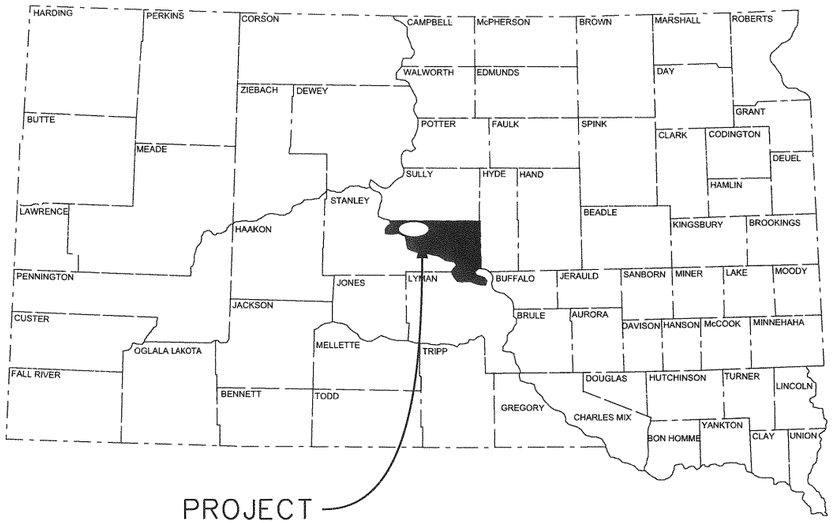
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	1	21

Plotting Date: 4/20/16
Revised Date: 04/21/16
Initials: TLW



STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT P 6395(04)
Grey Goose Road
HUGHES COUNTY

STRUCTURE AND APPROACH GRADING
PCN 03QJ

INDEX OF SHEETS

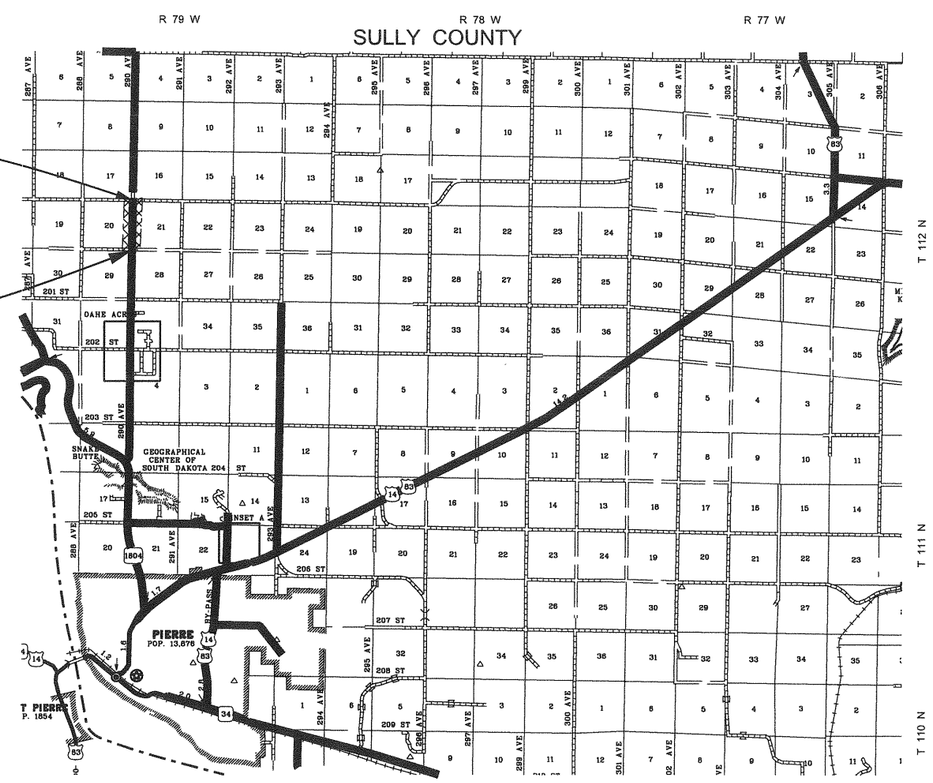
SHEET NO. 1	TITLE AND LAYOUT MAP
SHEET NO. 2-4	ESTIMATE OF QUANTITIES AND GENERAL NOTES
SHEET NO. 5	TYPICAL SECTIONS
SHEET NO. 6	TRAFFIC CONTROL
SHEET NO. 7-9	PERMANENT SIGNING
SHEET NO. 10-12	SWPPP PLAN NOTES
SHEET NO. 13	EROSION CONTROL
SHEET NO. 14	CROSS SECTIONS
SHEET NO. 15-16	STANDARD PLATES
SHEET NO. 17	PLAN & PROFILE
SHEET NO. 18-21	2-10' X 5' BOX CULVERT (PRECAST)

END PROJECT P 6395(04)

At Sta. 11+00 - A Point Approx. 1220' North of the SE Corner of Section 20, T112N, R79W.

BEGIN PROJECT P 6395(04)

At Sta. 9+00 - A Point Approx. 1020' North of the SE Corner of Section 20, T112N, R79W.



DESIGN DESIGNATION

ADT (2007)	150
ADT (2027)	170
DHV	25
D	50%
T DHV	4.6%
T ADT	10.1%
V	55 mph

STORM WATER PERMIT

Major Receiving Body of Water: Spring Creek
Area Disturbed: 0.11 Acre
Total Project Area: 0.46 Acre
Latitude: 44° 29'36.56" N
Longitude: 100° 21'2.64" W

SCALES

PLAN 1 INCH = 100 FT.

PROFILE { HORIZONTAL: 1 INCH = 100 FT.
VERTICAL: 1 INCH = 10 FT.

CROSS SECTION { HORIZONTAL: 1 INCH = 20 FT.
VERTICAL: 1 INCH = 10 FT.

PLANS BEI#: S12-P659

Survey by:	Brosz Engineering, Inc. Pierre, SD
Plans by:	Brosz Engineering, Inc. Pierre, SD

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 8017
SCOTT JOHN SCHWEITZER
SOUTH DAKOTA
4/20/16

1

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ESTIMATE OF QUANTITIES

GRADING AND EROSION CONTROL

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1700	Remove Silt Fence	60	Ft
120E0020	Unclassified Excavation	Lump Sum	LS
120E0600	Contractor Furnished Borrow Excavation	120	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
634E0110	Traffic Control Signs	149	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0265	Type 3 Barricade, 6' Double Sided	2	Each
634E0285	Type 3 Barricade, 8' Double Sided	6	Each
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	45	SqYd
734E0604	High Flow Silt Fence	240	Ft
734E0610	Mucking Silt Fence	10	CuYd
734E0620	Repair Silt Fence	60	Ft

SURFACING

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
120E6200	Water for Granular Material	1.7	MGal
260E1010	Base Course	178.0	Ton

SURFACING (NON-PARTICIPATING)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E1200	Asphalt Concrete Composite	59.0	Ton
633E1300	Pavement Marking Paint, White	2	Gal
633E1305	Pavement Marking Paint, Yellow	1	Gal

STRUCTURE

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0200	Structure Excavation, Box Culvert	384	CuYd
421E0200	Box Culvert Undercut	206	CuYd
560E2114	2-10'x5' Precast Concrete Box Culvert, Furnish	48	Ft
560E2115	2-10'x5' Precast Concrete Box Culvert, Install	48	Ft
560E3114	2-10'x5' Precast Conc. Box Culvert End Section, Furnish	2	Each
560E3115	2-10'x5' Precast Conc. Box Culvert End Section, Install	2	Each
700E0210	Class B Riprap	94.0	Ton
831E0110	Type B Drainage Fabric	140	SqYd

SPECIFICATIONS

The South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required provisions, supplemental specifications and special provisions 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 B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT C: WATER SOURCE

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

Action Taken/Required:

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

COMMITMENT D1: SURFACE WATER QUALITY

Action Taken/Required:

The Contractor is advised the South Dakota Surface Water Quality Standards, administered by the Department of Environment and Natural Resources (DENR), apply to this project. Special construction measures shall

be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

The Tributary to Spring Creek is 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 less than 1 acre of disturbance

Action Taken/Required:

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

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor 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 County 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 and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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 Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT N: SECTION 404 PERMIT

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

Action Taken/Required:

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

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

HUGHES COUNTY REQUIREMENTS

The County will be responsible for the following items without federal participation.

1. Obtain Right-of-way and permanent and temporary easements.
2. Coordination of any utility adjustments.
3. Furnish and install temporary and/ or permanent fencing.
4. Furnish and install new permanent signing.
5. Remove silt fence protecting areas that have been permanently seeded, after vegetation has been established.
6. Cost associated with Asphalt for Final Surfacing.

REMOVE AND REPLACE TOPSOIL

Prior to Excavation, the Contractor shall remove and stockpile the in-place topsoil from the construction area. The areas to be covered with topsoil to a depth of 4 inches comprise all newly graded Areas within the right-of-way, exclusive of the top of the subgrade. Vegetation shall be incorporated and placed with the topsoil as much as practical. Plans quantity for "Remove and Replace Topsoil" will be the basis of payment for the described work. An estimated amount of topsoil to cover the designated areas to the specific depth including shrinkage is 65 CuYds. No other measurement will be made.

GRADING OPERATIONS

Special ditch grades and other sections of the roadway different than the typical section shall be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer shall contact the Designer for the proposed change.

Temporary fence and/or permanent fence shall be placed ahead of the grading operation by the County, unless otherwise directed by the Engineer. The contractor shall coordinate with the County regarding removal and placement of fence.

INCIDENTAL WORK STRUCTURE

Work shall include removal and contractor disposal of triple 72” x 42’ CMP Arch Pipe.

UNCLASSIFIED EXCAVATION

Work shall include removal and contractor disposal of existing Surfacing.

SURFACING THICKNESS DIMENSIONS

Plans tonnage will be applied even though thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

UTILITIES

The utilities as shown on the plans are for information purposes only. It shall be the contractor's responsibility to contact and to coordinate their work schedule with the County and the utility companies. The contractor shall be responsible for all damages to utilities in the limits of the proposed construction at no cost to the owners. Adequate time shall be provided for the utilities to be relocated and adjusted, prior to work that may disrupt the utilities as per section 5.6 of the Specifications.

Oahe Electric CO-OP	CenturyLink
102 S. Canford	1730 N. Garfield Ave.
Blunt, SD 57522	Pierre, SD 57501
	Contact: Jim Wedin
605-962-6243	855-637-9528

SD 1 Call: 1-800-781-7474
The County Highway Superintendent is **Mike Meyer** 1-605-773-7486

GENERAL MAINTENANCE OF TRAFFIC

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

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

FERTILIZING

Application of fertilizer will not be required on this project.

