity discharged, and the location of the discharge will be sent to SDDANR within 14 days of the discharge.

5.4: SWPPP 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 qualified 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 (See the General Permit, Section 7.4 (1))

- **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 accordance with a system designed to assure that qualified 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

The following personnel are duly authorized representatives and have signatory authority for modifications made to the SWPPP:

- **Contractor Information**:
  - Prime Contractor Name: _____
  - Contractor Contact Name: _____
  - Address: _____
  - _____
  - City: _____State: _____Zip: _____
  - Office Phone: _____Field: _____
  - Cell Phone: _____Fax: _____
- **Erosion Control Supervisor**
  - Name: _____
  - 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: _____
  - Cell Phone: _____Fax: _____
- **SDDANR Contact Spill Reporting**
  - Business Hours Monday-Friday (605) 773-3296
  - Nights and Weekends (605) 773-3231
- **SDDANR Contact for Hazardous Materials.**
  - (605) 773-3153
- **National Response Center Hotline**
  - (800) 424-8802.
- **SDDANR Stormwater Contact Information**
  - SDDANR Stormwater (800) 737-8676
  - Surface Water Quality Program (605) 773-3351

5.5: REQUIRED SWPPP MODIFICATIONS

- **5.5 (1): Conditions Requiring SWPPP Modification**
  The SWPPP must be modified, including the site map(s), in response to any of the following conditions:
  - When a new operator responsible for implementation of any part the SWPPP begins work on the site.
  - When changes to the construction plans, sediment and erosion control measures, or any best management practices on site that are no longer accurately reflected in the SWPPP. This includes changes made in response to corrective actions triggered by inspections.
  - To reflect areas on the site map where operational control has been transferred (including the date of the transfer) or has been covered under a new permit since initiating coverage under this general permit.
  - If inspections by site staff, local officials, SDDANR, or U.S. EPA determine that SWPPP modifications are necessary for compliance with the Stormwater Permit.
  - To reflect any revisions to applicable federal, state, or local requirements that affect the control measures implemented at the site.
  - If approved by the Secretary, to reflect any changes in chemical water treatment systems or controls, including the use of a different water treatment chemical, age rates, different areas, or methods of application.

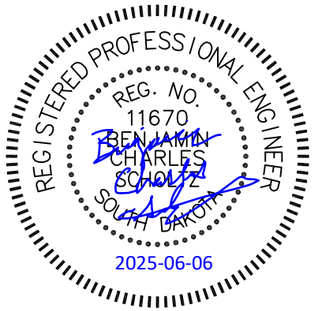
- **5.5 (2): Deadlines for SWPPP Modification**
  Any required revisions to the SWPPP must be completed within 7 calendar days following any of the items listed above.

- **5.5 (3): Documentation of Modifications to the Plan**
  All SWPPP modification records are required to be maintained showing the dates of when the modification occurred. The records must include the name of the person authorizing each change and a brief summary of all changes.

- **5.5 (4): Certification Requirements**
  All modifications made to the SWPPP must be signed and certified as required in Section 7.4.

- **5.5 (5): Required Notice to Other Operators**
  If there are multiple operators at the site, the Contractor's Erosion Control Supervisor must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

When modifications as described above occur, the SWPPP will be modified to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP using the DOT 298 form and drawings on the plan will be modified to reflect the needed changes. Copies of the DOT 298 forms and the SWPPP will be retained on site in a designated place for review throughout the course of the project. A copy of the DOT 298 form will be given to the Contractor Erosion Control Supervisor and a copy will be emailed to the SDDOT Environmental Section in accordance with the DOT 298 Form.



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	37	44

FOR BIDDING PURPOSES ONLY

Erosion and Sediment Control Legend

SYMBOLOGY FOR BEST MANAGEMENT PRACTICES

- RIP RAP (SEE DETAILS)
- SILT FENCE
- EROSION CONTROL WATTLES ON SLOPES
- SEEDED AREAS
- EROSION CONTROL BLANKET
- SURFACE FLOW DIRECTION
- RIGHT-OF-WAY
- WORK LIMITS

BEST MANAGEMENT PRACTICES

BEST MANAGEMENT PRACTICES (BMP'S) SHOULD BE USED THROUGHOUT CONSTRUCTION. TO REMIND CONTRACTORS AND FIELD PERSONNEL THAT BMP'S FOR WATER QUALITY SHOULD BE UTILIZED THROUGHOUT THE CONSTRUCTION PROCESS, THE SYMBOLOGY IS COLORED AS FOLLOWS:

RED BMPS ARE TO BE INSTALLED BEFORE EARTH MOVING ACTIVITIES COMMENCE. RED BMPS ARE USED FOR PERIMETER CONTROL. THEY PREVENT SEDIMENT FROM LEAVING THE SITE OR ENTERING FROM ANOTHER SITE. THEY MAY ALSO DETER WATER AWAY FROM OR AROUND THE SITE. THEY MAY BE LEFT IN PLACE AND MAINTAINED FOR THE REMAINDER OF CONSTRUCTION OR UNTIL VEGETATION HAS REACHED 70% OF THE BACKGROUND LEVEL.

BLUE BMPS ARE TO BE INSTALLED DURING CONSTRUCTION. BLUE BMPS ARE USED FOR TEMPORARY STABILIZATION. THEY PREVENT EROSION DURING CONSTRUCTION. THEY MAY ALSO BE SEDIMENT CONTROLS UTILIZED AFTER DRAIN PIPES AND STORM SEWERS ARE IN PLACE. THEY MAY BE LEFT IN PLACE AND MAINTAINED FOR THE REMAINDER OF CONSTRUCTION OR UNTIL VEGETATION HAS REACHED 70% OF THE BACKGROUND LEVEL. SOME YELLOW BMPS WILL BE REMOVED OR REPLACED DURING CONSTRUCTION.

