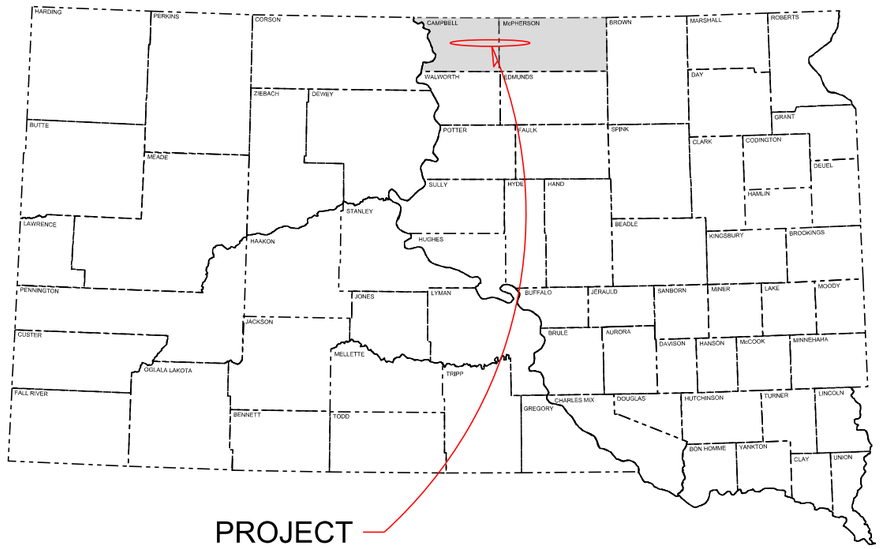


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P0032(15)	1	38

Plotting Date: 05-23-2016

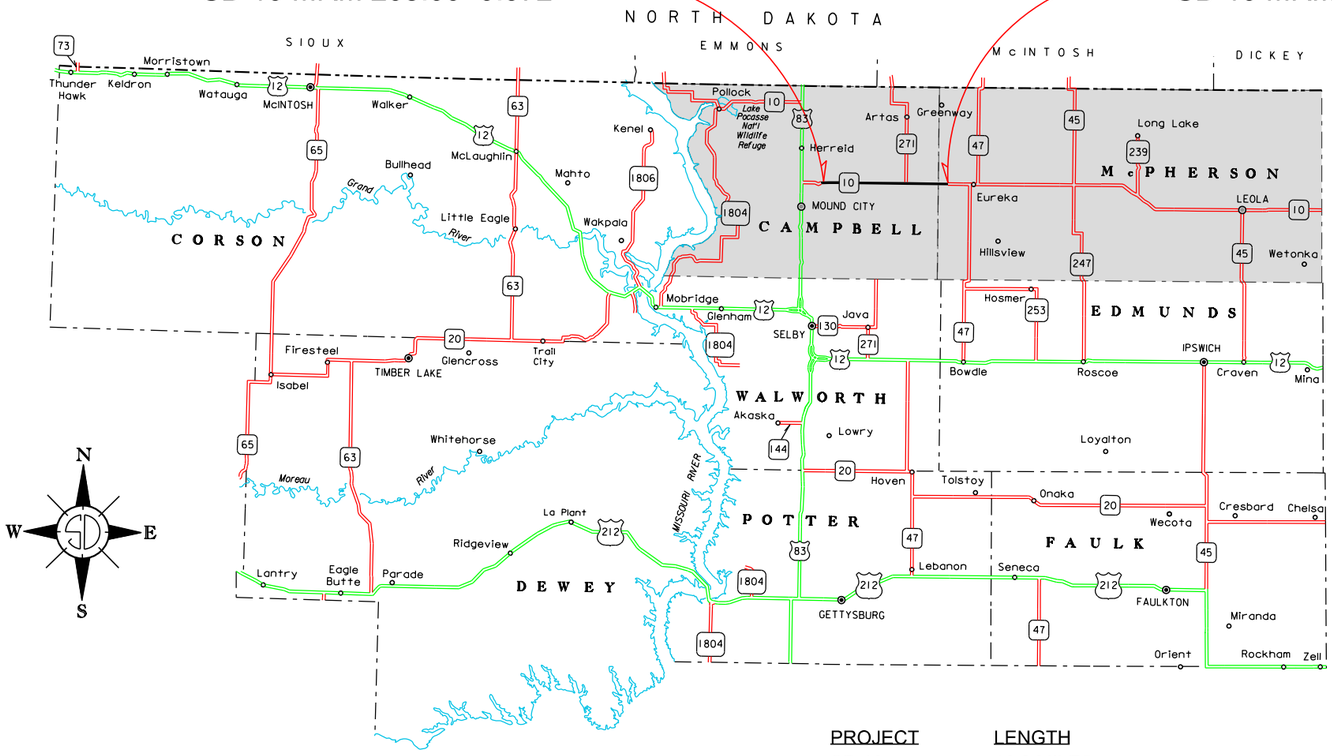
PROJECT P 0032(15)
SD HIGHWAY 10
CAMPBELL COUNTY & McPHERSON COUNTY

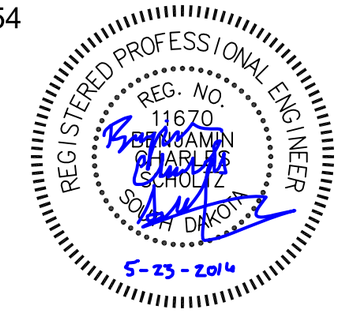
CULVERT REPLACEMENT & REPAIR
PCN 041T

INDEX OF SHEETS

BEGIN PROJECT
SD 10 MRM 205.00+0.372

END PROJECT
SD 10 MRM 221.00+0.354





DESIGN DESIGNATION

ADT (2013)	479
ADT (2033)	688
DHV	75.0
D	50
T DHV	10.7
T ADT	23.5
V	65 MPH

STORM WATER PERMIT

Major Receiving
Body of Water: Missouri River via Spring Creek
Area Disturbed: 1.29 Acres
Total Project Area: 1.29 Acres
Approx. Begin Lat/Long: 45.76595, -100.025

SCALES	Horizontal	Vertical Exaggeration
Plan	1"=20'	NA
Pipe Sections	1"=20'	2.0

PROJECT	LENGTH
SD 10	16.0 MILES

1

Plot Scale - 1:200
Plotted From - bscholtz
File - ...\Phase 2\001_Title Sheet_041T

ESTIMATE OF QUANTITIES

Std. Bid Item	Item Description	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
009E3260	Miscellaneous Staking	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0500	Remove Pipe Culvert	364	Ft
120E0010	Unclassified Excavation	1,680	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	737.9	Ton
320E1200	Asphalt Concrete Composite	152.9	Ton
421E0100	Pipe Culvert Undercut	91	CuYd
450E0142	24" RCP Class 2, Furnish	162	Ft
450E0150	24" RCP, Install	162	Ft
450E0162	30" RCP Class 2, Furnish	56	Ft
450E0170	30" RCP, Install	56	Ft
450E0182	36" RCP Class 2, Furnish	64	Ft
450E0190	36" RCP, Install	64	Ft
450E2028	36" RCP Flared End, Furnish	2	Each
450E2029	36" RCP Flared End, Install	2	Each
450E2200	24" RCP Sloped End, Furnish	4	Each
450E2201	24" RCP Sloped End, Install	4	Each
450E2204	30" RCP Sloped End, Furnish	4	Each
450E2205	30" RCP Sloped End, Install	4	Each
450E2304	18" RCP Safety End, Furnish	4	Each
450E2307	18" RCP Safety End, Install	4	Each
450E8900	Cleanout Pipe Culvert	3	Each
600E0200	Type II Field Laboratory	1	Each
632E2510	Type 2 Object Marker Back to Back	14	Each
634E0010	Flagging	100	Hour
634E0110	Traffic Control Signs	667.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	1	Each
634E0600	4" Temporary Pavement Marking Tape Type 1	14,064	Ft
634E0640	Temporary Pavement Marking	495	Ft
720E1015	Bank and Channel Protection Gabion	10.5	CuYd
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	4,348	SqYd
734E0154	12" Diameter Erosion Control Wattle	1,410	Ft
734E0165	Remove and Reset Erosion Control Wattle	720	Ft
734E0450	Temporary Water Barrier	200	Ft
734E0510	Shaping for Erosion Control Blanket	934	Ft
734E0630	Floating Silt Curtain	200	Ft
734E5005	Dewatering	Lump Sum	LS
831E0110	Type B Drainage Fabric	23	SqYd

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

COMMITMENT A: WETLANDS

Approximately 0.01 acre of wetlands will be permanently impacted by the project.
Refer to the Plans for location and boundaries of the impacted wetlands. These unavoidable impacts to wetlands are less than 0.1 acre and the "*Statewide Wetland Finding for South Dakota Federal-Aid Highway Projects*" will apply.

Approximately 0.67 acre of wetlands will be temporarily impacted by the project.

Temporary impacts will not be mitigated as original grades will be re-established.

Table of Impacted Wetlands

Wetland No.	*Type*	*Station (MRM)*	*Impact*		*Temp. Impact*	*Permanent Impact*
			Left	*Right*		
			(Acres)	*(Acres)*	*(Acres)*	*(Acres)*
01a	PEMC	114+92	-	0.0428	0.0428	-
01b	PEMC	(205.00+0.372)	0.0429	-	0.0429	-
01c	PEMC	117+24	0.0441	-	0.0441	-
01d	PEMC	(205.00+0.414)	-	0.0544	0.0544	-
02a	PEMC	273+00	-	0.0462	0.0462	-
02b	PEMC	(208.00+0.432)	0.0523	-	0.0523	-
03a	PEMC	176+21	-	0.0441	0.0422	0.0019
03b	PEMC	(215.00+0.618)	0.0349	-	0.0349	-
04a	PEMC	273+35	-	0.0536	0.0536	-
04b	PEMC	(217.00+0.465)	0.0424	-	0.0424	-
04c	PEMC	285+23	-	0.0463	0.0463	-
04d	PEMC	(217.00+0.687)	0.0393	-	0.0368	0.0025
05a	PEMC	58+66	-	0.0668	0.0668	-
05b	PEMC	(221.00+0.354)	0.0594	-	0.0594	-
				Sub Totals:	0.6651	0.0044
				Total:	0.6695	

Action Taken/Required:

Replacement of the 0.01 acre of wetland impacts will be completed through another wetland mitigation opportunity in a manner which considers FHWA's program-wide goal of 'net gain' of wetlands through enhancement, creation, and preservation.

Temporary impacts will not be mitigated as original grades will be re-established.

The contact person is the Environmental Project Scientist of the SDDOT Environmental Office at 605-773-3268.

Wetland Topsoil

Wetland topsoil shall be stripped from all wetland areas which will be impacted by the project. The wetland topsoil shall be stripped to a depth that sufficiently allows 6 inches of the wetland topsoil to be re-utilized as the upper stratum of wetland mitigation site(s).

The wetland topsoil shall be stockpiled separately from other topsoil in a location approved by the Project Engineer. Locate wetland stockpile a minimum of 50 feet away from concentrated flows of storm water, drainage courses, and inlets. All wetland topsoil that is stripped shall be spread in the mitigation site(s) so that it is evenly distributed to a minimum depth of 6 inches. Surplus wetland topsoil shall be used to flatten embankment slopes or placed in other locations as approved by the Project Engineer.

All costs to remove, stockpile, and place the wetland topsoil shall be incidental to the contract lump sum price for "Remove and Replace Topsoil".

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULTZ
SOUTH DAKOTA
5-23-2016

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

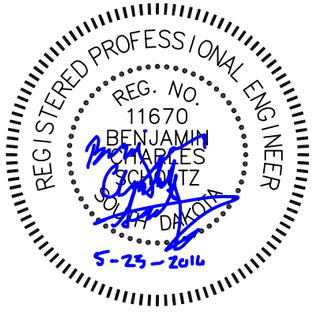
COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D2: SURFACE WATER DISCHARGE

The associated unnamed tributaries are classified as fish and wildlife propagation, recreation, irrigation and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

Action Taken/Required:

If construction dewatering is required, the Contractor shall obtain a Temporary Discharge Permit from the DENR and provide a copy to the Project Engineer. Contact the DENR Surface Water Program at 605-773-3351 to apply for a permit.



COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance.

Action Taken/Required:

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

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

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

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

SDDOT:
http://sddot.com/transportation/highways/environmental/stormwater/Default.aspx

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

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

Contractor Certification Form:

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

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

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

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

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) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources provided within the plans.

Action Taken/Required:

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

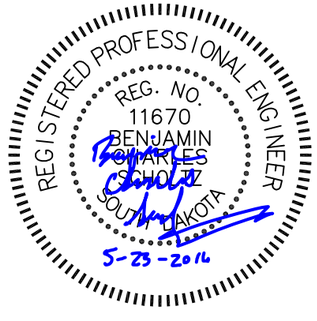
The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record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

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

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

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

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



SCOPE OF WORK

The work required for this project includes, but is not limited to the following: (items not necessarily listed in order of execution)

1. Traffic control.
   (Traffic control setups may vary depending on site conditions and the work identified to be performed.)
   - Traffic control for project areas requiring open-cut pipe removal and installation shall be installed in accordance with Standard Plates 634.22, 634.23, and 634.25
   - Traffic control for project areas along or near the roadway shoulder shall be installed in accordance with Standard Plate 634.01
   - The traffic control setup must be approved by the Engineer prior to the start of work.
   - Traffic control setups must account for the removal and installation of all project items.
   - Any flagging that may be required by the Contractor shall be included in the bid item “Flagging”.

2. Erosion control
   - Installation & maintenance of wattles, erosion control blankets, seeding, etc.

3. Repair / Replacement of pipe culverts and appurtenances
   - See Sequence of Operations for details regarding various methods of culvert pipe rehabilitation.

4. Grading
   - Restoration of roadway inslopes, ditches, and other disturbed areas (as applicable).

SEQUENCE OF OPERATIONS

The following list includes recommended sequencing for various culvert pipe rehabilitation methods:

For Open-Cut Pipe Replacement Locations
- Excavate & remove culverts ½ the roadway width.
- Place new culvert sections ½ the roadway width, including pipe end treatments and bank & channel protection features (as applicable).
- Backfill and compact the subgrade, base course, and temporary roadway surfacing.
- Switch traffic and repeat previous steps.
- Remove temporary roadway surfacing and place Asphalt Concrete Composite on both lanes.

For Pipe End Replacement Locations:
- Excavate & remove pipe end treatments.
- Clean out pipe culvert.
- Place new pipe end treatments and bank & channel protection features (as applicable).

The Contractor shall submit his/her proposed sequence of operations for the Engineer’s approval at least one week prior to the preconstruction meeting. Any changes must be approved in writing by the Area Engineer prior to execution of the work. The Contractor may perform work on the roadway/work area during daylight hours only, unless additional hours are approved by the Engineer.

GENERAL NOTES

The Contractor is encouraged to inspect the project site prior to bidding to evaluate the extent of work that will be required in order to satisfactorily complete the project.

The Contractor shall ensure that the installed pipe will maintain positive drainage throughout the entire length.

The Contractor shall not allow any contaminants and/or loose dirt related material to be displaced into adjacent ponds, streams, or other waterways within or adjacent to the project site at all times during construction operations.

The Contractor shall be responsible for the maintenance of drainage between phases of construction for culvert replacements ½ roadway width at a time.

Hauling of embankment material on established traveled roadways shall be limited to truck or small scrapers hauling legal loads and which do not cause damage to the roadway, as approved by the Engineer. Hauling of material in the roadway ditches will not be allowed.

The Contractor shall be responsible for restoration of any areas disturbed outside the limits of the work area.

The Engineer reserves the right to adjust the installation location and/or alignment of any full pipe replacement after any dewatering and/or pipe clearing has been completed to best accommodate the drainage and avoid any interference with the existing roadway. If the Engineer determines that an alignment shift and/or a location change is required, then the overall length of installed pipe may be decreased or increased. The actual length of pipe will be the basis for payment and paid for at the contract unit price.

TYPE II FIELD LABORATORY

The lab shall be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection shall be provided with a multi-port wireless router. The internet connection shall be a minimum speed of 512 Kb unless limited by job location and approved by the DOT. Prior to installing the wireless router the Contractor shall 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.

The Contractor shall submit a copy of each monthly bill for calls charged to this phone at the end of each month. The Project Engineer will then audit the bills to ensure all calls are legitimate and then initiate a Construction Change Order (CCO) to reimburse the Contractor for the actual phone calls made, including local and long distance calls. Reimbursement will not be made for fees associated with the purchase, installation, disconnection, monthly line charges, and incidentals involved in the installation, maintenance, and disconnection of the phone (including attachments). These items shall be incidental to the contract unit price per each for “Type II Field Laboratory”.

UTILITIES

The Contractor shall be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor shall contact each utility owner and confirm the status of all existing and new utility facilities through the South Dakota One Call (1-800-781-7474) prior to starting work.

GPS COORDINATES

The approximate GPS coordinates of the work locations have been included in the plans to help verify the work locations. The coordinates are not to be used for survey control or locates without verification by the Contractor. In the event that the GPS coordinates do not match the Mile Reference Marker indicated, the Contractor shall notify the Engineer for verification of the work location.

CLEARING

Before clearing activities begin, the Contractor shall contact the Engineer to determine the limits of clearing for the project. If the trees or shrubs that are supposed to remain within the limits of work are damaged or destroyed by the Contractor, the Contractor shall replace them with the same size and type at the Contractor's expense.

There is a single No Passing Zone sign located within the work limits that must be Removed and Reset. This sign is located along SD Highway 10 at MRM 208.00+0.432 at Sta 272+67, OS 33' L. All costs associated with the removal, storage, and resetting of this sign shall be incidental to the contract lump sum price for "Clearing".

REMOVE TYPE 2 OBJECT MARKERS

The Contractor will be required to remove, prior to work, all Type 2 Object Markers delineating the pipe ends.

Removal of existing Type 2 Object Markers will not be measured for payment and shall be incidental to the contract unit prices for the various bid items.

Object Markers shall become property of the Contractor.

Disposal of Object Markers by the Contractor shall be performed in accordance with the waste disposal site notes.

REMOVAL OF EXISTING PAVEMENT & PIPE CULVERTS

All costs to saw cut asphalt, remove and dispose of asphalt, excavate and backfill the material to the bottom of the pipe and slope the excavating limits at a 2:1 backslope shall be paid for at the contract unit price per cubic yard for "Unclassified Excavation".

Pipe Culvert Undercut shall be paid for at the contract unit price per cubic yard for "Pipe Culvert Undercut".

No additional payment will be made for asphalt removal, excavation, or disposal of material to accommodate temporary channel diversions or pipes.

The Contractor shall dispose of the concrete pavement and asphalt concrete at a site approved by the Engineer.

The pipe culvert removed and not reused on this project shall become property of the Contractor.

Any materials not reused on the project shall be disposed of per the waste disposal site notes.

DEWATERING

The Contractor shall dewater the area to an elevation sufficient for performing the work described. It is the responsibility of the Contractor to determine the appropriate elevation of pooled water in order to achieve an acceptable working area to perform the work.