EROSION CONTROL

The contract lump sum price for Erosion Control shall include all material, equipment, and labor necessary to seed and mulch all areas within the right-of-way and easements, exclusive of the top of the subgrade and temporary easement under cultivation. The Engineer, at the time of construction, shall determine the limits of the Erosion Control work. The estimated area to be seeded is 0.11 acres.

Type B Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Sideoats Grama	Butte, Killdear, Pierre, Trailway	3
Big Bluestem	Bison, Bonilla, Champ, Pawnee, Sunnyview	3
Canada Wildrye	Mandan	2
	Total:	18

DRILLS

In addition to the drills specified in Section 730 of the Specifications, other types of drills including no-till drills will be allowed as long as they have baffles, partitions, agitators, or augers which keep the seed distributed throughout the seed box and the seed is planted at a depth of ¼" to ½".

MULCHING (GRASS HAY OR STRAW)

Hughes County weed supervisor to inspect all mulching to be used on this project. Contact Mike Larson at 605-224-1694

HIGH FLOW SILT FENCE

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

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

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

An additional 106 feet of High Flow Silt Fence has been added to the Estimate of Quantities for temporary sediment control.

EROSION CONTROL BLANKET

A Type 2 Erosion control blanket shall be installed 10 feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

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

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

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

CONTRACTOR REQUIREMENT

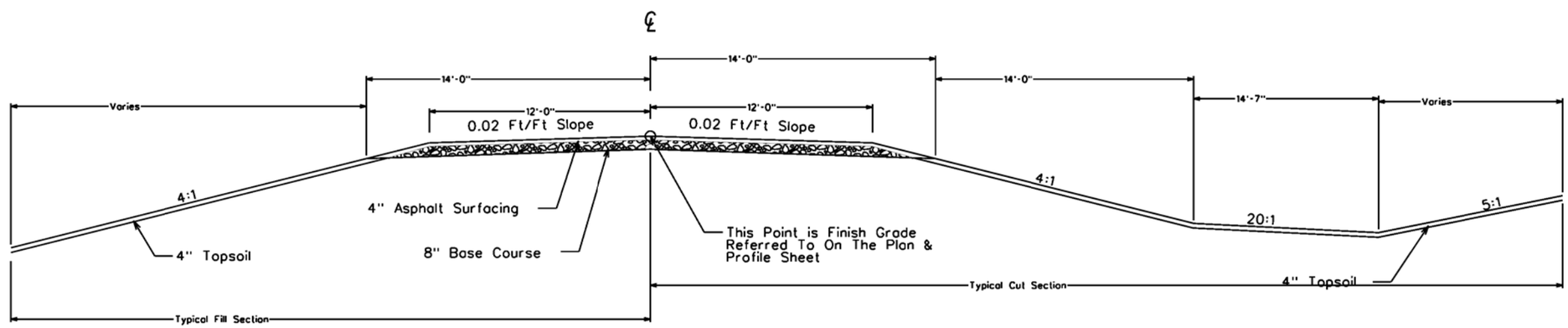
The Contractor shall call Hughes County one week before they close down the road and work begins.

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	5	21

Plotting Date: 2/15/13
Revised Date: 8/1/14
Initials: SS

TYPICAL SECTION



CONTROL DATA

HORIZONTAL AND VERTICAL CONTROL POINTS			
POINT	NORTHING	EASTING	ELEVATION
SDPR	747231.626	1965830.578	1730.436
Sta 8+00	787165.097	1963955.314	1714.300
Sta 12+00	787565.096	1963956.173	1714.100

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	6	21

Plotting Date: 2/15/13
Revised Date: 8/1/14
Initials: SS

TRAFFIC CONTROL

Fixed Location Signs
(Ground Mounted Supports)

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

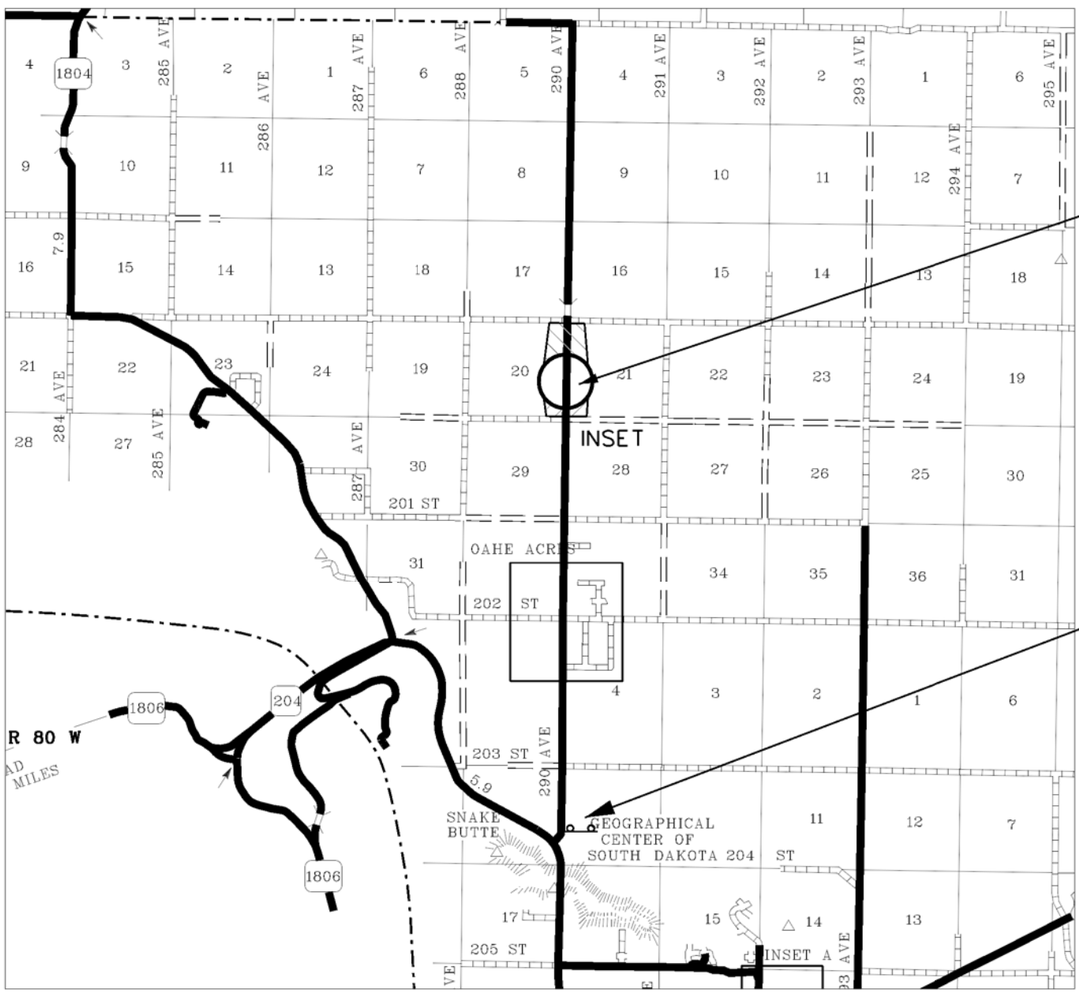
SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R11-2	ROAD CLOSED	2	48" x 30"	10	20
R11-3a	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY	3	60" x 30"	13	39
W20-1	ROAD WORK AHEAD	1	48" x 48"	16	16
W20-3	ROAD CLOSED AHEAD	4	48" x 48"	16	64
G20-2	END ROAD WORK	2	36" x 18"	5	10
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			149

Notes:

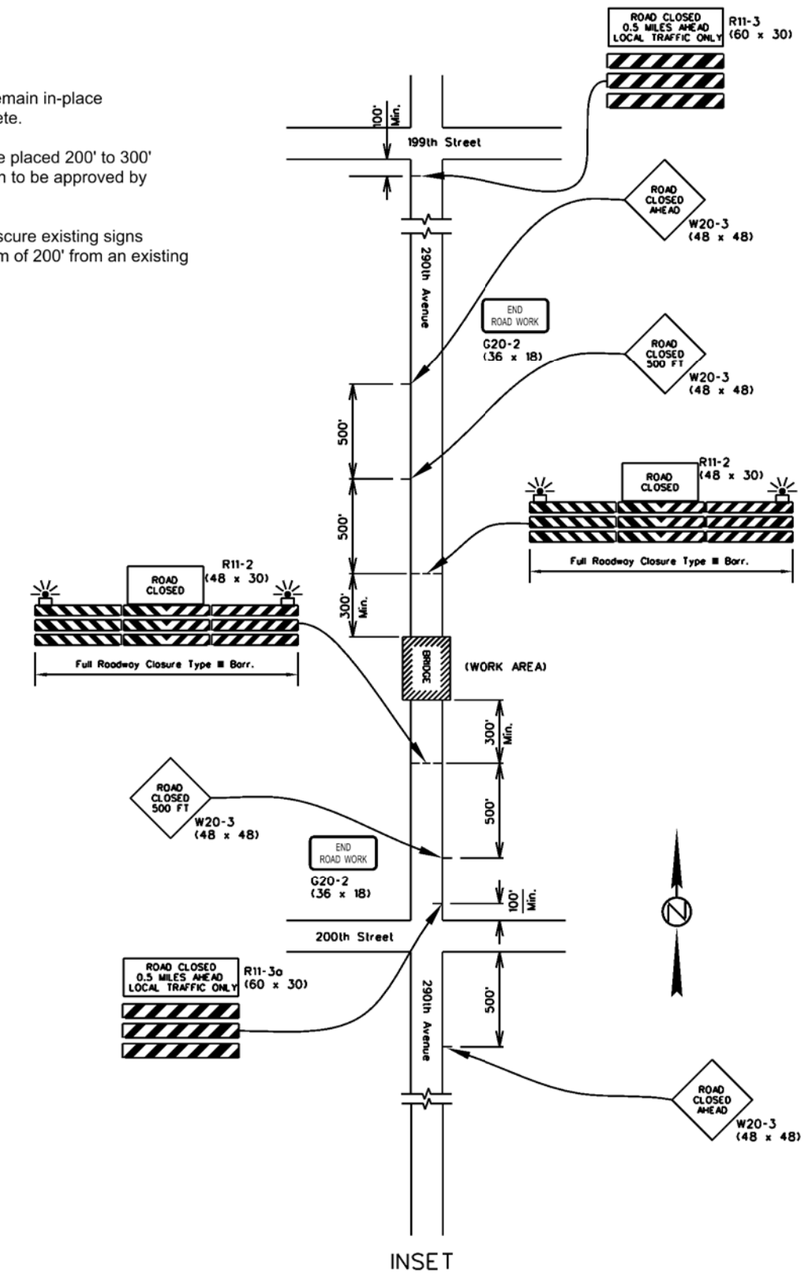
All Fixed Location Signs shall remain in-place until the new structure is complete.