GREEN BMPS ARE TO BE INSTALLED WHEN THE GRADING IS COMPLETE. GREEN BMPS ARE USED FOR FINAL STABILIZATION. THEY ARE PERMANENT EROSION CONTROL MEASURES THAT ARE NOT REMOVED.

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IF THE CONTRACTOR OR ENGINEER DECIDE TO USE ADDITIONAL BEST MANAGEMENT PRACTICES OR LABEL THE LOICATIONS OF THEM THEY SHOULD USE THE SYMBOLOGY SHOWN. OTHER BEST MANAGEMENT PRACTICES FOR WHICH THERE IS NO SYMBOLOGY INCLUDE:

PERMANENT SEEDING IS DONE BEFORE THE APPLICATION OF ALL TYPES OF MULCHING AND HYDRAULICALLY APPLIED SOIL MULCHES AND MATRIXS. PERMANENT GRASS HAY/STRAW MULCH IS NOT SHOWN ON PLAN SHEETS, BUT IT CAN BE ASSUMED THAT ALL AREAS THAT ARE NOT ROADWAYS ON RURAL PROJECTS WILL BE SEEDED THEN MULCHED. AREAS WHERE AN ALTERNATE TO GRASS HAY/STRAW MULCH IS USED WILL BE SHOWN WITH THE APPROPRIATE SYMBOLOGY.

SEDIMENT BASINS UTILIZED DURING CONSTRUCTION WILL BE SHOWN ON PLAN SHEETS AND IN SECTION X.

GEOTEXTILE FABRIC USUALLY SUPPLEMENTS OTHER BMPS, BUT IT MAY BE USED TO TEMPORARILY COVER AREAS FOR EROSION PROTECTION UNITL IT IS PERMENANTLY INSTALLED.

STREET SWEEPING SHOULD BE DONE AS NEEDED TO KEEP SEDIMENT ON ROADWAYS FROM LEAVING THE SITE.

DEWATERING AND SEDIMENT COLLECTING IS SHOWN ON A DETAIL SHEET WHEN IT IS NEEDED. DEWATERING WITHOUT SEDIMENT COLLECTING DOES NOT HAVE A DETAIL, JUST A DETAILED NOTE. SEDIMENT LADEN WATER SHOULD NEVER BE PUMPED OFF THE SITE.

GABIONS AND RIP RAP AT PIPE AND CULVERT OUTLETS ARE DETAILED IN SECTION B.

PROJECT PHASING

PROJECT PHASING MAY BE ONE OF THE MOST IMPORTANT BMPS. DURING PHASING REMEMBER THE FOLLOWING:

ALWAYS INSTALL PERIMETER CONTROLS BEFORE BEGINNING EARTH MOVING ACTIVITIES.

DO NOT DISTURB MORE AREA THAN WHAT IS NEEDED TO COMPLETE EACH PHASE OF CONSTRUCTION.

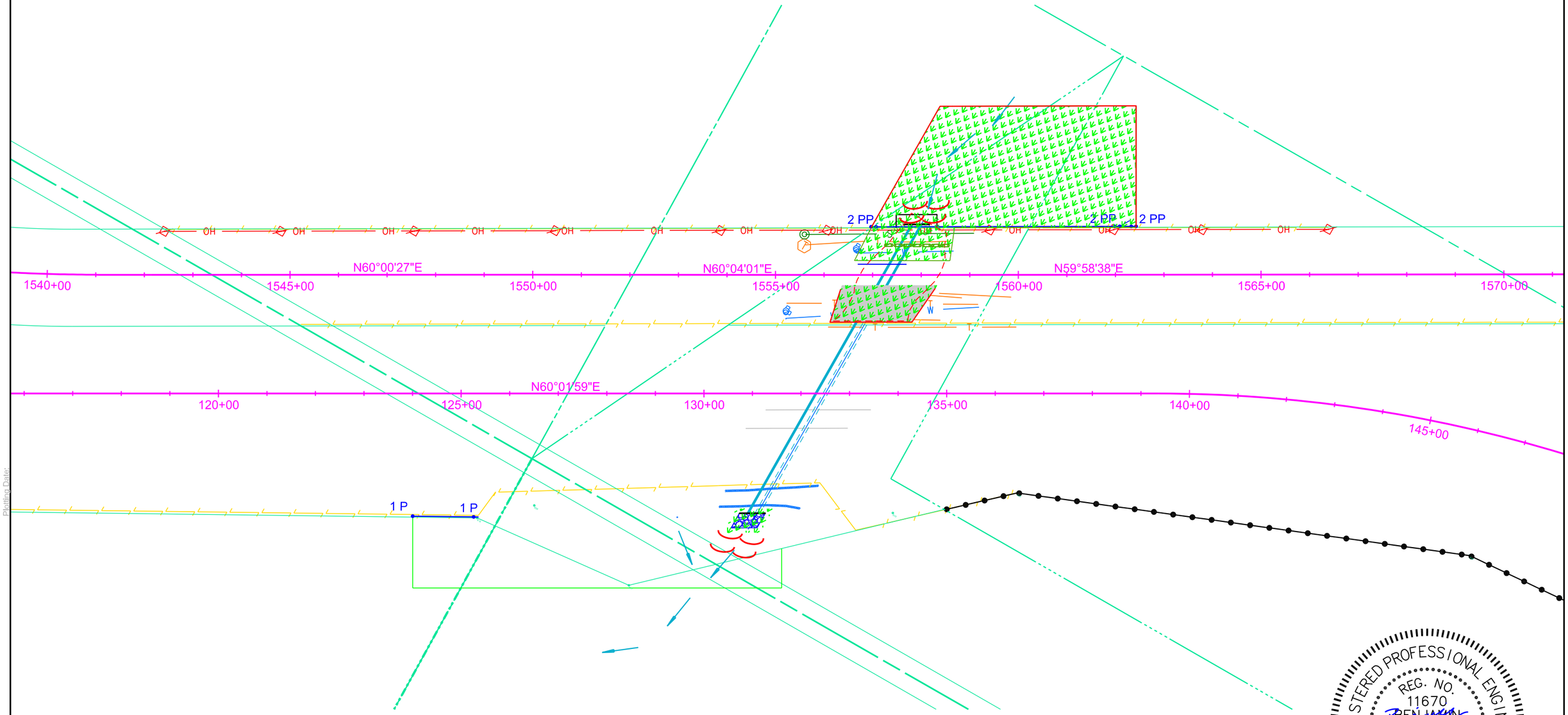
IF POSSIBLE CONSTRUCT SEDIMENT BASINS AND STABILIZE THEM BEFORE BEGINNING ROADWAY GRADING.