The Contractor shall discharge water on the downstream side of the pipe culvert. The discharge location shall be at a location such that the discharge water will have positive drainage. The Contractor shall ensure that ditch channels will not be eroded throughout the runoff areas and at the discharge location. If the Engineer determines that the area will require erosion control measures, the Contractor will be required to install appropriate BMPs as approved by the Engineer to eliminate the erosion. If approved BMPs do not control the erosion, the Contractor will be required to stop dewatering until appropriate measures are approved by the Engineer to eliminate the erosion at the problem areas. The Contractor may be required to reduce the discharge velocity at the discretion of the Engineer to eliminate the erosion.

The contract lump sum price to dewater will not be adjusted more or less to account for variable water levels in the surrounding areas at the time of dewatering.

All costs associated with dewatering, including furnishing and installing necessary erosion control measures (if required), and all incidentals needed to accomplish the work shall be incidental to the contract lump sum price for "Dewatering".

CLEANOUT PIPE CULVERTS

At those culvert locations where end sections are identified to be removed and replaced, the portions of the culvert not removed shall be cleaned out to maintain the lowest possible flow line, as approved by the Engineer. The ditches at the inlet and outlet shall also be cleared.

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

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

All costs associated with the cleanout of pipe culverts including the removal and disposal of silt, sediment, debris, and other miscellaneous items shall be incidental to the contract unit price per each for "Cleanout Pipe Culvert".

TYPE 2 OBJECT MARKERS

The Contractor will be required to install Type 2 Object Markers delineating the pipe ends.

All costs associated with furnishing and installing Type 2 Object Markers shall be paid for at the contract unit price per each for "Type 2 Object Marker Back to Back".

REINFORCED CONCRETE PIPE

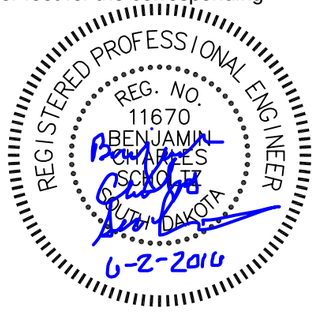
All reinforced concrete pipe used in this project is Class 2 unless otherwise noted in the plans.

CONCRETE PIPE CONNECTIONS

Joints between concrete pipe culvert section shall be protected against infiltration as indicated in Section 450.3 A of the Specifications. If an existing section has a damaged joint or there is poor alignment of the joints, 2 layers of drainage fabric shall be placed over the joint.

When it is not possible to use a normal pipe joint (male-female ends), connections to existing pipe shall be made by placing a 2' wide by 6" thick M6 concrete collar around the outside of the connection. The concrete collar shall be reinforced with 6x6 W2.9 x W2.9 wire mesh.

All costs for constructing the concrete collars including materials and labor shall be incidental to the contract unit price per foot for the corresponding pipe bid item.



TIE BOLTS FOR RCP CULVERTS

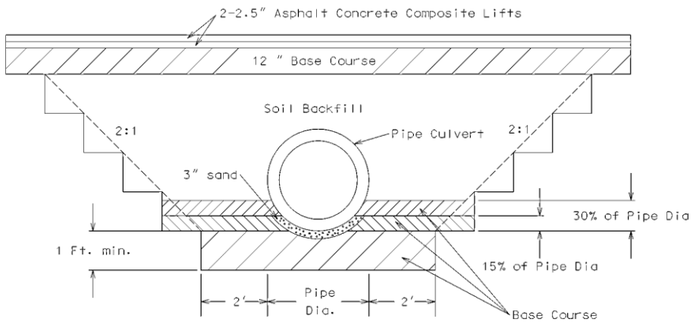
Tie Bolts shall be installed on all new pipe sections and all new end sections.

Cost for furnishing and installing tie bolts shall be incidental to the contract unit price for installing or resetting RCP Culverts and End Sections.

MAINLINE CROSS PIPE REPLACEMENT

After the existing pipe has been removed, new pipe culverts shall be undercut to a minimum depth of 1 foot and backfilled with base course. The depth of undercut is an estimate and the actual depth necessary shall be determined during construction. The Engineer will determine how much undercut shall be done in accordance with Section 421 of the Specifications, but will not reduce the undercut to less than the minimum depth prescribed above for the pipe diameter. Compaction of the undercut backfill will be in accordance with Section 421.3A.

The culvert will be bedded in accordance with Section 450.3 F.2, Class B Bedding with the following exception. The undercut area shall extend 2 feet from the outermost diameter on both sides of the pipe with the back of the excavated area being sloped 2:1 upward to the top of the roadway surface. The Select Granular Backfill for the Class B Bedding will conform to the specification for Base Course. See Figure below.



Granular material from the pipe removal excavation must be separated and shall not be used for soil backfill.

The remainder of the pipe culvert excavation shall be backfilled with soils taken from the pipe removal excavation or other suitable material as approved by the Engineer.

The backfill will be benched into 2:1 excavation slope. Compaction of the backfill material shall be governed by the Specified Density Method.

TABLE OF BASE COURSE

Route	Station (MRM)	Base Course For: Select Granular Backfill (Ton)	Permanent Roadway Surfacing (Ton)	Temporary Roadway Surfacing (Ton)
SD 10	114+92 (205.00+0.372)	62.5	81.0	33.8
SD 10	117+24 (205.00+0.414)	79.4	77.7	32.1
SD 10	273+00 (208.00+0.432)	72.6	97.9	40.5
SD 10	58+66 (221.00+0.354)	60.8	70.9	28.7
	Subtotals:	275.3	327.5	135.1
	Total:		737.9	

TABLE OF PIPE CULVERT UNDERCUT

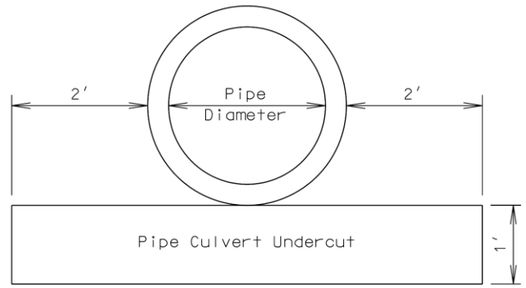
The Table of Pipe Culvert Undercut is intended to be used to establish an estimated quantity of Pipe Culvert Undercut for bidding purposes only. The depth of undercut is an estimate and the actual depth necessary shall be determined during construction. Pipes shown may or may not require undercutting and not shown may require undercutting. The Engineer will determine which pipe shall be undercut in accordance with Section 421 of the Specifications.

Route	Station (MRM)	Undercut Depth (Ft)	Quantity (CuYd)
SD 10	114+92 (205.00+0.372)	1.0	22.7
SD 10	117+24 (205.00+0.414)	1.0	24.7
SD 10	273+00 (208.00+0.432)	1.0	24.4
SD 10	58+66 (221.00+0.354)	1.0	18.9
		Total:	90.7

Pipe Culvert Undercut shall be paid for at the contract unit price per cubic yard for “Pipe Culvert Undercut”.

The following table contains the rate of pipe culvert undercut per foot of pipe length and should be used as an aid in determining the actual amount of undercut to be performed during construction. The table is derived from the drawing below and conforms to the Specifications. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

Pipe Diameter (In)	Round Pipe Undercut Rate for 1’ Depth (CuYd/Ft)	Arch Pipe Undercut Rate for 1’ Depth (CuYd/Ft)
24	0.2407	0.2577
30	0.2623	0.2847
36	0.2840	0.3110
42	0.3056	0.3337
48	0.3272	0.3596
54	0.3488	0.3827
60	0.3704	0.4105
66	0.3920	---
72	0.4136	0.4630
78	0.4352	---
84	0.4568	0.5123
90	0.4784	---



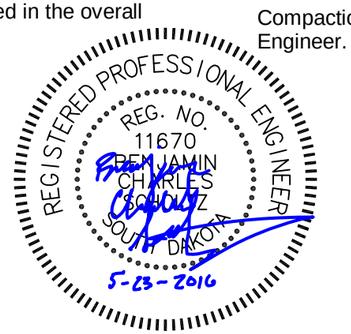
GRADING OPERATIONS

Base Course shall be provided by the Contractor. All requirements for Base Course shall apply.

A depth of 12 inches of Base course shall be placed above the soil backfill.

It is not anticipated that water for compaction will be required. However, if in the opinion of the Engineer the fill material is extremely dry, water may be ordered and placed to the satisfaction of the Engineer. All costs for any added water shall be incidental to the contract unit prices for the various culvert contract items.

Compaction of inslope embankments shall be to the satisfaction of the Engineer.



BANK AND CHANNEL PROTECTION GABIONS

Bank and channel protection gabions shall be installed in the locations stated in the Table of Mainline Culvert Work. Gabions shall be installed as per the standard plates 720.01 and 720.03. Gabions shall be placed without disturbing the right-of-way fence. Gabion placement shall be adjusted slightly in the field to achieve an installation acceptable to the Engineer while remaining within the right-of-way.

TABLE OF BANK AND CHANNEL PROTECTION GABIONS

Route	Station (MRM)	L/R	Quantity (Cu Yd)	Type B Drainage Fabric (SqYd)
SD 10	176+21 (215.00+0.618)	R	4.5	10
SD 10	285+23 (217.00+0.687)	L	6.0	13
		Totals:	10.5	23

ASPHALT CONCRETE COMPOSITE

After the new pipe has been backfilled to the top of the subgrade, a 12'" depth of base course and 5" depth (2- 2.5" lifts) of asphalt concrete composite shall be placed, matching the existing asphalt concrete.

A maximum of one (1) lift of Asphalt Concrete Composite may be placed per day.

TABLE OF ASPHALT CONCRETE COMPOSITE (ACC)

The Table of Asphalt Concrete Composite (ACC) is intended to be used to establish an estimated quantity of ACC for bidding purposes only. The quantity of ACC is an estimate based on a 5 inch application depth. The actual amount necessary shall be determined during construction.

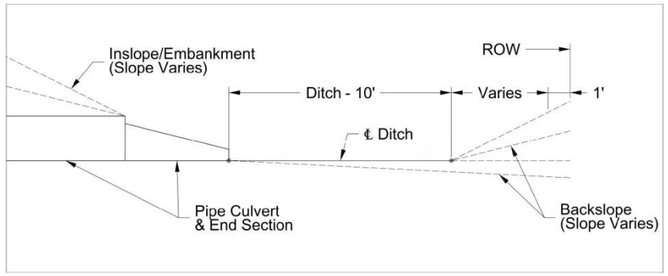
Route	Station (MRM)	Quantity (Tons)
SD 10	114+92 (205.00+0.372)	38.1
SD 10	117+24 (205.00+0.414)	36.8
SD 10	273+00 (208.00+0.432)	45.3
SD 10	58+66 (221.00+0.354)	32.7
	Total:	152.9

DITCH CLEANOUT

Ditch cleanout is required at all locations on SD Highway 10 where pipe culvert work is being performed. Pipe flowline shall match that of existing pipe. This may require that ditches be excavated in each direction from the pipe ends to maintain proper water flow through the pipe.

The extents of ditch cleanout shall not extend beyond the "Work Limits", as identified in the plans.

Ditch cleanout shall extend from the end of the culvert to within one (1) foot of the right-of-Way (ROW) Line. The bottom of the ditch cleanout shall be a minimum of 10 feet wide and side slopes on the channel shall be 20H:1V or flatter. For those locations where there is no channel from the inlet/outlet of the culvert to the ROW Line, ditch cleanout shall be completed such that there is a flat area of 100 square feet created at the inlet/outlet and the side slopes around the flat area shall be 20H:1V of flatter.



The excavated material shall become the property of the Contractor for his/her disposal. Material from the ditch cleanout may be placed on the inslopes at the ditch cleanout locations or spread on the backslopes as directed by the Engineer.

All costs associated with this work shall be incidental to the contract lump sum price for "Incidental Work, Grading".

REMOVING, STOCKPILING, AND REPLACING TOPSOIL

Prior to construction, the Contractor will be required to remove and stockpile a sufficient volume of the existing topsoil within the excavation work limits. It will be the Contractor's responsibility to determine the limits of topsoil removal based on the anticipated work area needed to satisfactorily construct the culvert pipe.

Following completion of the grading operations, topsoil shall be spread evenly throughout the disturbed areas. The topsoil thickness shall be approximately 4 inches. Any clumps larger than 3 inches shall be broken up prior to seeding the area.

Measurement of topsoil quantities will not be made. All costs associated with removing, stockpiling, and replacing topsoil, including that related to ditch cleanout, shall be incidental to the contract lump sum price for "Remove and Replace Topsoil".

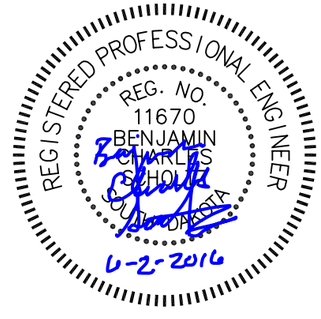
TEMPORARY SURFACING

Granular material salvaged from the excavation of the roadway shall not be allowed for use as temporary roadway surfacing.

Temporary Roadway Surfacing shall be Base Course. The quantity of Base Course for Temporary Roadway Surfacing is an estimate based on a 5" depth for temporary replacement of asphalt concrete surfacing.

The Contractor shall maintain temporary roadway surfacing as directed by the Engineer.

Upon removal of temporary roadway surfacing, the material shall become property of the Contractor. All costs to furnish, place, maintain, and remove Temporary Roadway Surfacing shall be incidental to the contract unit price per ton for "Base Course".



GENERAL MAINTENANCE OF TRAFFIC

Traffic shall be maintained through the project at ALL times. Prior to nightfall, a minimum of one lane with appropriate traffic control devices shall be restored and open to traffic.

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

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

TRAFFIC CONTROL – GENERAL

1. Requests to deviate from the sequence of operations as previously defined shall be submitted in writing to the Engineer for review. Approval of an alternate 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. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.

2. Unless otherwise stated in these plans, no work will be allowed during hours of darkness.

3. Existing guide, route, informational logo, regulatory, and warning signs shall be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including but not limited to, traffic signal heads, delineation, and signing shall be the responsibility of the Contractor. Non-applicable signing and all traffic control devices shall be covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 24 hours. The cost of removing or covering non-applicable traffic control devices shall be incidental to the contract lump sum price for, "Traffic Control, Miscellaneous".

4. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.

5. Vehicles working in traffic or alongside traffic shall be equipped with a flashing amber light visible from all directions. All haul trucks shall be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights shall be incidental to the various related contract bid items.

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

TRAFFIC CONTROL – GENERAL (continued)

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

8. Temporary Vertical Flexible Markers (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5' spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

9. Drums are required in all lane closure tapers.

TEMPORARY PAVEMENT MARKINGS

All Temporary Pavement Marking Tape installed for lane transitions, tapers, centerline markings, no passing zone markings, edge lines, stop bars, and other applicable lane lines shall be Type 1 and must be removed from the roadway surface prior to completion of the Project and to the satisfaction of the Engineer.

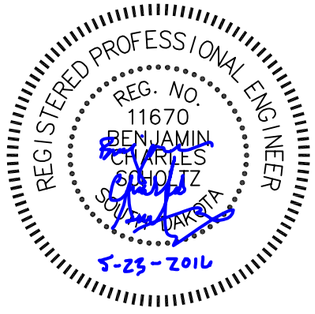
Temporary Flexible Vertical Markers (tabs) are permitted for use in lieu of temporary pavement marking paint.

All costs for furnishing and placement of temporary pavement markings shall be included in the contract unit price per foot for "Temporary Pavement Marking".

All costs for furnishing, placing, and removal of Temporary Pavement Marking Tape shall be included in the contract unit price per foot for "4" Temporary Pavement Marking Tape Type 1".

PERMANENT PAVEMENT MARKINGS

Permanent pavement markings shall be installed by State forces after project completion.



PERMANENT SEEDING & EROSION CONTROL BLANKET

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.

All disturbed areas shall be covered by Type 2 Erosion Control Blanket.

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

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

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

Type C Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	16
Canada Wildrye	Mandan	2
	Total:	18

TABLE OF PERMANENT SEEDING AND EROSION CONTROL BLANKET

The areas for seeding and placement of erosion control blanket are estimated as follows:

Route	Station (MRM)	Area for Seeding (Acres)	Area for Type 2 Erosion Control Blanket (SqYd)
SD 10	114+92 (205.00+0.372)	0.07	353
SD 10	117+24 (205.00+0.414)	0.06	282
SD 10	273+00 (208.00+0.432)	0.20	942
SD 10	176+21 (215.00+0.618)	0.14	659
SD 10	273+35 (217.00+0.465)	0.14	660
SD 10	285+23 (217.00+0.687)	0.14	661
SD 10	58+66 (221.00+0.354)	0.16	791
	Totals:	0.91	4348

Cost for seeding shall be included in the contract lump sum price for "Erosion Control".

COVER CROP SEEDING

Oats or spring wheat seed shall be used April through July and winter wheat seed shall be used August through November.

Cover crop seeding may be used on this project as a temporary erosion control measure. The quantity of cover crop seeding is generally estimated at 25% of the disturbed earthen areas. The actual limits and use of cover crop seeding shall be determined by the Engineer during construction.

All costs for furnishing and installing cover crop seeding shall be included in the contract lump sum price for “Erosion Control”.

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum shall 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 shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

Glomus intraradices	25%
Glomus aggregatu	25%
Glomus mosseae	25%
Glomus etunicatum	25%

All seed shall 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 shall be incidental to the contract lump sum price for “Erosion Control”.

The mycorrhizal inoculum shall be from the list below or an approved equal:

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 http://www.mycorrhizae.com/

FERTILIZING

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (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 shall 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 shall 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 shall 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 all-natural slow release fertilizer shall be applied according to the manufacturer’s application recommendations.

The application rate is 1,500 pounds per acre.

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

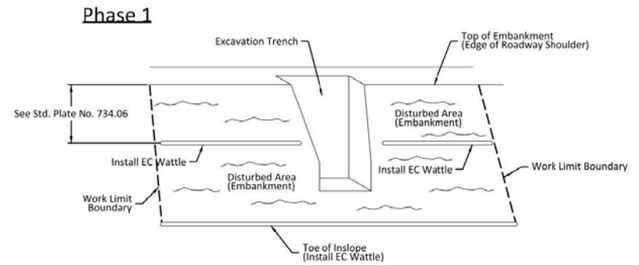
Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 http://www.sustane.com/

All costs associated with fertilizing shall be incidental to the contract lump sum price for “Erosion Control”.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHOLTZ
SOUTH DAKOTA
5-23-2016

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations surrounding the work limits as identified in the following illustration and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for additional installation details.



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

Erosion control wattles shall remain on the project to decompose.

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

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

All costs for furnishing and placing the wattles shall be included in the contract unit price per foot for “12” Diameter Erosion Control Wattle”.

REMOVE AND RESET EROSION CONTROL WATTLE

Erosion control wattles may be removed and reset as necessary as work progresses. The erosion control wattles removed and reset shall be in useable condition.

All costs for removing and resetting the erosion control wattles shall be incidental to the contract lump sum price for “Remove & Reset Erosion Control Wattle”.