All Fixed Location Signs shall be placed 200' to 300' from intersection. Exact location to be approved by the Engineer.

Construction Signs shall not obscure existing signs and must be installed a minimum of 200' from an existing sign.



ROAD CLOSED
4 MILES AHEAD
LOCAL TRAFFIC ONLY



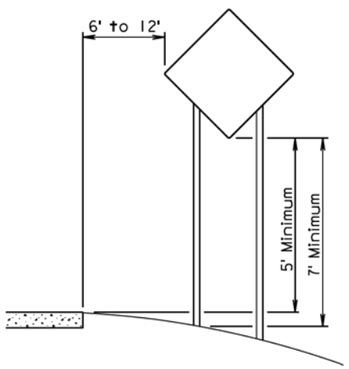
FOR BIDDING PURPOSES ONLY

PERMANENT SIGNING

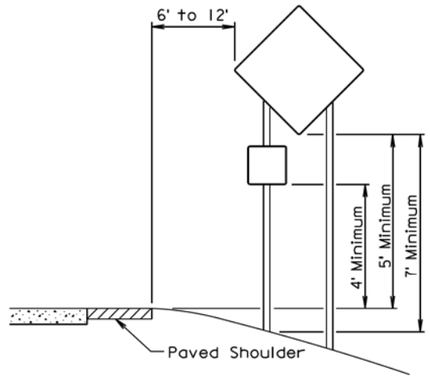
(Shown for Information Purposes Only)

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	7	21

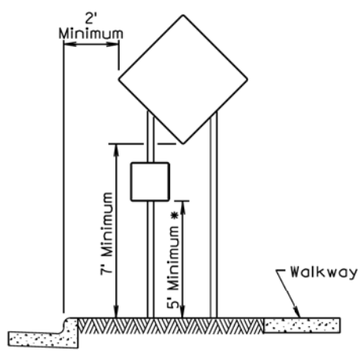
Plotting Date: 2/15/13
Revised Date: mm/dd/yy
Initials: SS



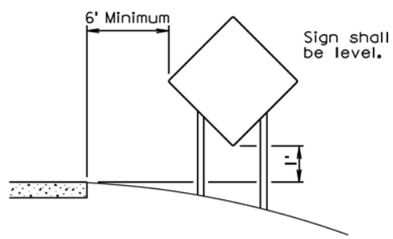
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

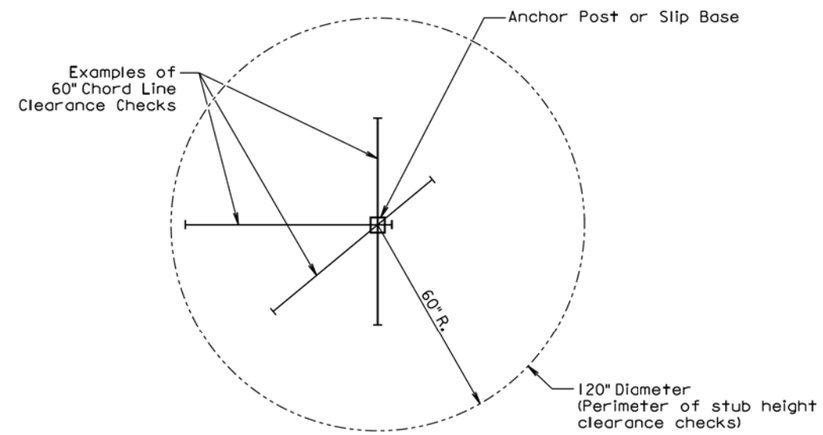


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

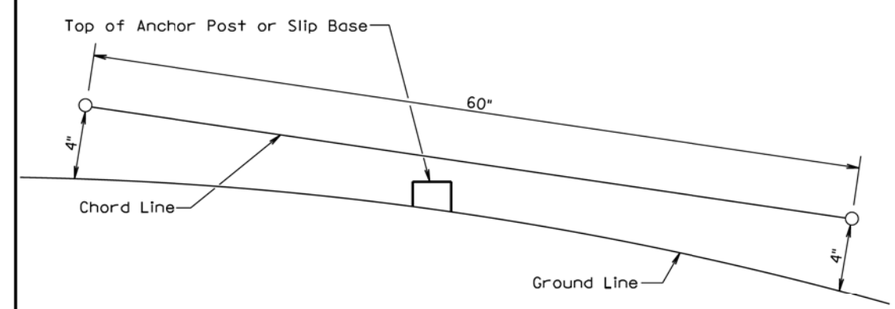
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

September 22, 2014

Published Date: 1st Qtr. 2016	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: 1st Qtr. 2016	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99 Sheet 1 of 1

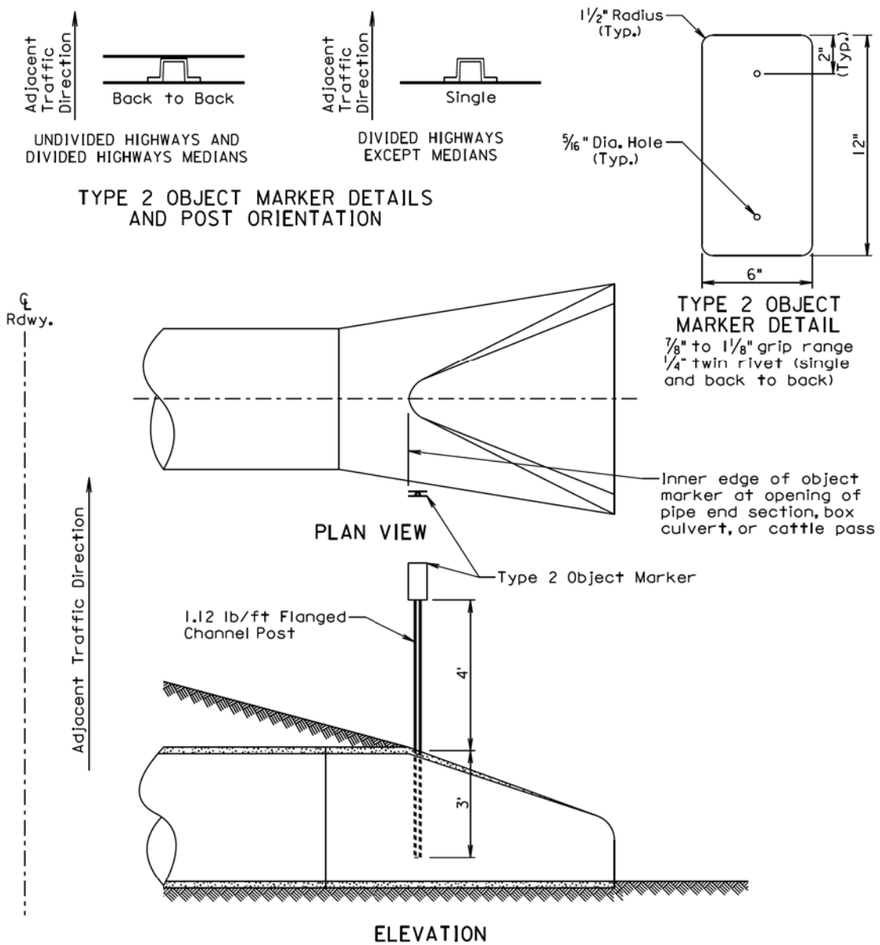
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	8	21

Plotting Date: 2/15/13
Revised Date: 6/30/14
Initials: SS

PERMANENT SIGNING

(Shown for County's Information Purposes Only)



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: 1st Qtr. 2016	SDDOT	TYPE 2 OBJECT MARKER INSTALLATION AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES	PLATE NUMBER 632.10
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

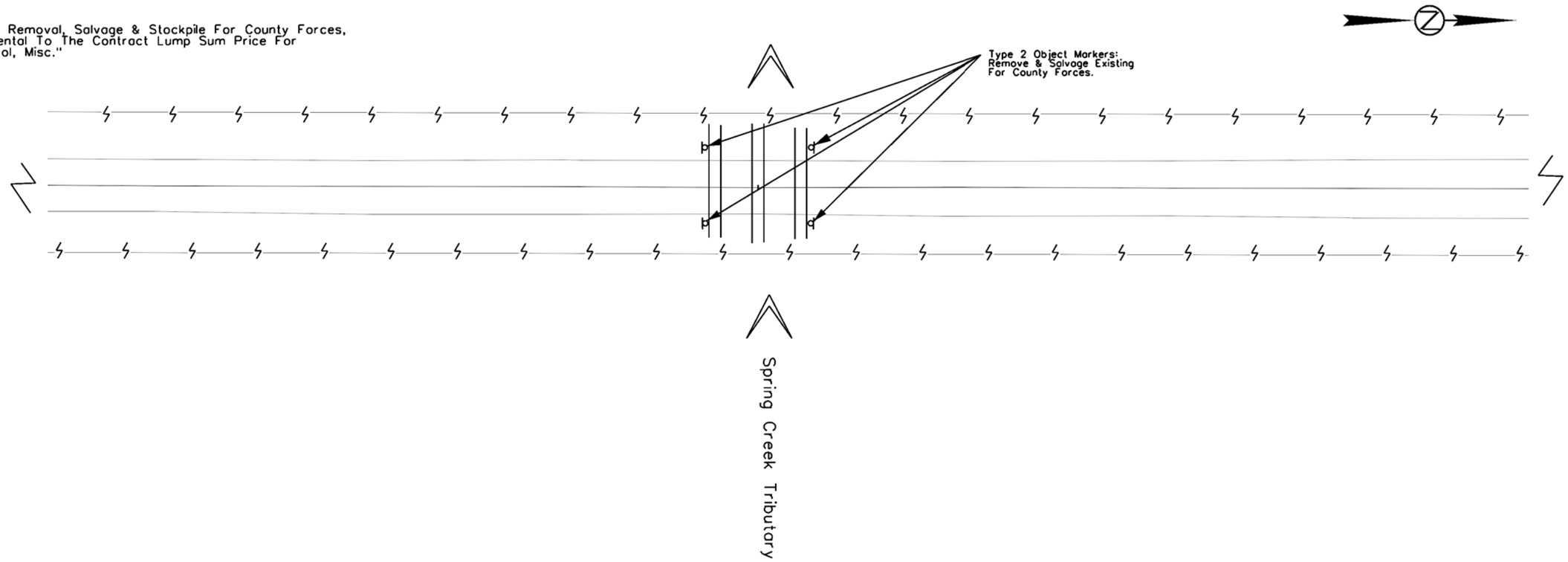
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	6395 (04)	9	21