TEMPORARILY STABILIZE AREAS THAT WILL NOT BE TOUCHED WITHIN 14 DAYS.

PERMANENTLY STABILIZE AREAS WHEN GRADING IN THAT AREA IS COMPLETE. PERMANENT STABILIZATION CAN BE COMPLETED IN PHASES AND DOES NOT HAVE TO WAIT UNITL THE WHOLE ROADWAY HAS BEEN CONSTRUCTED.

CONTINUALLY MAINTAIN ALL SEDIMENT CONTROLS AND MONITOR AREAS WHERE EROSION CONTROL HAS BEEN INSTALLED.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	38	44



Install High Flow Silt Fence at the following locations:

130+62 R	Outlet End Pipe	100 Ft
130+78 R	Outlet End Pipe	100 Ft
132+60 to 134+76 L	Perimeter Control	330 Ft
133+44 to 138+90 L	Perimeter Control	950 Ft
134+52 L	Inlet End Pipe	100 Ft
134+59 L	Inlet End Pipe	100 Ft

Install 12" Wattles at the following locations:

133+70 to 135+05 L	135 FT

Install Type 3 Erosion Control blanket at the following locations:

132+60 to 134+76 L	1540 SqYd

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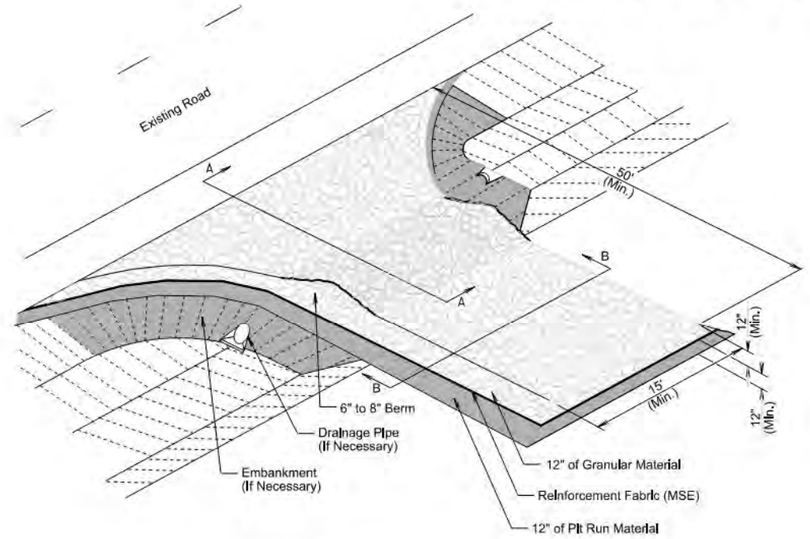
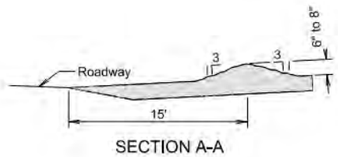
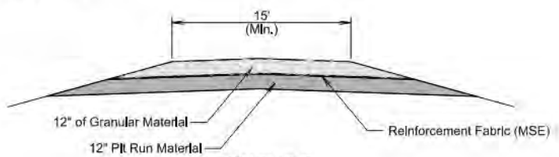
Plotting Date:

SDDOT CONSTRUCTION ENTRANCE





SECTION A-A



SECTION B-B

GENERAL NOTES:

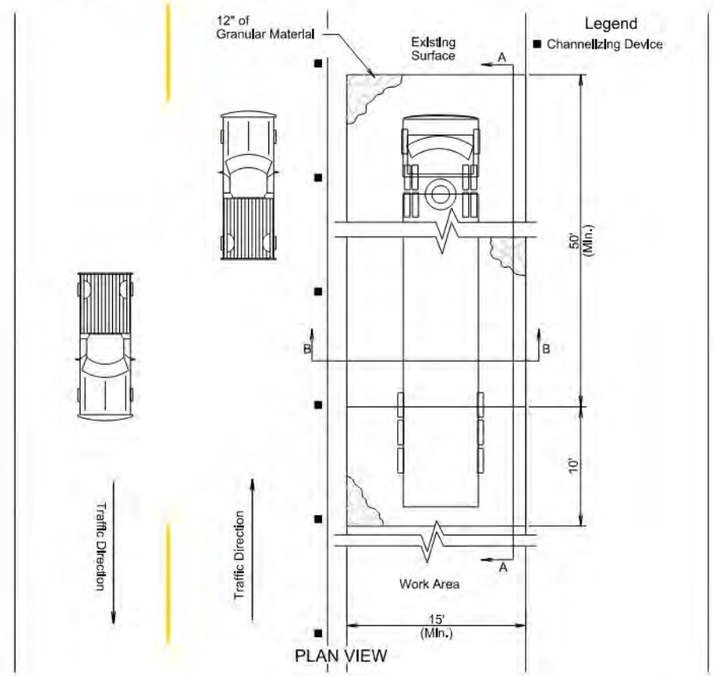
If the grade of the entrance slopes down to the roadway, a berm of extra rock will be used to prevent sediment or mud from being deposited on the roadway. See SECTION A-A.