TABLE OF EROSION CONTROL WATTLE

Route	Station (MRM)	12” Erosion Control Wattle (Ft) Phase 1	Phase 2
SD 10	114+92 (205.00+0.372)	160	160
SD 10	117+24 (205.00+0.414)	150	150
SD 10	273+00 (208.00+0.432)	200	200
SD 10	176+21 (215.00+0.618)	120	160
SD 10	273+35 (217.00+0.465)	160	160
SD 10	285+23 (217.00+0.687)	160	160
SD 10	58+66 (221.00+0.354)	170	170
	Sub Totals:	1120	1160
	Total for payment: Phase 1 + (0.25* Phase 2)	1410	

TEMPORARY WATER BARRIER

Temporary water barriers shall be place in a manner that creates the least amount of disturbance. Temporary water barriers are placed to keep the work area dry and separate from the water body. Contaminated water within the work area collected by the water barriers shall be removed and treated in conformance with the Dewatering and Sediment Collecting notes and detail drawings in the plans.

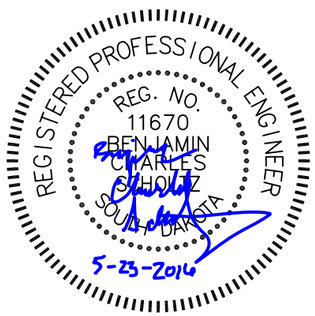
The temporary water barrier shall be from the list below or an approved equal:

Product	Manufacturer
Environmental Barricades	Environmental Barricades Inc. Eagle Creek, OR Phone: 1-800-656-1296
Portadam	Portadam, Inc. Williamstown, NJ Phone: 1-800-346-4793 www.portadam.com
Aquadam	Water Structures Unlimited Carlotta, CA Phone: 1-800-682-9283 www.aquadam.com

All costs for furnishing, installing, maintaining, and removal of the temporary water barrier including hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per foot for “Temporary Water Barrier”.

TABLE OF TEMPORARY WATER BARRIER

Route	Location MRM	Station	L/R	Quantity (Ft)
SD 10	205.00+0.414	117+24	L	100
			R	100
			Total:	200



FLOATING SILT CURTAIN

Floating silt curtains shall be installed at locations as determined by the Engineer during construction.

The Contractor shall determine the water depth and other waterway characteristics such as stream flow velocity and seek technical advice from the manufacturer before ordering the floating silt curtain so that the floating silt curtain installed is the correct type for the individual sites.

The Contractor shall install the floating silt curtain according to the manufacturer’s installation instructions or as directed by the Engineer.

The Contractor shall maintain the floating silt curtains for the duration of the project to ensure continuous protection of the waterway.

A list of known manufacturers of floating silt curtain is shown below for informational purpose. Contractors may also use Engineer approved floating silt curtain from manufacturers that are not included in the list.

ABASCO, LLC
Houston, TX
Phone: 1-800-242-7745
www.abasco.net

Aer-Flo, Inc.
Bradenton, FL
Phone: 1-800-823-7356
www.aerflo.com

American Boom and Barrier Corp.
Cape Canaveral, FL
Phone: 1-800-843-2110
www.abbcoboom.com

ENVIRO-USA, LLC
Cocoa, FL
Phone: 1-321-222-9551
www.enviro-usa.com

Elastec/American Marine, Inc.
Carmi, IL
Phone: 1-618-382-2525
www.turbiditycurtains.com

Geo-Synthetics, LLC (GSI)
Waukesha, WI
Phone: 1-800-444-5523
www.geosynthetics.com

Parker Systems, Inc.
Chesapeake, VA
Phone: 1-866-472-7537
www.parkersystemsinc.com

All costs for furnishing, installing, maintaining, and removal of the floating silt curtain including hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per foot for “Floating Silt Curtain”.

TABLE OF FLOATING SILT CURTAIN

Route	Location MRM	Station	L/R	Quantity (Ft)
SD 10	205.00+0.414	117+24	L	100
			R	100
			Total:	200

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0032(15)	12	38

FOR BIDDING PURPOSES ONLY

STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

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

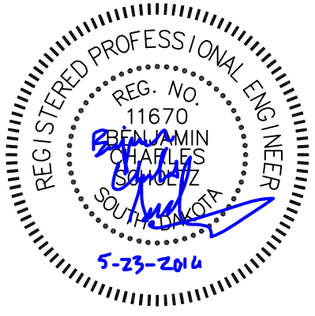
❖ SITE DESCRIPTION (4.2 1)

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
  - ☒ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☐ Filling
  - ☒ Cutting and filling
  - ☐ Other (describe):
- **Total Project Area** 1.29 Acres **(4.2 1.b.)**
- **Total Area To Be Disturbed** 1.29 Acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 84.5 %
- **Soil Properties:** AASHTO Soil Classification: A-6 **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies:**
  Missouri River via Spring Creek
  (4.2 1.e.)

❖ ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)

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

- **Install traffic control installation and protection devices.**
- **Install perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Install temporary water barrier, floating silt curtain, and other aquatic protection devices (as applicable).**
- **Clearing and grubbing.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Install culvert protection after completing storm drainage and other utility installations.**
- **Complete final grading.**
- **Complete final paving and sealing of concrete.**
- **Reseed areas disturbed by removal activities**.



❖ EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))

(Check all that apply)

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

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

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

- **Other Storm Water Controls (4.2 2.c., (1) and (2))**
  - **Waste Disposal**
    All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.
  - **Hazardous Waste**
    All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.
  - **Sanitary Waste**
    Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

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

- **Maintenance and Inspection Practices**
  - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
  - All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
  - Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches $^{1}/_{3}$ 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 site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

STORM WATER POLLUTION PREVENTION PLAN CHECKLIST (CONTINUED)

❖ **Non-Storm Water Discharges (3.0)**

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

- ☐ Discharges from water line flushing.
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☒ Uncontaminated ground water associated with dewatering activities.

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

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

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

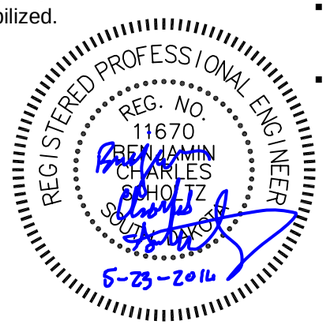
❖ **Spill Prevention (4.2 2.c.(2))**

➢ **Material Management**

- Housekeeping
  - Only needed products will be stored on-site by the contractor.
  - Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
  - Products must be stored in original containers and labeled.
  - Material mixing will be conducted in accordance with the manufacturer's recommendations.
  - When possible, all products will be completely used before properly disposing of the container off site.
  - The manufacturer's directions for disposal of materials and containers will be followed.
  - The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
  - Dust generated will be controlled in an environmentally safe manner.
  - Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.
- Hazardous Materials
  - Products will be kept in original containers unless the container is not resealable.
  - 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 storm water system or storm water treatment system.
  - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➢ **Product Specific Practices (6.8)**

- Petroleum Products
  All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- Fertilizers
  Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.
- Paints
  All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.
- Concrete Trucks
  Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.



➢ **Spill Control Practices (4.2 2 c.(2))**

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 clean up 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 clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➢ **Spill Response (4.2 2 c.(2))**

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

- The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor 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.

➢ **Spill Response (4.2 2 c.(2)) (CONTINUED)**
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up 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.

❖ **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 DENR immediately **if any one of the following** conditions exists:
- The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
- The discharge causes an immediate danger to human health or safety.
- The discharge exceeds 25 gallons.
- The discharge causes a sheen on surface water.
- The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
- The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
- The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
- The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

❖ **Construction Changes (4.4)**

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

❖ **CERTIFICATIONS**

➢ **Certification of Compliance with Federal, State, and Local Regulations**

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

➢ **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that 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.

Tom Kahlhamer

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

➢ **Prime Contractor**

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

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in 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**

➢ **Contractor Information**:
- Prime Contractor Name:
- Contractor Contact Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➢ **Erosion Control Supervisor**
- Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➢ **SDDOT Project Engineer**
- Name:
- Business Address:
- Job Office Location:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➢ **SD DENR Contact Spill Reporting**
- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➢ **SD DENR Contact for Hazardous Materials.**
- (605) 773-3153

➢ **National Response Center Hotline**
- (800) 424-8802.

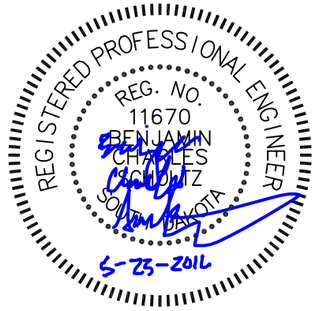


TABLE OF TRAFFIC CONTROL

			Plate Description:		Work Beyond Shoulder		Lane Closure - Flagger		Lane Closure - Stop Sign	
			Plate Number:		*634.01*		*634.23*		*634.25*	
Sign Description	**Sign Code**	**Width (in)**	**Height (in)**	**Sq. Ft. Per Sign**	**No. of Signs**	**Sq. Ft.**	**No. of Signs**	**Sq. Ft.**	**No. of Signs**	**Sq. Ft.**
ROAD WORK AHEAD	W20-1	48	48	16.0	1	16.0	2	32.0	2	32.0
END ROAD WORK	G20-2	36	18	4.5			2	9.0	2	9.0
UNEVEN LANES	W8-11	48	48	16.0			2	32.0	2	32.0
ONE LANE ROAD AHEAD	W20-4	48	48	16.0			2	32.0	2	32.0
SHOULDER WORK	W21-5	48	48	16.0						
FLAGGER (SYMBOL)	W20-7	48	48	16.0			2	32.0		
DISTANCE-FEET (PLAQUE)	W16-2p	30	24	5.0			2	10.0		
STOP AHEAD (SYMBOL)	W3-1	48	48	16.0					2	32.0
STOP	R1-1	30	30	6.3					2	12.5
REVERSE CURVE	W1-4R	48	48	16.0					1	16.0
TYPE 3 BARRICADE - 8' DOUBLE SIDED	N/A	8'	N/A	EACH					1	EACH
ADVISORY SPEED (PLAQUE)	W13-1p	30	30	6.3					2	12.5
				Total		**16.0**		**147.0**		**178.0**

*Only the maximum quantity installed during any setup shall be used for the payment quantity.

**Payment for traffic control signs shall be paid for once per site.
Relocation and/or adjustment of traffic control features shall be incidental to the lump sum price for "Traffic Control Miscellaneous".

TABLE OF TRAFFIC CONTROL (BY SITE)

Location			Traffic Control	Standard Plate	SqFt	**Type 3 Barricade
Route	MRM	Station				
SD 10	205.00+0.372	114+92	Lane Closure - Flagger	634.23	147.0	0
SD 10	205.00+0.414	117+24	Lane Closure - Flagger	634.23	147.0	0
SD 10	208.00+0.432	273+00	Lane Closure - Flagger	634.23	147.0	0
SD 10	215.00+0.618	176+21	Work Beyond Shoulder	634.01	16.0	0
SD 10	217.00+0.465	273+35	Work Beyond Shoulder	634.01	16.0	0
SD 10	217.00+0.687	285+23	Work Beyond Shoulder	634.01	16.0	0
SD 10	221.00+0.354	58+66	Lane Closure - Stop Sign	634.25	178.0	1
				Totals:	**667.0**	1

*Only the maximum quantity installed during any setup shall be used for the payment quantity.

**Type 3 Barricades for Lane Closures Using Stop Signs shall be 8' wide and may be single sided.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULTZ
SOUTH DAKOTA
5-23-2016

FOR BIDDING PURPOSES ONLY

TABLE OF MAINLINE CULVERT WORK

ROUTE	LOCATION (MRM)	EXISTING SIZE AND TYPE	REMOVE PIPE CULVERT	FURNISH AND INSTALL 24" RCP Class 2	FURNISH AND INSTALL 30" RCP Class 2	FURNISH AND INSTALL 36" RCP Class 2	FURNISH AND INSTALL 18" RCP SAFETY END	FURNISH AND INSTALL 24" RCP SLOPED END	FURNISH AND INSTALL 30"RCP SLOPED END	FURNISH AND INSTALL 36" RCP FLARED END	CLEANOUT PIPE CULVERT	BANK AND CHANNEL PROTECTION GABION	APPROXIMATE GPS COORDINATES UPSTREAM END		APPROXIMATE GPS COORDINATES DOWNSTREAM END	
			(FT)	(FT)	(FT)	(FT)	(EA)	(EA)	(EA)	(EA)	(EA)	(CuYd)	NORTHING	EASTING	NORTHING	EASTING
SD 10	114+92 (205.00+0.372)	18" CMP	90	74				2					704527.080	1962273.250	704609.404	1962241.457
SD 10	117+24 (205.00+0.414)	30" CMP	106			64				2			704623.398	1962486.449	704696.022	1962455.882
SD 10	273+00 (208.00+0.432)	18" CMP	106	88				2					705135.448	1978194.547	705236.773	1978194.598
SD 10	176+21 (215.00+0.618)	18" RCP					2				1	4.5	705221.337	2016137.052	705136.426	2016136.781
SD 10	273+35 (217.00+0.465)	18" RCP					2				1		705136.129	2025842.308	705208.169	2025842.210
SD 10	285+23 (217.00+0.687)	30" RCP							2		1	6.0	705154.957	2027030.137	705231.796	2027030.415
SD 10	58+66 (221.00+0.354)	30" CMP	62		56				2				705287.079	2046368.414	705215.091	2046369.285
PROJECT TOTALS			**364**	**162**	**56**	**64**	**4**	**4**	**4**	**2**	**3**	**10.5**				

CONTROL DATA

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
AC7980	NA	NA	NGS Steel Pipe	715769.529	2019409.913	1846.319
CP 1	NA	NA	Rebar w/ Cap Stamped Control Pt.	705180.234	2047589.826	1822.458
CP 2	NA	NA	Rebar w/ Cap Stamped Control Pt.	705254.310	1979729.026	1775.508

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULTZ
SOUTH DAKOTA
5-23-2016

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System.
North Zone (NAD 83/11) SF = 0.9999356470
The elevations shown on this sheet are based on NAVD 88.

EXISTING TOPOGRAPHY SYMBOLOGY AND LEGEND

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P0032(15)	17	38

Plotting Date: 05-23-2016

Anchor
Antenna
Approach
Assumed Corner
Azimuth Marker
BBQ Grill/ Fireplace
Bearing Tree
Bench Mark
Box Culvert
Bridge
Brush
Buildings
Bulk Tank
Cattle Guard
Cemetery
Centerline
Cistern
Clothes Line
Commercial Sign Double Face
Commercial Sign One Post
Commercial Sign Overhead
Commercial Sign Two Post
Concrete Symbol
Creek Edge
Curb/Gutter
Curb
Dam Grade/Dike/Levee
Deck Edge
Ditch Block
Doorway Threshold
Drainage Profile
Drop Inlet
Edge Of Asphalt
Edge Of Concrete
Edge Of Gravel
Edge Of Other
Edge Of Shoulder
Elec. Trans./Power Jct. Box
Fence Barbwire
Fence Chainlink
Fence Electric
Fence Misc.
Fence Rock
Fence Snow
Fence Wood
Fence Woven
Fire Hydrant
Flag Pole
Flower Bed
Gas Valve Or Meter
Gas Pump Island
Grain Bin
Guardrail
Guide Sign One Post
Guide Sign Two Post
Gutter
Guy Pole
Haystack

Hedge
Highway R.O.W. Marker
Interstate Close Gate
Iron Pin
Irrigation Ditch
Lake Edge
Lawn Sprinkler
Mailbox
Manhole Electric
Manhole Gas
Manhole Misc
Manhole Sanitary Sewer
Manhole Storm Sewer
Manhole Telephone
Manhole Water
Merry-Go-Round
Microwave Radio Tower
Misc. Line
Misc. Property Corner
Misc. Post
Overhang Or Encroachment
Overhead Utility Line
Parking Meter
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 R.O.W. Marker
Railroad Signs
Railroad Switch
Railroad Track
Railroad Trestle
Rebar
Rebar With Cap
Reference Mark
Regulatory Sign One Post
Regulatory Sign Two Post
Retaining Wall
Riprap
River Edge
Rock And Wire Baskets
Rockpiles
Satellite Dish
Septic Tank

Shrub Tree
Sidewalk
Sign Face
Sign Post
Slough Or Marsh
Spring
Stream Gauge
Street Marker
Subsurface Utility Exploration Test Hole
Telephone Fiber Optics
Telephone Junction Box
Telephone Pole
Television Cable Jct Box
Television Tower
Test Wells/Bore Holes
Traffic Signal
Trash Barrel
Tree Belt
Tree Coniferous
Tree Deciduous
Tree Stumps
Triangulation Station
Underground Electric Line
Underground Gas Line
Underground High Pressure Gas Line
Underground Sanitary Sewer
Underground Storm Sewer
Underground Tank
Underground Telephone Line
Underground Television Cable
Underground Water Line
Warning Sign One Post
Warning Sign Two Post
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
R. O. W. Line
New R. O. W. Line
Cut and Fill Limits
Control of Access
New Control of Access
Proposed ROW
(After Property Disposal)

Plot Scale - 1:200
Plotted From - bscholtz
File - ...\Phase 2\017_Topo Symbology

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P0032(15)	18	38

Plotting Date: 05-23-2016

FOR BIDDING PURPOSES ONLY

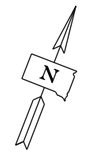
Sec 3-T126N-R76W

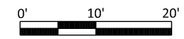
Dorothy M. Klaudt and Thomas M. Klaudt

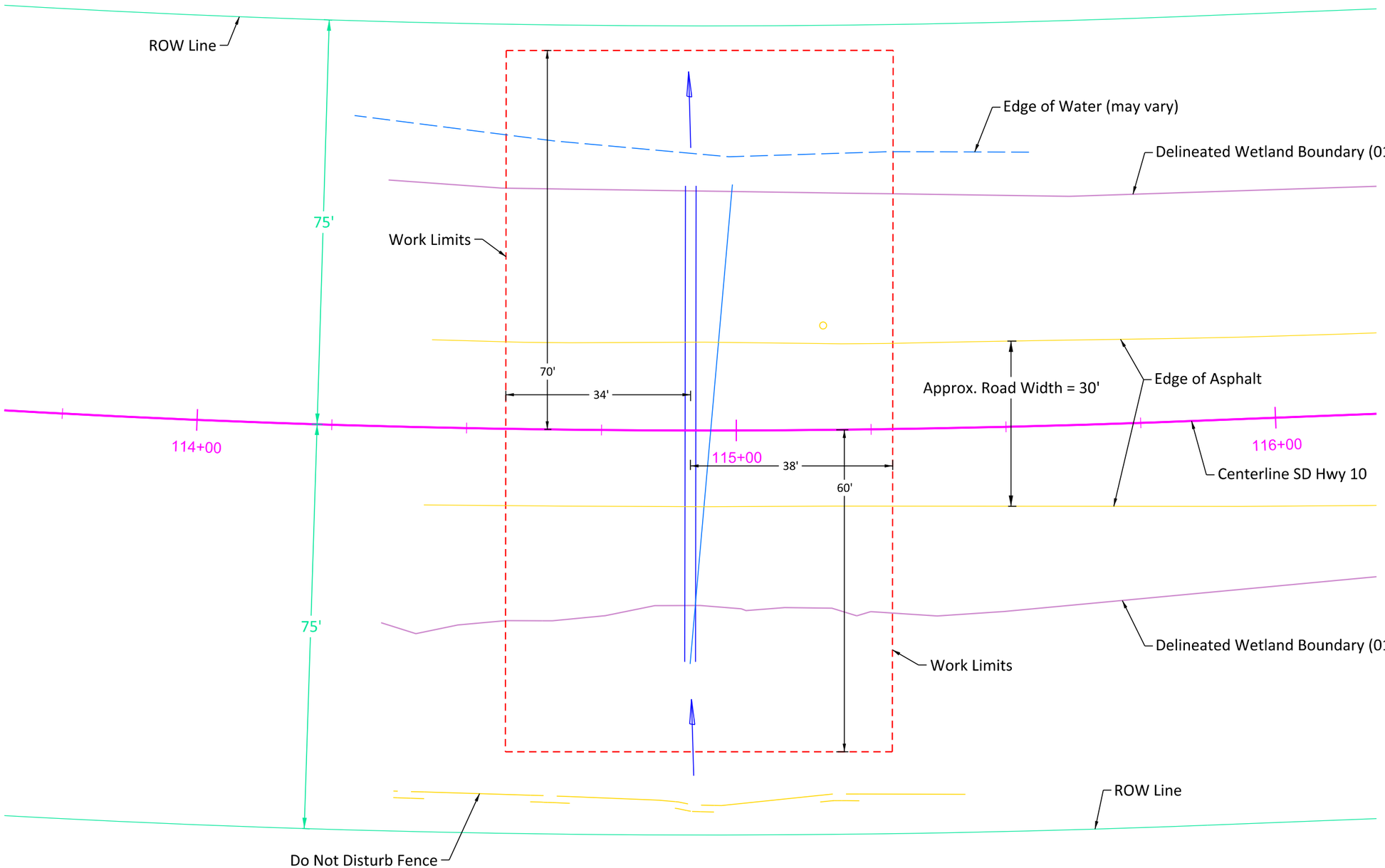
114+95
Take Out 18"-90' CMP
(Incidental Work, Grading)