Plotting Date: 2/15/13
Revised Date: 1/27/16
Initials: SS

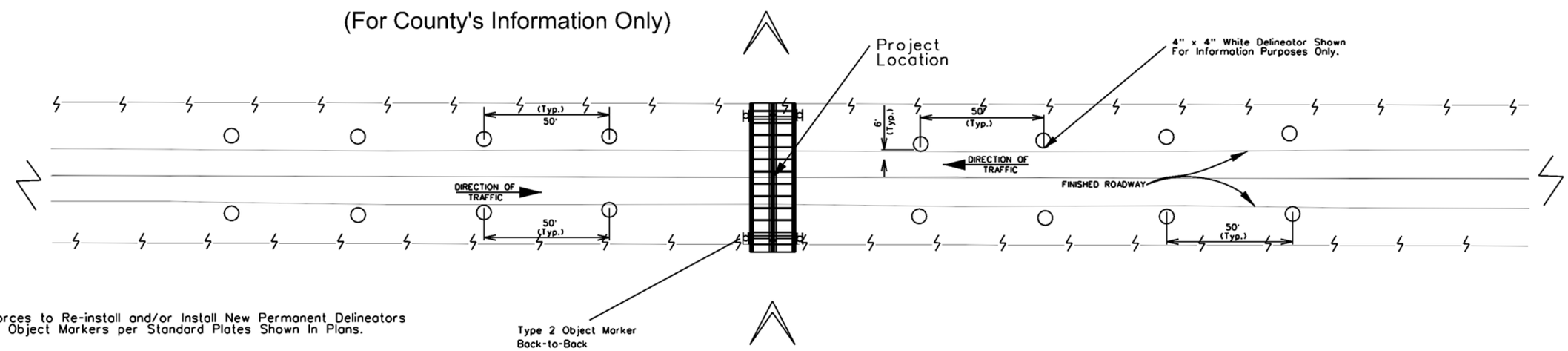
PERMANENT DELINEATOR & SIGNING LOCATIONS

(For Contractor's Information Only)

*Note: All Signage For Removal, Salvage & Stockpile For County Forces, Shall Be Incidental To The Contract Lump Sum Price For "Traffic Control, Misc."



(For County's Information Only)



Notes:

County Forces to Re-install and/or Install New Permanent Delineators & Type 2 Object Markers per Standard Plates Shown In Plans.

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** 0.46 Acres **(4.2 1.b.)**
- **Total Area To Be Disturbed** 0.11 Acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 40%
  Soil Properties: Silt Loam, Silty Clay Loam, Clay Loam, Loam, & Silty Clay
- Classification A-4, 6, 7 **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Spring Creek Trib.**(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 perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Clearing and grubbing.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Complete final grading.**
- **Complete traffic control installation and protection devices.**
- **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.

❖ **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.
- 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.

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**

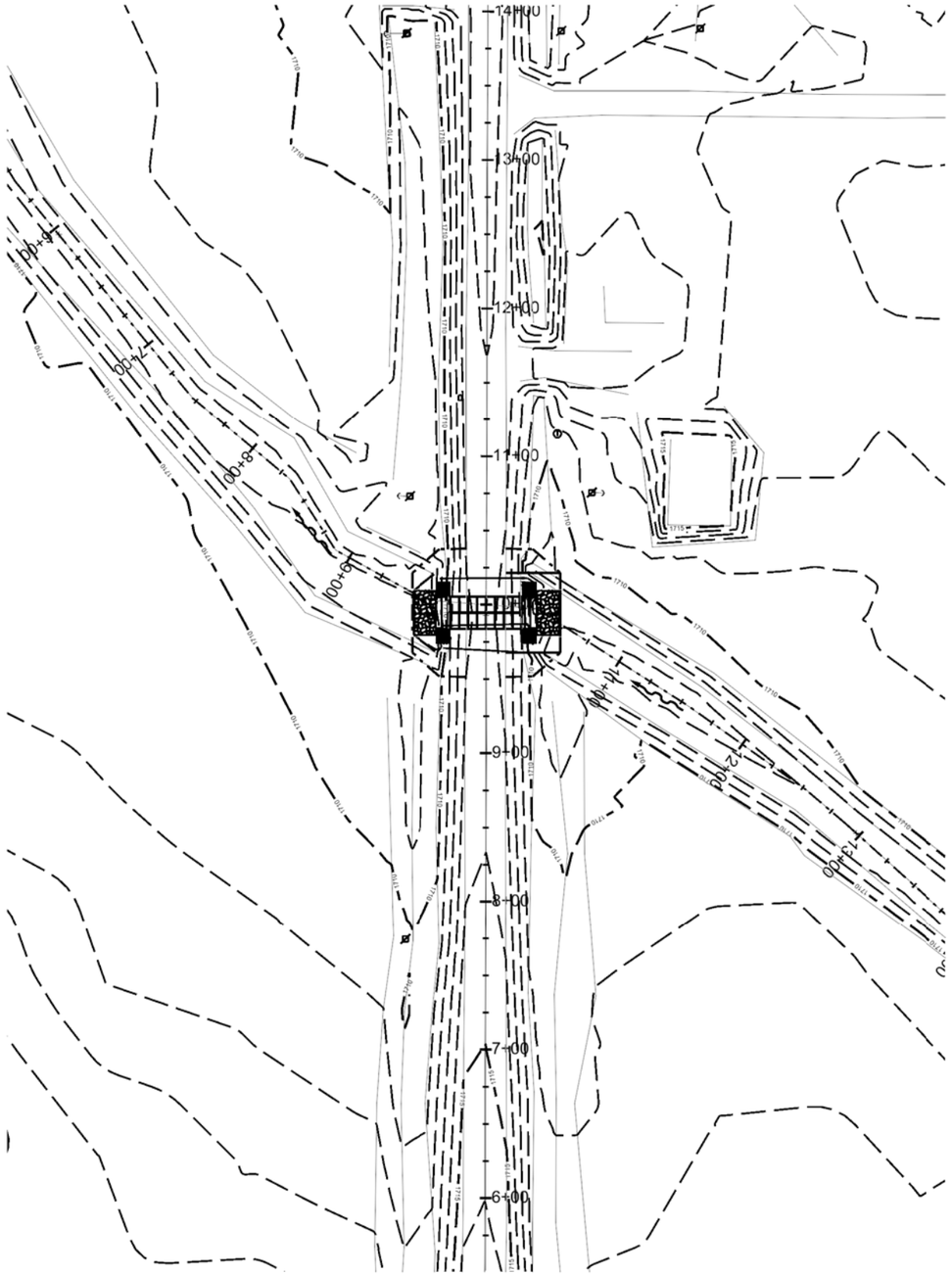
- (800) 424-8802.

EROSION CONTROL

FOR BIDDING PURPOSES ONLY

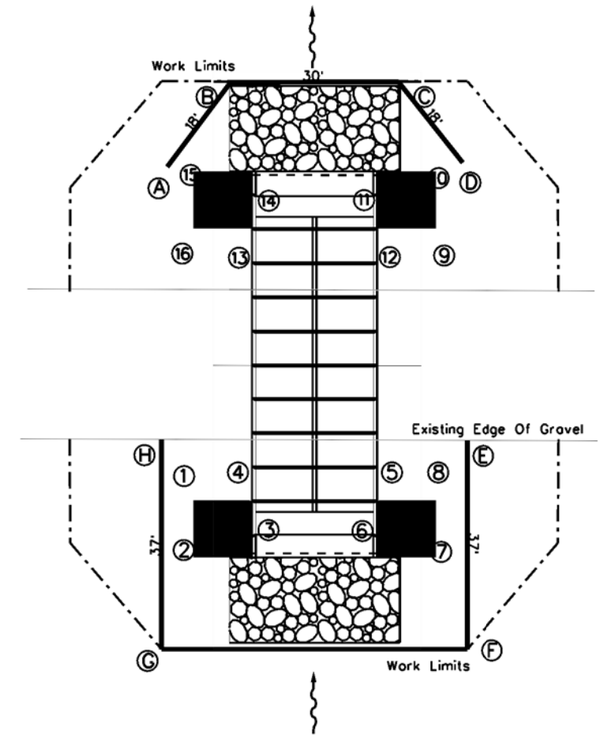
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	13	21

Plotting Date: 2/15/13
Revised Date: 8/1/14
Initials: SS



Scale:
1" =100'

- Erosion Control Blanket
- High Flow Silt Fence
- Flow Direction



Scale:
1" =15'

TABLE OF EROSION CONTROL BLANKET

LABEL	STATION	OFFSET	DESCRIPTION / QUANTITY
1	9+73	24' Rt	From 1 thru 4 Approx. Area = 100 SqFt.
2	9+73	34' Rt	
3	9+83	34' Rt	
4	9+83	24' Rt	
5	10+05	24' Rt	From 5 thru 8 Approx. Area = 100 SqFt.
6	10+05	34' Rt	
7	10+15	34' Rt	
8	10+15	24' Rt	
9	10+15	23' Lt	From 9 thru 12 Approx. Area = 100 SqFt.
10	10+15	34' Lt	
11	10+05	34' Lt	
12	10+05	24' Lt	
13	9+83	24' Lt	From 13 thru 16 Approx. Area = 100 SqFt.
14	9+83	34' Lt	
15	9+73	34' Lt	
16	9+73	24' Lt	
			Total Area = 400 SqFt.

TABLE OF HIGH FLOW SILT FENCE

LABEL	STATION	OFFSET	DESCRIPTION / QUANTITY
A	9+62	33' Lt	From A thru D Approx. Length = 66 LF. @ Outlet
B	9+73	48' Lt	
C	10+03	48' Lt	
D	10+14	33' Lt	
E	10+22	16' Rt	From E to F Approx. Length = 34 LF. @ Inlet
F	10+22	50' Rt	
G	9+68	50' Rt	From G to H Approx. Length = 34 LF. @ Inlet
H	9+68	16' Rt	
Engineer's Discretion			Additional Length = 106 LF.
			Total Length = 240 LF.