If a drainage pipe is necessary the size and type will be determined by the Contractor to meet field conditions. All cost will be incidental to the various contract items.

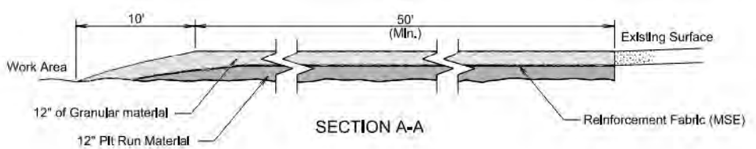
If embankment is necessary it will be pit run material.

TRANSVERSE TO ROADWAY

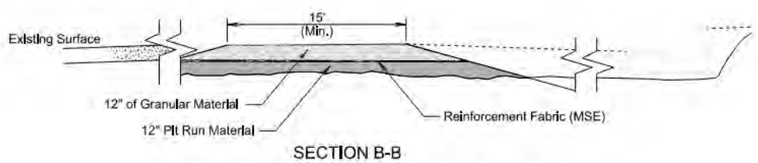
Plotting Date: 06/21/2022



PLAN VIEW

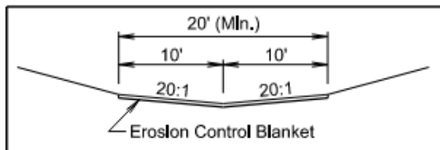


SECTION A-A

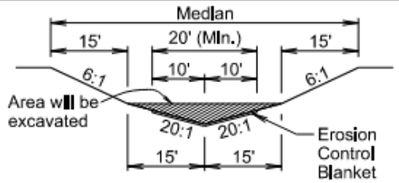


SECTION B-B

PARALLEL TO ROADWAY

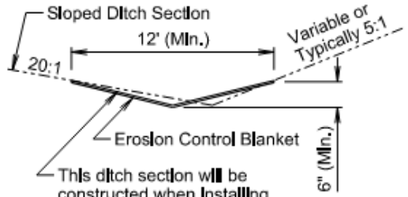


STANDARD DITCH SECTION

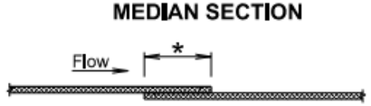


The median will be shaped to the limits shown in this detail where the erosion control blanket will be placed.

MEDIAN SECTION



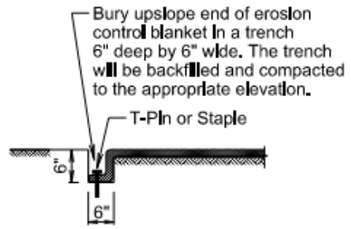
SLOPED DITCH SECTION



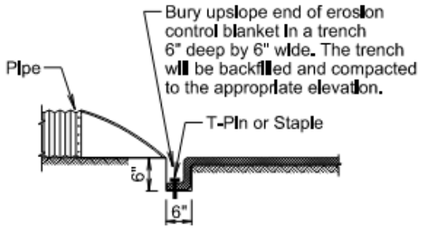
* Use a 4" (Mln.) overlap wherever two widths of erosion control blanket are applied side by side.

* Use a 6" (Mln.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

GENERAL NOTES:

Prior to placement of the erosion control blanket, the areas will be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket will be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket will be buried in a trench 6" wide by 6" deep. There will be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

The erosion control blanket will be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor will fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

All ditch sections will be shaped when installing the erosion control blanket. All costs for shaping the ditches will be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

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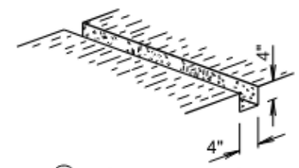
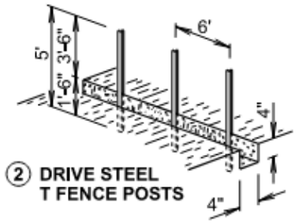
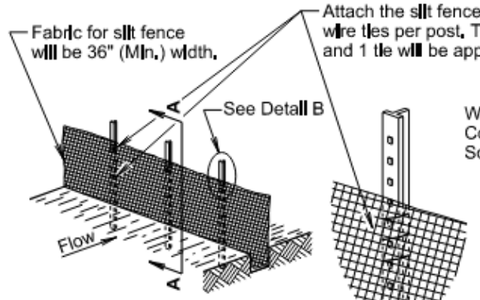
MANUAL HIGH FLOW SILT FENCE INSTALLATION