114+92 (14 ac)
Install 24"-74' RCP
and (2) 24" RCP Sloped Ends

SD Hwy 10
MRM 205.00+0.372
Campbell County







Dorothy M. Klaudt and Thomas M. Klaudt

Sec 3-T126N-R76W

Plot Scale - 1:20
Plotted From - bschultz
File - ...\SHEETS\Phase 2\018_MRM 205.372

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P0032(15)	19	38

Plotting Date: 05-23-2016

FOR BIDDING PURPOSES ONLY

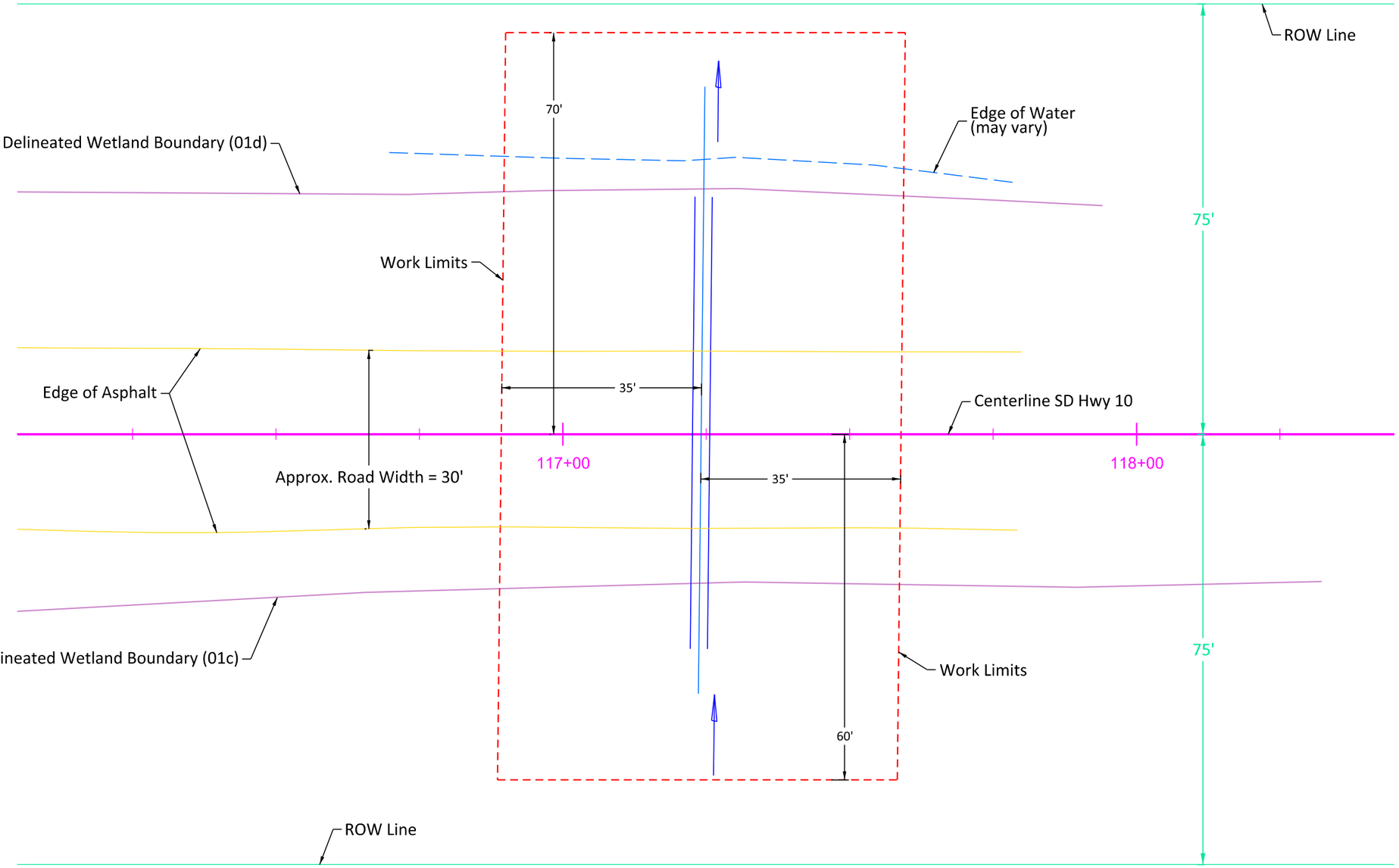
Sec 3-T126N-R76W

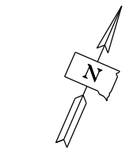
Dorothy M. Klaudt and Thomas M. Klaudt

117+24
Take Out 30"-106' CMP
(Incidental Work, Grading)

117+24 (218 ac)
Install 36"-64' RCP
and (2) 36" RCP Flared Ends

SD Hwy 10
MRM 205.00+0.414
Campbell County





0' 10' 20'
HORIZONTAL SCALE

HDR

Sec 3-T126N-R76W

Dorothy M. Klaudt and Thomas M. Klaudt

Plot Scale - 1:20
Plotted From - bscholtz
File - ...\SHEETS\Phase 2\019_MRM 205.414

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P0032(15)	20	38

Plotting Date: 05-23-2016

FOR BIDDING PURPOSES ONLY

Sec 31 - T127N - R75W

Mathilda Schaffer

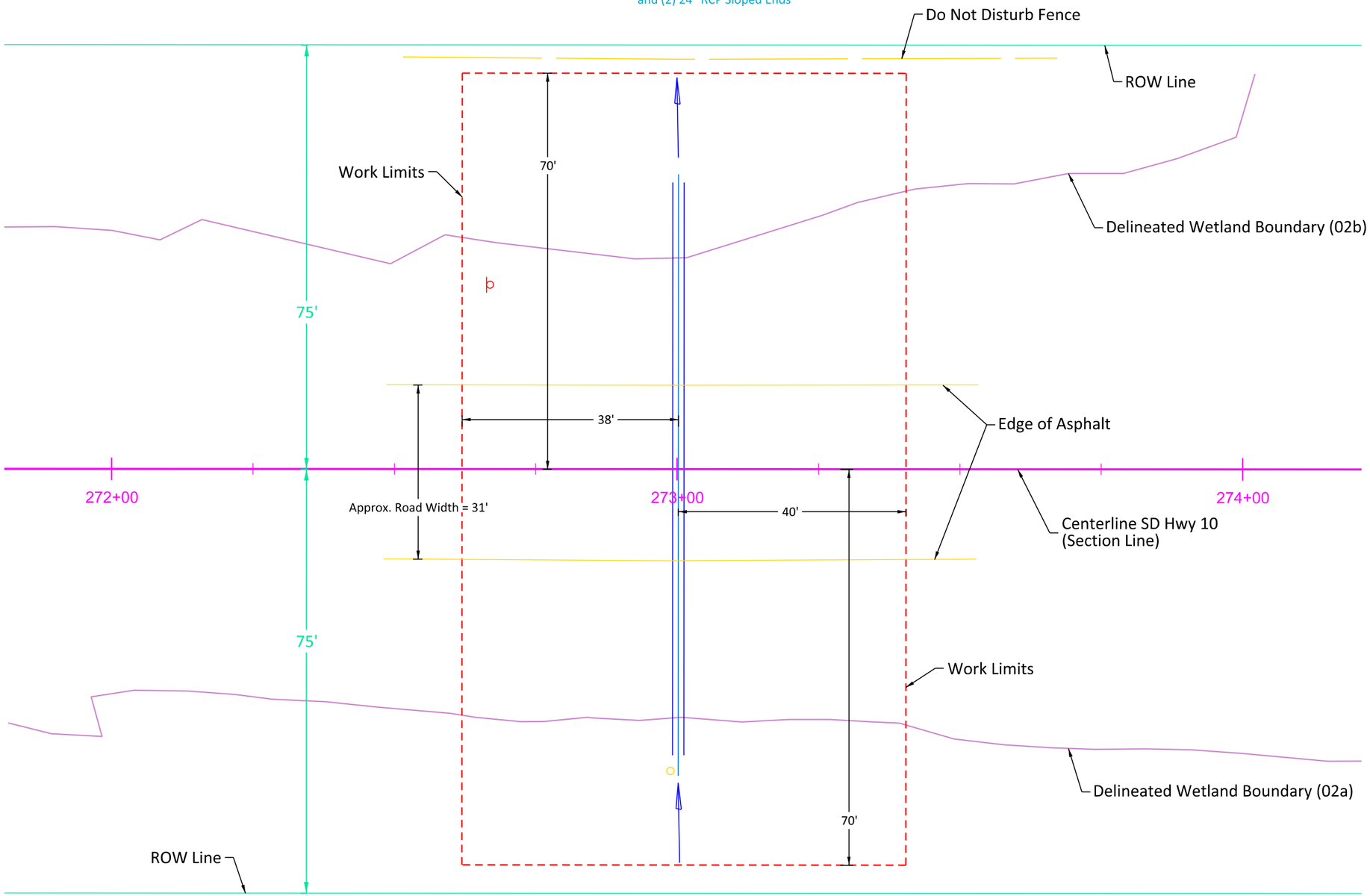
272+67, 33' LT
Remove Sign for Reset

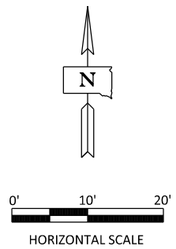
272+67, 33' LT
Reset Sign

273+00
Take Out 18"-106' CMP
(Incidental Work, Grading)

273+00 (6 ac)
Install 24"-88'-RCP
and (2) 24" RCP Sloped Ends

SD Hwy 10
MRM 208.00+0.432
Campbell County





Sec 6 - T126N - R75W

Emil Shaffer and Mathilda Schaffer

HDR

Plot Scale - 1:20

Plotted From - bschultz

File - ...\SHEETS\Phase 2\020_MRM 208.432

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P0032(15)	21	38

Plotting Date: 05-23-2016

FOR BIDDING PURPOSES ONLY

Sec 32 - T127N - R74W

Galazin Family, LLC

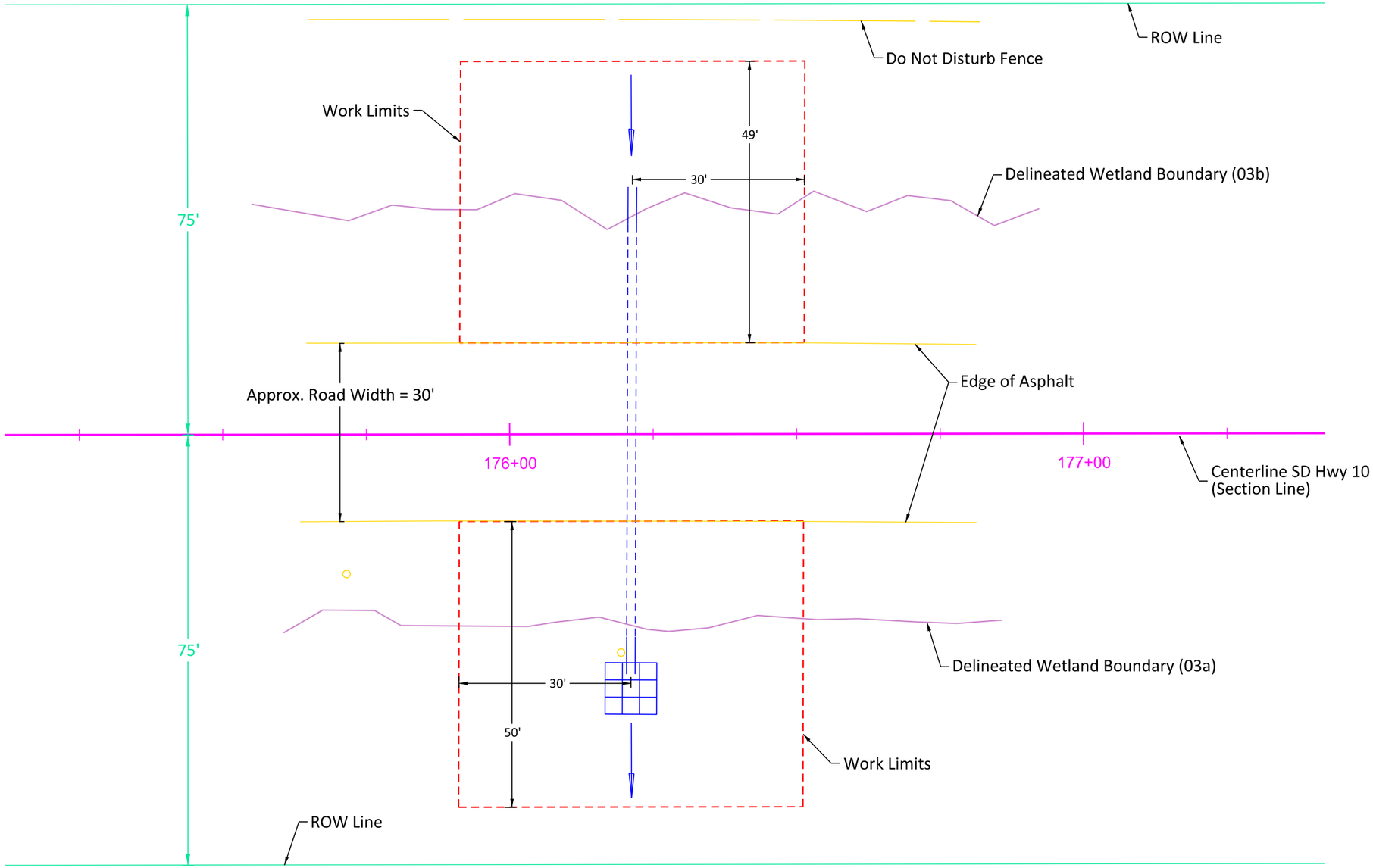
176+21
Take Out (2) 18" RCP End Sections

176+21
Install (2) 18" RCP Safety Ends

176+21
Cleanout Pipe Culvert

176+21 RT
Install Bank and Channel Protection Gabions
(4.5 C.Y.)

SD Hwy 10
MRM 215.00+0.618
Campbell County



N

0' 10' 20'
HORIZONTAL SCALE

Sec 5 - T126N - R74W

Josephine A. Sandmeier and
Michelle M. O'Neil

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULTZ
SOUTH DAKOTA
5-23-2016

HDR

Plot Scale - 1:20
Plotted From - bscholtz
File - ...\SHEETS\Phase 2\021_MRM 215.618

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P0032(15)	22	38

Plotting Date: 05-23-2016

FOR BIDDING PURPOSES ONLY

SD Hwy 10
MRM 217.00+0.465
Campbell County

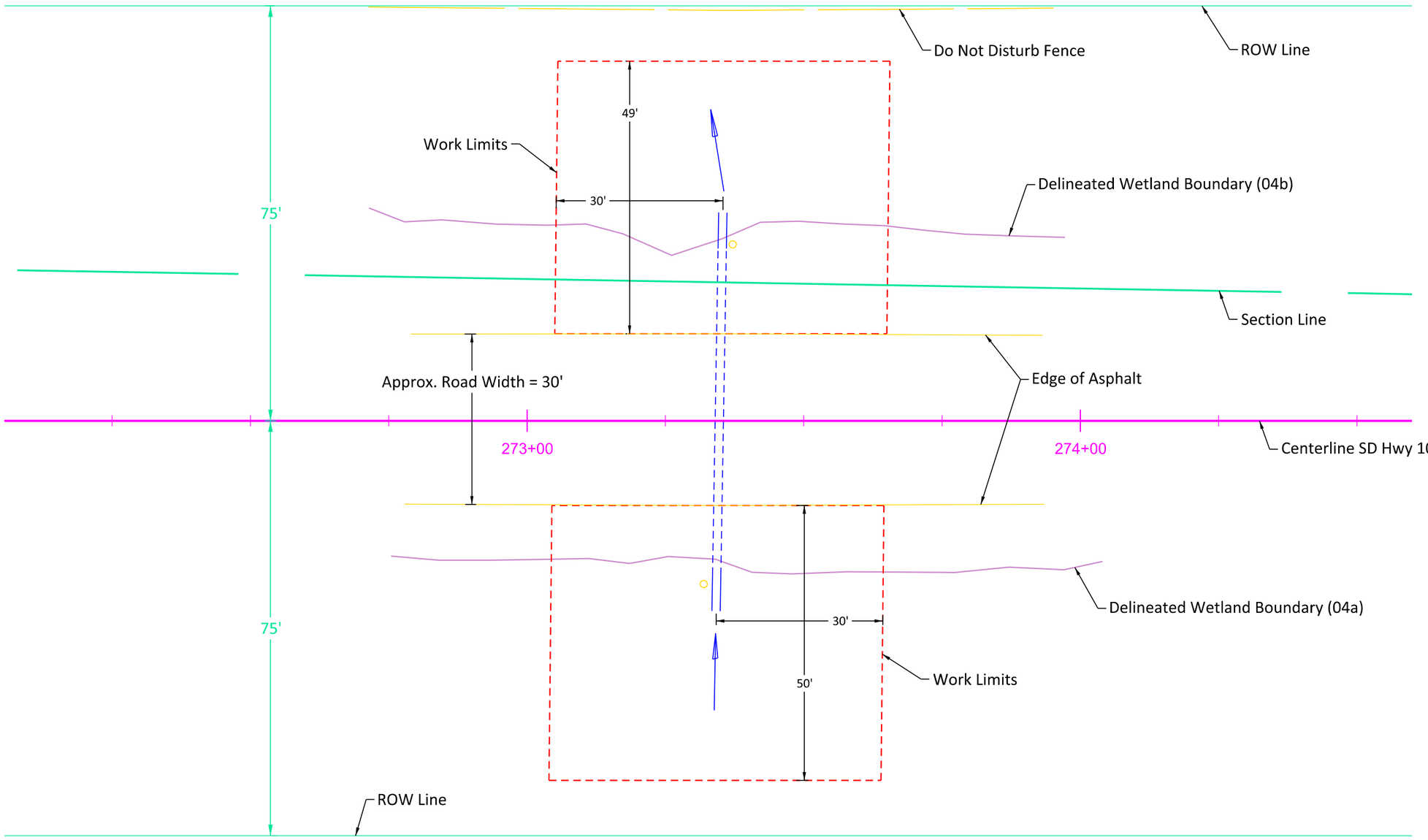
Sec 34 - T127N - R74W

Connie A. Volk
Erna Ekrmann (Life Estate)

273+35
Take Out (2) 18" RCP End Sections

273+35
Cleanout Pipe Culvert

273+35
Install (2) 18" RCP Safety Ends



N

0' 10' 20'
HORIZONTAL SCALE

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHOLTZ
SOUTH DAKOTA
5-23-2016

Sec 3 - T126N - R74W

Connie A. Volk
Erna Ekrmann (Life Estate)

Plot Scale - 1:20
Plotted From - bscholtz
File - ...\SHEETS\Phase 2\022_MRM 217.465

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P0032(15)	23	38

Plotting Date: 05-23-2016

FOR BIDDING PURPOSES ONLY

SD Hwy 10
MRM 217.00+0.687
Campbell County

Sec 34 - T127N - R74W

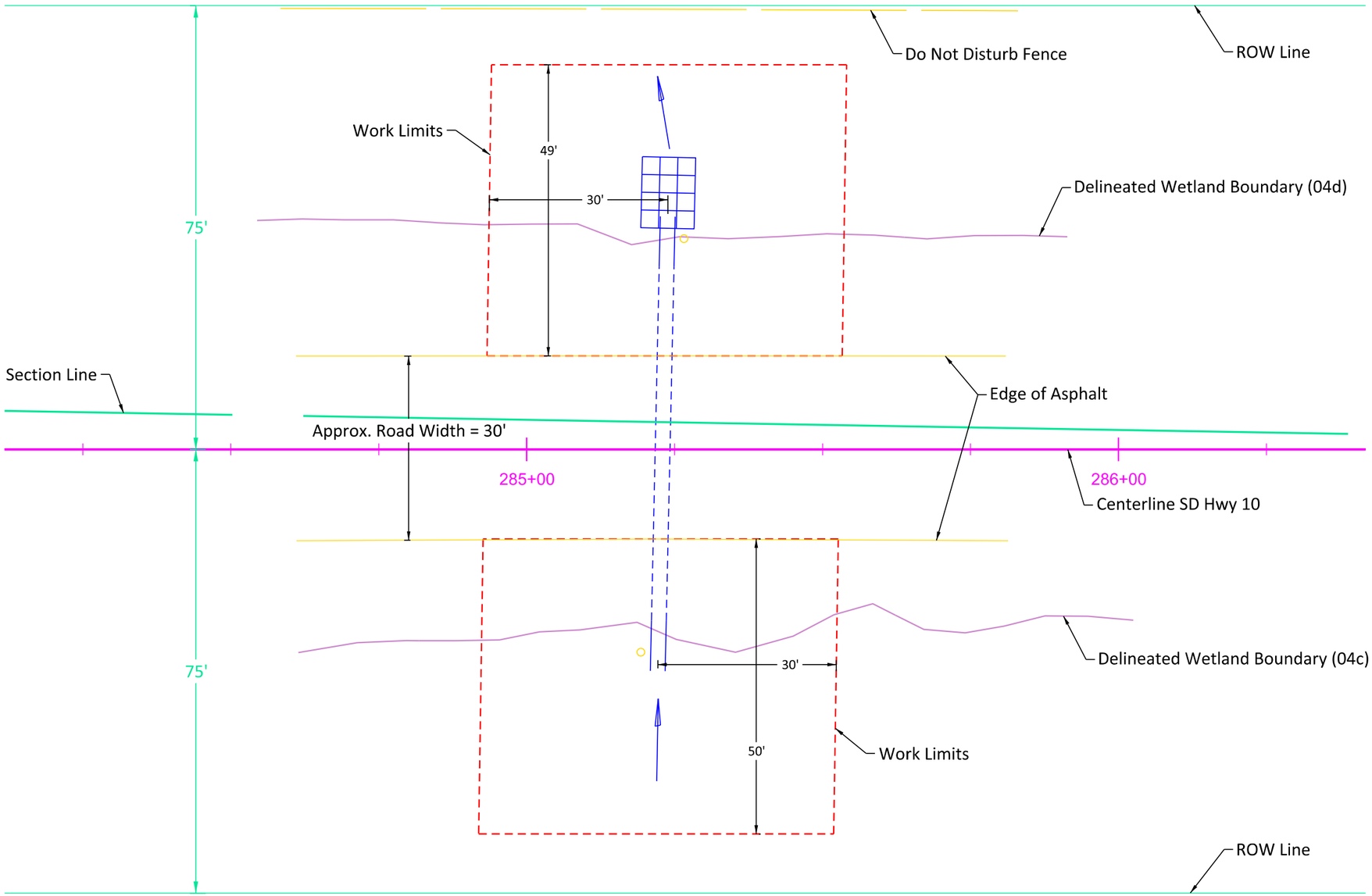
Connie A. Volk
Erna Ekrmann (Life Estate)

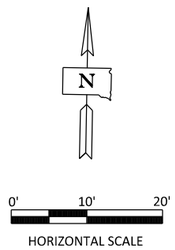
285+23
Take Out (2) 30" RCP End Sections

285+23
Cleanout Pipe Culvert

285+23
Install (2) 30" RCP Sloped Ends

285+23 LT
Install Bank and Channel Protection Gabions
(6.0 C.Y.)





Sec 3 - T126N - R74W

Connie A. Volk
Erna Ekrmann (Life Estate)

HDR

Plot Scale - 1:20
Plotted From - bschultz
File - ...\SHEETS\Phase 2\023_MRM 217.687

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P0032(15)	24	38

Plotting Date: 05-23-2016

FOR BIDDING PURPOSES ONLY

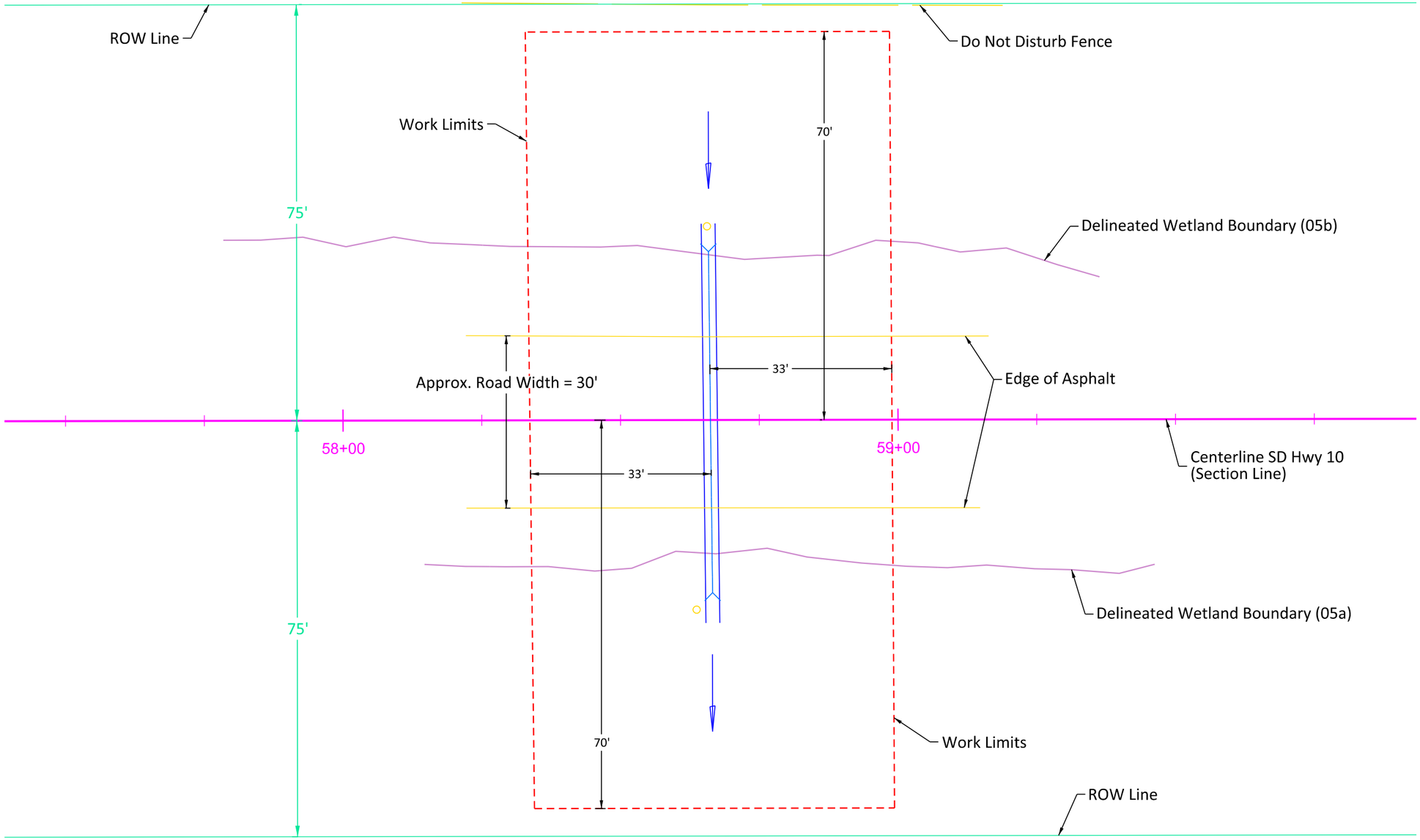
SD Hwy 10
MRM 221.00+0.354
McPherson County

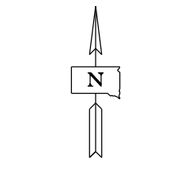
Sec 32 - T127N - R73W

Karen Mutschler

58+66
Take Out 30"-62' CMP
and (2) 30" CMP Flared Ends
(Incidental Work, Grading)

58+66 (119 ac)
Install 30"-56' RCP
and (2) 30" RCP Sloped Ends





Sec 5 - T126N - R73W

Ruth Mutschler
Karen Mutschler (Contract for Deed)

HDR

Plot Scale - 1:20

Plotted From - bscholtz

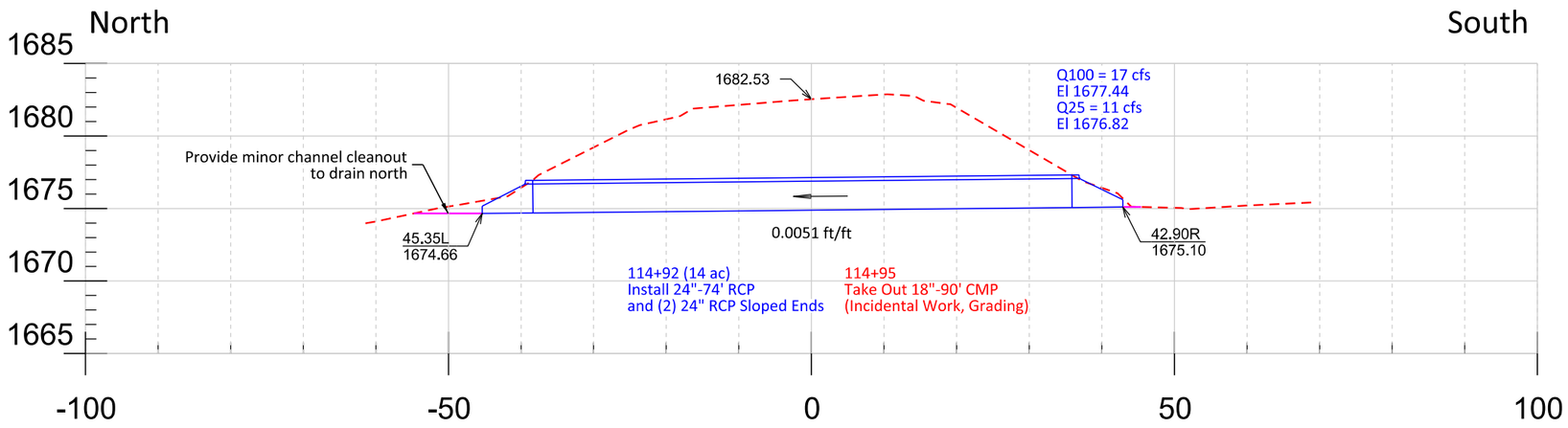
File - ...\SHEETS\Phase 2\024_MRM 221.354

FOR BIDDING PURPOSES ONLY

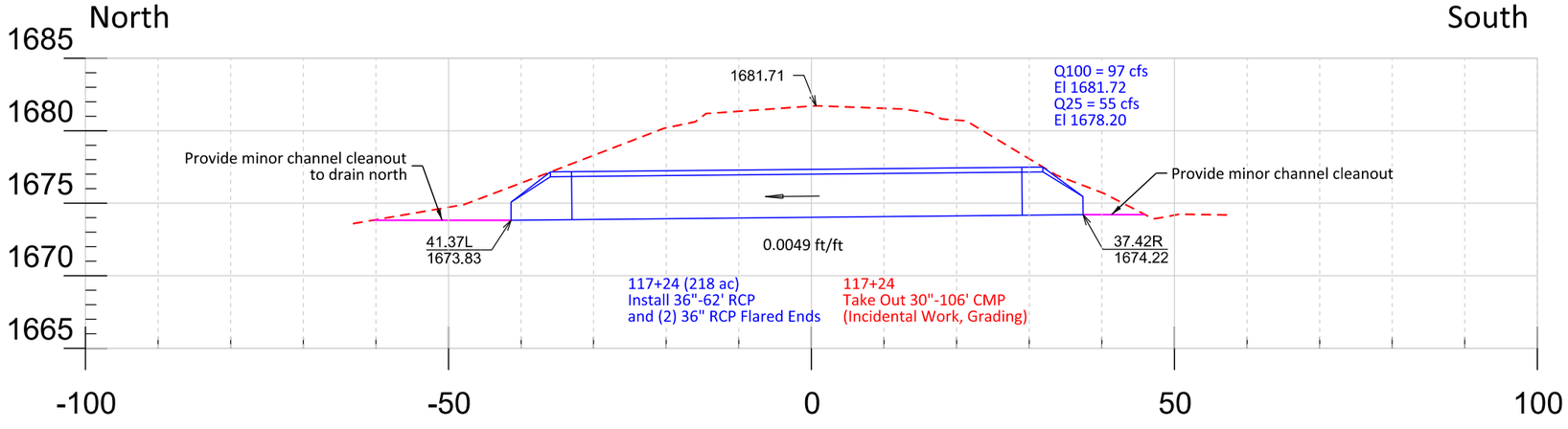
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P0032(15)	25	38

Plotting Date: 05-23-2016

MRM 205.00 + 0.372



MRM 205.00 + 0.414



*Underground utilities are shown at approximate depths.
Contractor to field verify all utility locations prior to performing work.

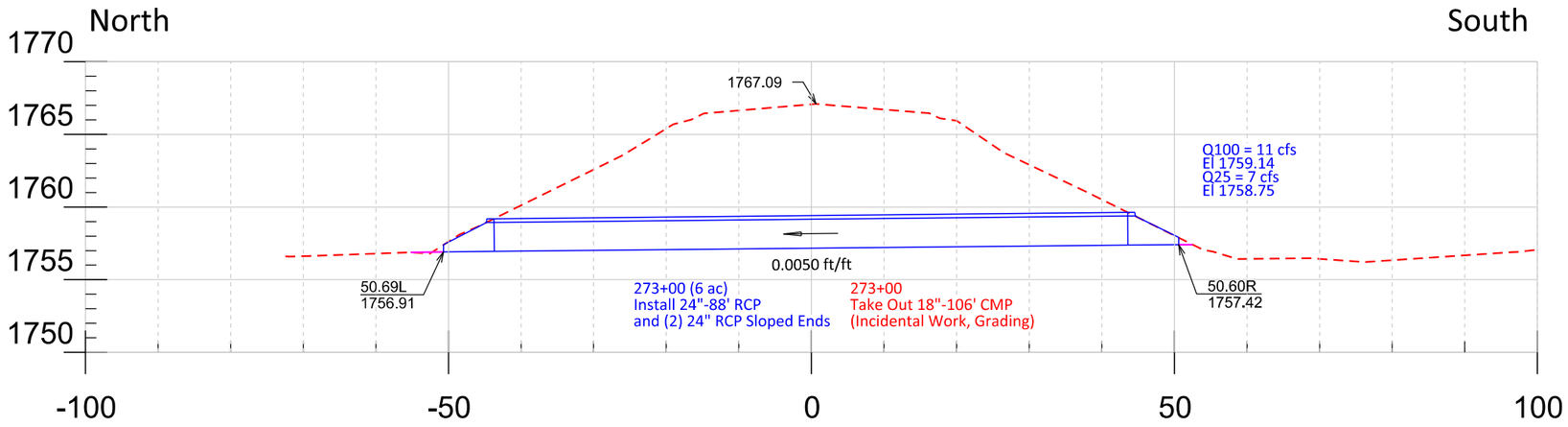
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHOLTZ
SOUTH DAKOTA
5-23-2016

HDR

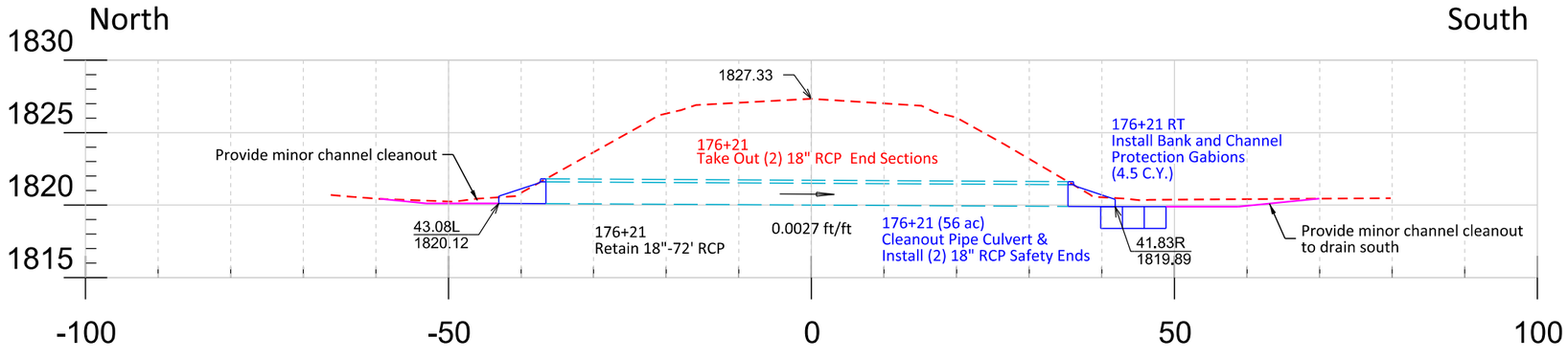
Plot Scale - 1:20
Plotted From - bscholtz
File - ...\Phase 2\025_Pipe Sections_01

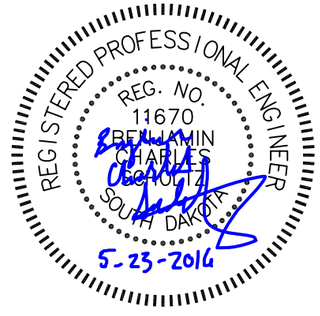
FOR BIDDING PURPOSES ONLY

MRM 208.00 + 0.432



MRM 215.00 + 0.618



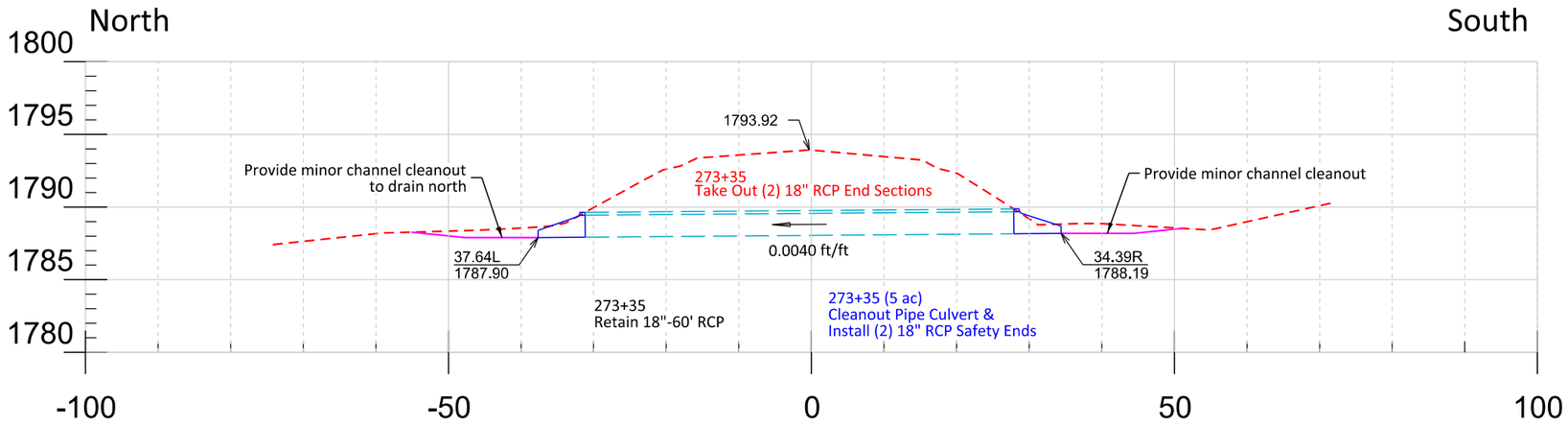


*Underground utilities are shown at approximate depths.
Contractor to field verify all utility locations prior to performing work.

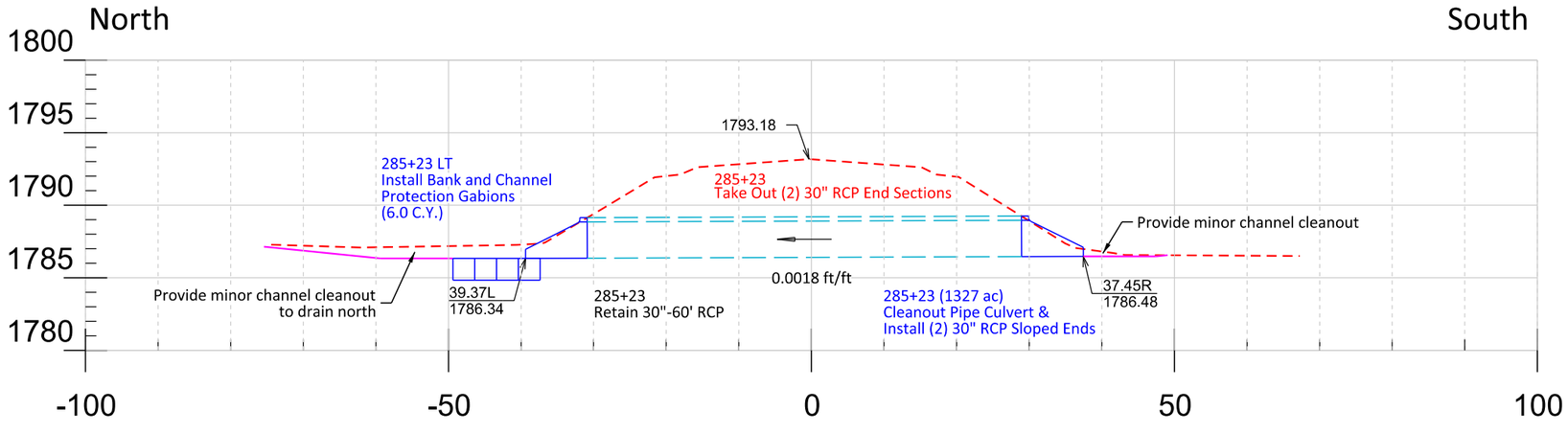
HDR

Plot Scale - 1:20
Plotted From - bscholtz
File - ...\Phase 2\026_Pipe Sections_02

MRM 217.00 + 0.465



MRM 217.00 + 0.687



*Underground utilities are shown at approximate depths.
Contractor to field verify all utility locations prior to performing work.

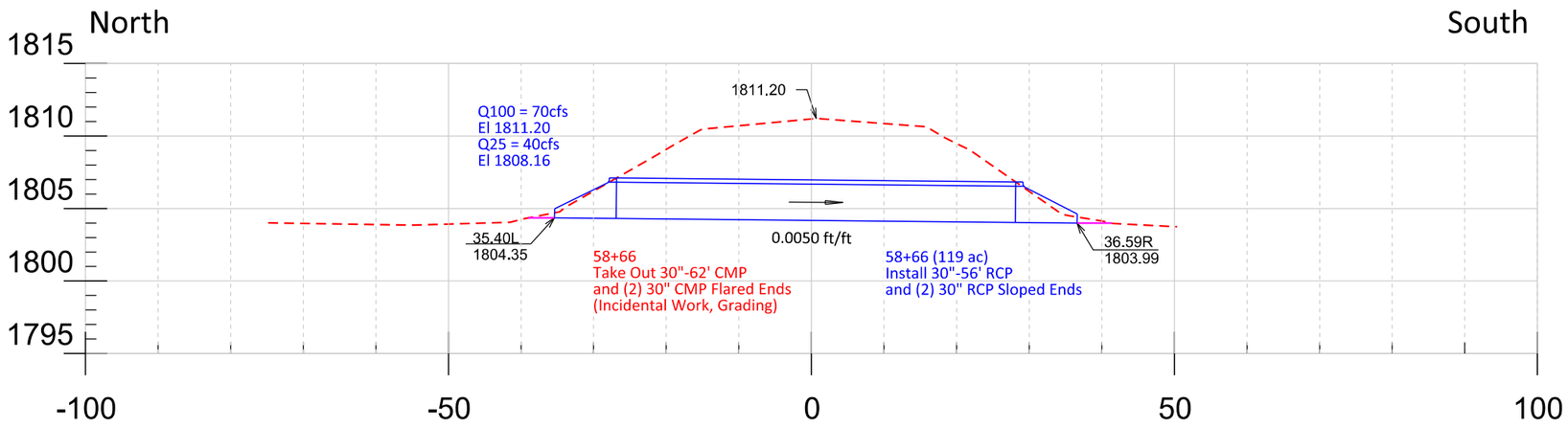
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11670
BENJAMIN CHARLES SCHULTZ
SOUTH DAKOTA
5-23-2016

HDR

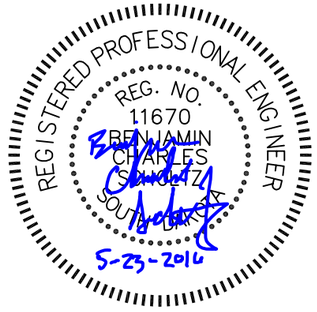
Plot Scale - 1:20
Plotted From - bscholtz
File - ...\Phase 2\027_Pipe Sections_03

FOR BIDDING PURPOSES ONLY

MRM 221.00 + 0.354



*Underground utilities are shown at approximate depths.
Contractor to field verify all utility locations prior to performing work.



HDR

Plot Scale - 1:20
Plotted From - bscholtz
File - ...\Phase 2\028_Pipe Sections_04

Published Date: 3rd Qtr. 2015

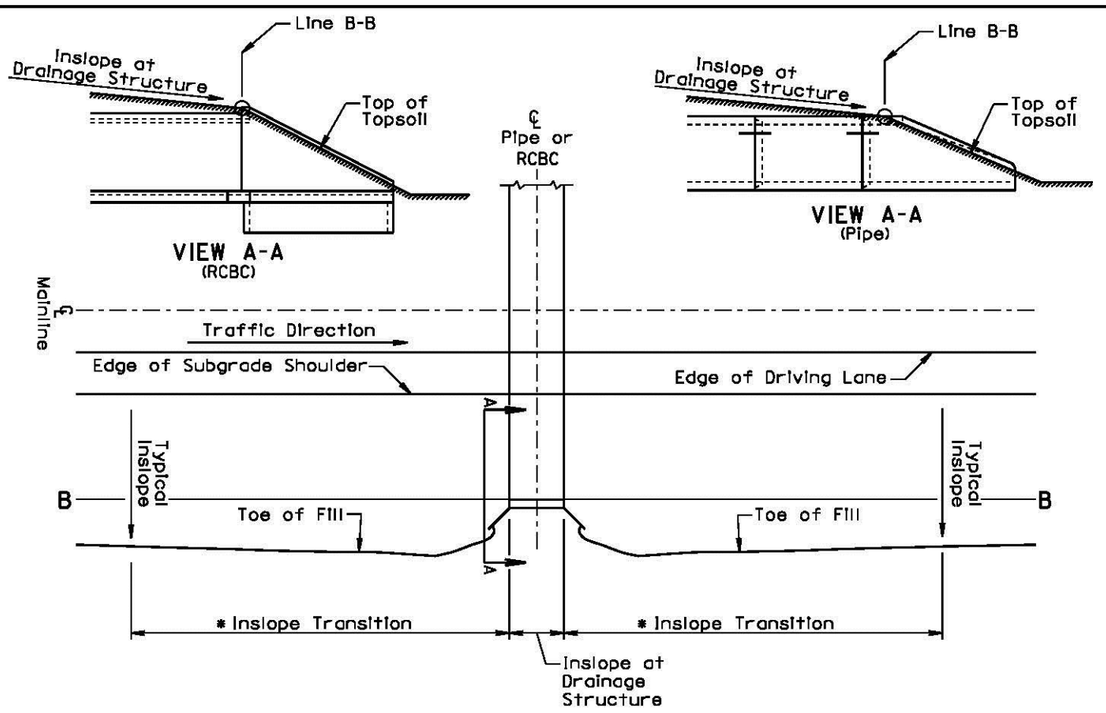
SDDOT

INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

PLATE NUMBER 120.05

Sheet 1 of 2

February 14, 2011



TYPE 1 INSLOPE TRANSITION

GENERAL NOTES:

This Type 1 Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from the typical inslope to the inslope at the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned gradually to the slope necessary adjacent to the RCBC wing wall or pipe culvert end section within the transition length necessary for the transition within the clear zone.

Published Date: 3rd Qtr. 2015

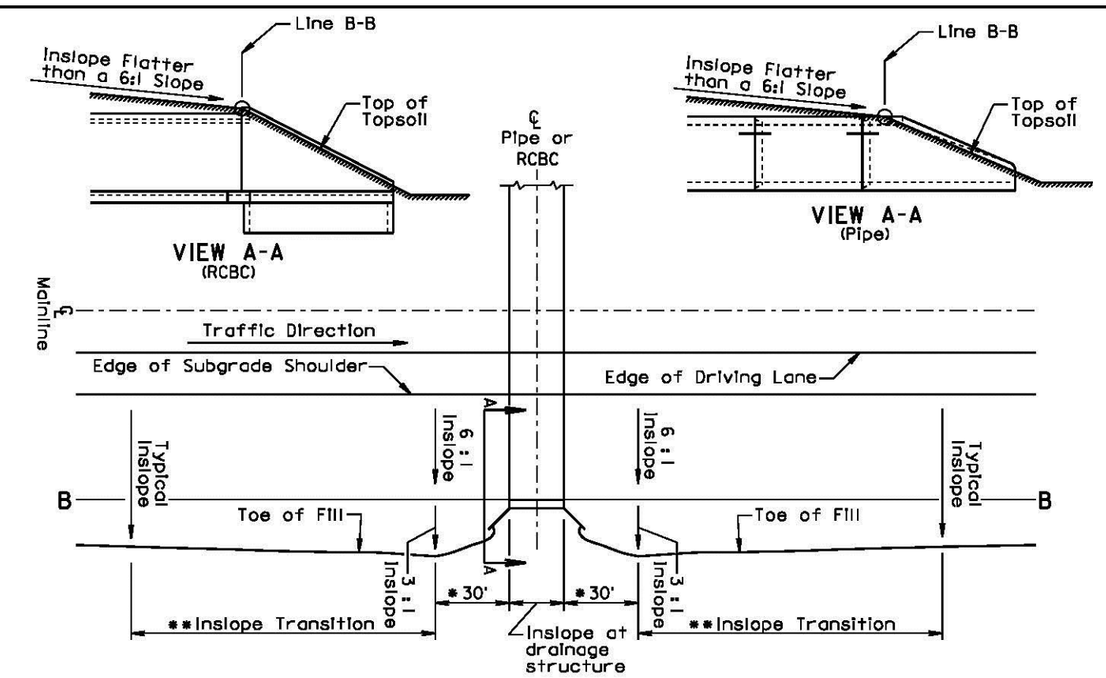
SDDOT

INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

PLATE NUMBER 120.05

Sheet 2 of 2

February 14, 2011



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from inslope at drainage structure to a 6 : 1 inslope and 3:1 inslope.

** Transition from typical inslope to the inslopes adjacent to the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned to a 3:1 inslope within the transition length necessary for the transition within the clear zone.

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA

PROJECT P 0032(15)

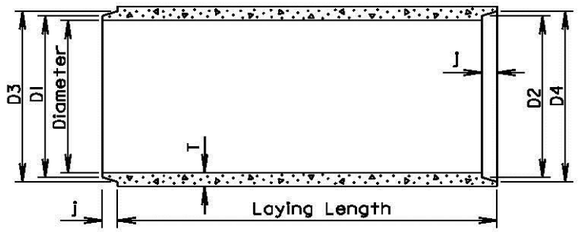
SHEET 29

TOTAL SHEETS 38

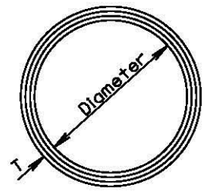
HDR

TOLERANCES IN DIMENSIONS

Diameter: ±1.5% for 24" Dia. or less and ±1% or 3/8" whichever is more for 27" Dia. or greater.
Diameters at joints: ± 3/16" for 30" Dia. or less and ± 1/4" for 36" or greater.
Length of joint (J): ± 1/4".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than 1/2".



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

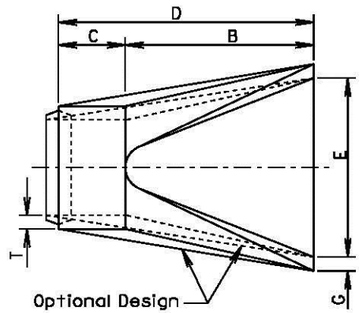
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

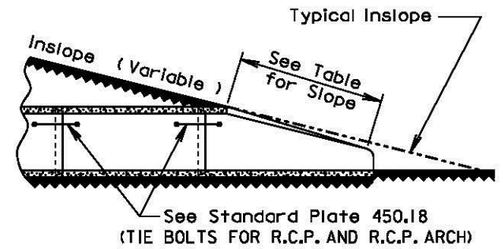
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 7/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 7/8	58 3/8	59 3/8	59 7/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 7/8	85 5/8	86 1/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

June 26, 2015

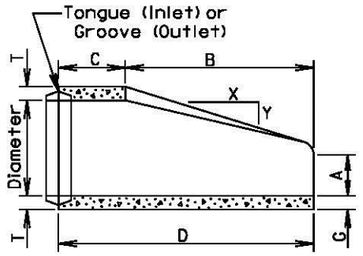
Published Date: 3rd Qtr. 2015	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1



TOP VIEW



SLOPE DETAIL

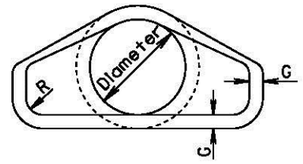


LONGITUDINAL SECTION

GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Specifications.

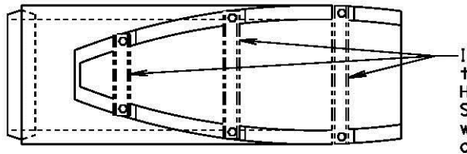


END VIEW

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4:1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4:1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3:1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4:1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5:1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5:1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5:1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5:1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5:1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5:1	5	24	72	26	98	84	5	1 1/2
54	8240	2:1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9:1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7:1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8:1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8:1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6:1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5:1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

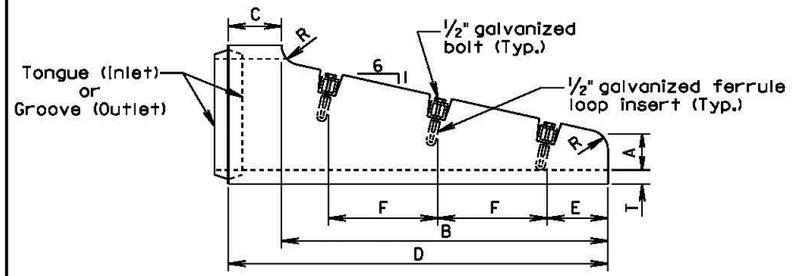
June 26, 2015

Published Date: 3rd Qtr. 2015	SDDOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10
			Sheet 1 of 1

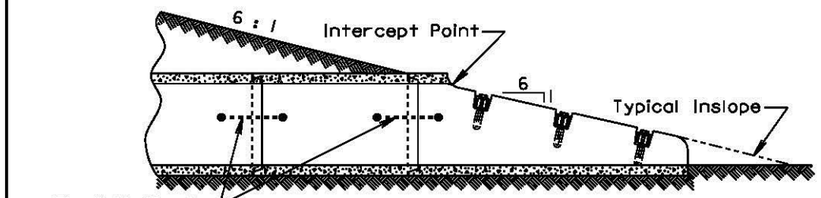


If bars are specified in the plans then provide HSS 2.5X2.5X.1875 Structural Steel Tubing in conformance with ASTM A500, Grade B or 3" Diameter Schedule 40 Pipe in conformance with ASTM A53, Grade B.

TOP VIEW



SIDE VIEW



ELEVATION VIEW

Dia. (in.)	T (in.)	R (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	No. Sections	No. Bars
FOR CIRCULAR PIPE										
15	2¼	3	6	48	9	57	6	18	1	3
18	2½	3	6	69	9	78	9	24	1	3
*24	3	3	6	111	9	120	6	24	1 or 2	5
FOR ARCH PIPE										
**18	2½	1	6	39	33	72	6	24	1	2

*The use of 2 sections must be an approved design.
**Equivalent Diameter of Circular R. C. P.

GENERAL NOTES:

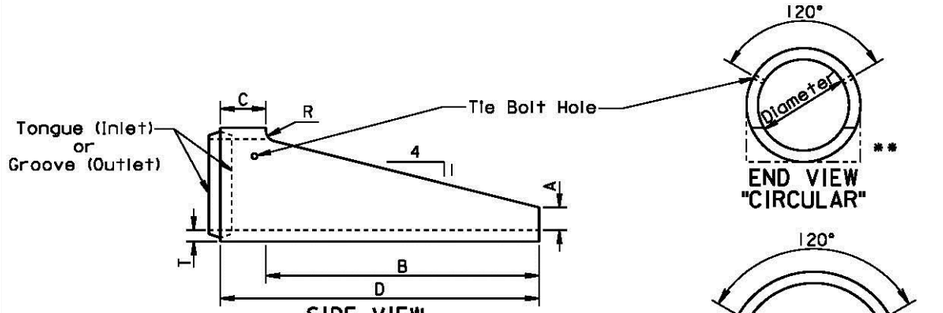
The length of concrete pipe shown on the plans is between safety ends.

Safety ends without bars are acceptable with or without the bar notches.

Bars shall be galvanized after fabrication in accordance with ASTM A123.

August 31, 2013

Published Date: 3rd Qtr. 2015	SDDOT	R. C. P. SAFETY ENDS WITH OR WITHOUT BARS	PLATE NUMBER 450.12
			Sheet 1 of 1



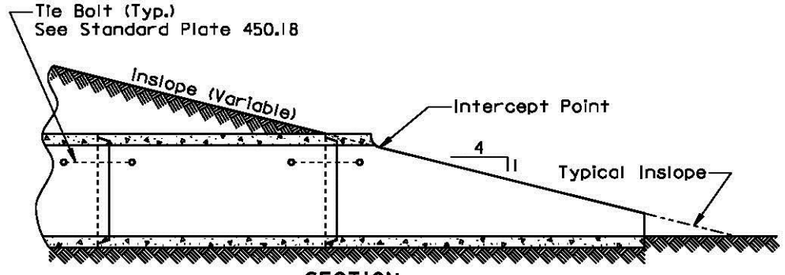
SIDE VIEW

Dia. (In.)	T (In.)	A (In.)	B (In.)	C (In.)	D (In.)	R (In.)
FOR CIRCULAR PIPE						
24	3	6	72	12	84	3
30	3½	7½	90	12	102	3½
FOR ARCH PIPE						
* 24	3	6	48	12	60	3
* 30	3½	7½	60	12	72	3½
* 36	4½	8⅝	66	30	96	0
* 42	4½	10	77¼	18¾	96	0

ALTERNATE

Dia. (In.)	T (In.)	A (In.)	B (In.)	C (In.)	D (In.)	R (In.)
FOR CIRCULAR PIPE						
24	3	9	72	12	84	0
30	3½	11	90	12	102	0
FOR ARCH PIPE						
* 24	3	9	48	12	60	0
* 30	3½	11	60	12	72	0

* Equivalent Diameter of Circular R.C.P.
** Acceptable Flat Bottom Alternate.



SECTION
(Along Centerline of Pipe)

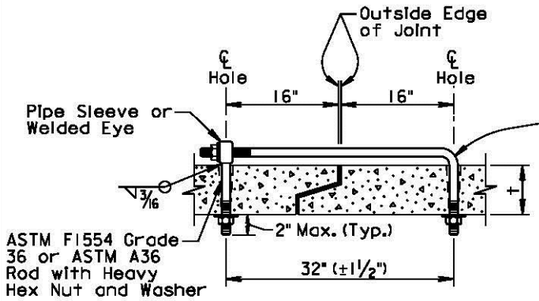
GENERAL NOTE:

The length of concrete pipe shown in the construction plans is between sloped ends.

September 22, 2006

Published Date: 3rd Qtr. 2015	SDDOT	R. C. P. SLOPED ENDS	PLATE NUMBER 450.13
			Sheet 1 of 1

Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3¼	⅝	¾
3½-6½	¾	1
≥ 7	1	1¼



ADJUSTABLE EYE BOLT TIE

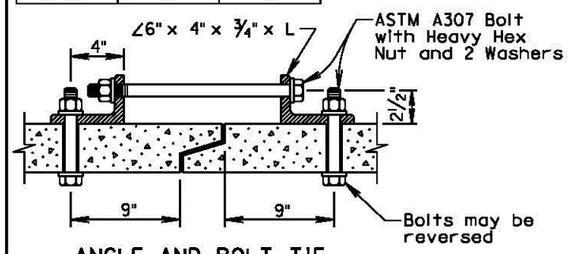
GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustible eye bolt tie assembly in accordance with ASTM A153.

Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	¾
> 48	6	1



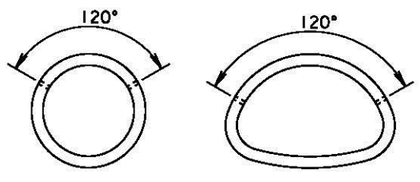
ANGLE AND BOLT TIE

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



END VIEW "CIRCULAR"

END VIEW "ARCH"

GENERAL NOTES:

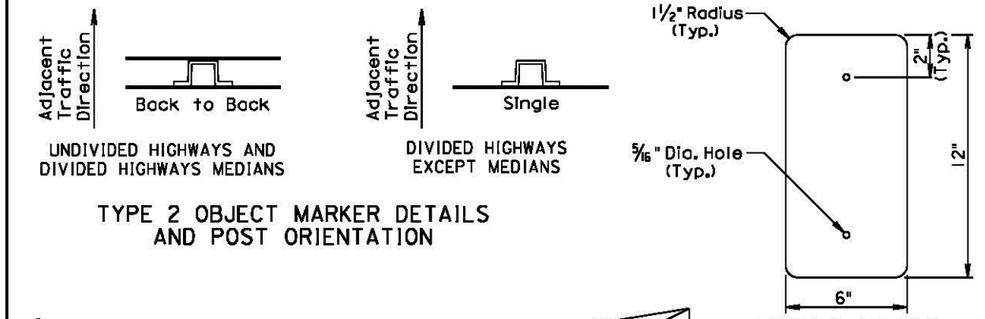
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

February 28, 2013

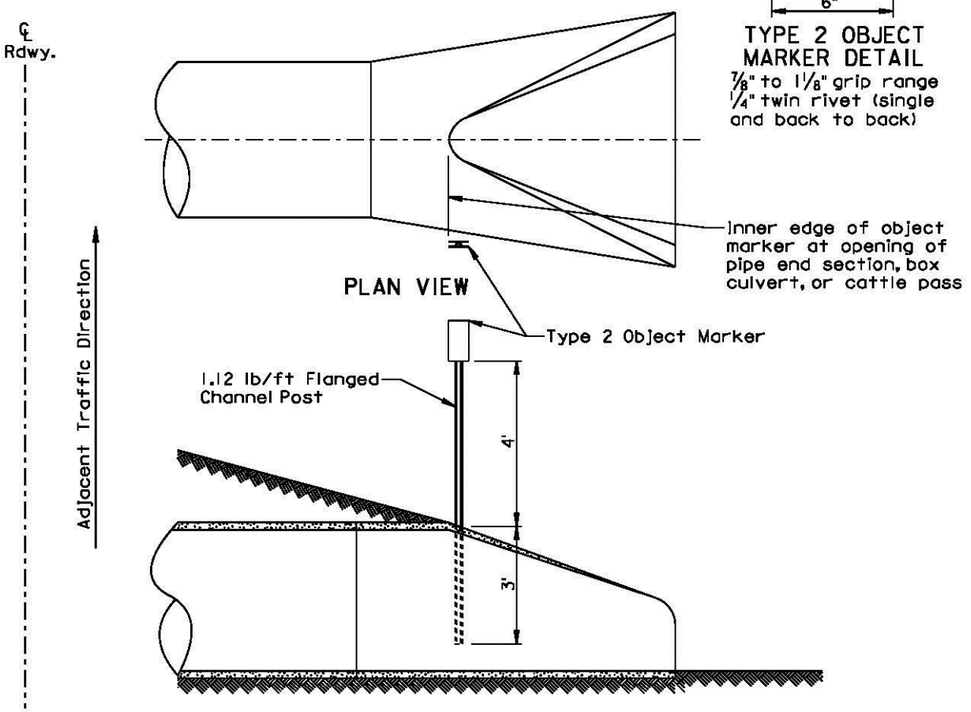
Published Date: 3rd Qtr. 2015	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1



TYPE 2 OBJECT MARKER DETAILS AND POST ORIENTATION

TYPE 2 OBJECT MARKER DETAIL

⅞" to 1⅛" grip range
¼" twin rivet (single and back to back)



PLAN VIEW

ELEVATION

GENERAL NOTES:

The type 2 object markers and the 1.12 lb/ft flanged channel posts shall be in conformance with Specifications Section 982.2 J.

Payment for the type 2 object markers shall be in conformance with Specification Section 632.5 B.

June 26, 2015

Published Date: 3rd Qtr. 2015	SDDOT	TYPE 2 OBJECT MARKER INSTALLATION AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES	PLATE NUMBER 632.10
			Sheet 1 of 1

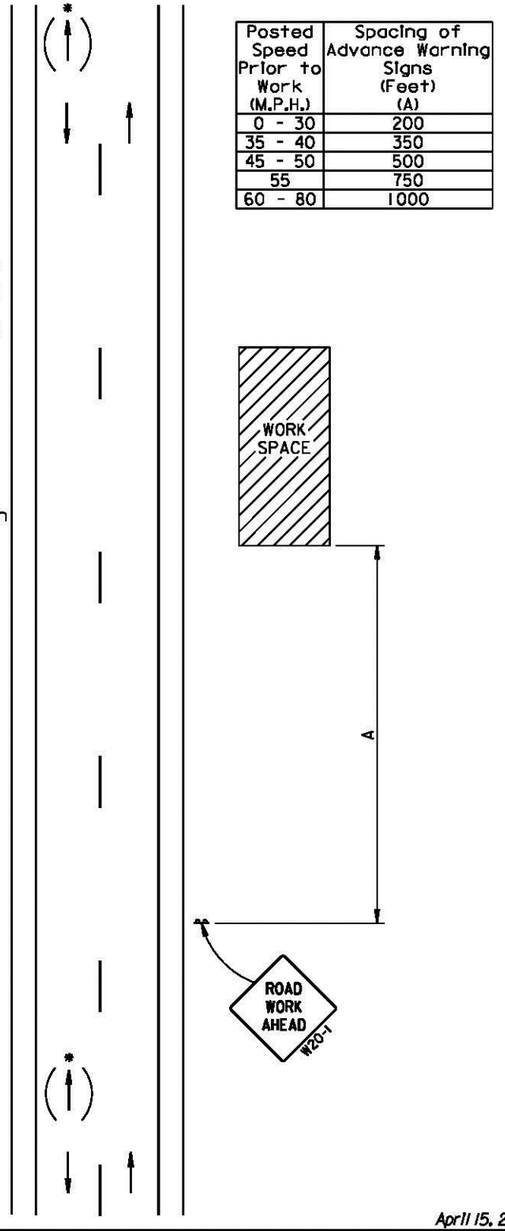
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

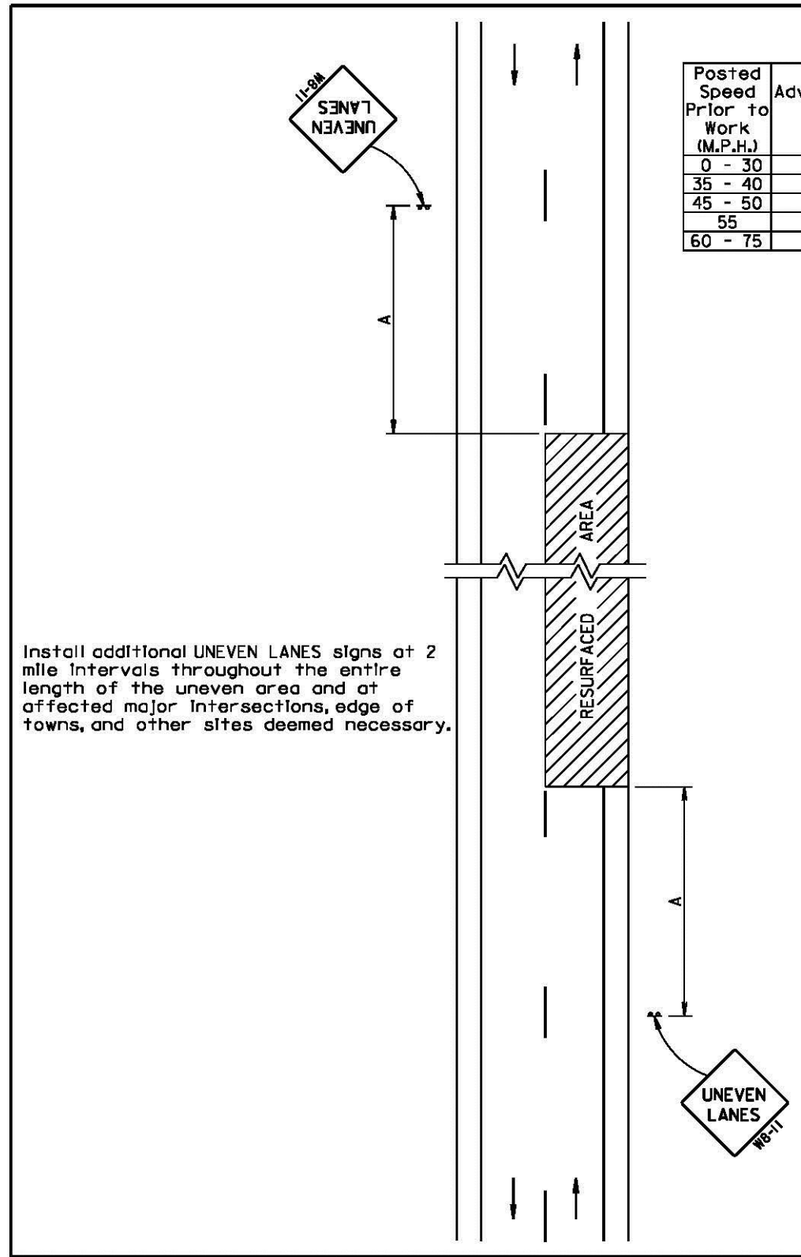


Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000

April 15, 2015

Published Date: 3rd Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
			Sheet 1 Of 1

Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.



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 - 75	1000

April 15, 2015

Published Date: 3rd Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES UNEVEN ROAD SURFACE	PLATE NUMBER 634.22
			Sheet 1 of 1

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 - 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.

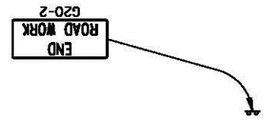
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall 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 shall be drums or 42" cones.

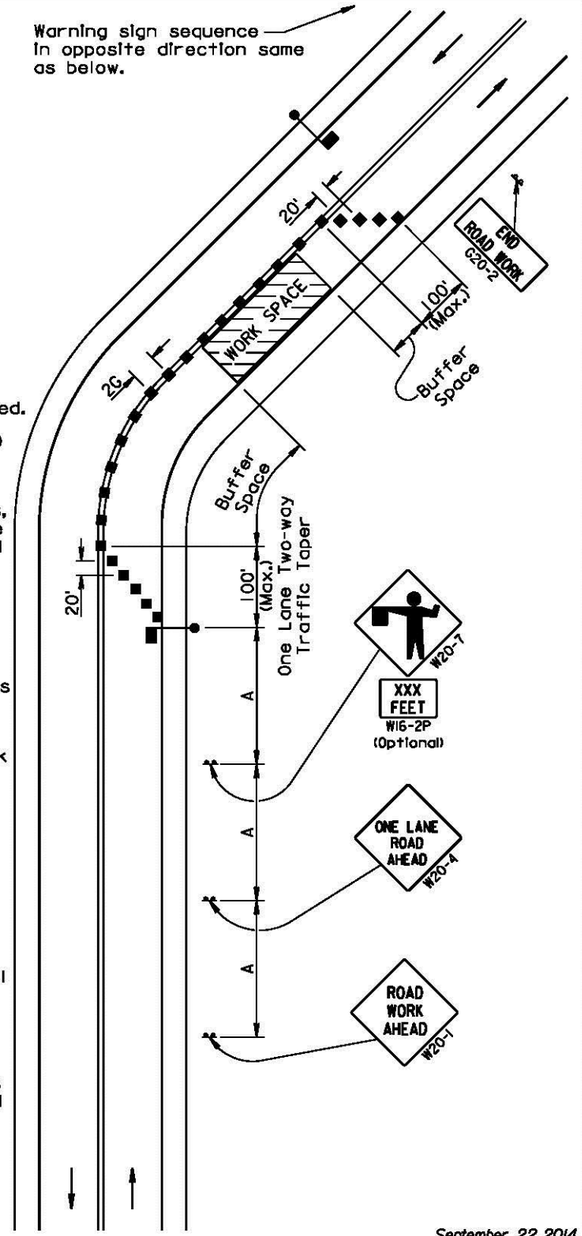
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



Channelizing devices and flaggers shall 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.

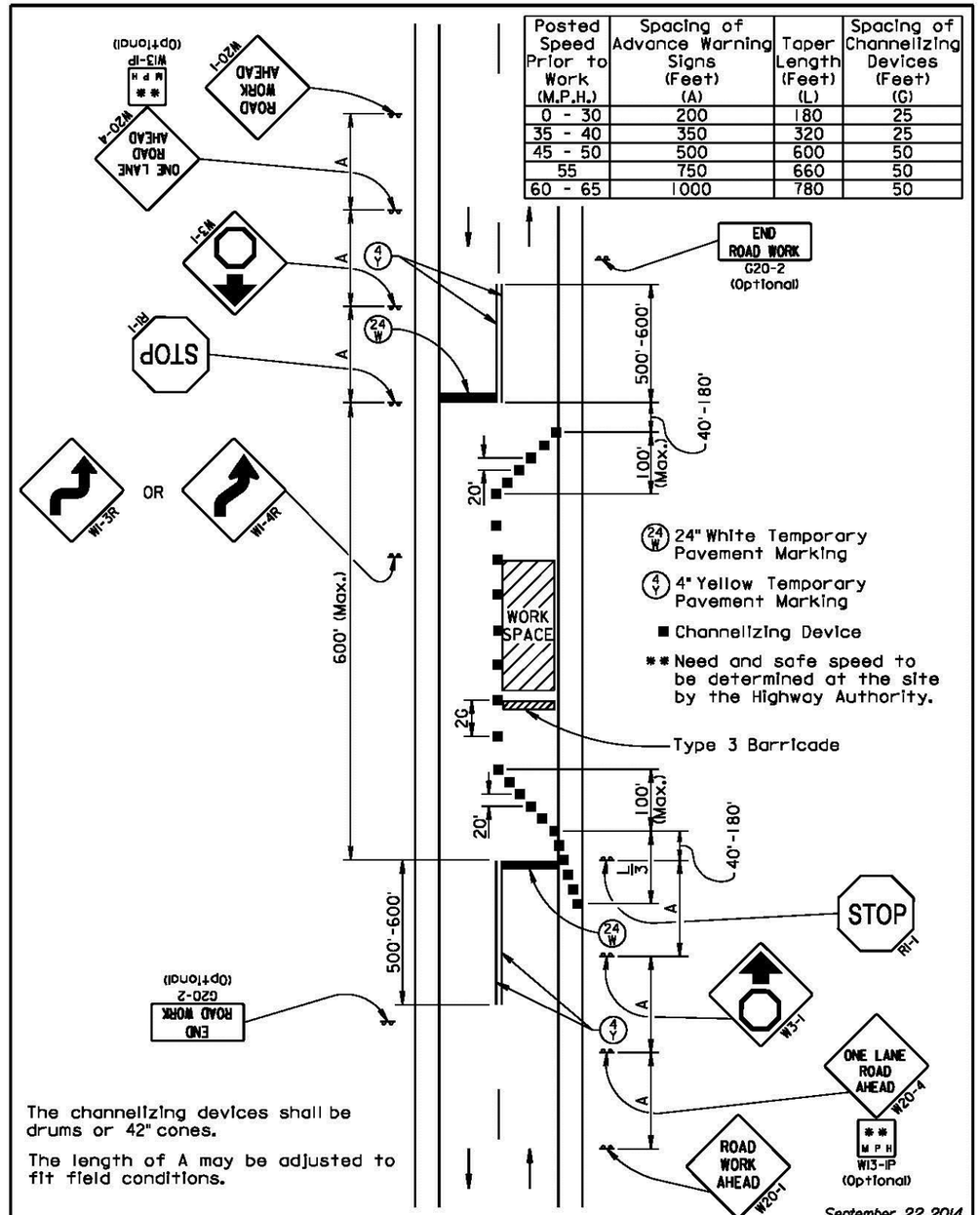
The length of A may be adjusted to fit field conditions.



September 22,2014

Published Date: 3rd Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 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)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45 - 50	500	600	50
55	750	660	50
60 - 65	1000	780	50

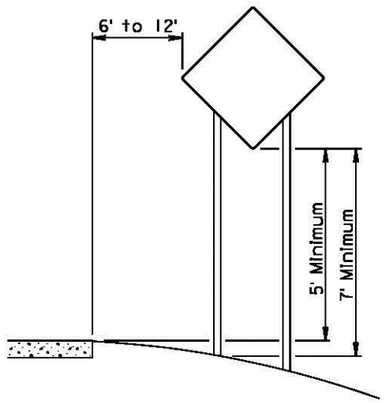


The channelizing devices shall be drums or 42" cones.

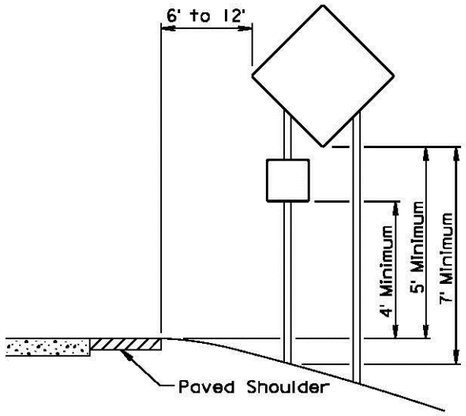
The length of A may be adjusted to fit field conditions.

September 22,2014

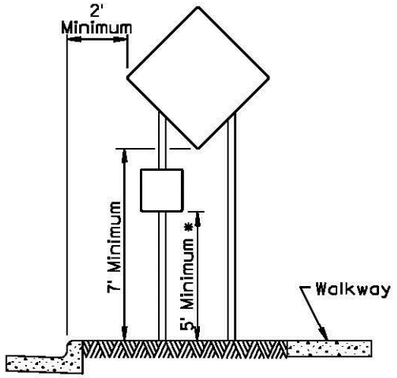
Published Date: 3rd Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE USING STOP SIGNS	PLATE NUMBER 634.25
			Sheet 1 of 1



RURAL DISTRICT

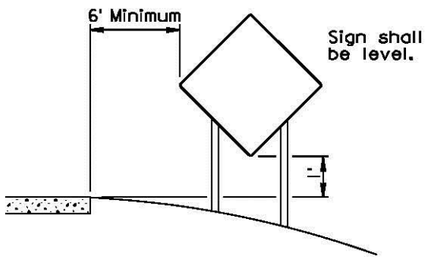


RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

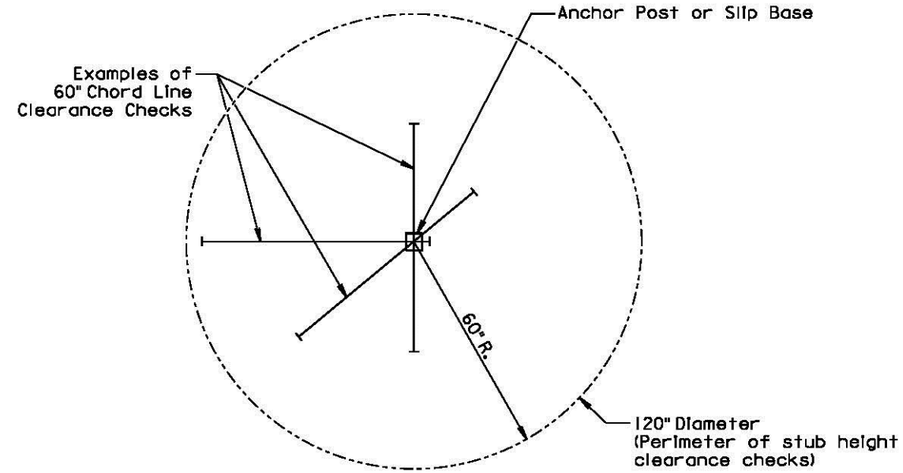
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



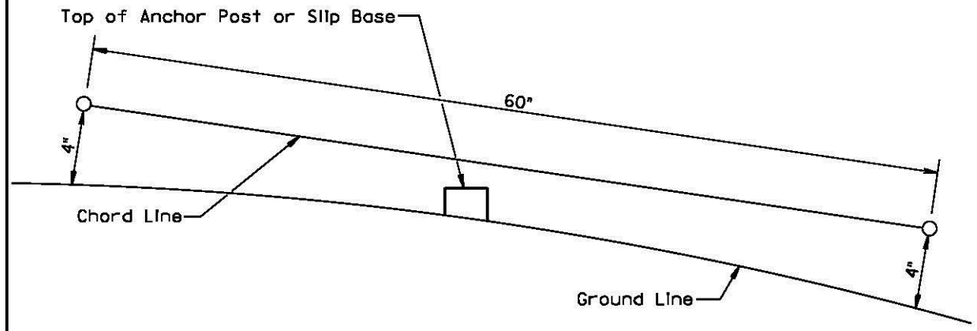
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 3rd Qtr. 2015	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

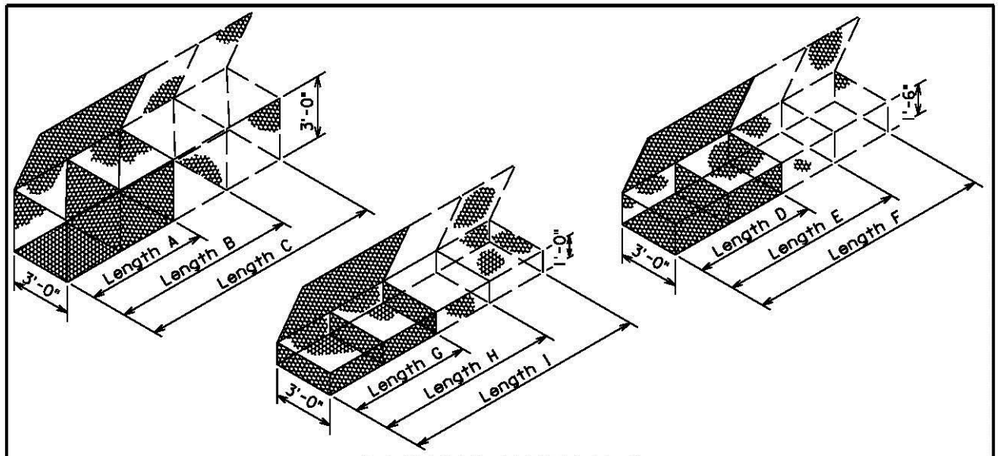
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall 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.

July 1, 2005

Published Date: 3rd Qtr. 2015	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1



GABION DETAILS

STANDARD SIZES

SIZE	LENGTH	WIDTH	HEIGHT	NUMBER OF CELLS	CAPACITY, Cu. Yd.
A	6'-0"	3'-0"	3'-0"	2	2.0
B	9'-0"	3'-0"	3'-0"	3	3.0
C	12'-0"	3'-0"	3'-0"	4	4.0
D	6'-0"	3'-0"	1'-6"	2	1.0
E	9'-0"	3'-0"	1'-6"	3	1.5
F	12'-0"	3'-0"	1'-6"	4	2.0
G	6'-0"	3'-0"	1'-0"	2	0.7
H	9'-0"	3'-0"	1'-0"	3	1.0
I	12'-0"	3'-0"	1'-0"	4	1.3

Above Dimensions subject to mill tolerances.

GENERAL NOTES:

Lacing and internal connecting wire shall be 0.0866 inch diameter steel wire ASTM A641 Class 3 soft temper measured after galvanizing and for PVC coated gabions shall be 0.0866 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:

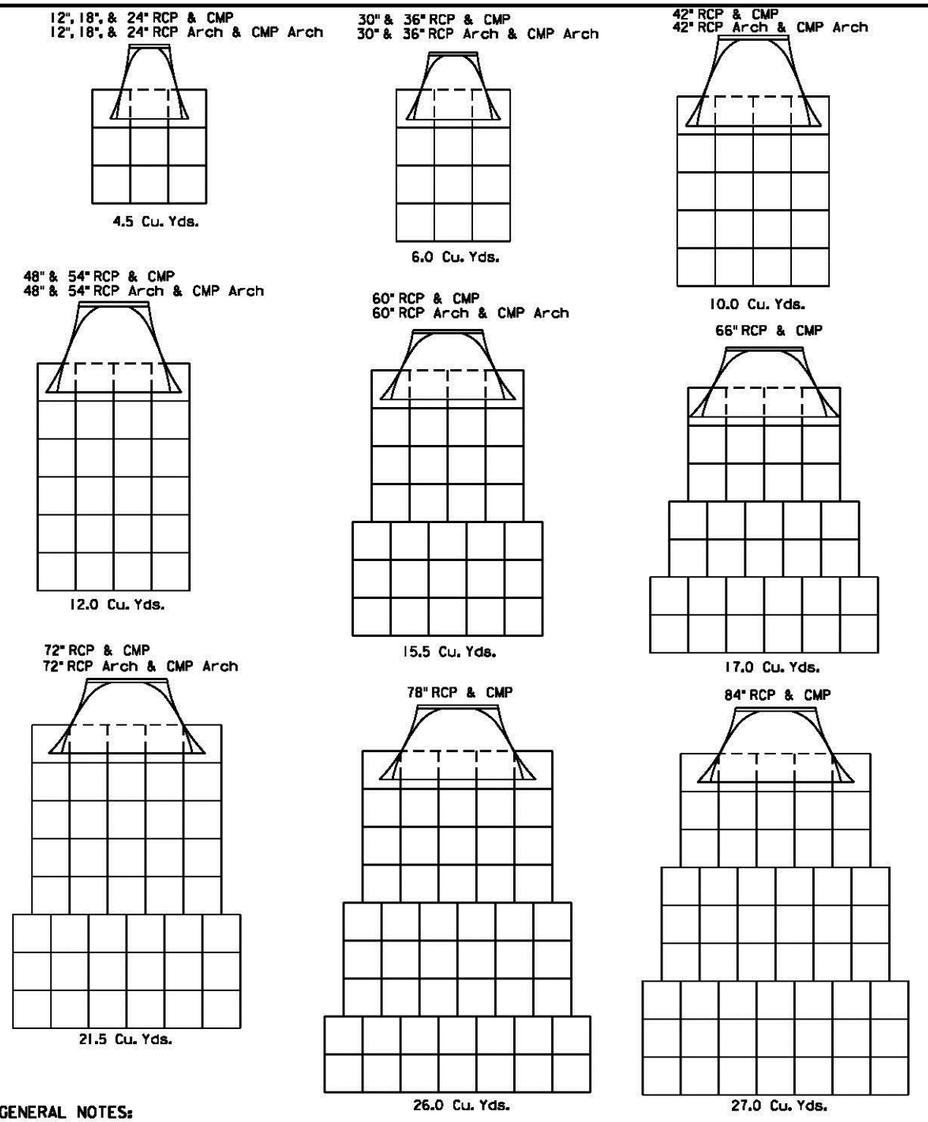
1. Cut a length of lacing wire approximately 1 ½ times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

Wire lacing or interlocking type fasteners shall be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions shall be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing shall conform to ASTM A641-92 Class 3 coating. Fasteners shall also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions shall be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class 1. The spacing of the interlocking fasteners during all phases of assembly and construction shall not exceed 6 inches. All fasteners shall be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

June 26, 2001

Published Date: 3rd Qtr. 2015	SDDOT	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
			Sheet 1 of 1



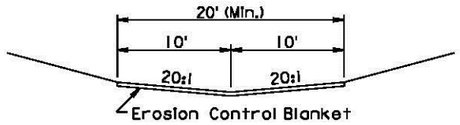
GENERAL NOTES:

Gabions at outlets of C. M. pipe and R. C. pipe shall be placed under the end section a distance of 2' from the outlet end of the section. For C. M. pipe end section installations, the upper fabric of the gabions shall be modified to accommodate the metal end section in a manner approved by the Engineer.

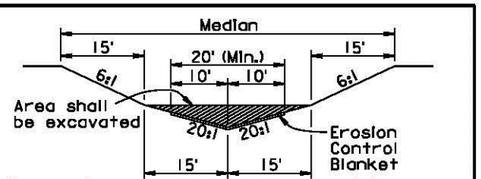
Quantities shown on this standard plate are based on standard gabion sizes D, E, and F (See Standard Plate 720.01).

June 26, 2001

Published Date: 3rd Qtr. 2015	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
			Sheet 1 of 1

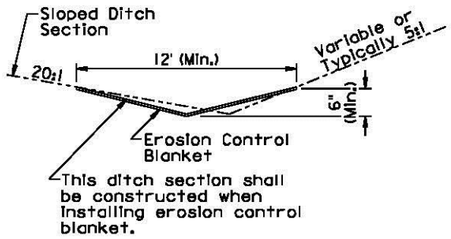


STANDARD DITCH SECTION

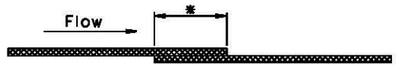


The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.

MEDIAN SECTION



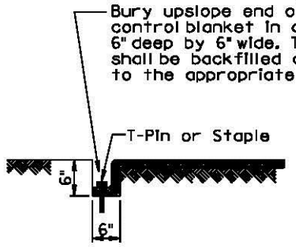
SLOPED DITCH SECTION



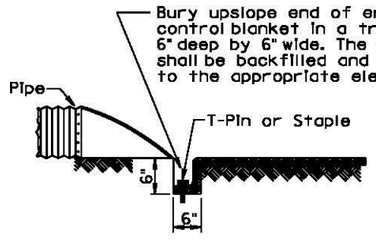
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* Use a 6" (Min.) 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 shall be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket shall 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 shall be buried in a trench 6" wide by 6" deep. There shall 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.

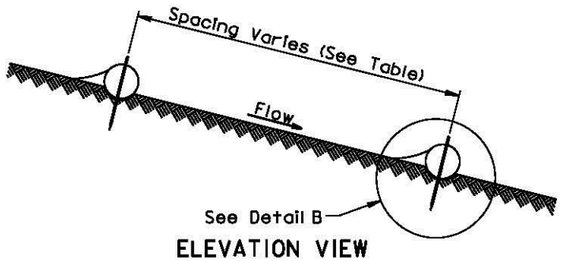
The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor shall 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 shall be shaped when installing the erosion control blanket. All costs for shaping the ditches shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

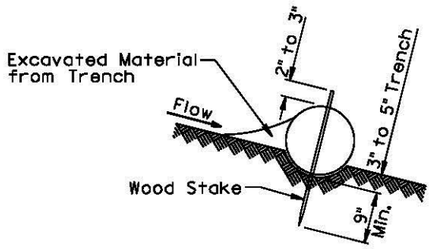
December 23, 2004

Published Date: 3rd Qtr. 2015	SDDOT	**EROSION CONTROL BLANKET**	*PLATE NUMBER* 734.01
			Sheet 1 of 1

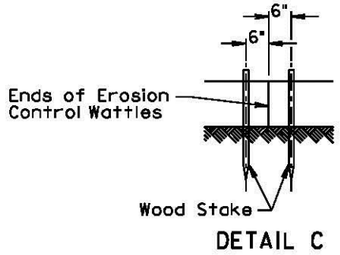


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

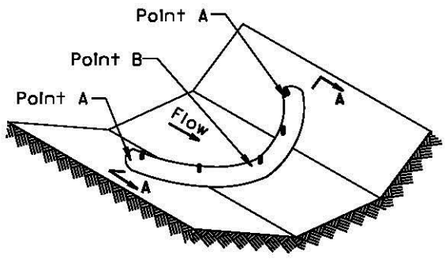
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



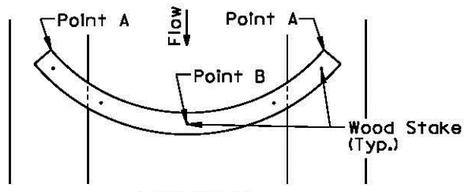
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

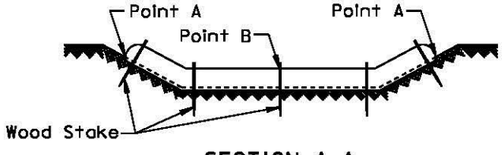


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

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



SECTION A-A

December 23, 2004

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GENERAL NOTES:

At cut or fill slope installations, wattles shall 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 shall 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 shall 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 shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

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

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than ½". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall 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 shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

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

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