TABLE OF CLASS "B" RIPRAP

STATION	OFFSET	QUANTITY	TYPE "B" DRAINAGE FABRIC
9+80	31' Lt to 46' Lt	47 Ton	70 SqYd. Lt
10+10	31' Lt to 46' Lt		
9+80	31' Rt to 46' Rt	47 Ton	70 SqYd. Rt
10+10	31' Rt to 46' Rt		

CROSS SECTIONS

Scale:
H 1" = 20'
V 1" = 10'

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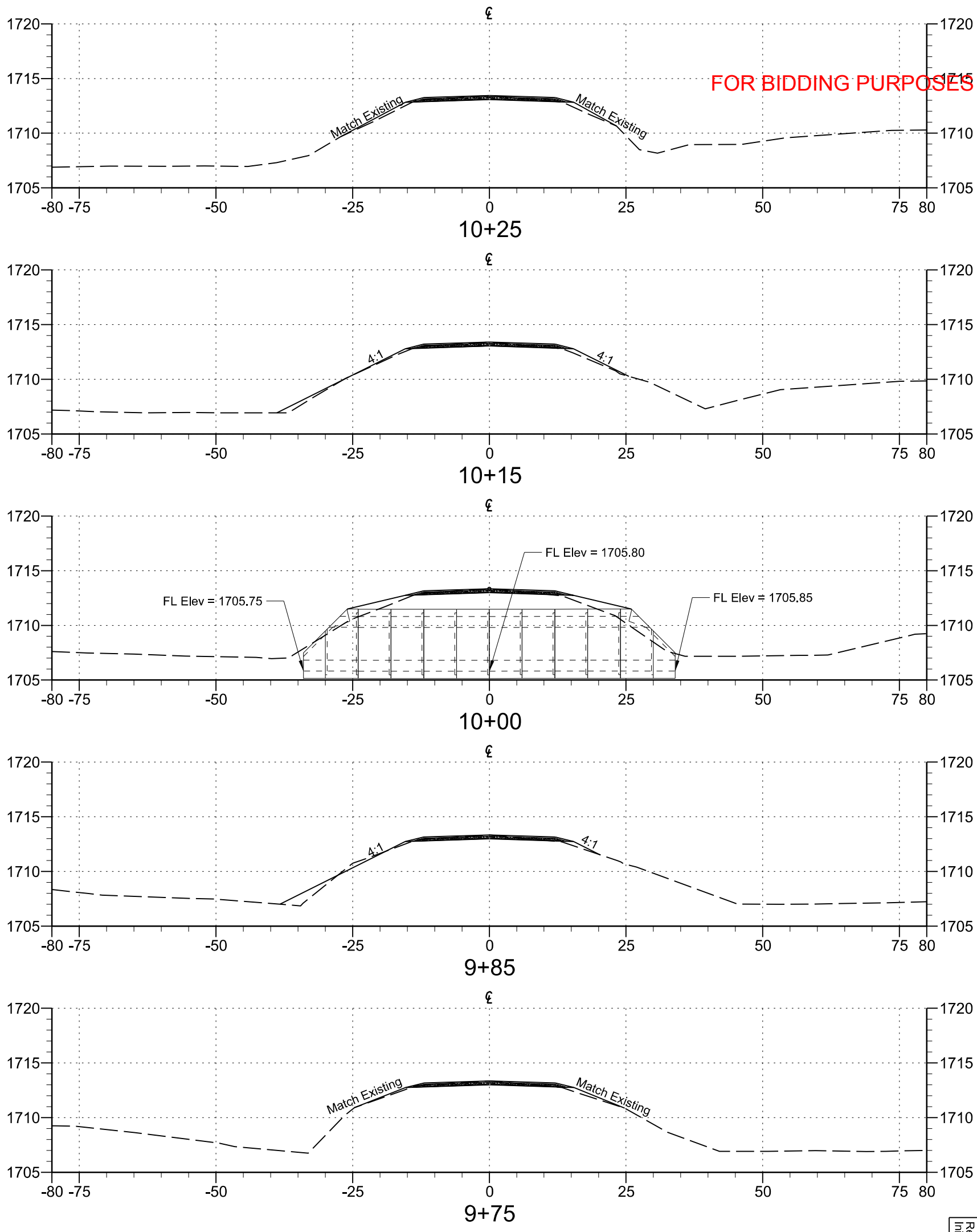

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	14	21

Plotting Date: 4/5/16
Revised Date: mm/dd/yy
Initials: SS

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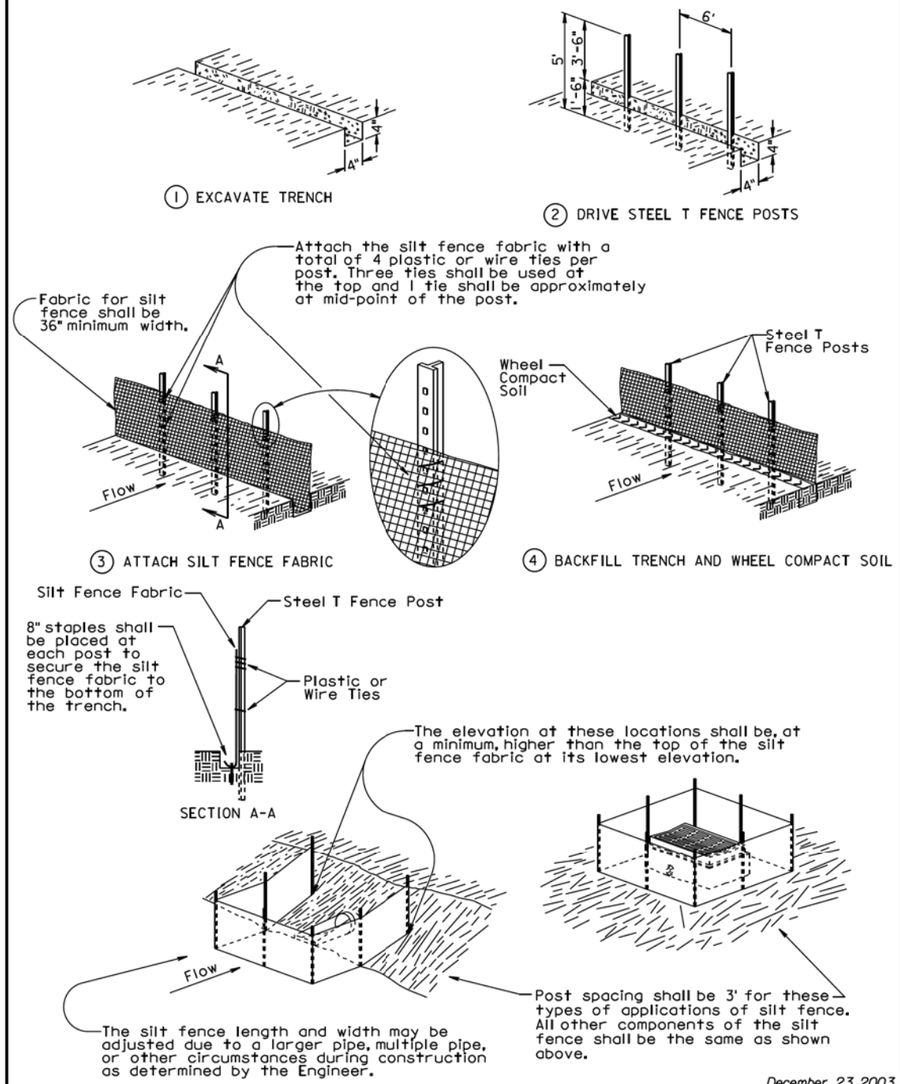
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	15	21

Plotting Date: 2/15/13
Revised Date: 6/30/14
Initials: SS

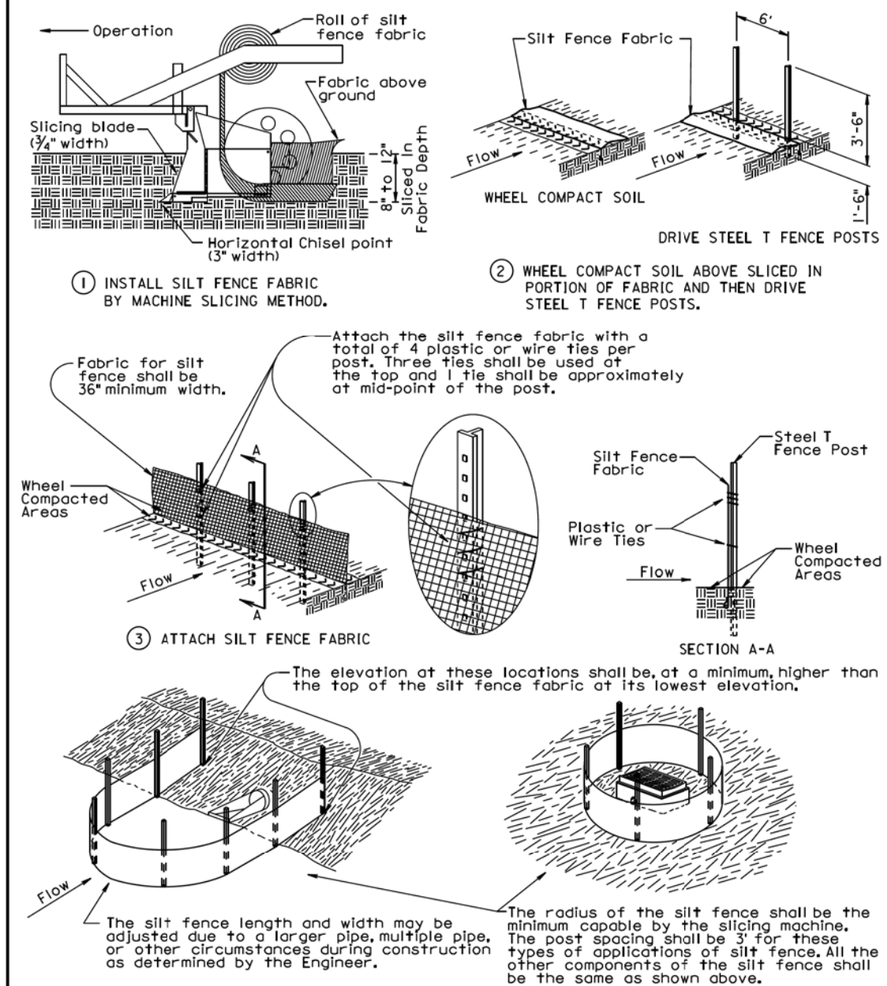
MANUAL HIGH FLOW SILT FENCE INSTALLATION



December 23, 2003

Published Date: 1st Qtr. 2016	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



GENERAL NOTE:

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

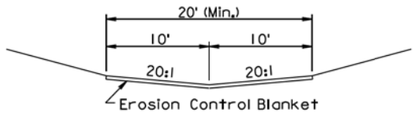
December 23, 2003

Published Date: 1st Qtr. 2016	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 2 of 2

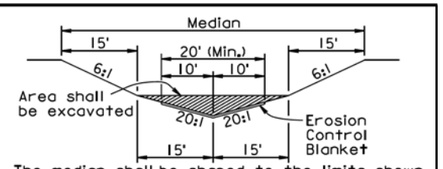
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	16	21

Plotting Date: 2/15/13
Revised Date: 6/30/14
Initials: SS

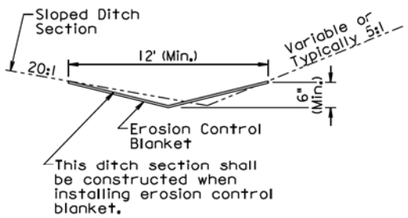


STANDARD DITCH SECTION

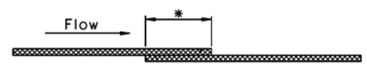


The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.

MEDIAN SECTION



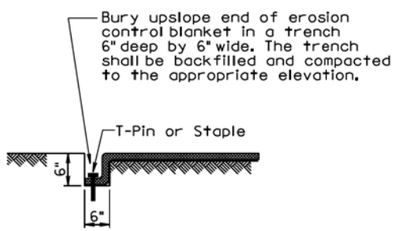
SLOPED DITCH SECTION



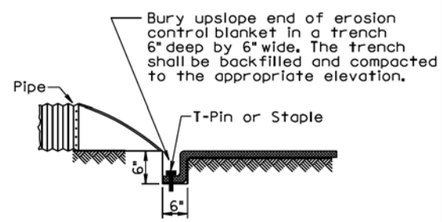
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* 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: 1st Qtr. 2016	SDDOT	**EROSION CONTROL BLANKET**	PLATE NUMBER 734.01
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

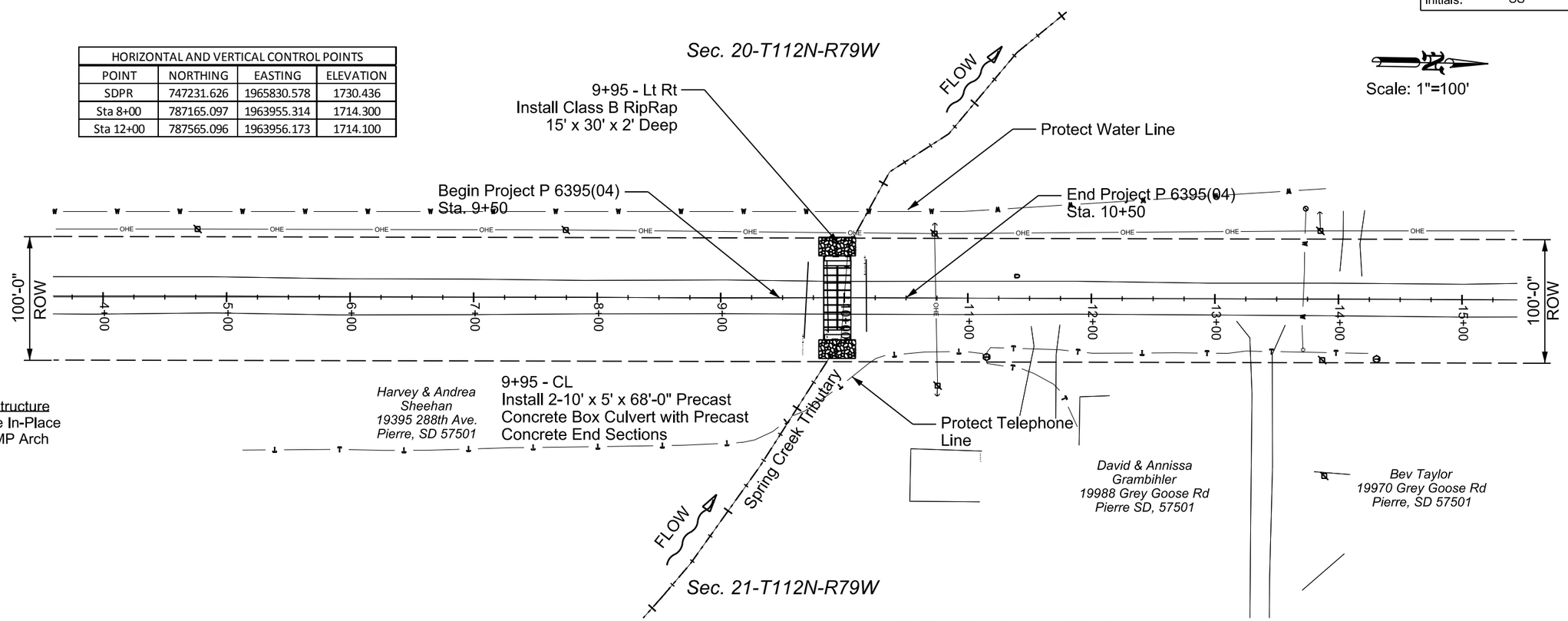
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	17	21

Plotting Date: 2/15/13
Revised Date: 8/1/14
Initials: SS

NOTE: This sheet is to preceed the Standard Plates

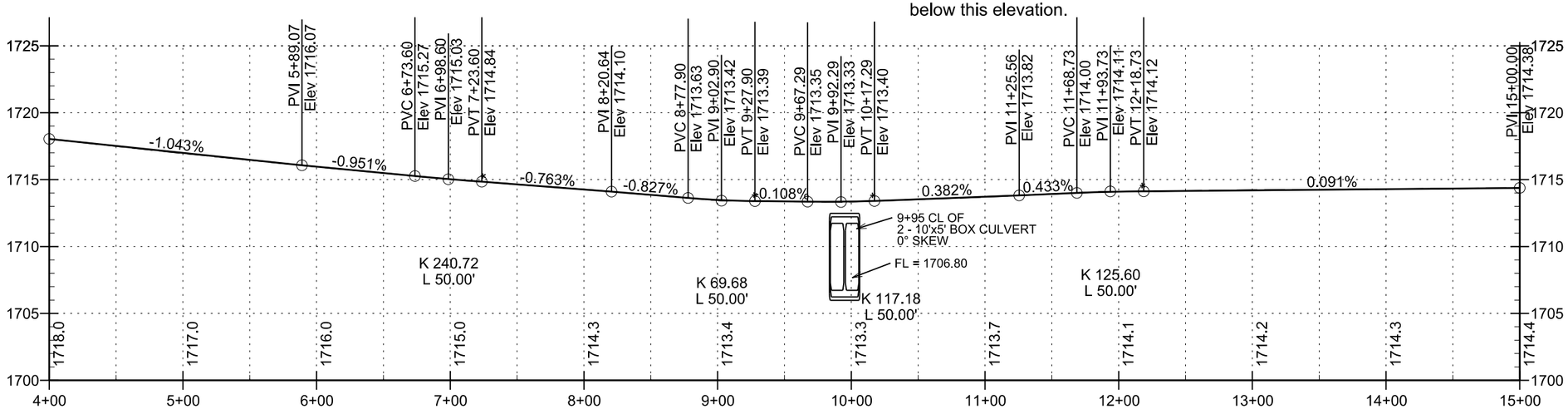
HORIZONTAL AND VERTICAL CONTROL POINTS			
POINT	NORTHING	EASTING	ELEVATION
SDPR	747231.626	1965830.578	1730.436
Sta 8+00	787165.097	1963955.314	1714.300
Sta 12+00	787565.096	1963956.173	1714.100

Scale: 1"=100'



Incidental Work, Structure
Sta. 9+95 Remove In-Place
Triple 72" x 42' CMP Arch

FL Elevation shown on this sheet represents natural channel flowline and does not reflect the 1' embedment of the box culvert flow line below this elevation.



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	18	21

Plotting Date: 2/15/13
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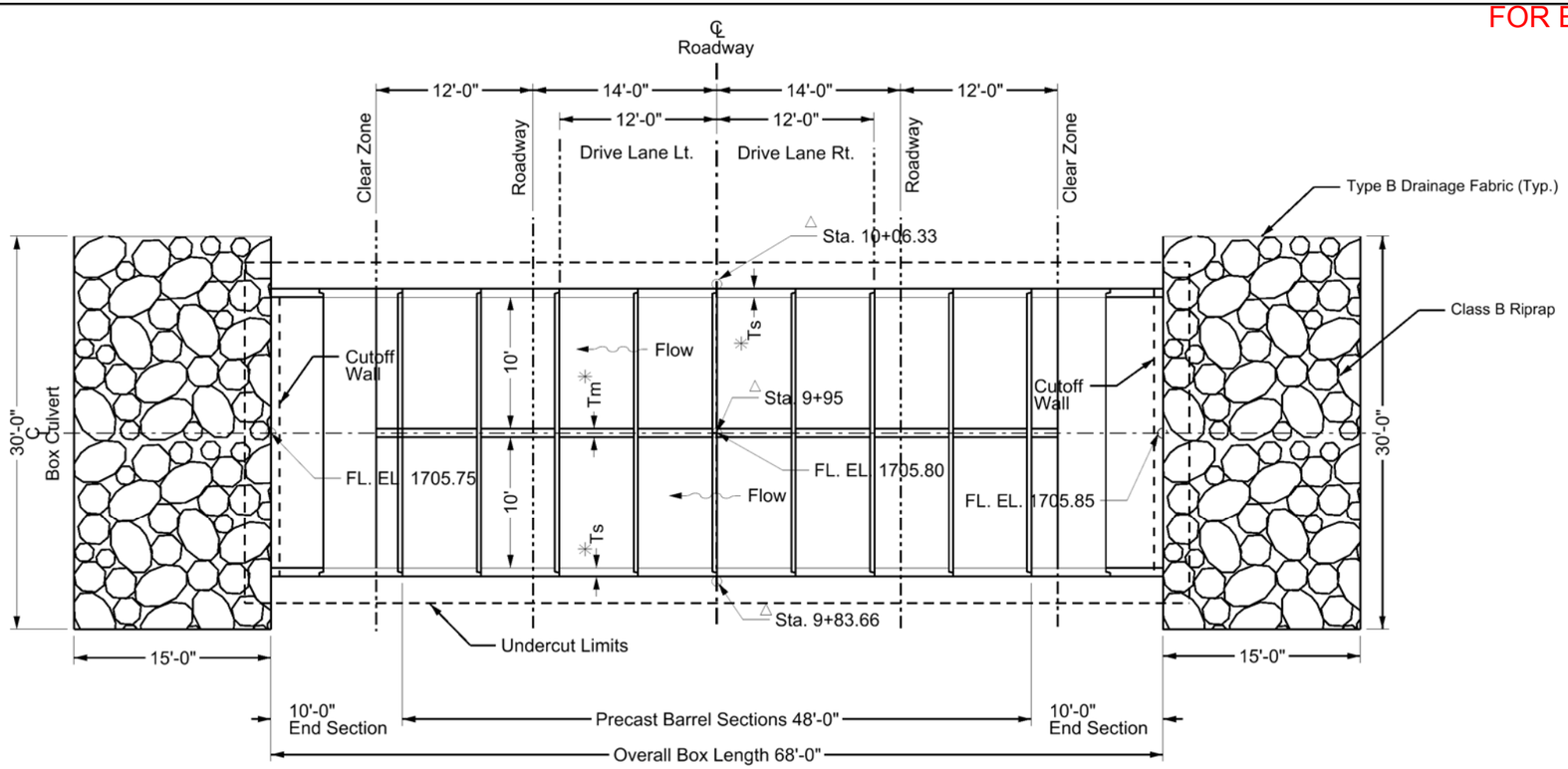
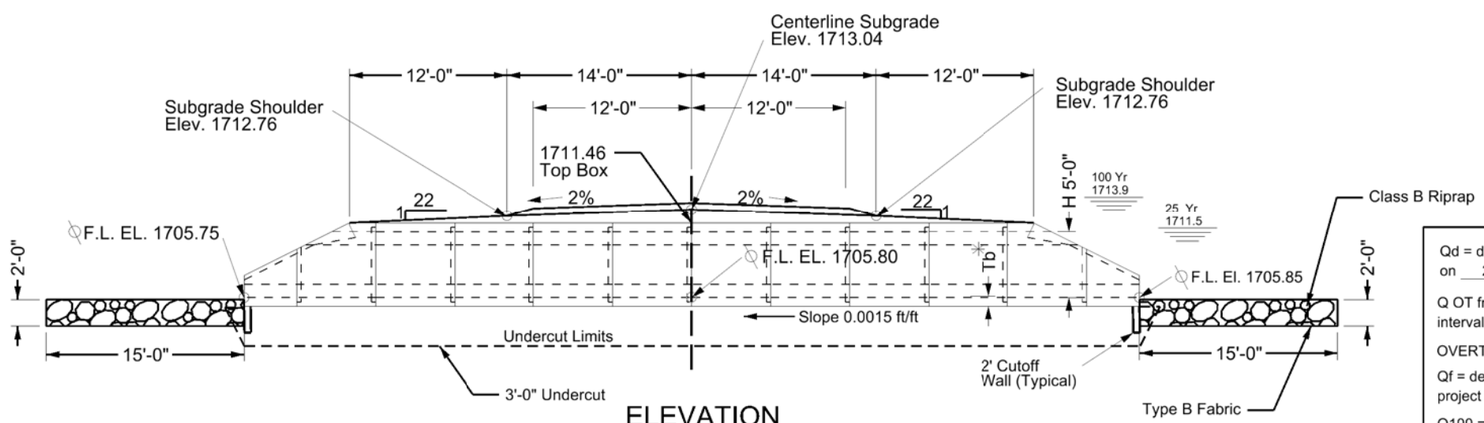
Scale : 1" = 12'

INDEX OF SHEETS:

Sheet No. 18 - General Drawings & Quantities
Sheet No. 19 - Structure Notes & Undercut Details
Sheet No. 20 - Standard Plates #560.01
Sheet No. 21 - Standard Plates #620.16



PLAN



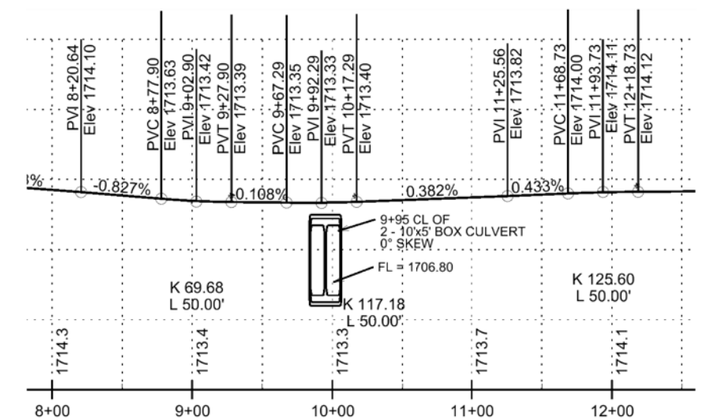
ELEVATION

LEGEND

W = Width of Opening
H = Height of Opening
Tt = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall
Tm = Thickness of Middle Wall

HYDRAULIC SUMMARY

Qd	492 cfs
Ad	63 sq. ft.
Vd	7.8 fps
Qf	492 cfs
Q 100	1880 cfs
Q OT fr	>52 yrs
VMax	10.3 fps



Qd = design discharge for the proposed culvert based on 25 year frequency. EL. 1711.5

Q OT fr = overtopping discharge and frequency >52 yr. recurrence interval. EL. 1713.00

OVERTOPPING LOCATION STATION 9+95

Qf = designated peak discharge for the basin approaching proposed project based on 25 year frequency

Q100 = computed discharge for the basin approaching proposed project based on 100 year frequency, EL. 1713.9

Vmax = maximum computed outlet velocity for the proposed culvert based on a 52 year frequency.

The hydraulic data contained in these plans is valid only if the overflow section is maintained. Alteration of the overflow section will require reanalysis of the hydraulics at the site to determine its effect on public safety.

Drainage Area = Sq. Mi. 11.8

✳ Dimension may vary with installation and/or fabricator
☆ Minimum dimension to satisfy clear zone
△ Based on dimensions shown
For payment, quantity is based on plan shown dimensions and will not be measured unless the Engineer orders a change.
Quantity is based on 9" Top and Bottom Slab and 8" Walls & 1' Submerge below flow line.
For estimating puposes only, a factor of 1.4 tons/cu.yd. was used to convert cu.yd to tons
Flow line of box, flow line of channel 1' higher

ESTIMATE OF QUANTITIES

Item	Unit	Quantities
Structure Excavation	CuYd.	384
Box Culvert Undercut	CuYd.	206
2-10' x 5' Precast Box Culvert Section, Furnish	Ft.	48
2-10' x 5' Precast Box Culvert Section, Install	Ft.	48
2-10' x 5' Precast Box Culvert End Section, Furnish	Each	2
2-10' x 5' Precast Box Culvert End Section, Install	Each	2
Class B Riprap	Ton	94
Type B Drainage Fabric	SqYd.	140

GENERAL DRAWING & QUANTITIES FOR 2-10'X 5' BOX CULVERT (PRECAST)

Spring Creek Tributary
STA. 9+95
PCN 03QJ
Str. Number 33-110-037

Project: BRF 6395(04)
Sec. 20 & 21,
T112N, R79W
Skew 0°
Design LL (HL-93)

Hughes County
S.D. Dept. of Transportation
February 2013

Prepared By:
Brosz Engineering, Inc.
Consulting Engineers
Pierre, SD

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
LDH	CVS	TLW	
S12-P659			BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	19	21

Plotting Date: 2/15/13
Revised Date: 8/1/14
Initials: SS

SPECIFICATIONS

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

GENERAL NOTES

Design shall be in accordance with Section 560 of the Specifications with the following criteria:

1. Box culvert and box culvert end section design shall conform to the AASHTO LRFD Bridge Design Specifications, 2012 Edition with 2013 interims.

2. Design Live Load: HL-93. No construction loading in excess of legal load is anticipated. If construction loading in excess of legal load is anticipated by the Contractor, theContractor shall submit a proposal including a design analysis for the anticipated construction loading, through the proper channels, to the Office of Bridge Design for approval. Upon approval, the construction load shall not be applied until the depth of fill over the box culvert as required by analysis has been placed. At a minimum, 4 ft. of fill shall be placed over the box culvert prior to applying the construction load. All costs associated with accommodating any construction loads shall be borne by the Contractor.

3. The box culvert shall be load rated in accordance with the AASHTO Manual for Bridge Evaluation, 2010 Edition with latest Interim Revisions using the LRFR method. The rating shall include evaluation at the Design Load rating for the HL-93 truck at both Inventory and Operating levels and at the Legal Load rating for the three SD legal trucks (Type 3, 3S2 and 3-2) as well as the notional rating load and four specialized hauling vehicles noted in the *AASHTO Manual for Bridge Evaluation*. All sections of the box culvert shall rate at HL-93 or better (Inventory Level). The three SD Legal Loads, the notional rating load and the four specialized hauling vehicles shall rate greater than 1.0 at legal load rating level. Submit Load Rating calculations with the Design and Check Design calculations or shop plans, as appropriate.

4. The design of the barrel sections shall be based on a minimum fill height of 2 feet and include all subsequent fill heights up to and including the maximum fill height of 5 ft. over the box culvert.

5. Minimum inside corner fillet shall be 6 in.

6. Minimum precast barrel section length shall be 4 ft.

7. Lift holes shall be plugged with an approved nonshrinkable grout.

8. The Fabricator shall imprint on the structure the date of construction as specified and detailed on Standard Plate No. 460.02.

9. Alternate end section details will be allowed, subject to the approval of the Bridge Construction Engineer. No additional payment will be made for any change in the barrel/end section configuration.

10. Installation of the precast sections shall be in accordance with the final approved shop plans.

11. Compaction of earth embankment and box culvert backfill material shall be governed by the Specified Density method.

DESIGN MIX OF CONCRETE

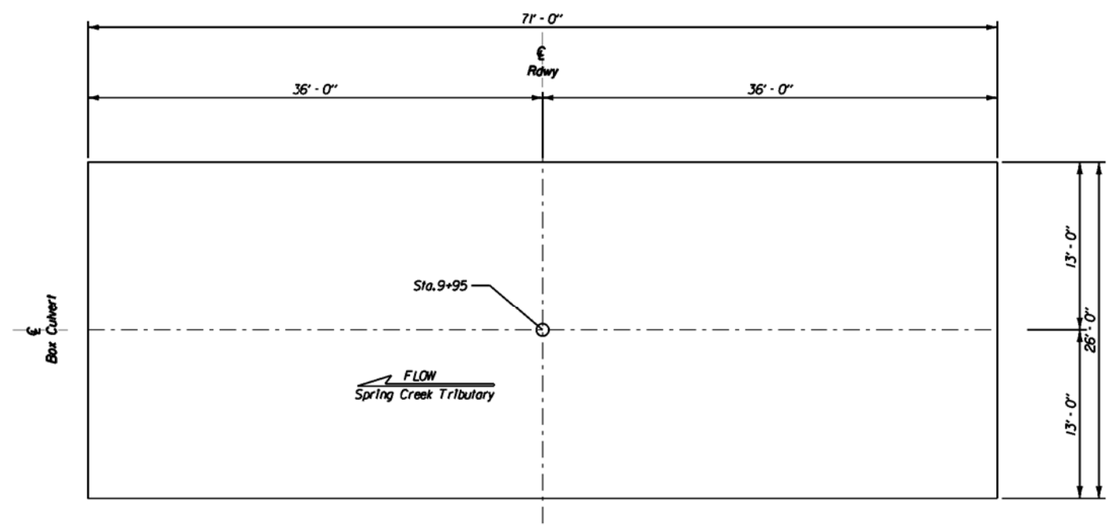
1. Mix shall be as per fabricator's design, however minimum compressive strength shall not be less than 4500 p.s.i. at 28 days.

SHOP PLANS

1. The Fabricator shall initially submit three (3) copies of the shop plans to Brosz Engineering, Inc., 3030 Airport Road, Pierre South Dakota, 57501 for review.

2. After review by Brosz Engineering, one (1) copy with any revisions noted will be sent to both the Office of Bridge Design and the Fabricator. The Fabricator shall then send seven (7) corrected copies to Brosz Engineering, Inc.

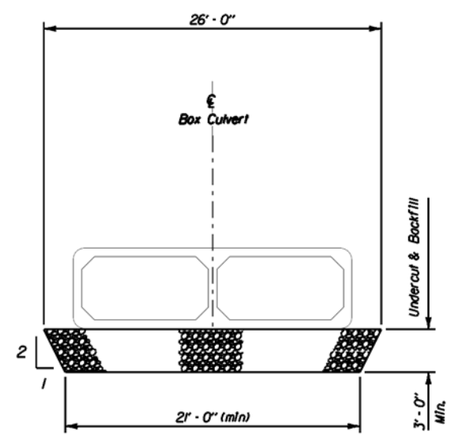
3. After review by Brosz Engineering, six (6) copies will be sent back to the Bridge Construction Engineer, South Dakota Department of Transportation, who will review them, arrange for fabrication inspection, authorize fabrication, and distribute the shop drawings.



UNDERCUT LAYOUT

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
¶ Box Culvert Undercut	Cu.Yd.	206

¶ For Payment, Quantity Is Based On Plan Shown Undercut Dimensions And Will Not Be Measured Unless The Engineer Orders A Change.



TYPICAL SECTION
(For Limits of Undercut)

NOTES AND UNDERCUT DETAILS FOR 2-10'X 5' BOX CULVERT (PRECAST)

Spring Creek Tributary
STA. 9+95
PCN 03QJ

Project: BRF 6395(04)
Sec. 20 & 21,
T112N, R79W
Skew 0°
Design LL (HL-93)

Hughes County
S.D. Dept. of Transportation
February 2013

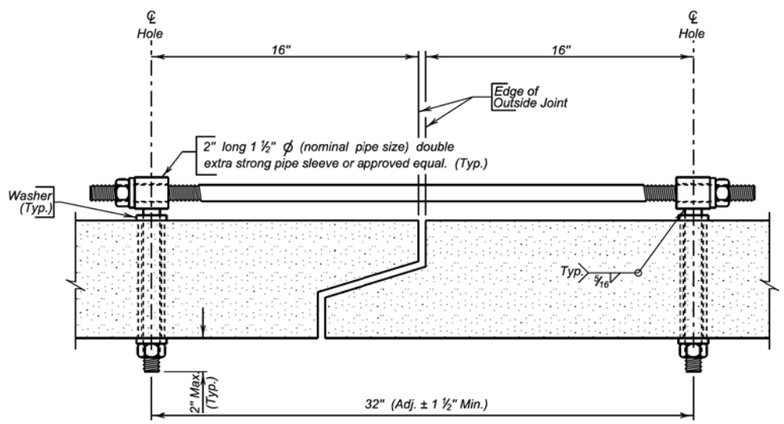
Prepared By:
Brosz Engineering, Inc.
Consulting Engineers
Pierre, SD

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
LDH	CVS	TLW	
S12-P659			BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	20	21

Plotting Date: 2/15/13
Revised Date: 6/30/14
Initials: SS



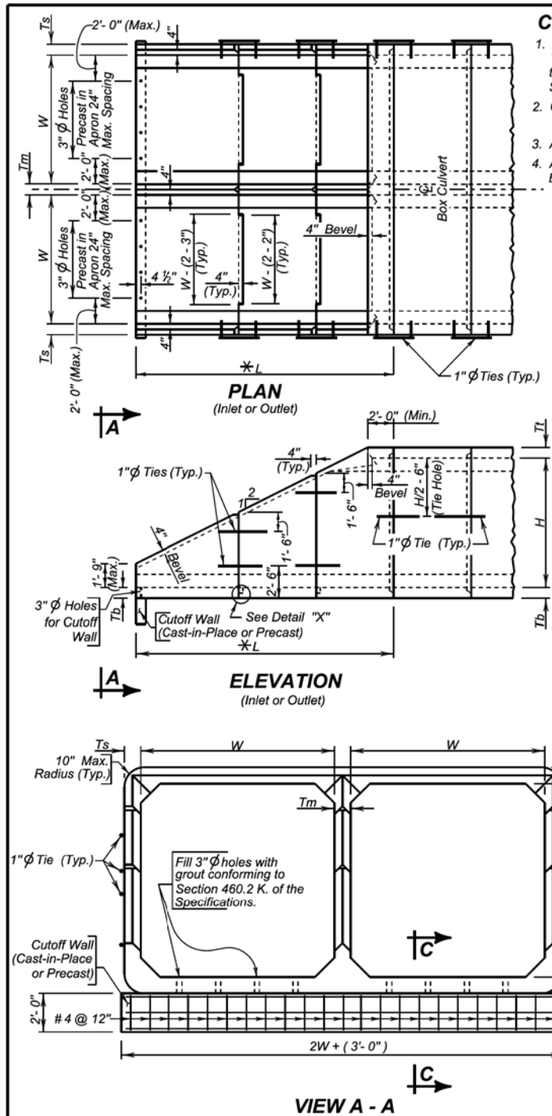
TIE BOLT ASSEMBLY

GENERAL NOTES:

1. All holes for tie bolts shall be cast-in-place,16 inches from outside edge of joint. Cast in inserts or sleeves, if used, shall be made of a corrosion resistant material.
2. Ties shall be 1 inch ϕ and conform to the requirements of ASTM A36. Nuts shall be heavy hex in conformance with ASTM A563. Washers shall conform to ASTM F436, Type 1. The welded pipe sleeve shall conform to ASTM A53, Grade B.
3. Welding and weld inspection shall be in conformance with AWS/ANSI D1.1 - (Current Year) Structural Welding Code - Steel.
4. Tie Bolt Assembly shall be galvanized in accordance with ASTM A153.
5. Tie Bolt Assembly details may vary from that shown, but alternate tie bolt assemblies are subject to testing to demonstrate equal strength. Submit details, through proper channels, to the Office of Bridge Design for approval.
6. All costs for furnishing and installing the precast box culvert tie bolt assembly shall be incidental to the contract unit price per Foot for "Precast Concrete Box Culvert, Furnish".

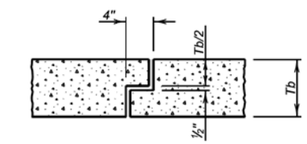
December 23, 2012

Published Date: 1st Qtr. 2016	SDDOT	PRECAST BOX CULVERT TIE BOLT ASSEMBLY DETAILS	PLATE NUMBER 560.01
			Sheet 1 of 1



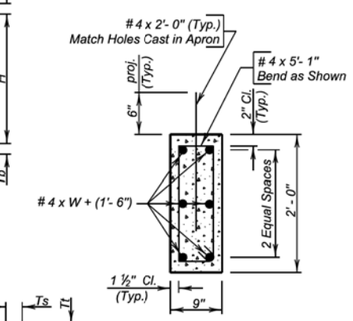
CUTOFF WALL

1. All costs associated with furnishing and installing the Cutoff Wall, whether precast or cast-in-place, shall be incidental to the contract unit price per each for "Precast Box Culvert End Section, Furnish".
2. Concrete for cast-in-place cutoff wall shall be Class M6 concrete in accordance with Section 462 of the Specifications.
3. All reinforcing steel shall conform to ASTM A615 Grade 60.
4. Alternate details will be allowed, subject to the approval of the Bridge Construction Engineer.



DETAIL " X "

NOTE: Joint details may vary from that shown, according to the manufacturer's design. Submit details with shop plans for approval.



SEC. C - C

LEGEND

W = Width of Opening
H = Height of Opening
Tt = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall
Tm = Thickness of Middle Wall
L = Length of End Section

NOTES:
See GENERAL DRAWING for W and H dimensions.
Tt, Tb, Tm, L, and Ts dimensions shall be furnished by the Contractor.
✳ Length and number of units may vary from that shown.

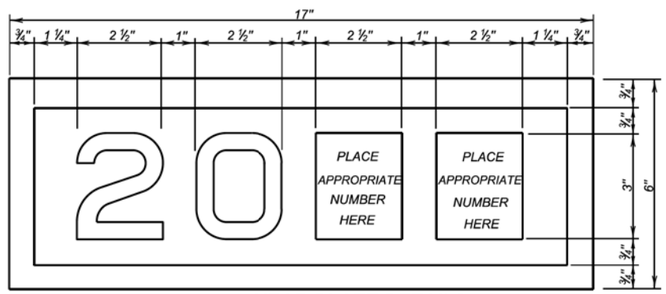
June 26, 2015

Published Date: 1st Qtr. 2016	SDDOT	PRECAST DOUBLE BOX CULVERT SLOPED END SECTION DETAILS WITH 2'–0" CUTOFF WALL	PLATE NUMBER 560.20
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 6395(04)	21	21

Plotting Date: 2/15/13
Revised Date: 6/30/14
Initials: SS



YEAR PLATE DETAILS

GENERAL NOTES:

1. Year plates of the general dimensions shown shall be constructed on all box culverts and bridges. The year plates shall be constructed in reverse and attached to the forms in such a manner that the finished imprint in the concrete does not exceed one-half (½) inch in depth.

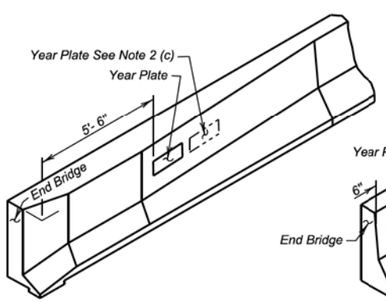
2. Year plates shall be located on structure (s) as follows:

   a. On cast-in-place box culverts the year plates shall be four and one - half (4 ½) inches below the top of the upstream parapet wall and centered laterally on the upstream face. On precast box culverts the year plate shall be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate shall be centered in an adjacent barrel.

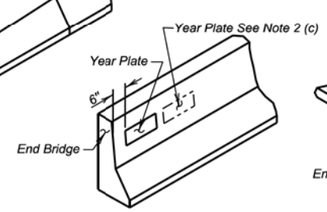
   b. On bridges with six (6) inch curbs or "Jersey" shaped barriers with no endblocks, the year plate shall be centered vertically on the curb face approximately six (6) inches from the end of the bridge, or as designated by the Engineer. On bridges with "Jersey" shaped barrier endblocks, the year plate shall be centered on the upper sloped portion of the barrier approximately 5'- 6" from the end of the bridge, or as designated by the Engineer. There shall be one year plate at each end of the bridge on opposite sides.

   c. When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date shall be placed as listed above and the other located adjacent to it. Both year plates shall be shown at each end of the bridge on opposite sides.

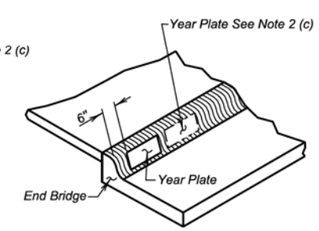
3. There will be no separate measurement or payment made for year plates on box culverts and bridges. All costs for this work shall be incidental to other contract items.



JERSEY BARRIER
(With Endblock)



JERSEY BARRIER



TYPE B CURB

June 26, 2012

Published Date: 1st Qtr. 2016	SDDOT	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1