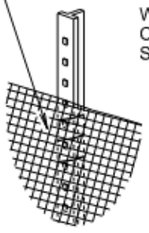
① EXCAVATE TRENCH



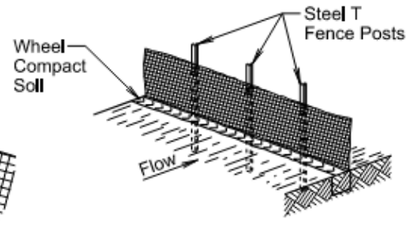
② DRIVE STEEL T FENCE POSTS



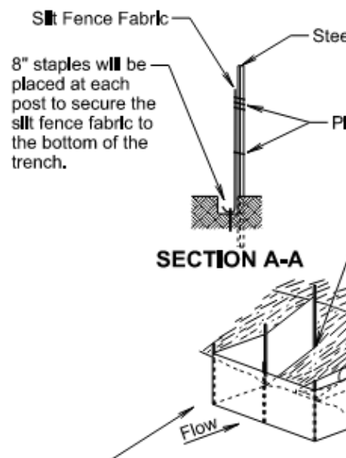
③ ATTACH SILT FENCE FABRIC



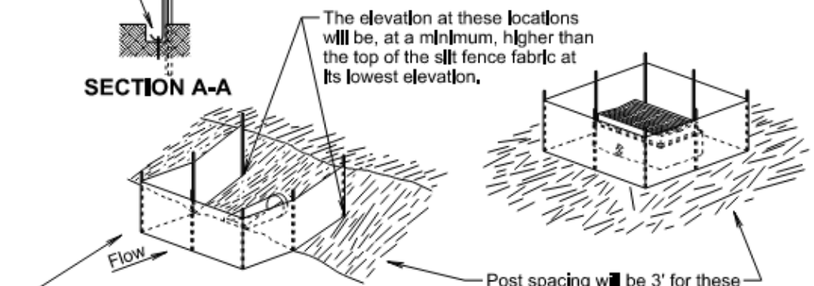
DETAIL B



④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



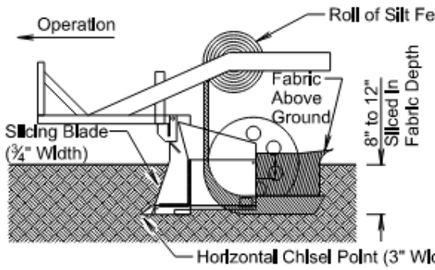
SECTION A-A



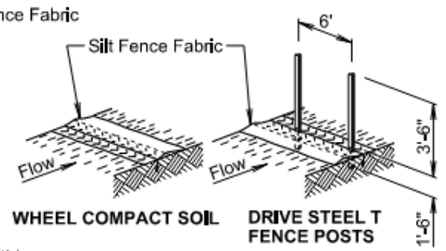
February 14, 2020

Published Date: 2026	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



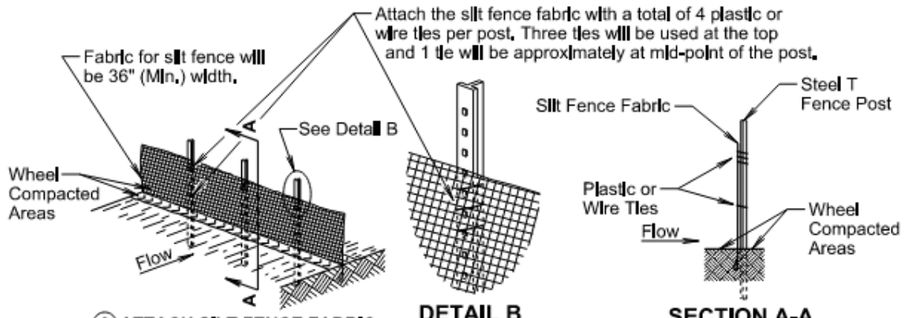
① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



WHEEL COMPACT SOIL

DRIVE STEEL T FENCE POSTS

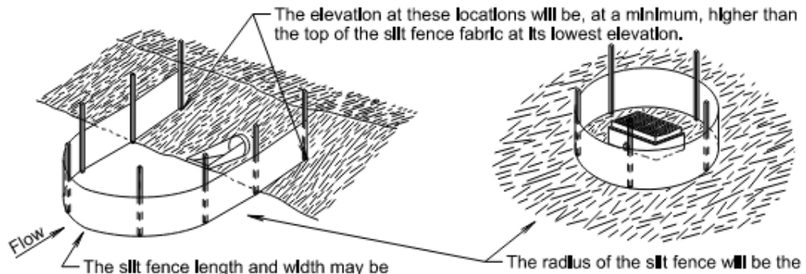
② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



③ ATTACH SILT FENCE FABRIC

DETAIL B

SECTION A-A



GENERAL NOTE:

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end will be provided on top of the extra length of silt fence fabric to prevent underflow.

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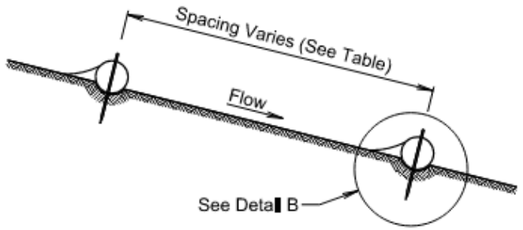
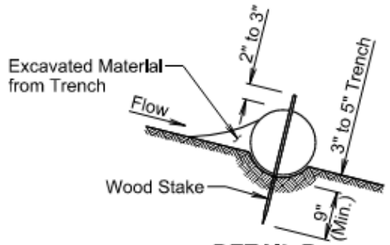
Published Date: 2026	SDDOT	*HIGH FLOW SILT FENCE*	*PLATE NUMBER 734.05*
			Sheet 2 of 2

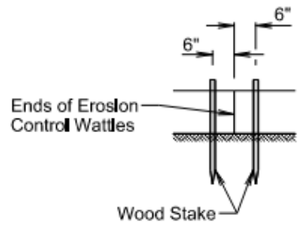


ELEVATION VIEW
(Cut or Fill Slope Installation)

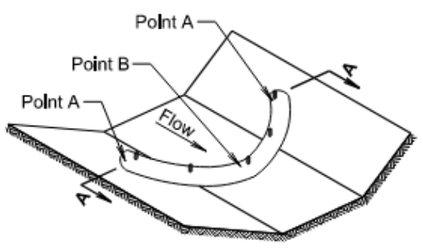
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



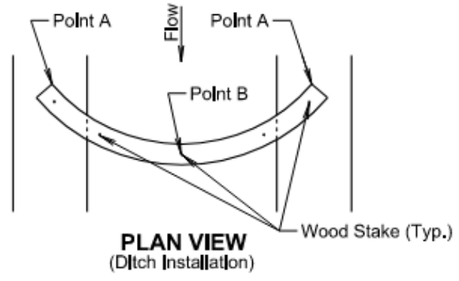
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

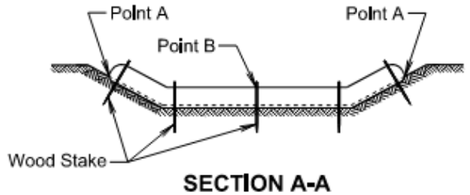


ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)

DITCH INSTALLATION	
Grade	Spacing (Ft.)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

February 14, 2020

Published Date: 2026	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

GENERAL NOTES:

At cut or fill slope installations, wattles will be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor will dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes will be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes will be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles will be 3' to 4'.

Where installing running lengths of wattles, the Contractor will butt the second wattle tightly against the first and will not overlap the ends. See Detail C.

The Contractor and Engineer will inspect the erosion control wattles in accordance with the storm water permit. The Contractor will remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for moving accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

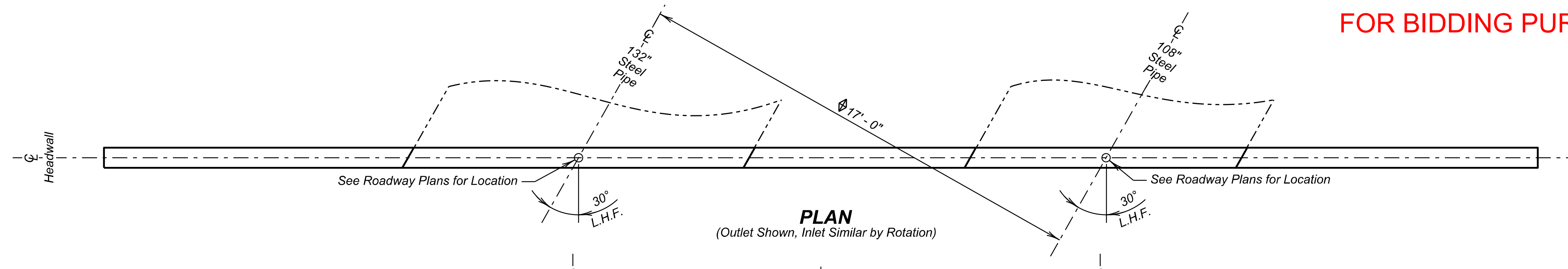
All costs for removing the erosion control wattle from the project including labor, equipment, and materials will be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

February 14, 2020

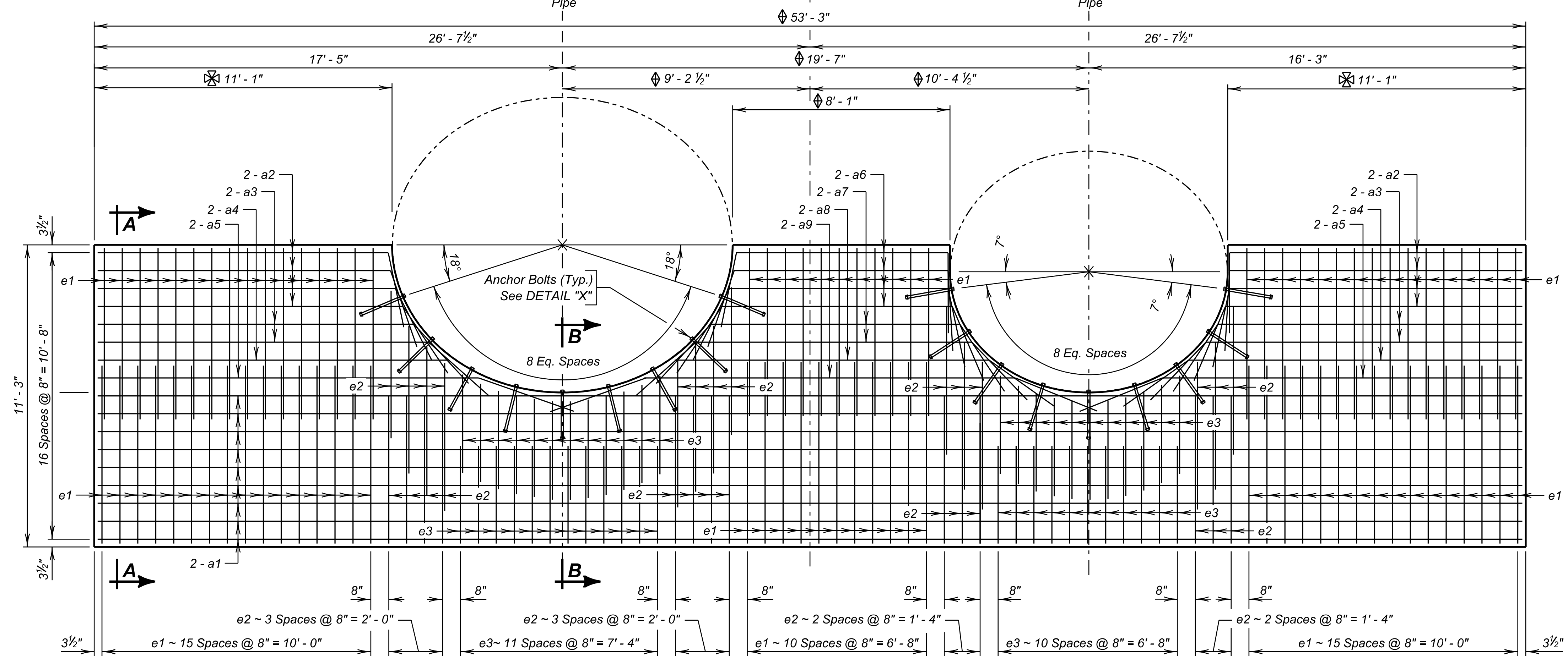
Published Date: 2026	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

FOR BIDDING PURPOSES ONLY

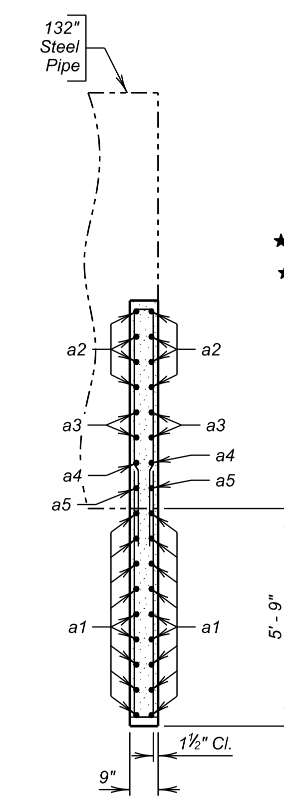
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	PT 0905(117)261	43	44



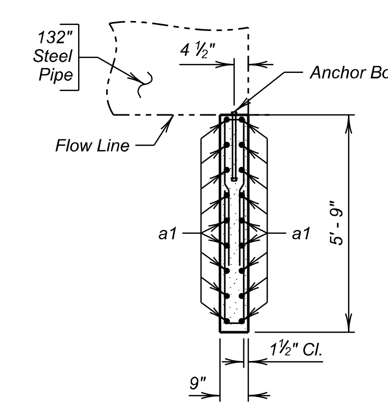
PLAN
(Outlet Shown, Inlet Similar by Rotation)



ELEVATION



SEC. A - A

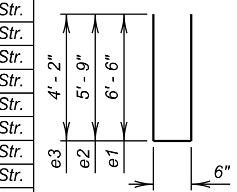


SEC. B - B

REINFORCING SCHEDULE
(For One Headwall, Two Required)

	Mk.	No.	Size	Length	Type
	a1	18	4	53' - 0"	Str.
✳	a2	16	4	13' - 0"	Str.
✳	a3	8	4	14' - 0"	Str.
✳	a4	4	4	15' - 9"	Str.
✳	a5	4	4	16' - 9"	Str.
✳	a6	8	4	11' - 3"	Str.
✳	a7	4	4	12' - 9"	Str.
✳	a8	2	4	16' - 3"	Str.
✳	a9	2	4	18' - 6"	Str.
	e1	86	4	13' - 6"	S10
	e2	28	4	12' - 0"	S10
	e3	46	4	8' - 10"	S10

Bending Details



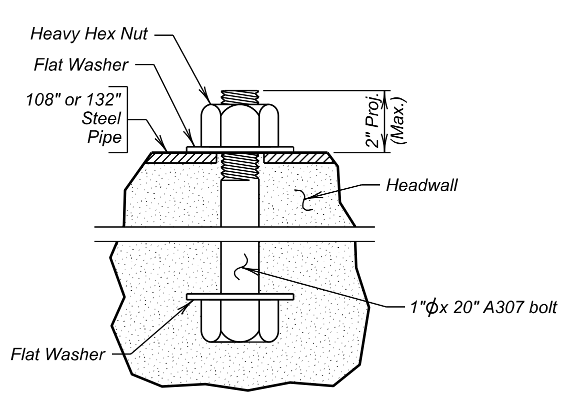
Type S10

NOTES:
All dimensions are out to out of bars.
✳ Bend in field as necessary to fit.

ESTIMATED QUANTITIES
(For One Headwall, Two Required)

	ITEM	UNIT	QUANTITY
	Class M6 Concrete	Cu. Yd.	14.4
	Reinforcing Steel	Lb.	2348
★	Structure Excavation, Misc.	Cu. Yd.	44.9

★ Quantity based on neat line excavation to the dimensions of the headwall below the bottom of the pipe. Payment will be for plans quantity regardless of actual volume excavated.



DETAIL "X"

SPECIFICATIONS

1. Design Specifications: AASHTO LRFD Bridge Design Specifications, 9th Edition.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES

1. Concrete will be Class M6 in conformance with Section 462.
2. Reinforcing Steel will conform to ASTM A615 Grade 60.
3. Use 1 ½" clear cover on all reinforcing steel except as shown.
4. All exposed edges will be chamfered ¾" .
5. Anchor Bolts will be 1"ϕ x 20" A307 bolts with heavy hex nuts and 2 washers. Bolts, nuts, and washers will be galvanized in accordance with ASTM A153. Nine (9) bolts, or equivalent as approved by the Engineer, are required for each pipe at each end. Embed bolts in concrete headwall as detailed.
6. All costs for furnishing and installing the galvanized Anchor Bolts will be absorbed in the other contract items.
7. Holes for Anchor Bolts will be drilled into pipe. Torching will not be allowed. Areas of damaged galvanizing at Anchor Bolt holes will be painted with a zinc rich paint.

⟠ Dimension may vary.

⊠ Dimension will be maintained for a 2h:1v soil spill cone.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHOLTZ
SOUTH DAKOTA
2025-06-06

HEADWALL DETAILS (5' - 9" CUTOFF WALL)
FOR
CULVERT EROSION CONTROL

OVER TRIBUTARY TO THE MISSOURI RIVER/LAKE FRANCIS CASE
STA. 132 + 50.00
PCN 080A

30° LHF SKEW
SEC 18-T104N-R71W
PT 0905(117)261

LYMAN COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MLJ	LPR	SEM	BRIDGE ENGINEER
LYMN080A	LYMN080A01		

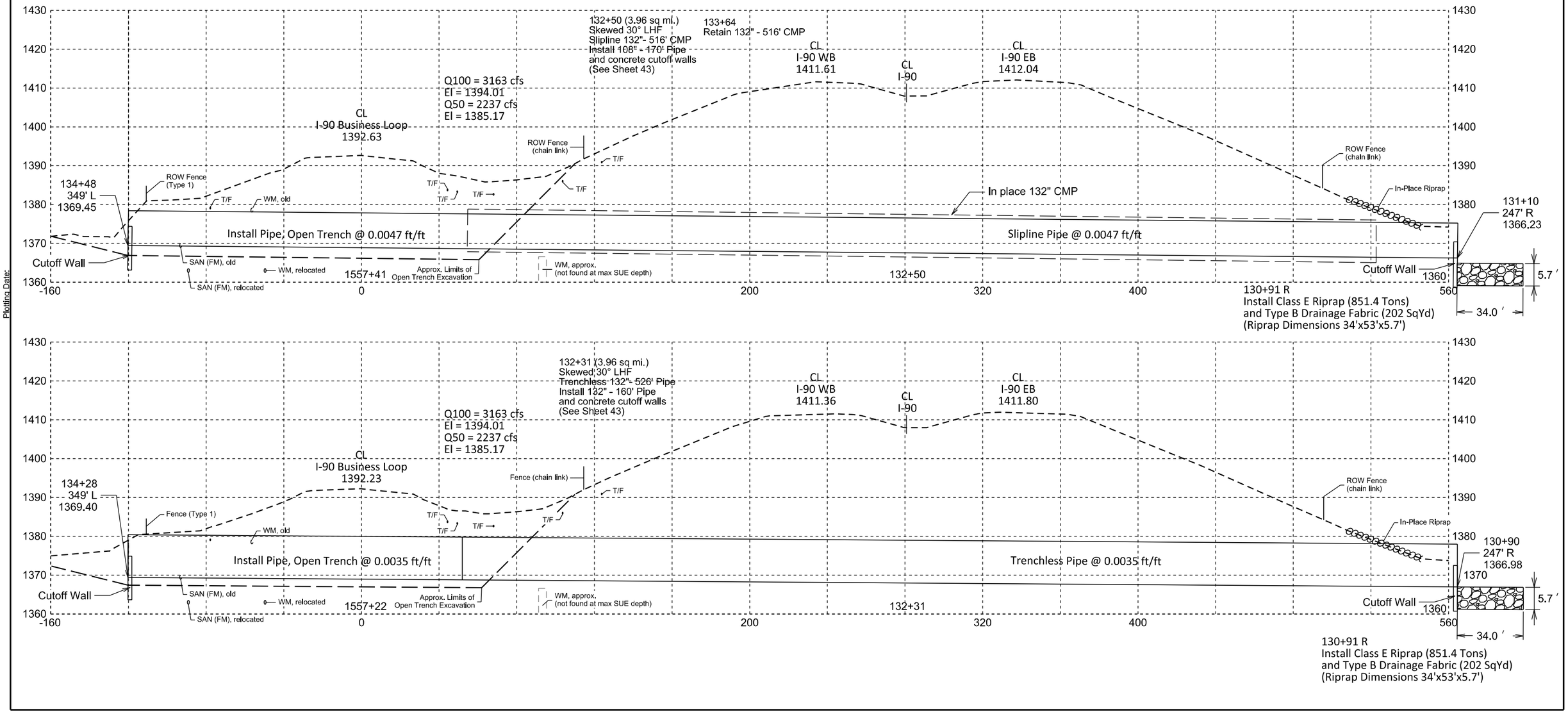
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PT 0905(117)261	44	44

FOR BIDDING PURPOSES ONLY

UNDERGROUND UTILITIES ARE DEPICTED FOR ILLUSTRATIVE PURPOSES.
ALL PRIVATE UTILITY LOCATIONS ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO EXCAVATION.
DEPTH OF UTILITIES ARE SHOWN AT 3-FEET BELOW EXISTING GRADE OR AS DIRECTED BY THE UTILITY.
NO SUBSURFACE UTILITY EXPLORATIONS (SUEs) WERE PERFORMED.

REFER TO CITY OF OACOMA UTILITY RELOCATION PLANS FOR ADDITIONAL INFORMATION FOR LOCATIONS OF WATER MAIN AND SANITARY FORCE MAIN.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULZ
SOUTH DAKOTA
2025-06-06



Plotting Date: