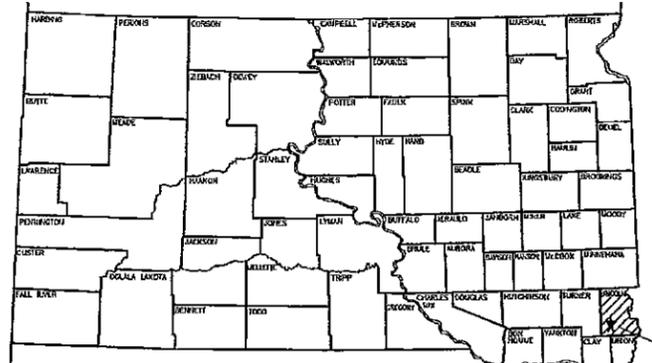


FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	1	35

# STATE OF SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED  
PROJECT BRO 8042(31)  
469TH AVENUE  
LINCOLN COUNTY  
STRUCTURE REPLACEMENT & APPROACH GRADING  
PCN 5552  
STRUCTURE #42-050-207



PROJECT LOCATION

PROJECT



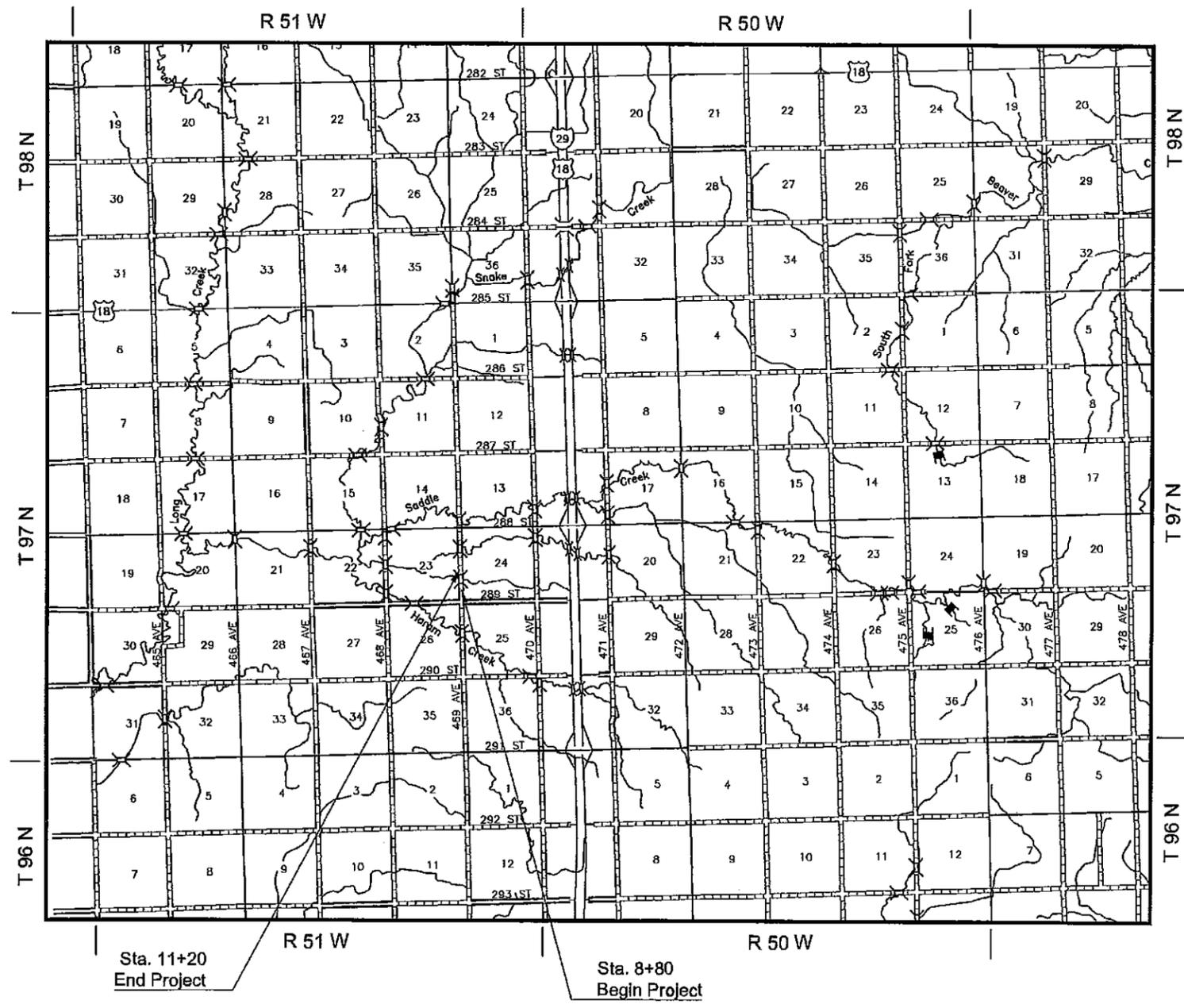
### STORM WATER PERMIT

MAJOR STREAM: UNNAMED CREEK  
AREA DISTURBED: 0.44 ACRES  
PROJECT AREA: 0.44 ACRES

LATITUDE: 43°12'16"  
LONGITUDE: 96°49'33"

GROSS LENGTH	240	FEET	0.05	MILES
LENGTH OF EXCEPTIONS	---	FEET	---	MILES
NET LENGTH	240	FEET	0.05	MILES

LENGTH OF GRADING	240	FEET	0.05	MILES
LENGTH OF STRUCTURE	24	FEET	0.01	MILES



LOCATION MAP

### INDEX OF SHEETS

SHEET 1	COVER SHEET
SHEET 2 TO 6	ESTIMATE OF QUANTITIES & NOTES
SHEET 7	TYPICAL SECTION
SHEET 8 TO 10	SWPPP
SHEET 11	EROSION CONTROL
SHEET 12 TO 14	STANDARD PLATES
SHEET 15	SURVEY DATA & EASEMENTS
SHEET 16	PLAN AND PROFILE
SHEET 17	TRAFFIC CONTROL
SHEET 18	STANDARD PLATES
SHEET 19 TO 33	PLANS FOR BOX CULVERT
SHEET 34 TO 35	CROSS SECTIONS

### COUNTY OFFICIALS

**HIGHWAY SUPERINTENDENT**  
STEVE WILLIAMS  
104 N. MAIN STREET  
SUITE B150  
CANTON, SD 57013  
PHONE: (605) 764-5811  
FAX: (605) 764-5932

**COMMISSIONERS**  
DAVID GILLESPIE  
DAN KING  
DALE L. LONG  
MICHAEL POPPENS  
JIM SCHMIDT



1-27-16

1

**ESTIMATE OF QUANTITIES**

**GRADING**

BID ITEM NUMBER	ITEM	QTY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	693.3	SqYd
120E0010	Unclassified Excavation	1,343	CuYd
230E0010	Placing Topsoil	114	CuYd
260E1010	Base Course	453.6	Ton
260E1030	Base Course, Salvaged	260.0	Ton
270E0110	Salvage and Stockpile Granular Material	260.0	Ton
634E0110	Traffic Control Signs	261	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0265	Type 3 Barricade, 6' Double Sided	3	Each
634E0280	Type 3 Barricade, 8' Single Sided	6	Each
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	900	SqYd
734E0154	12" Diameter Erosion Control Wattle	100	Ft
734E0604	High Flow Silt Fence	500	Ft
734E0610	Mucking Silt Fence	35	CuYd
734E0620	Repair Silt Fence	125	Ft
734E0900	Temporary Diversion Channel	1	Each

**STRUCTURE 42-050-207 (Reinforced Concrete Box Culvert)**

BID ITEM NUMBER	ITEM	QTY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0200	Structure Excavation, Box Culvert	148	CuYd
421E0200	Box Culvert Undercut	182	CuYd
460E0120	Class A45 Concrete, Box Culvert	153.9	CuYd
480E0100	Reinforcing Steel	27,241	Lb
700E0210	Class B Riprap	44.0	Ton
831E0110	Type B Drainage Fabric	66	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 B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES**

**COMMITMENT B1: CONSTRUCTION PRACTICES FOR STREAMS INHABITED BY THE TOPEKA SHINER**

The US Fish and Wildlife Service (USFWS) have designated the following as Topeka Shiner streams associated with this project.

**Table of Topeka Shiner Streams**

Stream Name	Ordinary High Water Elevation
Unnamed Creek	1276.91

**Action Taken/Required:**

The Contractor shall adhere to the "Special Provision for Construction Practices in Streams Inhabited by the Topeka Shiner".

Stream turbidity will be monitored during all stages of the project. Turbidity measurements should be taken in conjunction with normal storm water inspections.

The Contractor shall produce a comprehensive Construction Plan that includes all products, materials, and methods of construction and removal for temporary water barriers, cofferdams, and diversion channels including de-watering, handling, storage, and disposal of excavated material and pumped effluent throughout all phases of construction, including post-construction stabilization. This plan shall be approved by the SDDOT Environmental office prior to any work occurring in the above streams. Upon plan approval the Construction Plan shall be amended to the SWPPP document located in Erosion and Sediment Control Plans.

**COMMITMENT B4: BALD EAGLE**

Bald eagles are known to occur in this area.

**Action Taken/Required:**

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

**COMMITMENT C: WATER SOURCE**

Revised: 3/30/2016

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.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

**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 D: WATER QUALITY STANDARDS**

**COMMITMENT D1: SURFACE WATER QUALITY**

This Unnamed Tributary to Saddle 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:**

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**

This Unnamed Tributary to Saddle 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.



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	3	35

**FOR BIDDING PURPOSES ONLY**

**COMMITMENT E: STORM WATER**

Construction activities constitute a structure replacement.

**Action Taken/Required:**

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

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

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

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

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

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

EPA: [http://cfpub.epa.gov/npdes/home.cfm?program\\_id=6](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 Public ROW.

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

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

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

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

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

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

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.



1-27-16

**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.

**SHRINKAGE FACTOR**

Embankment plus 35%.

**GRADING OPERATIONS**

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 8,210 gallons. No separate payment will be made for the Water for Embankment and all costs associated shall be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

Compaction of earth and road embankment and areas surrounding the reinforced concrete box culvert shall be governed by the Specified Density Method. Excavation and construction of embankments for grading shall be performed in accordance with Section 120 of the *Specifications*.

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance notes on the profile sheets.

Special ditch grades and other sections of the roadway different than the typical sections 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.

The roadway shall be constructed to the typical section shown in the plans. Additional grading may be required as directed by the Engineer to provide a smooth profile free from abrupt changes in grade. The grade shall conform to the guidelines as stated in the current AASHTO publication of "A Policy on Geometric Design of Highways and Streets".

Generally, all shallow inlet and outlet ditches as noted on the plan sheets shall be cut with a 10-foot wide bottom with 5:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

Salvaged Granular Base Material shall be paid for once as Unclassified Excavation.

The basis of payment for Unclassified Excavation shall be plans quantity unless the Engineer orders additional excavation. No separate measurement shall be made.

**EARTHWORK BALANCE**

Unclassified Excavation	1,343	CuYd	Embankment	608	CuYd
Other Excavation	179	CuYd	35% Shrinkage	213	CuYd
			Waste	701	CuYd
Total	1,522	CuYd		1,522	CuYd

Other Excavation includes the sum of the quantities for the following:  
Structure Excavation, Box Culvert (148 CuYd.)  
Excavation for Class B Riprap (31 CuYd.)

These quantities are for information purposes only, compensation for these are accounted for within various bid items.

The Contractor may, at the discretion of the Engineer, use the material from Other Excavation in the inslopes and as sub-base with the condition that said material meets all requirements as set forth in the *Specifications*.

It is assumed (for the purposes of earthwork balance) that the Contractor will have to waste the material from Other Excavation at (a) site(s) provided by the Contractor and approved by the Engineer. All costs for labor, materials, and equipment necessary to waste material as well as restoration of the waste site(s) shall be incidental to the contract unit price per cubic yard for Unclassified Excavation.

**TABLE OF UNCLASSIFIED EXCAVATION**

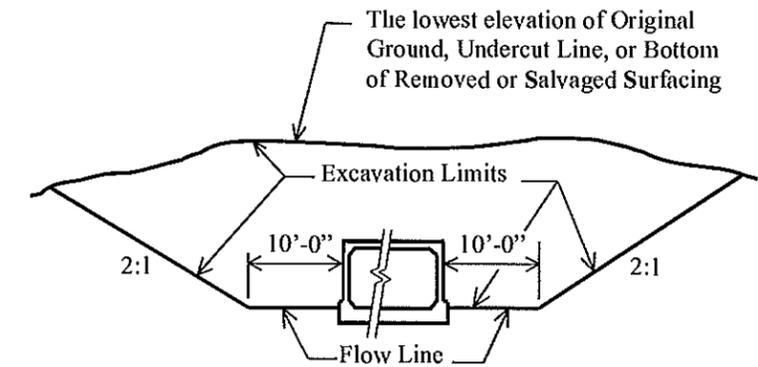
Excavation	423 CuYd
Topsoil	114 CuYd
Exc. for RCBC Installation	633 CuYd
Salvaged Granular Base Material	173 CuYd
Total	1,343 CuYd

**EXCAVATION FOR REINFORCED CONCRETE BOX CULVERT INSTALLATION**

Included in the quantity of "Unclassified Excavation" are 633 cubic yards of excavation for installation of reinforced concrete box culverts.

All work necessary to excavate a trench for installation of reinforced concrete box culverts including labor, equipment, and incidentals shall be incidental to the contract unit price per cubic yard for "Unclassified Excavation". Payment for excavation of reinforced concrete box culverts shall be based only on plans quantity and measurement of these excavation quantities during construction shall not be performed.

The excavation quantities for installation of reinforced concrete box culverts are not included with the earthwork balance quantities on the plans profile sheets. The quantities computed for excavation of the reinforced concrete box culverts are based on the limits shown in the drawing below.



**SEQUENCE OF OPERATIONS**

The Contractor shall utilize the following sequence unless an alternative sequence is submitted in writing and approved by the Engineer:

1. Install traffic control devices as shown on the plans.
2. Install erosion control measures.
3. Dismantle, remove, and dispose of existing structure.
4. Construct the new structure and grade the roadway.
5. Remove traffic control devices.
6. Complete the miscellaneous cleanup under traffic.

**COUNTY RESPONSIBILITIES**

Lincoln County shall be responsible for the following at no cost to the Contractor:

1. Right of way and temporary and permanent easements.
2. Coordination of any utility adjustments.
3. Removal of existing traffic control devices once the Contractor has installed the traffic control devices per this set of plans.
4. Furnish and install temporary and/or permanent fencing.
5. Furnish and install final asphalt concrete surfacing.
6. Furnish and apply permanent pavement markings.
7. Furnish and install new permanent signing.
8. Remove silt fence and erosion control wattles in permanently seeded areas.

**PERMANENT SIGNING**

The permanent signing shall consist of one single sided Type 2 object marker at each of the four corners of the structure facing away from the structure.

**FENCING**

Fencing shall be relocated back to the Right of Way line and tied into the eyebolts provided on the wingwalls. Lincoln County shall be responsible for furnishing and installing the necessary fencing.



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**PLACING TOPSOIL**

The thickness will be approximately 4" within the limits of the project.

The estimated amount of topsoil to be removed and replaced is 114 CuYd.

All cost associated with placing topsoil along areas to be resurfaced shall be incidental to the contract unit price per cubic yard for "Placing Topsoil".

The plans quantity for "Placing Topsoil" as shown in the estimate of quantities will be the basis of payment for this item.

**SAW EXISTING ASPHALT PAVEMENT**

Asphalt sawing shall be performed at the extents of grading along 469<sup>th</sup> Avenue. The pavement shall be sawed full depth. The Contractor shall exercise particular care to ensure that the adjacent surface is left intact and undamaged during grading operations.

**TABLE OF ASPHALT CONCRETE REMOVAL**

Station to	Station	Quantity (SqYd)
8+80	11+20	693.3

**SALVAGE AND STOCKPILE GRANULAR BASE MATERIAL**

An estimated 260 tons of granular base material shall be salvaged from the entire length of the existing highway and stockpiled at a site furnished by the Contractor and satisfactory to the Engineer.

Salvaged material shall be utilized for roadway construction without further testing.

The quantity of salvage granular base material may vary from the plans. No adjustment will be made to the contract unit price for variations of the quantity of "Salvage and Stockpile Granular Base Material."

**TEMPORARY SURFACING**

Temporary surfacing shall consist of base course and shall be paid for by the ton. This shall include providing, delivering, placing, and compacting the Temporary Surfacing as well as all other necessary work and associated equipment, materials, and labor necessary to complete this item of work.

**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. The utility contact information is provided elsewhere in the plans.

There is a water main located near the outlet of the proposed box culvert. The depth to this main will need to be verified prior to beginning work to ensure proper cover. Lincoln County will coordinate any utility adjustments.

The following utility companies are known to have facilities on the project:

Lincoln Rural Water  
PO Box 36.  
201 Railroad Avenue  
Harrisburg, SD 57032  
(605) 767-2966

WOW  
5100 S. Broadhand Lane  
Sioux Falls, SD 57108  
(605)965-9393

Southeastern Electric Company  
605 SD Hwy 11  
Alcester, SD 57001-0105  
(605) 934-1961

**PERMANENT SEEDING**

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

Type C Permanent Seed Mixture will cover approximately 0.22 Acres and 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

The cost of seeding will be incidental to 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 unit price per pound for the corresponding permanent seed mixture.

**MULCHING (GRASS HAY OR STRAW)**

Mulching will be paid for at the contract lump sum price for Erosion Control.

**TABLE OF TEMPORARY DIVERSION CHANNEL**

Revised: 3/30/2016

The Contractor shall construct a temporary diversion channel in accordance with Standard Plate 734.30 at the location listed in the following table.

Station	Quantity (Each)
10+38	1
Total:	1

**EROSION CONTROL WATTLE**

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

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

An additional quantity of 20 feet of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence at adjacent wetland areas.

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>

**TABLE OF EROSION CONTROL WATTLE**

Station	L/R	Diameter (Inch)	Quantity (Ft)
9+72	R	12	20
9+78	L	12	20
10+25	L	12	20
10+25	R	12	20
Additional:			20
Total:			100



**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://sddot.com/business/certification/products/Default.aspx>

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

**TABLE OF HIGH FLOW SILT FENCE**

Station - Side	To	Station - Side	Quantity (ft)
8+80 - 24' LT	To	9+40 - 30' LT	60
8+80 - 36' RT	To	9+63 - 51' RT	98
9+64 - 49' LT	To	10+14 - 112' LT	81
10+35 - 94' LT.	To	11+20 - 25' LT.	140
10+33 - 51' RT.	To	11+20 - 26' RT.	100
		Misc	21
		Total:	500

**EROSION CONTROL BLANKET**

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

The erosion control blanket provided 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.

An additional quantity of 39 square yards of Type 2 Erosion Control Blanket has been added to the Estimate of Quantities for temporary erosion control.

**TABLE OF EROSION CONTROL BLANKET**

Station to	Station	L/R	Type	Quantity (SqYd)
8+80	10+03	RT	2	327
9+68	10+15	LT	2	126
10+03	10+57	RT	2	144
10+10	11+20	LT	2	264
			Additional:	39
Total Type 2 Erosion Control Blanket:				900

**SHAPING FOR EROSION CONTROL BLANKET**

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

All costs for shaping the ditches for erosion control blanket including labor and equipment shall be incidental to the contract lump sum price for Erosion Control.

**REFLECTORIZED SHEETING REQUIREMENTS FOR TEMPORARY TRAFFIC CONTROL DEVICES**

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

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

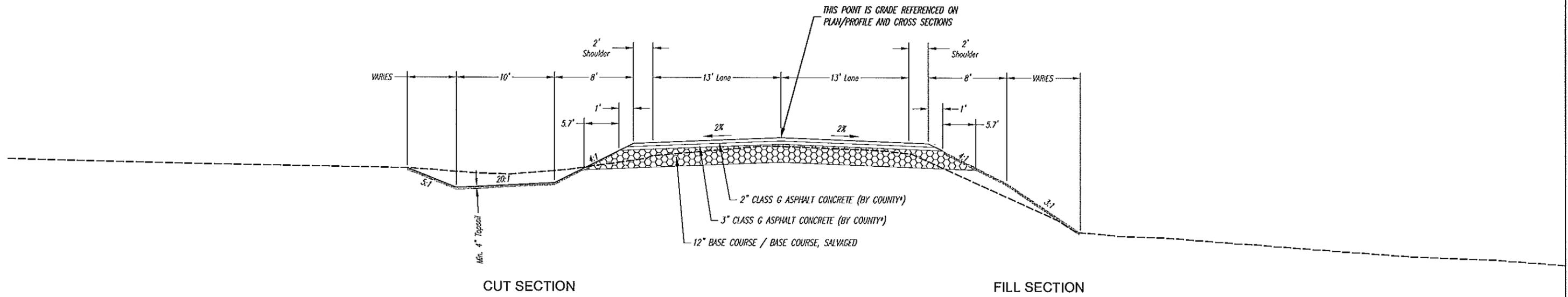


# TYPICAL SECTION FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	7	35

Sta. 8+80 to Sta. 11+20

Revised: 3/30/2016



\*CONTRACTOR TO PLACE 5" TEMPORARY SURFACING ON TOP OF THE 12" OF BASE COURSE / BASE COURSE, SALVAGED



**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 I.b)
- **Project Description:** See Title Sheet (4.2 I.a.)
- **Site Map(s):** See Title Sheet and Plans (4.2 1.f. (I)-(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** 0.44 Acres (4.2 I.b.)
- **Total Area To Be Disturbed** 0.44 Acres (4.2 I.b.)
- **Existing Vegetative Cover (%)** 70%
- **Soil Properties:** AASHTO Soil Classification: A7-6, A-6, A-7 (4.2 I. d.)
- **Name of Receiving Water Body/Bodies** Saddle Creek (4.2 I.e.)

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

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

- **Special sequencing requirements** (see sheet).
- **Complete traffic control installation and protection devices.**
- **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.**
- **Remove existing structure.**
- **Complete final grading.**
- **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., (I) 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 Contractor's representative responsible for the conduct of work on the site will be responsible for seeing that these practices 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 1/2 the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and the 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

**FOR BIDDING PURPOSES ONLY**

❖ **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, the 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, 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.

➤ **Product Specific Practices (6.8) (Continued)**

▪ **Concrete Trucks**

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

➤ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water 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 cleanup will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

❖ **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 75:54:01.
  - The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 75:54:01.
  - 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 (8a.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.

FOR BIDDING PURPOSES ONLY

❖ **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:            Fax:

➤ **Erosion Control Supervisor**

- Name:
- Address:
- Address:
- City:            State:            Zip:
- Office Phone:            Field:            Cell:            Fax:

➤ **SDDOT Project Engineer**

- Name:
- Business Address:
- Job Office Location:
- City:            State:            Zip:
- Office Phone:            Field:            Cell:            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

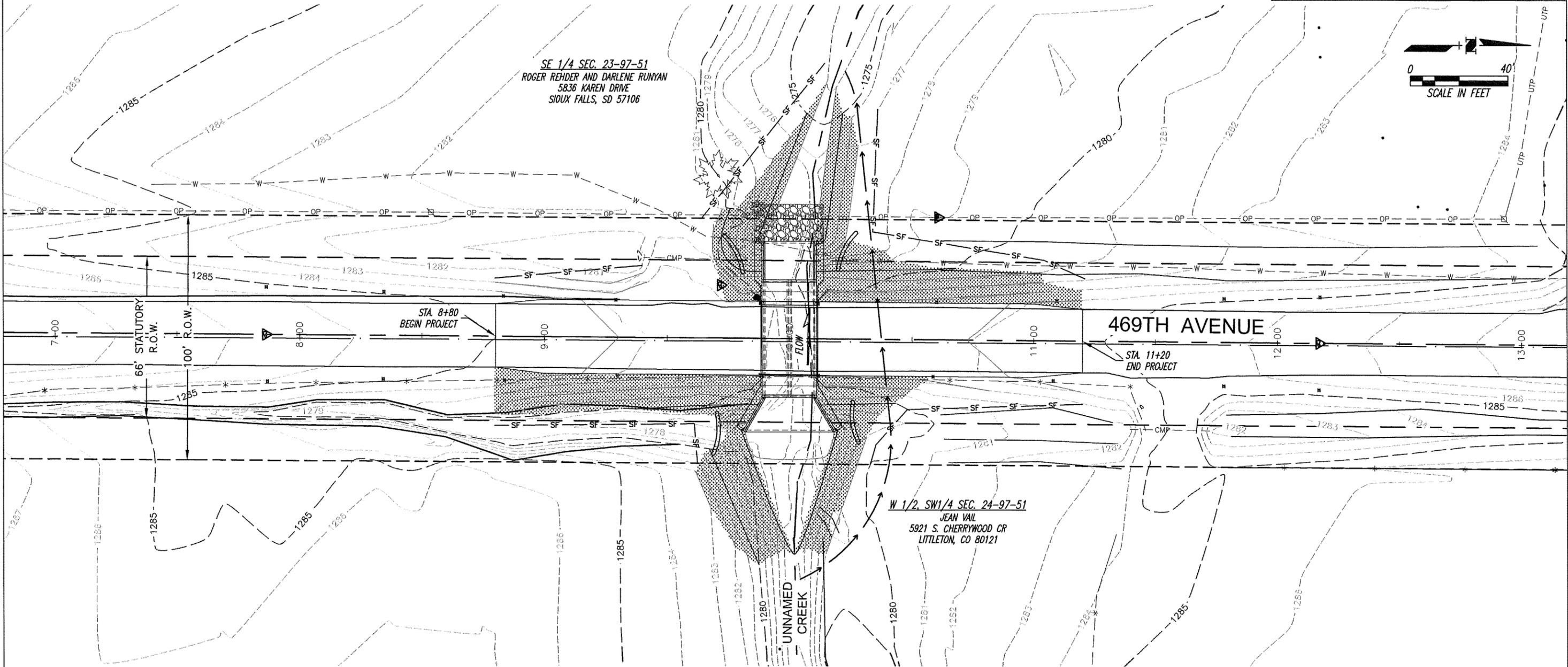
➤ **National Response Center Hotline**

- (800) 424-8802.

THE ELEVATIONS SHOWN ARE BASED UPON NAVD 88 DATUM

# EROSION CONTROL FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	11	35



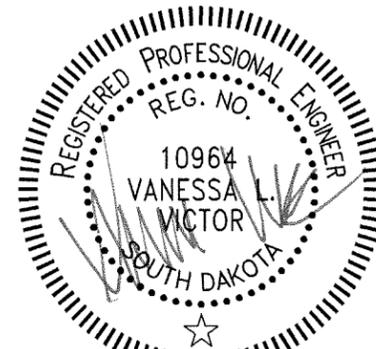
EROSION CONTROL BLANKET	
RIPRAP	
EROSION CONTROL WATTLE - 20'	
HIGH FLOW SILT FENCE	
TEMPORARY DIVERSION CHANNEL	

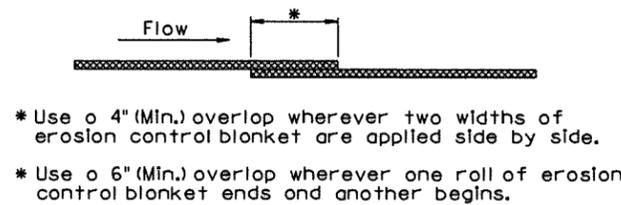
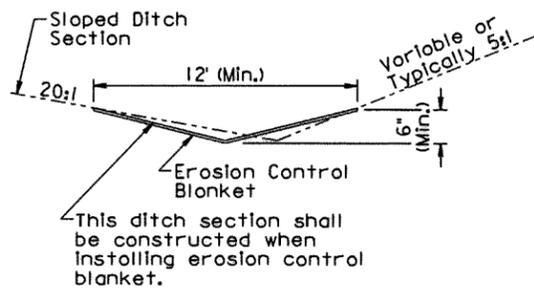
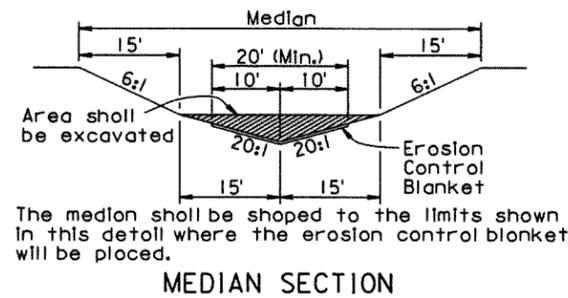
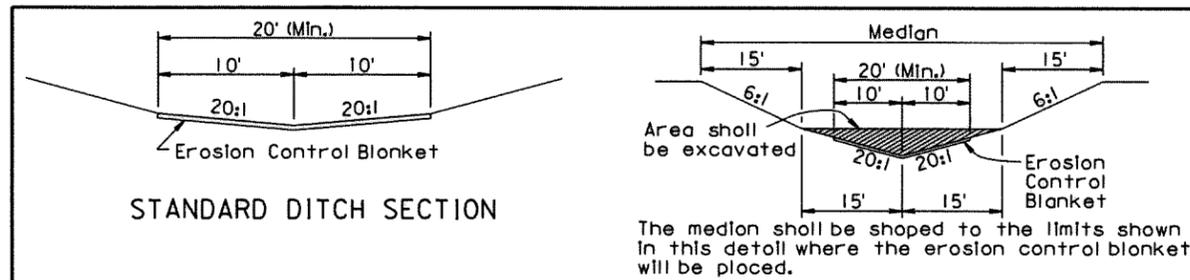
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STA. 8+80 - 36' RT	TO	STA. 9+63 - 51' RT	98
STA. 9+64 - 49' LT	TO	STA. 10+14 - 112' LT	81
STA. 10+35 - 94' LT	TO	STA. 11+20 - 25' LT	140
STA. 10+33 - 51' RT	TO	STA. 11+20 - 26' RT	100
			MISC. 21
			<b>TOTAL 500</b>

STA. 9+72	39' RT	20
STA. 9+78	35' LT	20
STA. 10+25	39' LT	20
STA. 10+25	34' RT	20
		MISC. 20
		<b>TOTAL 100</b>

STA. 8+80 RT	TO	STA. 10+03 RT	327 SqYd
STA. 9+68 LT	TO	STA. 10+15 LT	126 SqYd
STA. 10+03 RT	TO	STA. 10+57 RT	144 SqYd
STA. 10+10 LT	TO	STA. 11+20 LT	264 SqYd
			MISC. 39 SqYd
			<b>TOTAL 900 SqYd</b>

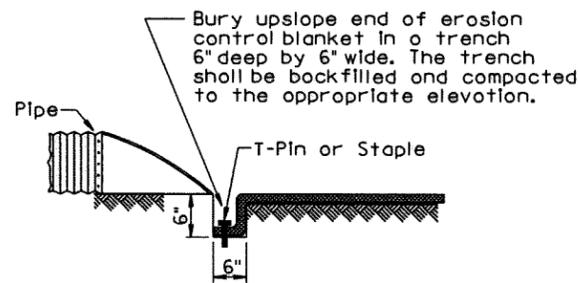
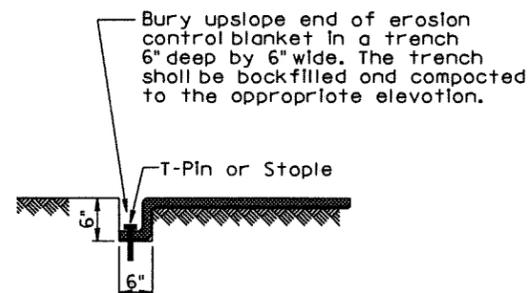
STA. 10+05 - 98' RT	TO	STA. 10+22 - 109' LT
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**SLOPED DITCH SECTION**

**OVERLAP 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.

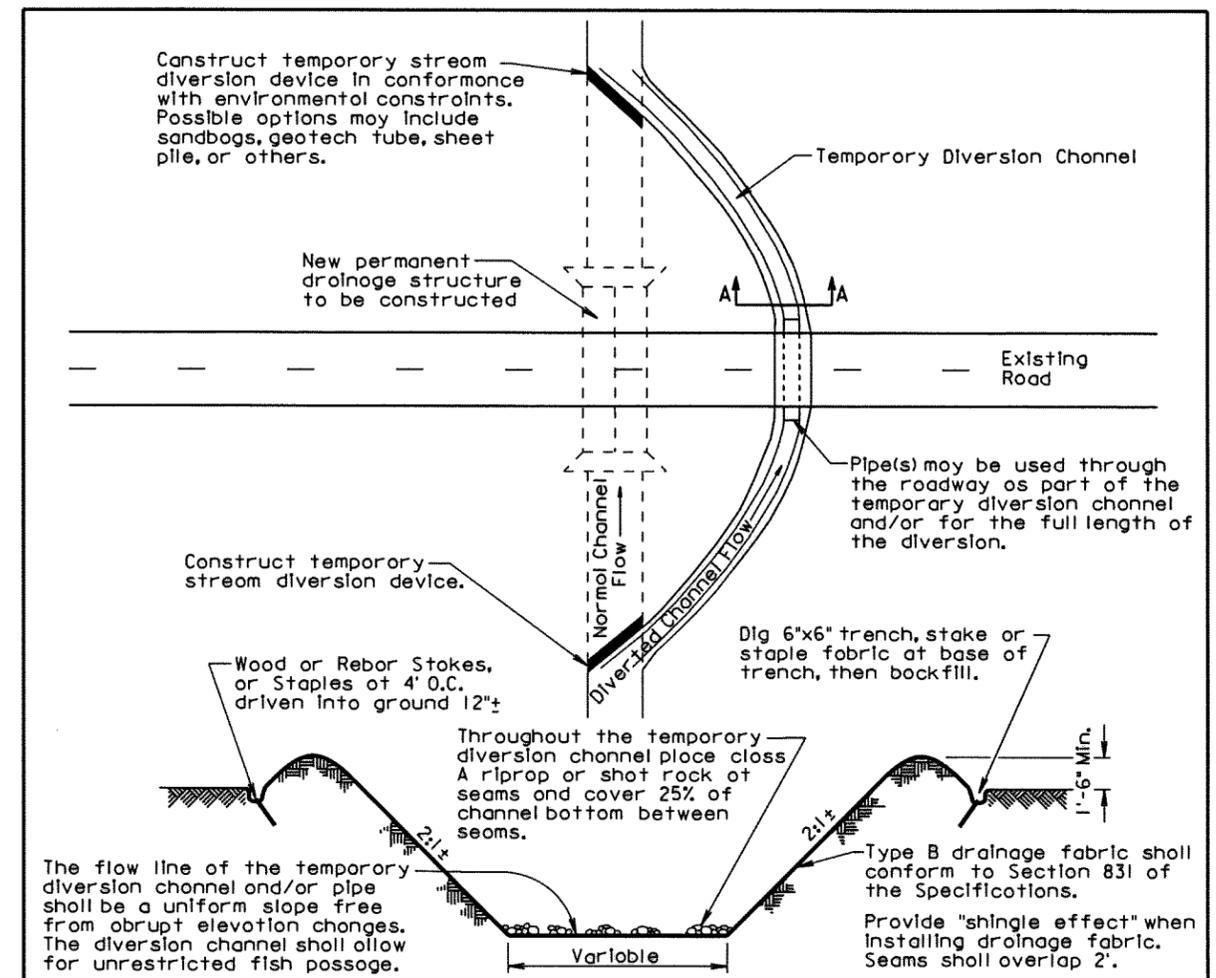
The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.

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	S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1



**GENERAL NOTES:**

A temporary diversion channel and/or pipe(s) shall be used to divert stream or drainage away from a construction area to provide a dry work area for construction. The diversion of streams and waterways is intended to protect the streams and waterways from various construction contaminants and sediment. Disturbing the existing stream channel and riparian zone should be minimized. Equipment shall not cross through the stream outside of the work area.

Sizing of the temporary diversion channel and/or pipe(s) shall be the Contractor's responsibility.

The method and materials used to construct the stream diversion device shall be the Contractor's responsibility, however, earthen berms are not acceptable since their removal causes siltation problems.

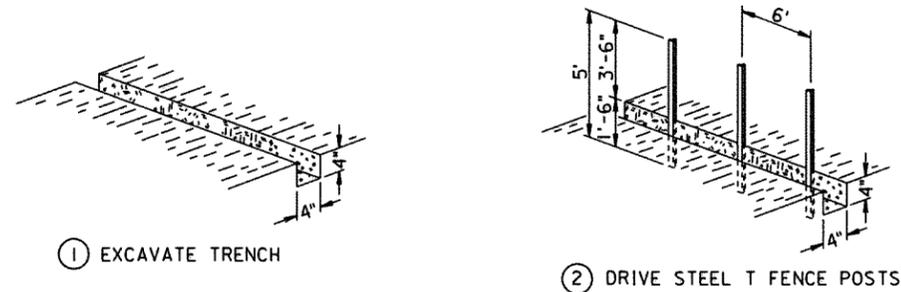
The Contractor shall restore the original channel bottom to its original condition prior to returning any flows. Upon completion of the new permanent drainage structure, the temporary stream diversion block or device shall be removed in a manner that will not cause violation of water quality standards. The temporary diversion channel shall then be backfilled and any pipe(s) (if used) shall be removed. The entire work area shall be cleaned and restored to smooth/even contours.

All costs for labor, equipment, materials and incidentals as indicated on this sheet to complete a satisfactory Temporary Diversion Channel and/or Pipe(s) shall be incidental to the contract unit price per each for "Temporary Diversion Channel and/or Pipe(s)". "Temporary Diversion Channel and/or Pipe(s)" will be paid for once per structure site regardless of the number of times water is diverted at the individual site.

June 26, 2015

Published Date: 1st Qtr. 2016	S D D O T	TEMPORARY DIVERSION CHANNEL	PLATE NUMBER 734.30
			Sheet 1 of 1

MANUAL HIGH FLOW SILT FENCE INSTALLATION

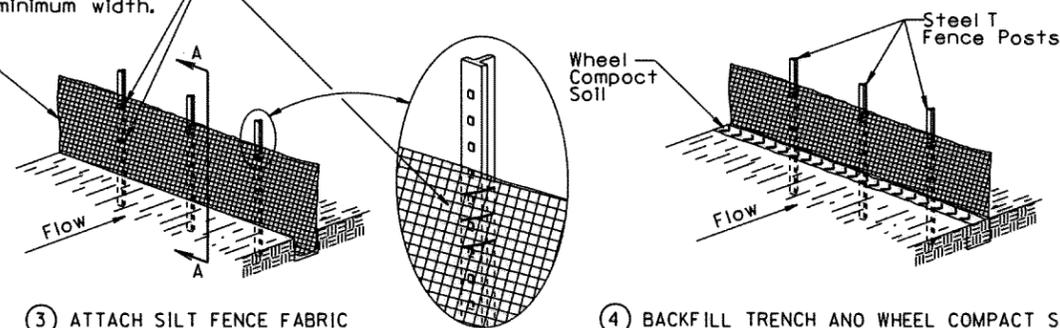


① EXCAVATE TRENCH

② DRIVE STEEL T FENCE POSTS

Attach the silt fence fabric with a total of 4 plastic or wire ties per post. Three ties shall be used at the top and 1 tie shall be approximately at mid-point of the post.

Fabric for silt fence shall be 36" minimum width.



③ ATTACH SILT FENCE FABRIC

④ BACKFILL TRENCH AND WHEEL COMPACT SOIL

Silt Fence Fabric

Steel T Fence Post

8" stoples shall be placed at each post to secure the silt fence fabric to the bottom of the trench.

Plastic or Wire Ties

SECTION A-A

The elevation at these locations shall be, at a minimum, higher than the top of the silt fence fabric of its lowest elevation.

Flow

The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

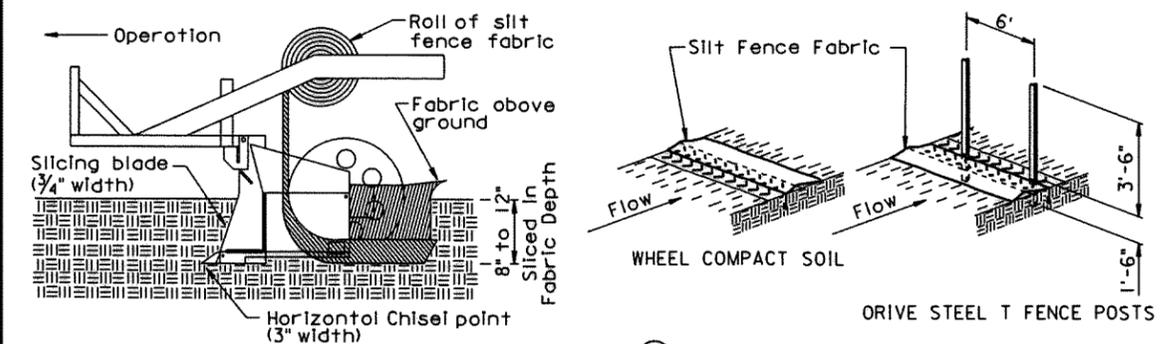
Post spacing shall be 3' for these types of applications of silt fence. All other components of the silt fence shall be the same as shown above.

December 23, 2003

S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
		Sheet 1 of 2

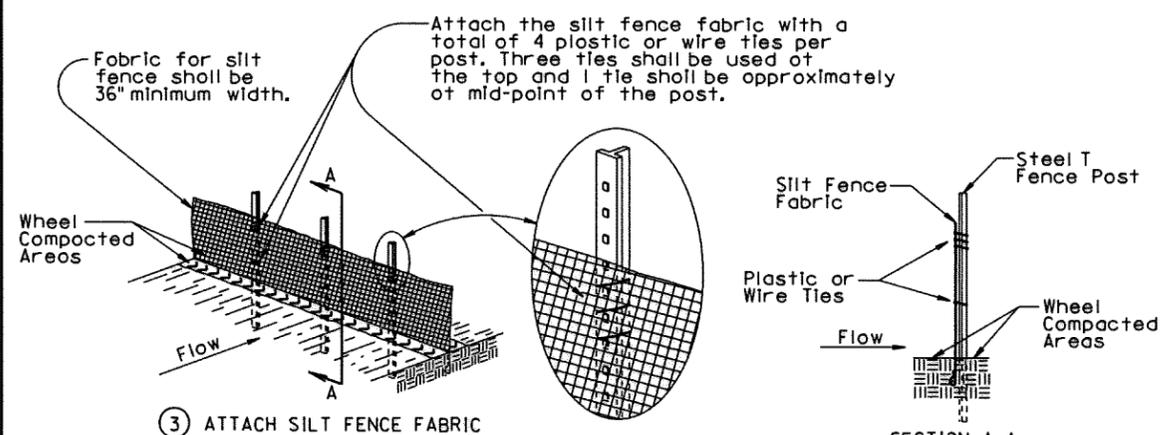
Published Date: 1st Qtr. 2016

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

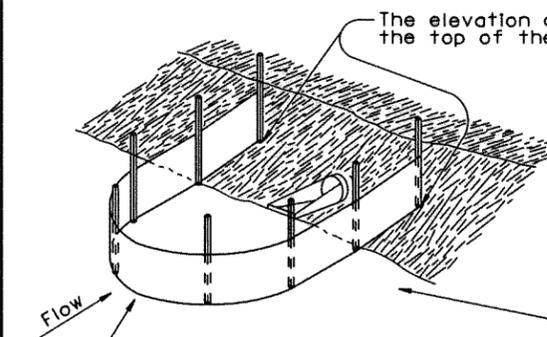
② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



③ ATTACH SILT FENCE FABRIC

SECTION A-A

The elevation at these locations shall be, at a minimum, higher than the top of the silt fence fabric at its lowest elevation.



The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

The radius of the silt fence shall be the minimum capable by the slicing machine. The post spacing shall be 3' for these types of applications of silt fence. All the other components of the silt fence shall be the same as shown above.

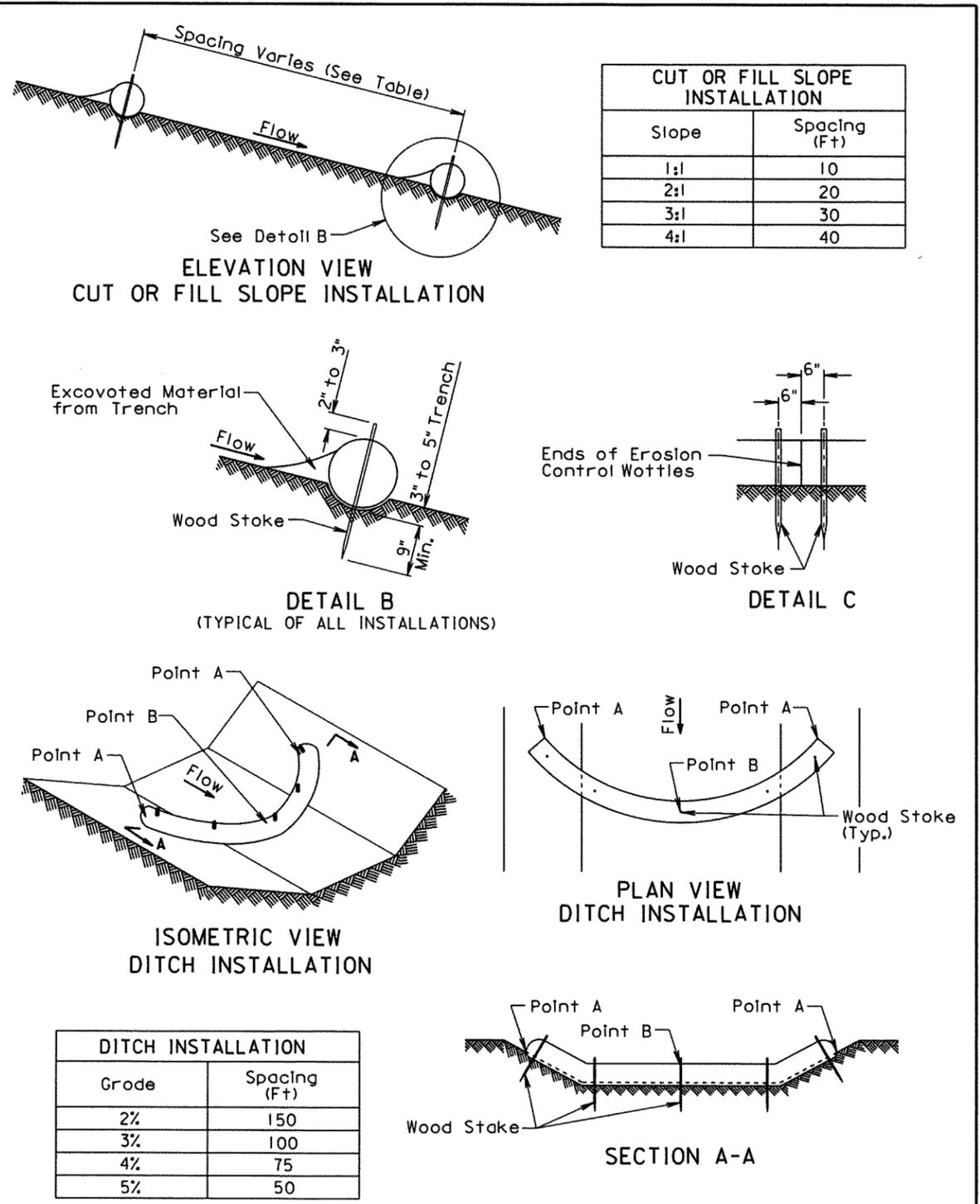
GENERAL NOTE:

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

S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
		Sheet 2 of 2

Published Date: 1st Qtr. 2016



**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'.

When 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 1/2". 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".

December 23, 2004

December 23, 2004

Published Date: 1st Qtr. 2016	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

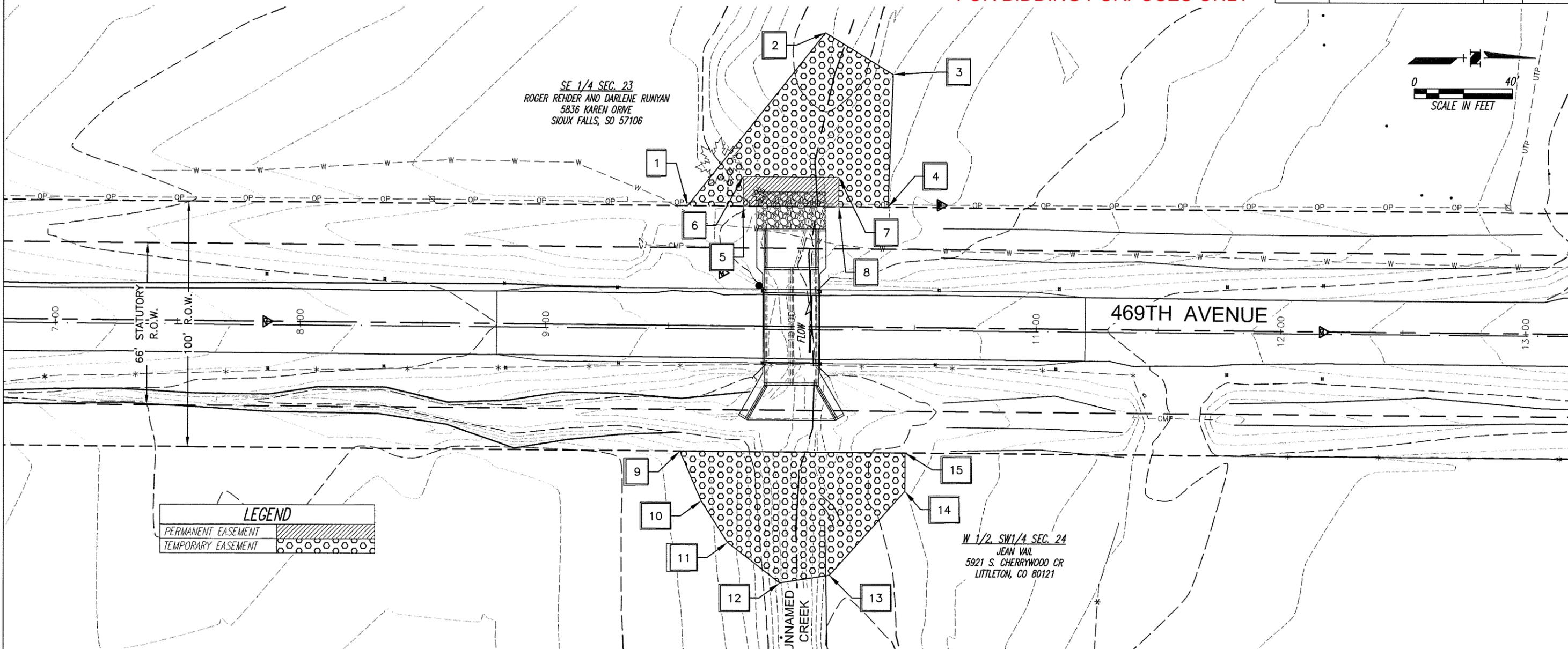
Published Date: 1st Qtr. 2016	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

THE ELEVATIONS SHOWN ARE BASED UPON NAVD 88 DATUM

# SURVEY DATA & EASEMENTS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	15	35



LEGEND	
PERMANENT EASEMENT	
TEMPORARY EASEMENT	

HORIZONTAL/VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	NORTHING (y)	EASTING (x)	ELEVATION (z)	DESCRIPTION
BM 1	9+87	16.53' LT	5030.01	4998.74	1283.14	CHISELED "X" IN CONCRETE WINGWALL
BM 2	10+61	49.93' LT	5104.11	4965.92	1280.47	BENCHMARK IN POWER POLE
CP 1	5+12	16.45' RT	4555.10	5028.02	1290.81	5/8" REBAR
CP 2	9+72	21.61' LT	5015.14	4993.54	1282.65	5/8" REBAR
CP 3	14+96	13.27' RT	5538.82	5033.14	1288.70	5/8" REBAR
CP 6	12+17	0.00' LT	5260.39	5017.07	1286.56	PK NAIL IN ASPHALT
CP 7	7+86	0.00' LT	4829.39	5013.71	1286.71	PK NAIL IN ASPHALT

EASEMENT POINTS				
	STATION	OFFSET	NORTHING (y)	EASTING (x)
1	9+57	49' LT	5000.91	4966.30
2	10+13	119' LT	5057.12	4895.93
3	10+41	103' LT	5084.64	4912.89
4	10+39	49' LT	5082.48	4966.84
5	9+80	49' LT	5023.52	4966.45
6	9+80	61' LT	5023.60	4954.45
7	10+19	61' LT	5062.59	4954.71
8	10+19	49' LT	5062.51	4966.71
9	9+55	51' RT	4997.75	5066.28
10	9+64	71' RT	5006.41	5086.56
11	9+75	88' RT	5017.16	5103.57
12	9+96	105' RT	5038.39	5120.00
13	10+16	101' RT	5058.54	5116.85
14	10+47	67' RT	5089.32	5082.50
15	10+47	51' RT	5089.43	5066.89

HORIZONTAL ALIGNMENT DATA					
POINT TYPE	LENGTH	STATION	DIRECTION	NORTHING (y)	EASTING (x)
START		8+80		5014.44	4923.14
	240'		N 00°26'47" E		
END		11+20		5163.14	5016.31



1-27-16  
PLANS BY: CLARK ENGINEERING, SIOUX FALLS, SD

THE ELEVATIONS SHOWN ARE BASED UPON NAVD 88 DATUM

# PLAN & PROFILE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	16	35

**SOUTHEASTERN ELECTRIC COMPANY**  
605 SD HWY 11  
ALCESTER, SD 57001-0105  
(605)-934-1961

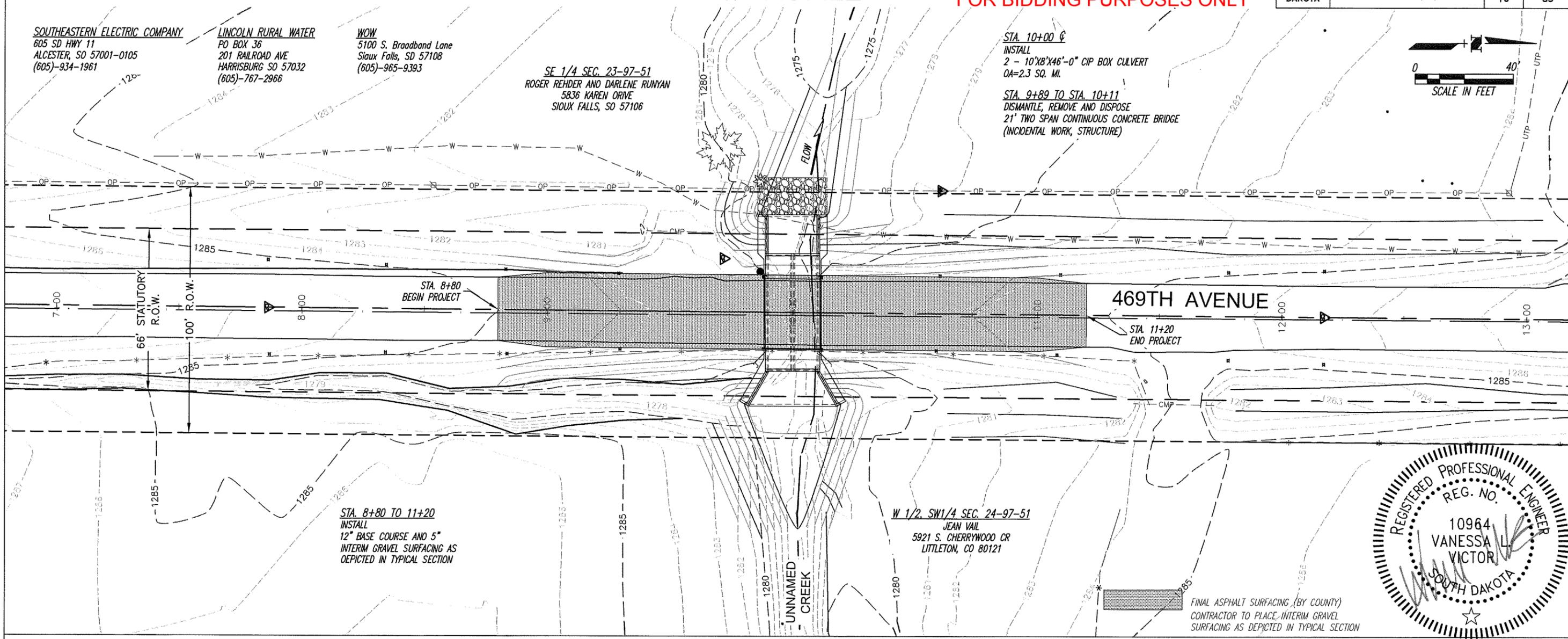
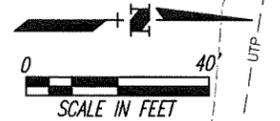
**LINCOLN RURAL WATER**  
PO BOX 36  
201 RAILROAD AVE  
HARRISBURG SD 57032  
(605)-767-2966

**WOW**  
5100 S. Broadband Lane  
Sioux Falls, SD 57108  
(605)-965-9393

**SE 1/4 SEC. 23-97-51**  
ROGER REHDER AND DARLENE RUNYAN  
5836 KAREN DRIVE  
SIOUX FALLS, SD 57106

STA. 10+00 @  
INSTALL  
2 - 10'X8'X46'-0" CIP BOX CULVERT  
OA=2.3 SQ. MI.

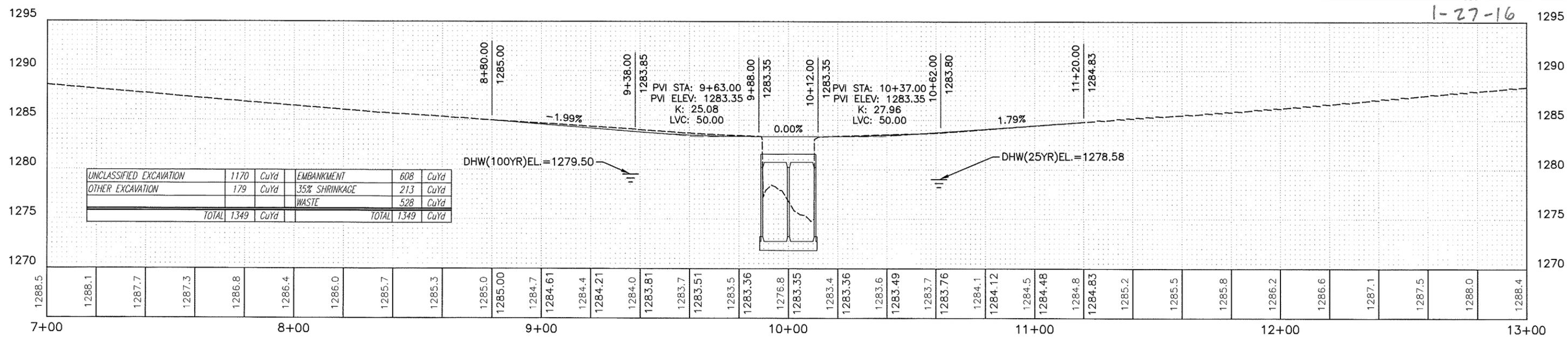
STA. 9+89 TO STA. 10+11  
DISMANTLE, REMOVE AND DISPOSE  
21' TWO SPAN CONTINUOUS CONCRETE BRIDGE  
(INCIDENTAL WORK, STRUCTURE)



STA. 8+80 TO 11+20  
INSTALL  
12" BASE COURSE AND 5"  
INTERIM GRAVEL SURFACING AS  
DEPICTED IN TYPICAL SECTION

W 1/2, SW 1/4 SEC. 24-97-51  
JEAN VAIL  
5921 S. CHERRYWOOD CR  
LITTLETON, CO 80121

FINAL ASPHALT SURFACING (BY COUNTY)  
CONTRACTOR TO PLACE INTERIM GRAVEL  
SURFACING AS DEPICTED IN TYPICAL SECTION



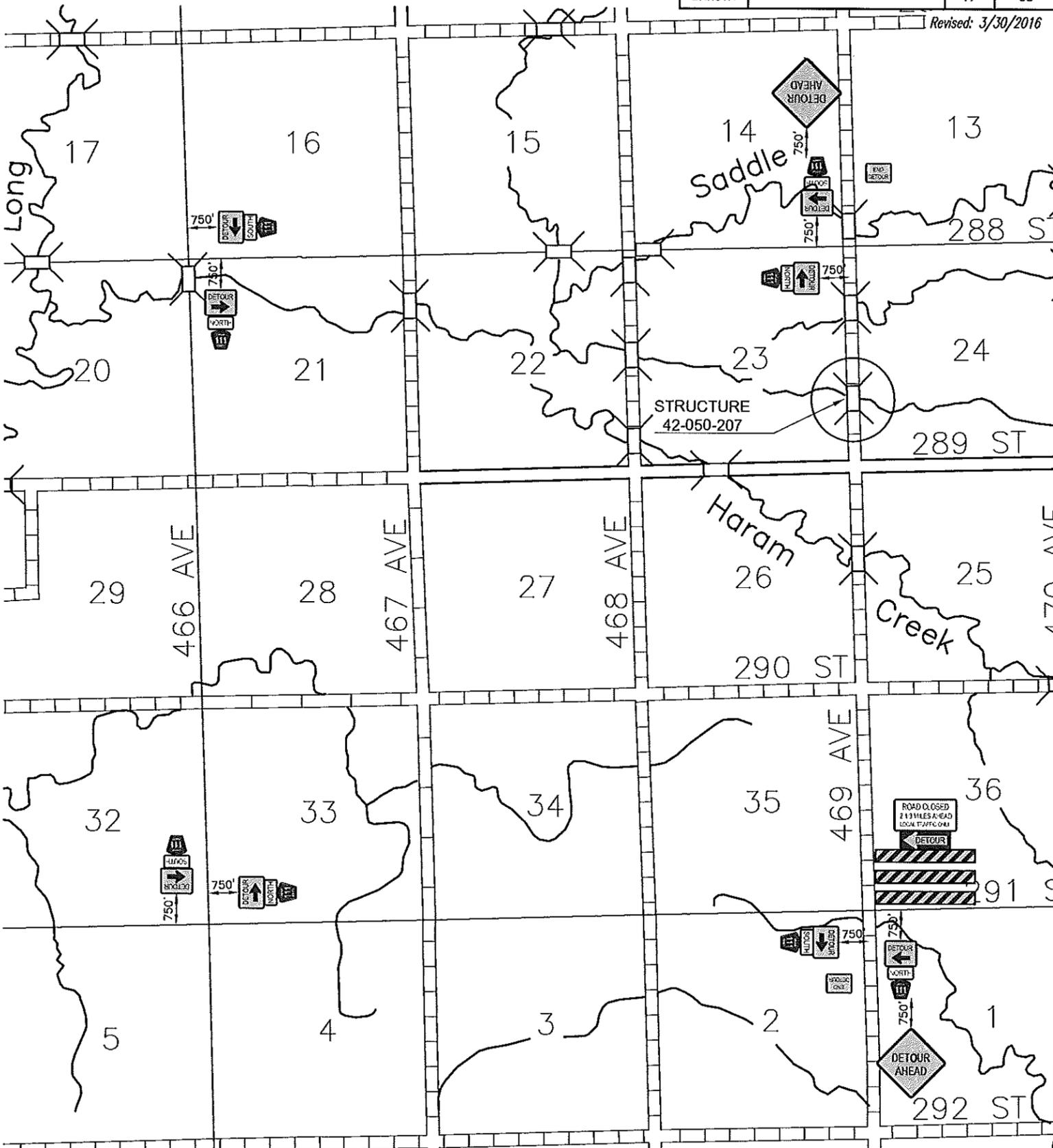
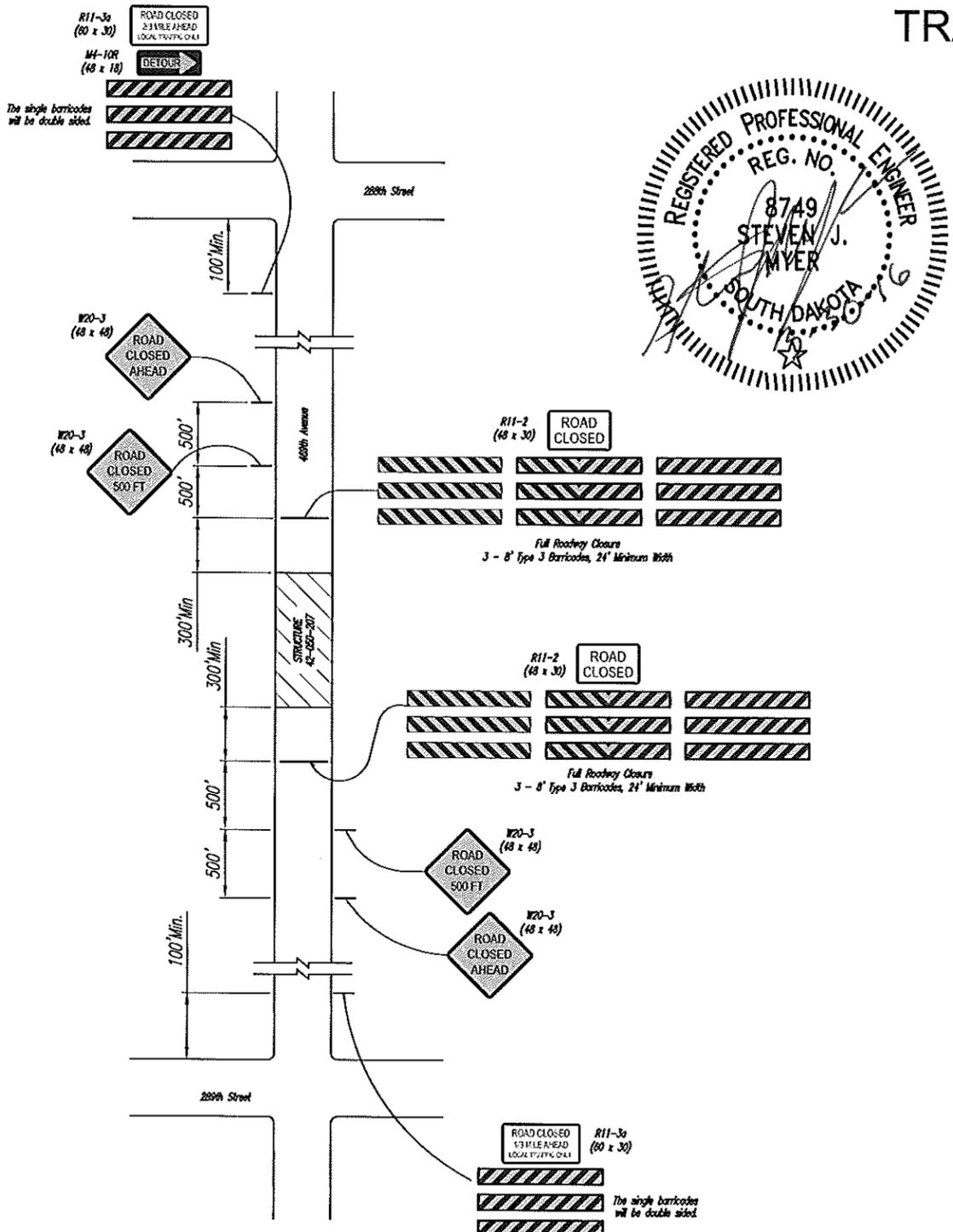
1-27-16

# TRAFFIC CONTROL

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	17	35

Revised: 3/30/2016

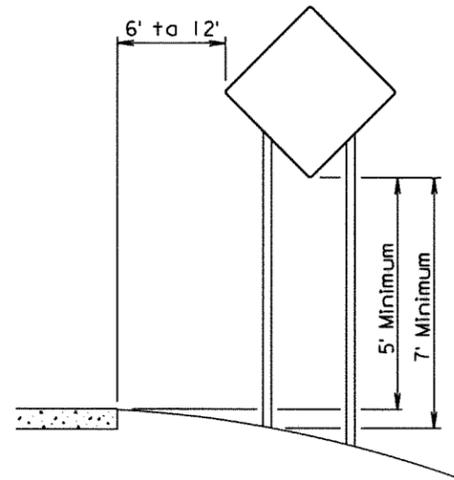


### ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

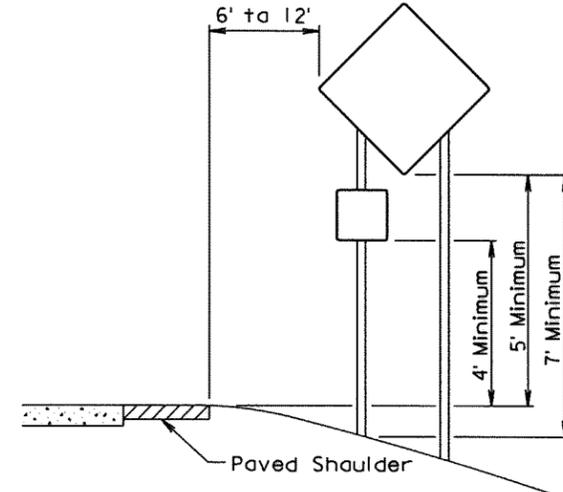
SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R11-2	ROAD CLOSED	2	48" x 30"	10	20
R11-3a	ROAD CLOSED 1/2 MILES AHEAD LOCAL TRAFFIC ONLY	3	60" x 30"	13	39
W20-2	DETOUR AHEAD	2	48" x 48"	16	32
W20-3	ROAD CLOSED AHEAD	4	48" x 48"	16	64
M1-6	COUNTY ROUTE MARKER (3 digits)	8	24" x 24"	4	32
M3-1	DIRECTION MARKER - NORTH	4	24" x 12"	2	8
M3-3	DIRECTION MARKER - SOUTH	4	24" x 12"	2	8
M4-8a	END DETOUR	2	24" x 18"	3	6
M4-9	DETOUR with ARROW (L or R)	8	24" x 30"	5	40
M4-10	DETOUR with ARROW (L or R)	2	48" x 18"	6	12
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					261

### TYPE 3 BARRICADES

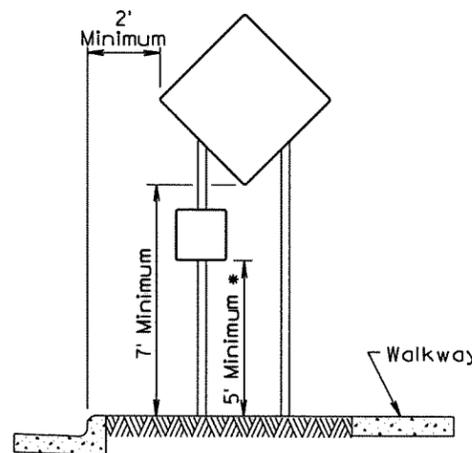
ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	6 Each
Type 3 Barricade, 6' Double Sided	3 Each



RURAL DISTRICT

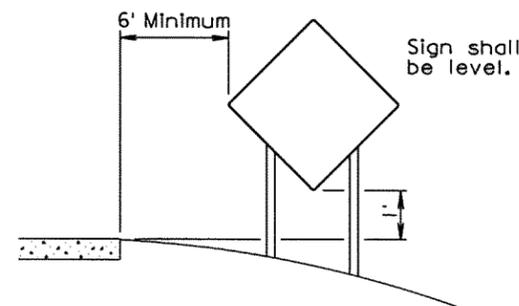


RURAL DISTRICT WITH  
SUPPLEMENTAL PLATE



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

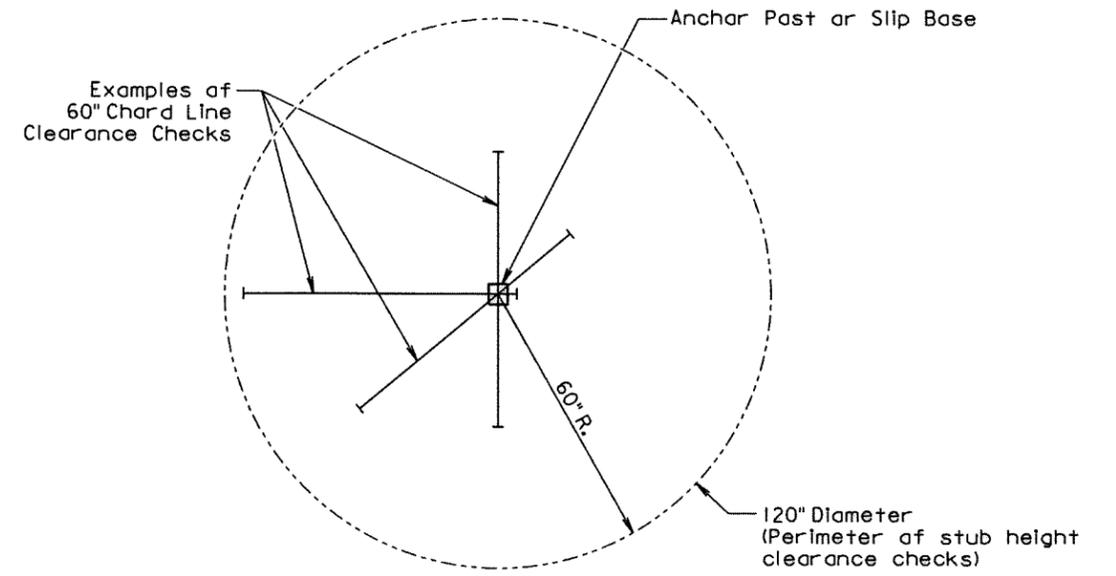
Published Date: 1st Qtr. 2016

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**CRASHWORTHY SIGN SUPPORTS**  
(Typical Construction Signing)

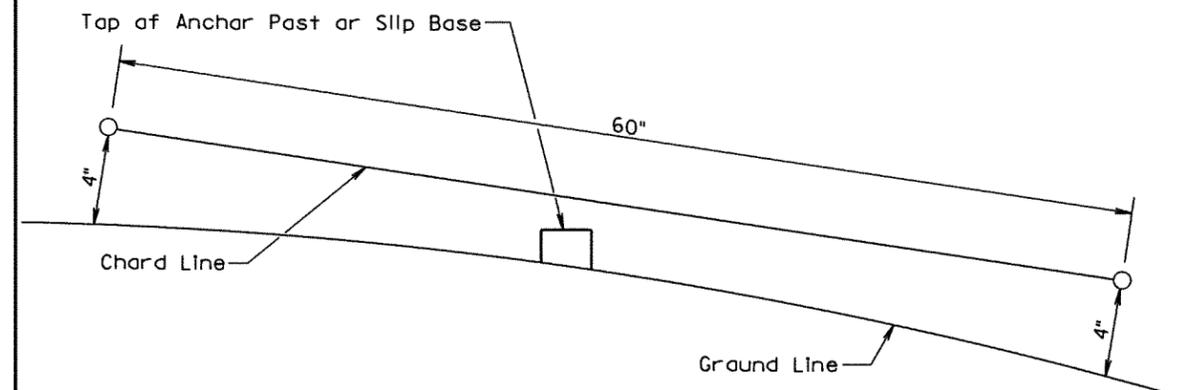
PLATE NUMBER  
634.85

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

**S  
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**BREAKAWAY SUPPORT STUB CLEARANCE**

PLATE NUMBER  
634.99

Sheet 1 of 1

THE ELEVATIONS SHOWN ARE BASED UPON NAVD 88 DATUM.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	19	35

FOR BIDDING PURPOSES ONLY

-X028-  
INDEX OF CULVERT SHEETS

SHEET 1	GENERAL DRAWING & QUANTITIES
SHEET 2	UNDERCUT DETAILS & NOTES
SHEET 3-5	INLET DETAILS
SHEET 6-8	OUTLET DETAILS
SHEET 9-13	S1 BARREL SECTION DETAILS
SHEET 14	RIPRAP DETAILS
SHEET 15	STANDARD PLATES

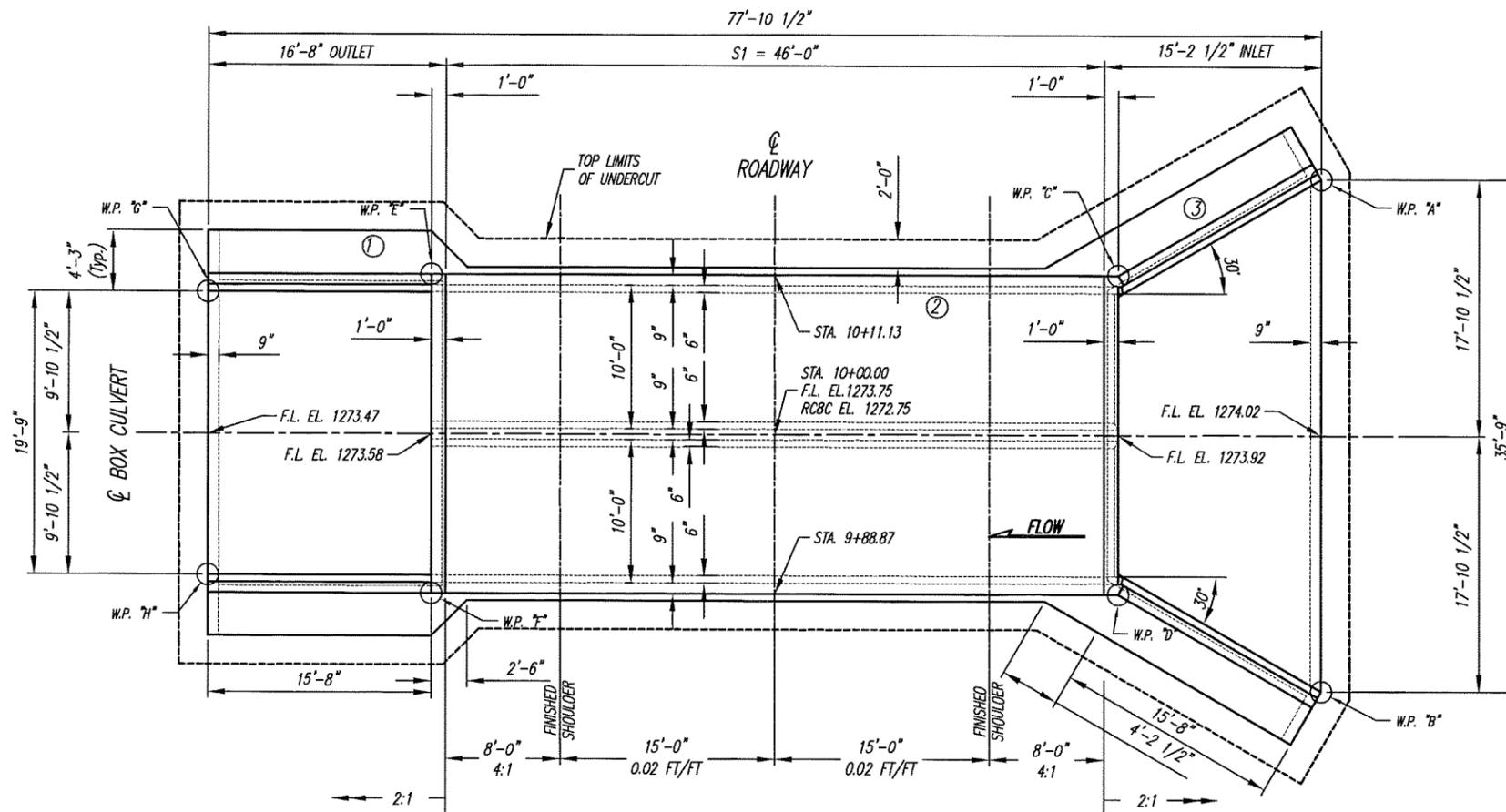


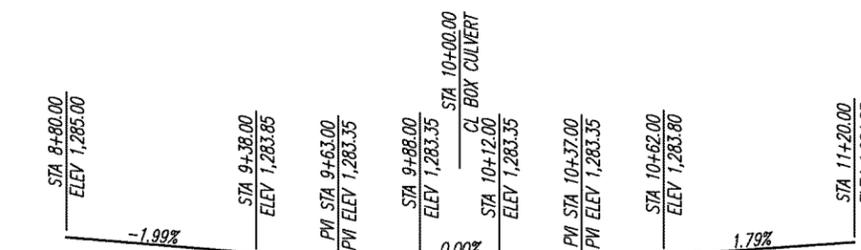
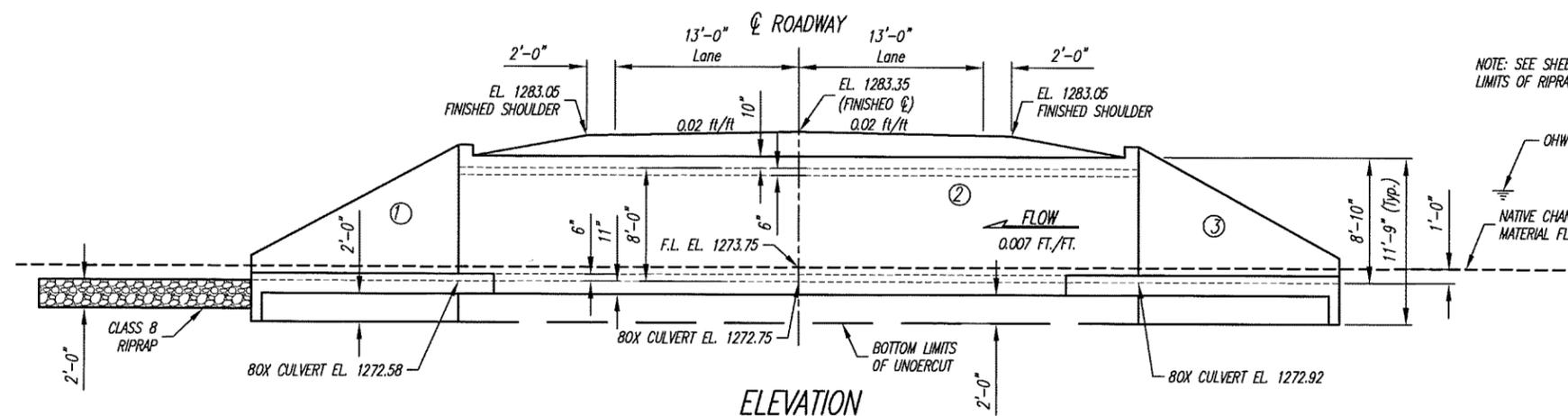
TABLE OF WORKING POINTS

W.P.	STATION	OFFSET
A	10+17.88	38.20' RT.
B	9+82.12	38.20' RT.
C	10+11.13	24.00' RT.
D	9+88.87	24.00' RT.
E	10+11.13	24.00' LT.
F	9+88.87	24.00' LT.
G	10+09.88	39.67' LT.
H	9+90.12	39.67' LT.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
CLASS A45 CONCRETE, BOX CULVERT	CUYD	153.9
REINFORCING STEEL	LB	27,241
STRUCTURE EXCAVATION, BOX CULVERT	CUYD	148
BOX CULVERT, UNDERCUT	CUYD	182
CLASS 8 RIPRAP	TON	44.0
TYPE 8 DRAINAGE FABRIC	SQYD	66

FOR PAYMENT, QUANTITY IS BASED ON PLAN SHOWN UNDERCUT DIMENSIONS, AND WILL NOT BE MEASURED UNLESS THE ENGINEER ORDERS A CHANGE.  
FOR ESTIMATING PURPOSES ONLY, A FACTOR OF 1.4 TONS/CUYD WAS USED TO CONVERT CUYDS TO TONS.



VERTICAL CURVE DATA  
ELEVATIONS SHOWN ARE FINISHED GRADE

\*NOTES THIS STREAM IS A TOPEKA SHINER HABITAT.

GENERAL DRAWING & QUANTITIES  
FOR  
2 - 10' x 8' CIP BOX CULVERT

STA. 10+00 0° SKEW  
OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
STR. NO. 42-050-207 BRO 8042(31)  
PCN 5552 HL-93



LINCOLN COUNTY  
S.D. DEPT. OF TRANSPORTATION  
JANUARY 2016

HYDRAULIC DATA

Qd	275 cfs
Ad	83 SqFt
Vd	3.3 fps
QF	275 cfs
Q100	530 cfs
QOTtr	1,069 cfs
Vmax	5.0 fps

Qd = DESIGN DISCHARGE FOR THE PROPOSED BOX CULVERT BASED ON 25 YEAR FREQUENCY. ELEV = 1,278.6.  
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. ELEV = 1,279.5.  
QOTtr = OVERTOPPING DISCHARGE AND FREQUENCY 596 YEAR RECURRENCE INTERVAL. ELEV = 1,283.4. LOCATED AT THE STRUCTURE.  
Vmax = MAXIMUM COMPUTED OUTLET VELOCITY FOR THE PROPOSED BOX CULVERT BASED ON A 100 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 RE-ANALYSIS OF THE HYDRAULICS AT THIS SITE TO DETERMINE ITS EFFECT ON PUBLIC SAFETY.

NOTE:  
BOX CULVERT FLOW LINE HAS BEEN DEEPENED 1'-0" BELOW CHANNEL FLOW LINE TO ACCOMMODATE AQUATIC ORGANISMS. THE 1'-0" DEPRESSION WILL BE ALLOWED TO FILL IN NATURALLY OVER TIME.

-X028-

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
VLV	VLV	KRG	

BRIDGE ENGINEER

**FOR BIDDING PURPOSES ONLY**

**SPECIFICATIONS:**

- DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2014 EDITION WITH 2015 INTERIMS.
- CONSTRUCTION SPECIFICATIONS: SOUTH DAKOTA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, 2015 EDITION AND REQUIRED PROVISIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS AS INCLUDED IN THE PROPOSAL.

**GENERAL NOTES:**

- DESIGN LIVE LOAD: HL-93 LOADING. NO CONSTRUCTION LOADING IN EXCESS OF LEGAL LOAD WAS CONSIDERED.
- THE DESIGN OF THE BARREL SECTION IS BASED ON A MINIMUM FILL HEIGHT OF 1 FOOT AND INCLUDES ALL SUBSEQUENT FILL HEIGHTS UP TO AND INCLUDING THE MAXIMUM FILL HEIGHT OF 5 FT. (S1).
- DESIGN MATERIAL STRENGTHS: CONCRETE  $f'_c = 4,500$  PSI  
REINFORCING STEEL  $f_y = 60,000$  PSI
- ALL CONCRETE SHALL BE CLASS A45 CONFORMING TO SECTION 460.
- ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60.
- ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4 INCH.
- USE 1 INCH CLEAR COVER ON ALL REINFORCING STEEL EXCEPT AS SHOWN.
- THE CONTRACTOR SHALL IMPRINT ON THE STRUCTURE THE DATE OF CONSTRUCTION AS SPECIFIED AND DETAILED ON STANDARD PLATE NO. 460.02.
- CARE SHALL BE TAKEN TO ESTABLISH WORKING POINTS (W.P.) AS SHOWN ON THE WINGS.
- CIRCLED NUMBERS IN PLAN AND ELEVATION VIEWS ON THE GENERAL DRAWING ARE SECTION I.D. NUMBERS (SEE SDOOT MATERIALS MANUAL).
- COST OF PREFORMED EXPANSION JOINT FILLER USED IN APRON CONSTRUCTION SHALL BE ABSORBED IN THE OTHER CONTRACT ITEMS.
- COMPACTION OF EARTH EMBANKMENT AND BOX CULVERT BACKFILL MATERIAL SHALL BE COVERED BY THE SPECIFIED DENSITY METHOD.

**INCIDENTAL WORK, STRUCTURE:**

- IN PLACE ON 469TH AVENUE FROM APPROXIMATELY STA. 9+89 TO STA. 10+10 IS A 21' TWO SPAN REINFORCED CONCRETE CONTINUOUS BRIDGE WITH CONCRETE ABUTMENTS. THE EXISTING STRUCTURE CONSISTS OF A CONCRETE SLAB, CONCRETE ABUTMENTS, CONCRETE WINGWALLS, AND A RAILING CONSISTING OF STEEL PIPE WITH CONCRETE POSTS.
- THE FOREGOING IS A GENERAL DESCRIPTION OF THE IN-PLACE STRUCTURE AND SHALL NOT BE CONSTRUED TO BE COMPLETE IN ALL DETAILS. BEFORE PREPARING A BID, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE A VISUAL INSPECTION OF THE EXISTING STRUCTURE TO VERIFY THE EXTENT OF THE WORK AND MATERIAL INVOLVED.
- THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING STRUCTURE. THE EXISTING STRUCTURE AND ALL OF THE ASSOCIATE DEBRIS SHALL BE DISPOSED OF BY THE CONTRACTOR AS PER WASTE DISPOSAL SITE NOTES.
- THE EXISTING ABUTMENTS SHALL BE REMOVED TO THE BOTTOM OF THE UNDERCUT.
- COSTS ASSOCIATED WITH THE FOREGOING WORK SHALL BE INCIDENTAL TO THE CONTRACT LUMP SUM PRICE FOR INCIDENTAL WORK, STRUCTURE.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
BOX CULVERT UNDERCUT	CUYD	182

FOR PAYMENT, QUANTITY IS BASED ON PLAN SHOWN UNDERCUT DIMENSIONS AND WILL NOT BE MEASURED UNLESS THE ENGINEER ORDERS A CHANGE.

**UNDERCUT DETAILS & NOTES**

FOR  
2 - 10' x 8' CIP BOX CULVERT

STA. 10+00 0° SKEW  
OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
STR. NO. 42-050-207 BRO 8042(31)  
PCN 5552 HL-93

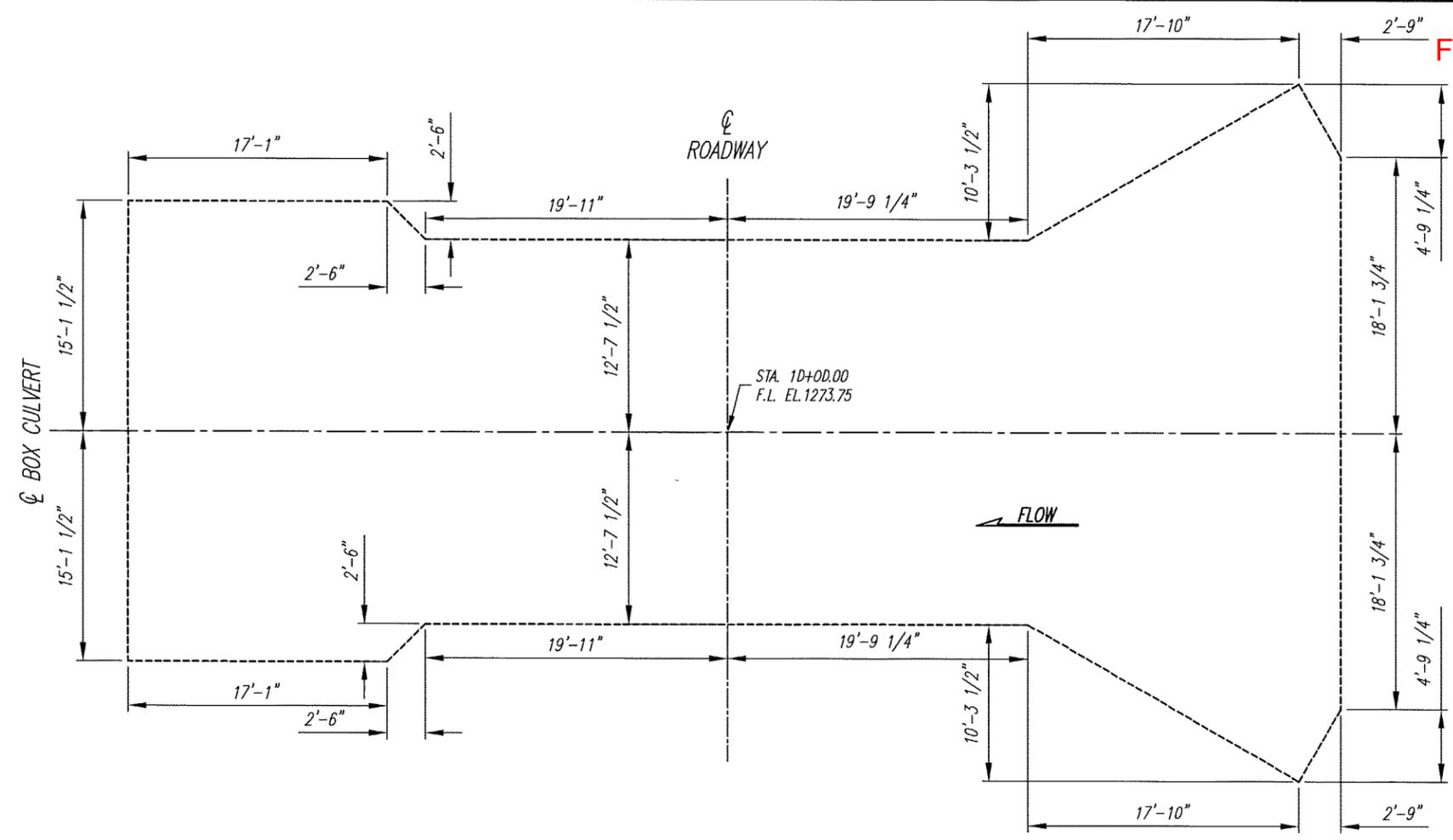
LINCOLN COUNTY  
S.D. DEPT. OF TRANSPORTATION  
JANUARY 2016



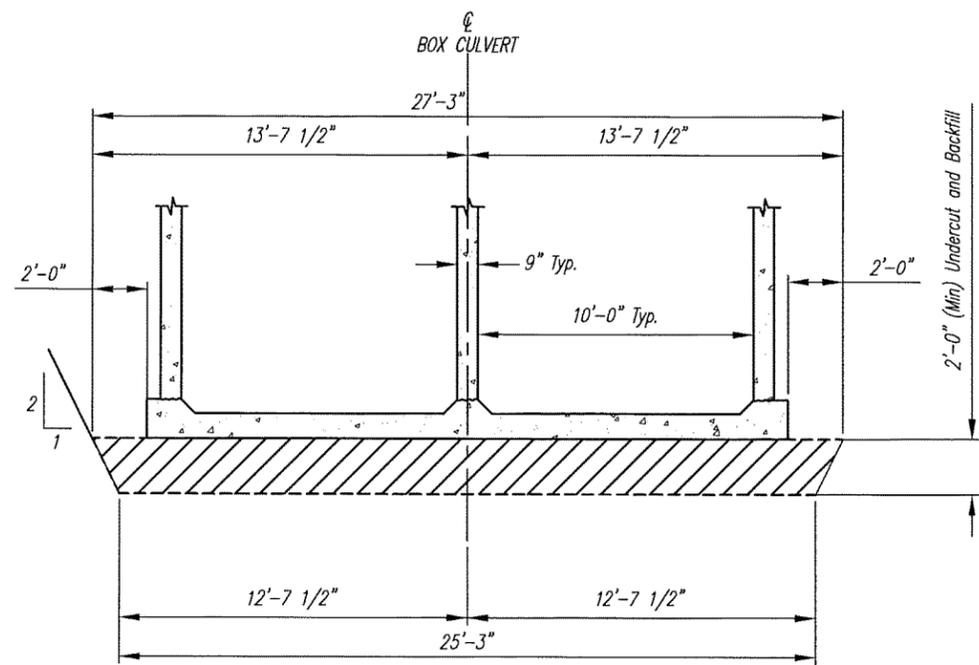
1-27-16

DESIGNED BY VLV	DRAWN BY VLV	CHECKED BY KRG	APPROVED  BRIDGE ENGINEER
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PLANS BY: CLARK ENGINEERING, SIOUX FALLS, SD



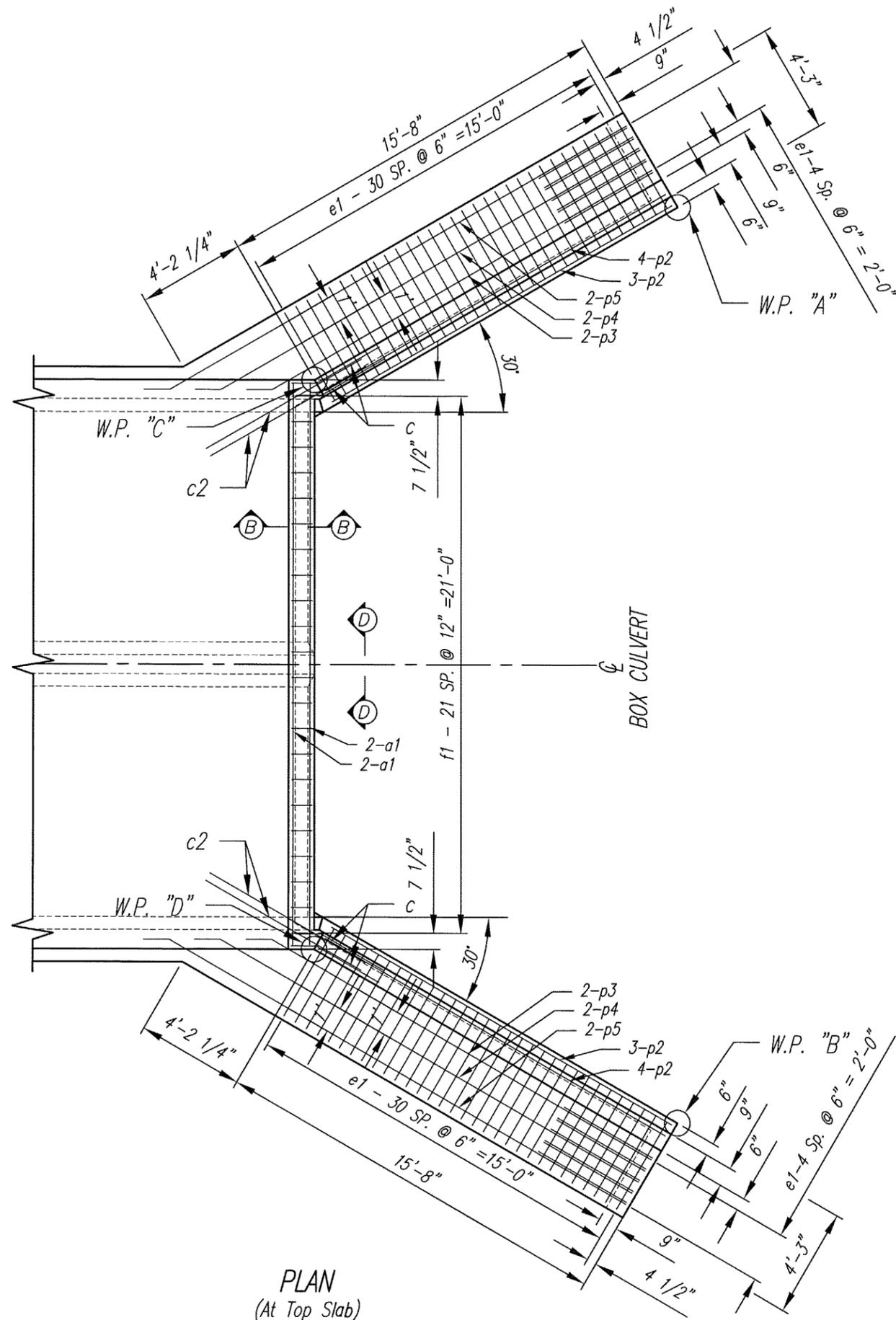
**UNDERCUT LAYOUT**  
(BOTTOM DIMENSIONS)



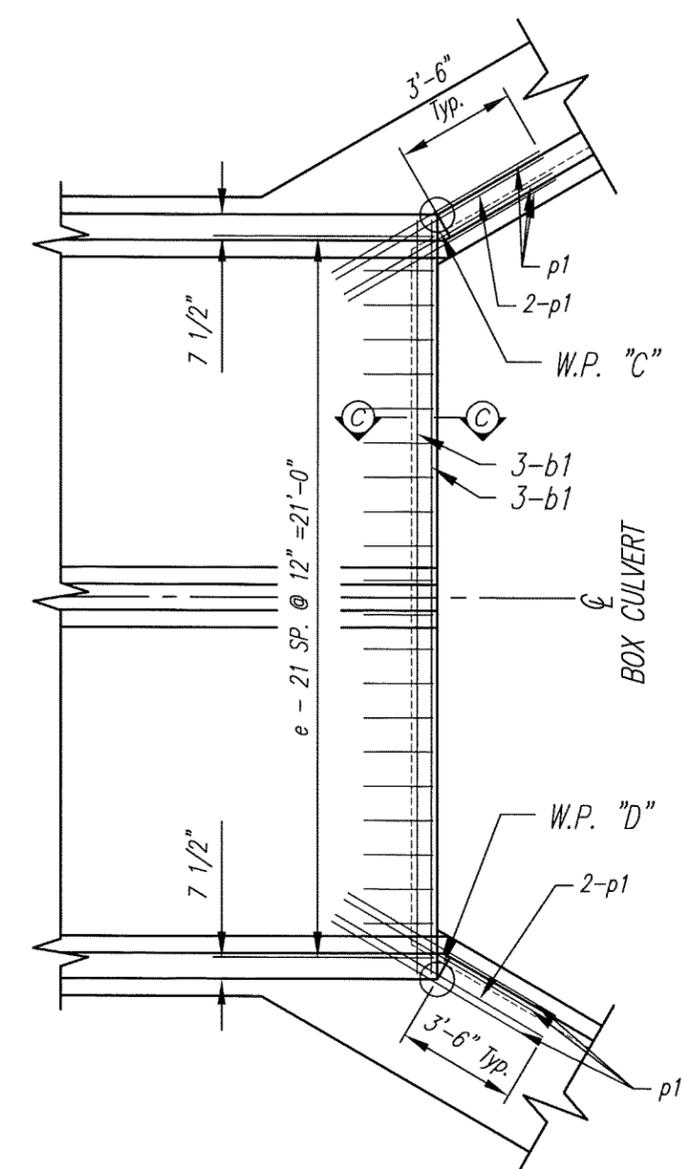
**TYPICAL SECTION**  
FOR LIMITS OF UNDERCUT

FOR BIDDING PURPOSES ONLY

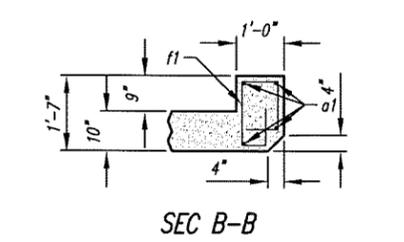
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	21	35



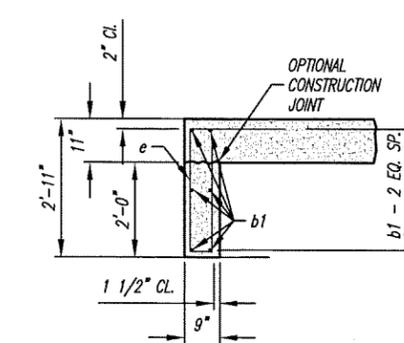
PLAN  
(At Top Slab)



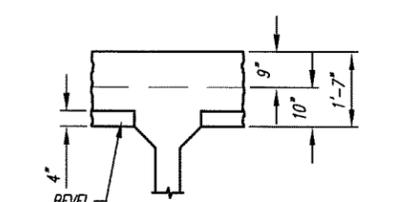
PLAN  
(At Bottom Slab)



SEC B-B



SEC C-C



SEC D-D  
(AT INTERIOR WALL)

Apron shall not be built monolithic with Box Culvert.

INLET DETAILS (1 of 3)  
FOR  
2 - 10' x 8' CIP BOX CULVERT

STA. 10+00 0° SKEW  
OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
STR. NO. 42-050-207 BRO 8042(31)  
PCN 5552 HL-93

LINCOLN COUNTY  
S.D. DEPT. OF TRANSPORTATION  
JANUARY 2016



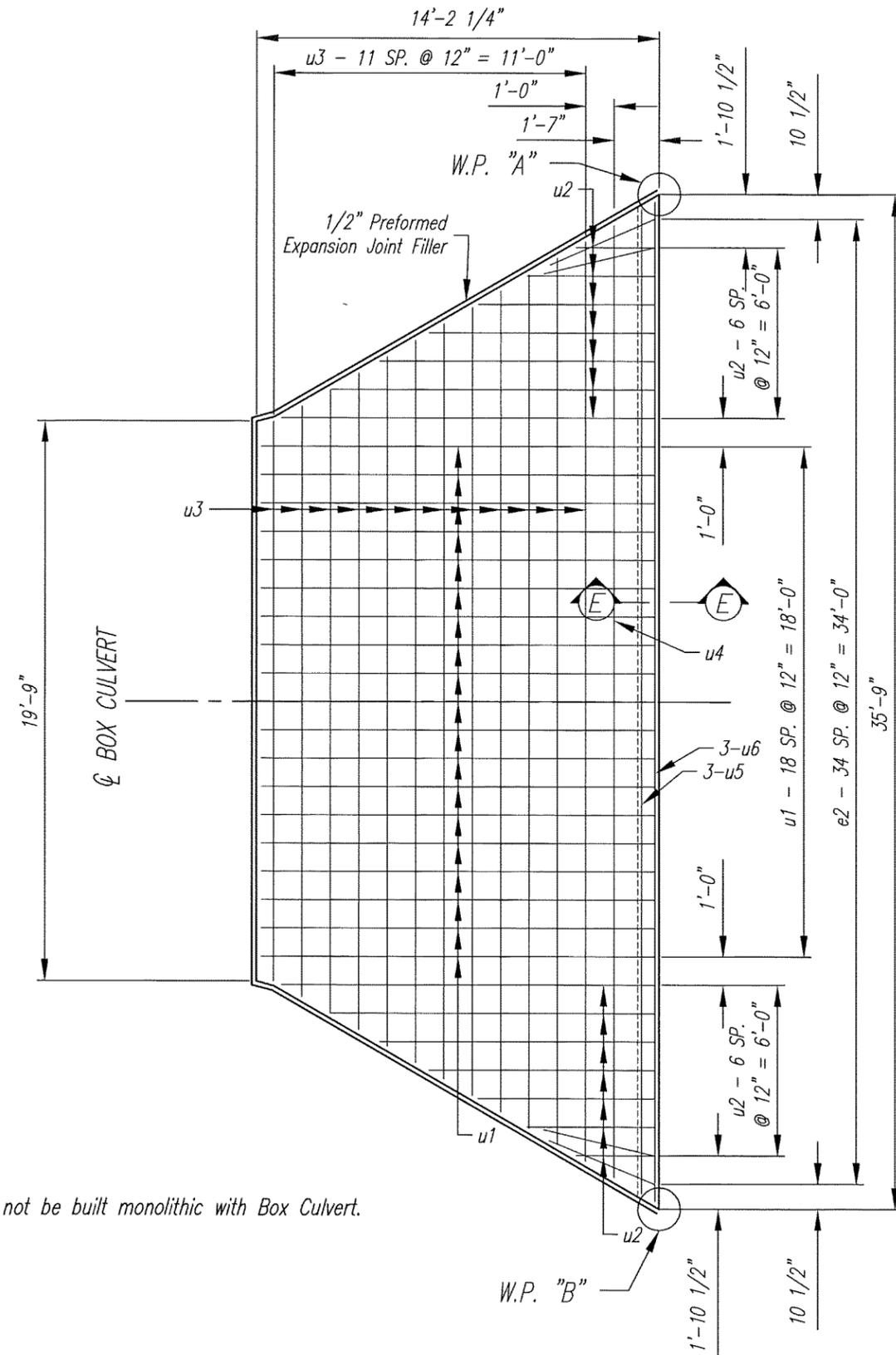
NOTE: USE THIS SHEET IN CONJUNCTION WITH SHEET 4 & 5.

DESIGNED BY VLV	DRAWN BY VLV	CHECKED BY KRG	APPROVED  BRIDGE ENGINEER
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PLANS BY: CLARK ENGINEERING, SIOUX FALLS, SD

FOR BIDDING PURPOSES ONLY

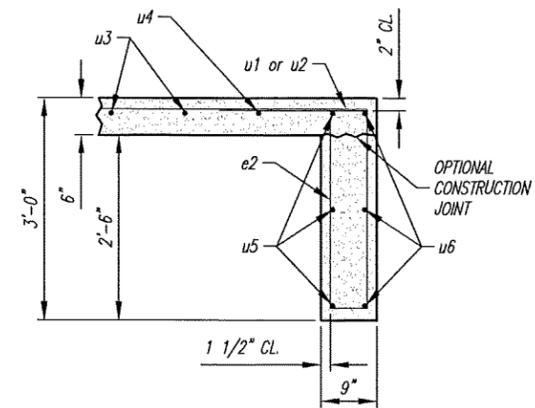
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	22	35



Apron shall not be built monolithic with Box Culvert.

PLAN  
(INLET APRON)

NOTE: USE THIS SHEET IN CONJUNCTION WITH SHEET 3 & 5.



SEC E-E  
(INLET APRON)

INLET DETAILS (2 of 3)

FOR  
2 - 10' x 8' CIP BOX CULVERT

STA. 10+00 0° SKEW  
OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
STR. NO. 42-050-207 BRO 8042(31)  
PCN 5552 HL-93

LINCOLN COUNTY  
S.D. DEPT. OF TRANSPORTATION  
JANUARY 2016

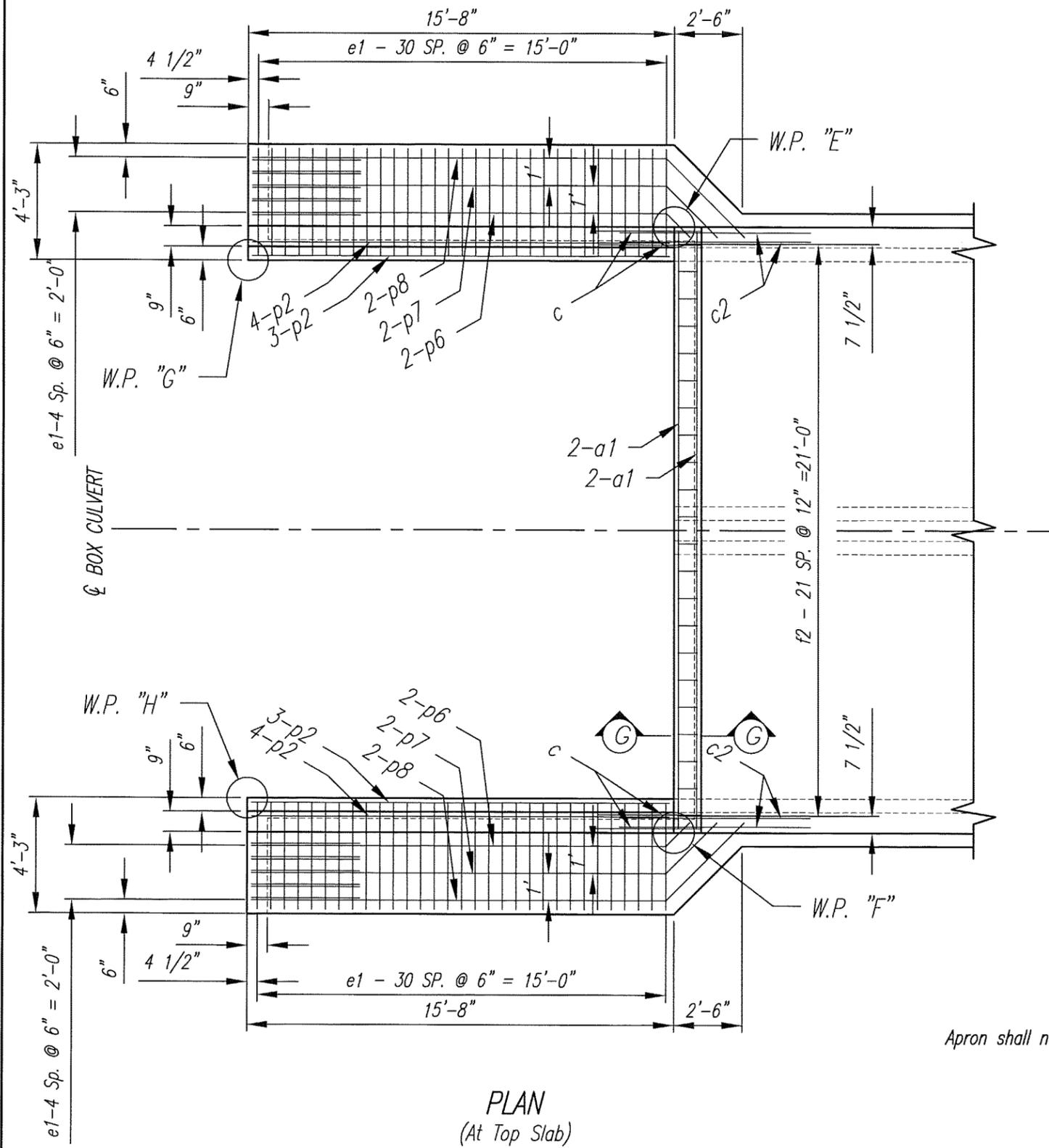


1-27-16

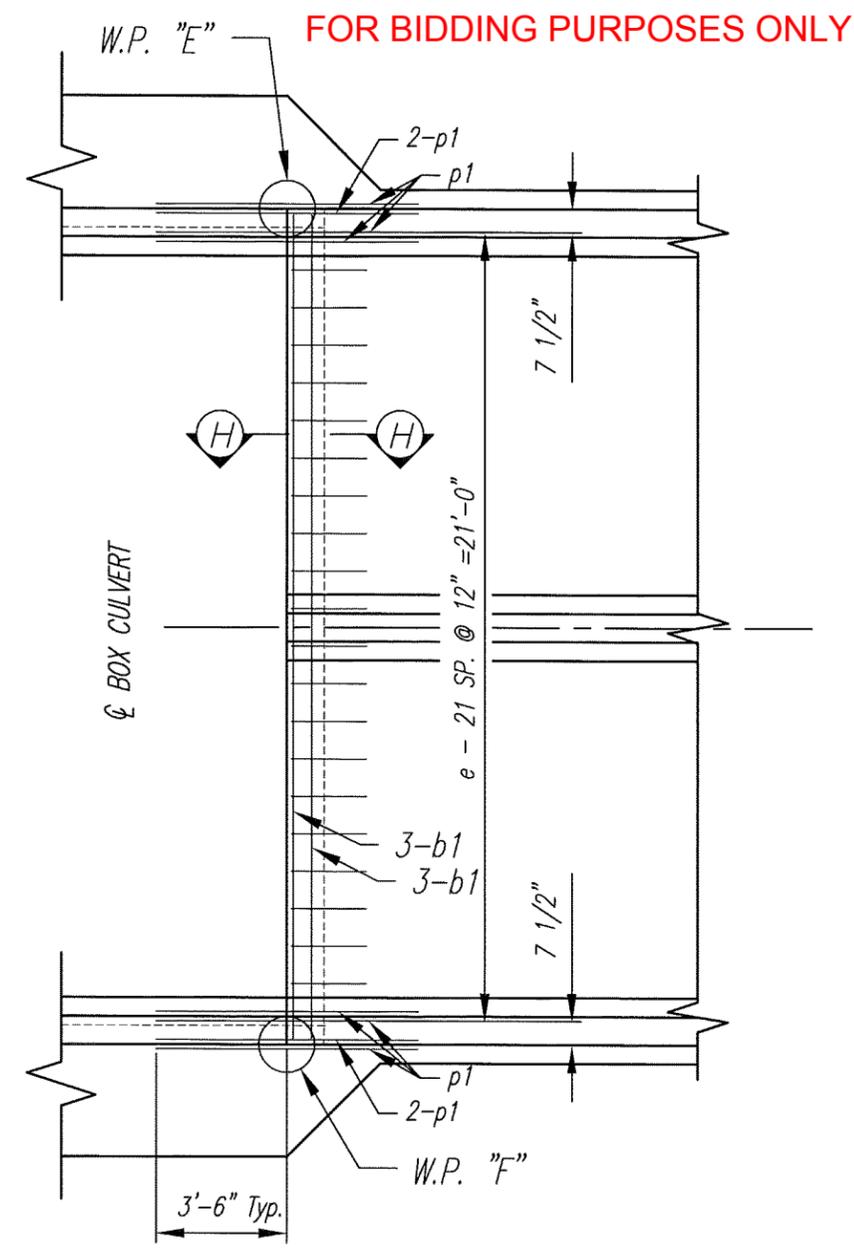
PLANS BY: CLARK ENGINEERING, SIOUX FALLS, SD

DESIGNED BY VLV	DRAWN BY VLV	CHECKED BY KRG	APPROVED  BRIDGE ENGINEER
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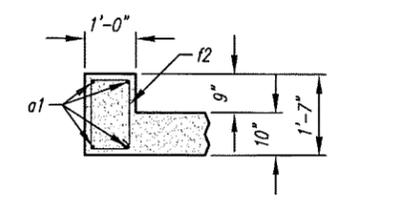




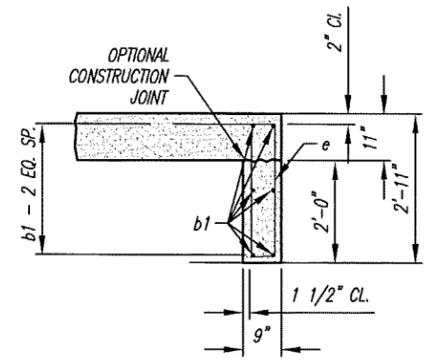
PLAN  
(At Top Slab)



PLAN  
(At Bottom Slab)



SEC G-G  
AT TOP SLAB



SEC H-H

Apron shall not be built monolithic with Box Culvert.

NOTE: USE THIS SHEET IN CONJUNCTION WITH SHEET 7 & 8.



OUTLET DETAILS (1 of 3)  
FOR  
2 - 10' x 8' CIP BOX CULVERT

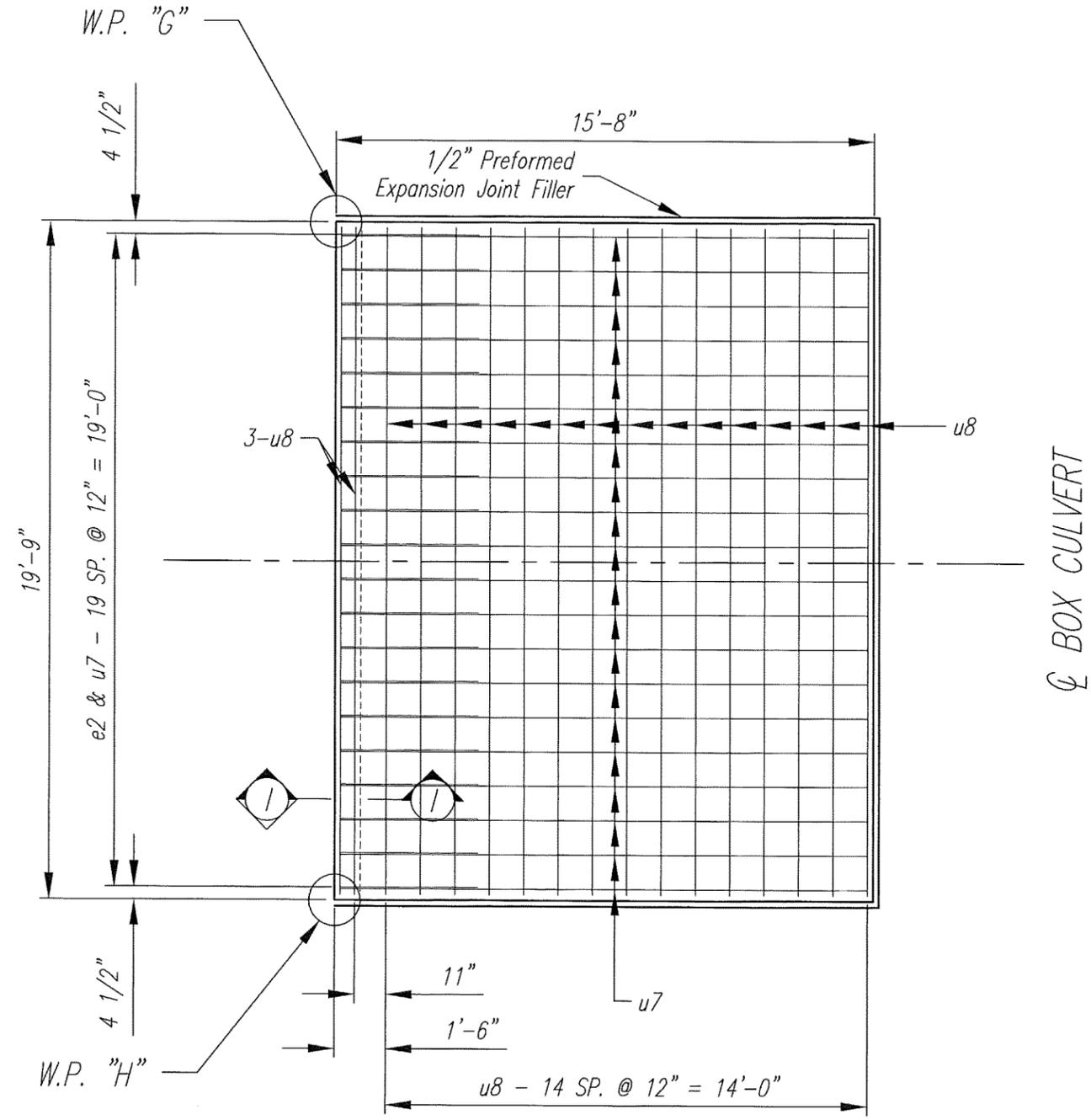
STA. 10+00 0° SKEW  
OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
STR. NO. 42-050-207 BRO 8042(31)  
PCN 5552 HL-93

LINCOLN COUNTY  
S.D. DEPT. OF TRANSPORTATION  
JANUARY 2016

DESIGNED BY VLV	DRAWN BY VLV	CHECKED BY KRG	APPROVED
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FOR BIDDING PURPOSES ONLY

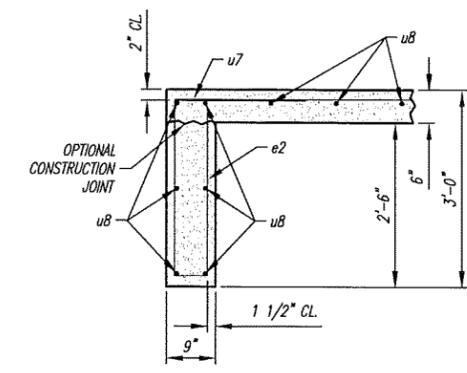
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	25	35



PLAN  
(OUTLET APRON)

Apron shall not be built monolithic with Box Culvert.

NOTE: USE THIS SHEET IN CONJUNCTION WITH SHEET 6 & 8.



SEC 1-1  
(OUTLET APRON)

OUTLET DETAILS (2 of 3)  
FOR  
2 - 10' x 8' CIP BOX CULVERT

STA. 10+00 0° SKEW  
OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
STR. NO. 42-050-207 BRO 8042(31)  
PCN 5552 HL-93



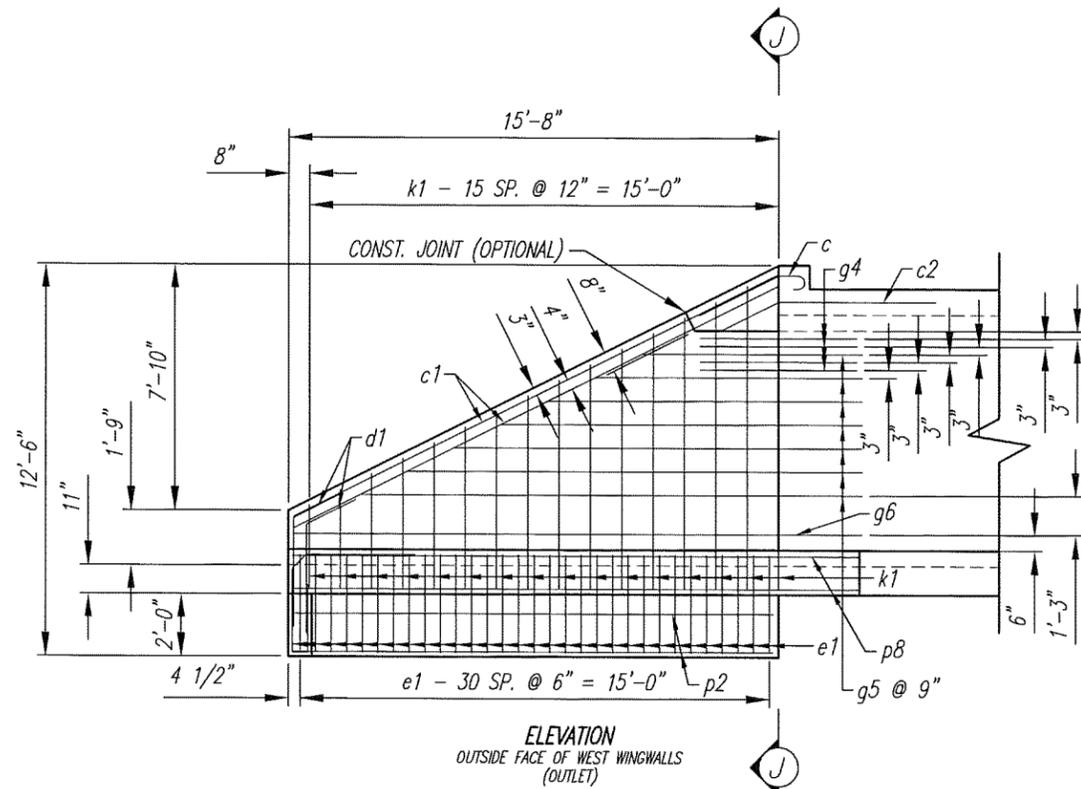
1-27-16

LINCOLN COUNTY  
S.D. DEPT. OF TRANSPORTATION  
JANUARY 2016

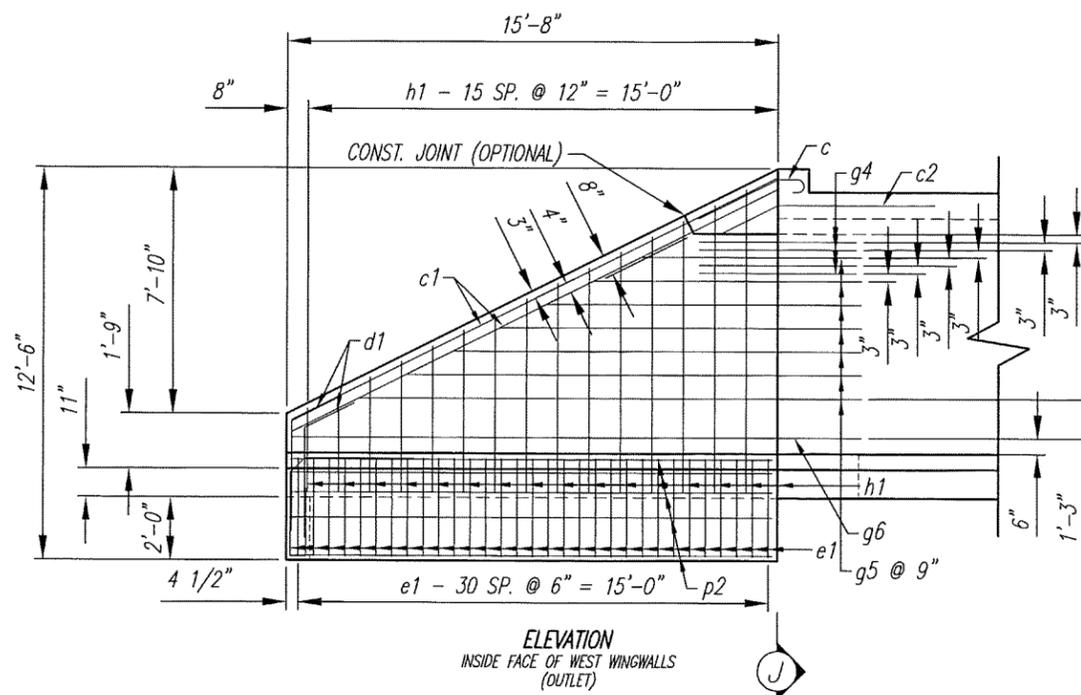
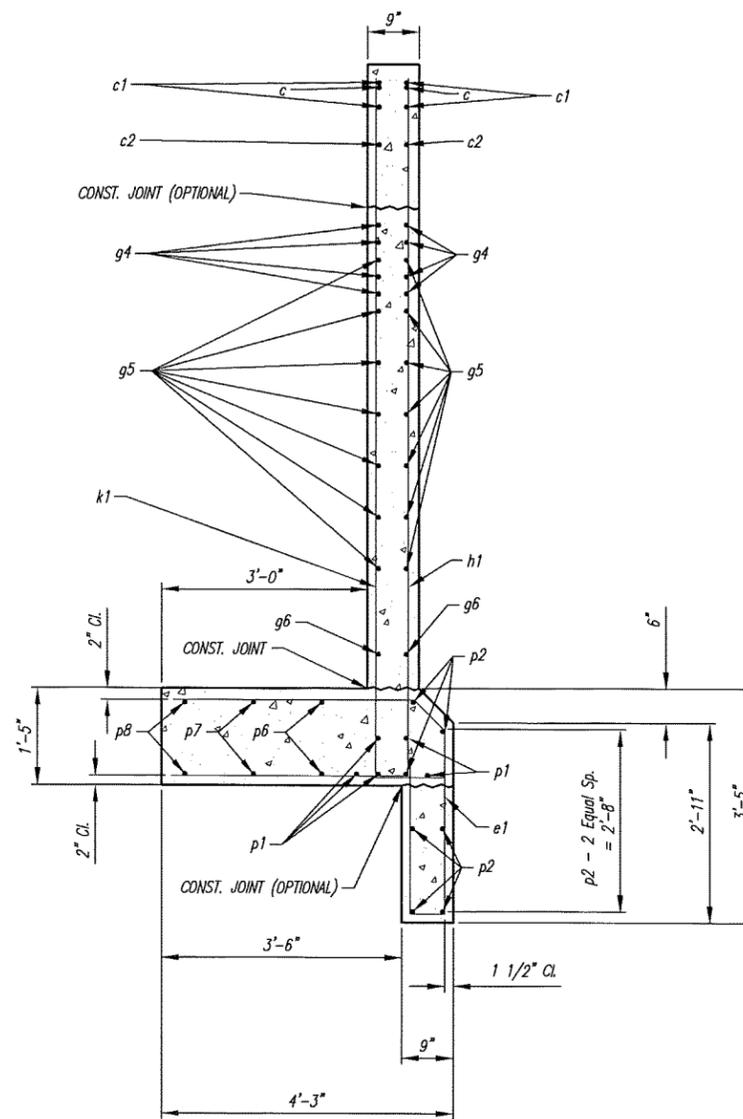
DESIGNED BY VLV	DRAWN BY VLV	CHECKED BY KRG	APPROVED  BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	26	35



ELEVATION  
OUTSIDE FACE OF WEST WINGWALLS  
(OUTLET)

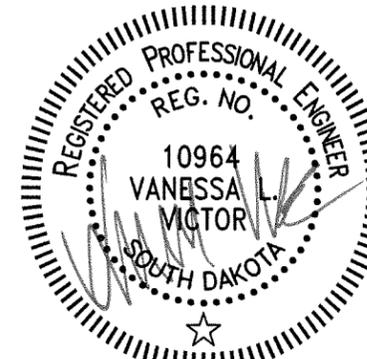


ELEVATION  
INSIDE FACE OF WEST WINGWALLS  
(OUTLET)

REINFORCING SCHEDULE					BENDING DETAILS	
MK.	NO.	SIZE	LENGTH	TYPE		
OUTLET						
a1	4	6	21'-11"	STR.	e1	3'-11"
b1	6	6	21'-11"	STR.		
c	4	5	4'-6"	1A	c2	5'-0"
c1	8	5	17'-4"	STR.		
c2	4	5	7'-0"	19B		
d1	8	5	5'-3"	19B	e	2'-0"
e	22	4	7'-3"	S12		
e1	72	4	9'-6"	S12A	e2	2'-0"
f2	22	4	5'-6"	S6		
g4	16	5	5'-0"	STR.		
g5	14	4	23'-0"	STR.		
g6	4	4	18'-2"	STR.		
h1	16	5	19'-8"	17A		
k1	16	5	14'-10"	17A		
p1	10	6	7'-0"	STR.		
p2	14	4	15'-4"	STR.		
p6	4	4	16'-5"	STR.		
p7	4	4	17'-10"	STR.		
p8	4	4	19'-3"	STR.		
OUTLET APRON						
e2	20	4	7'-8"	S12		
u7	20	4	15'-4"	STR.		
u8	21	4	19'-5"	STR.		

SEE CUTTING DIAGRAM  
BEND IN FIELD AS NECESSARY TO FIT.  
NOTE: ALL DIMENSIONS ARE OUT TO OUT OF BARS.

ESTIMATED QUANTITIES			
ITEM	CLASS A45 CONCRETE, BOX CULVERT	REINFORCING STEEL	STRUCTURE EXCAVATION, BOX CULVERT
UNIT	CUYD	LB	CUYD
OUTLET	15.1	2,524	12.9
OUTLET APRON	7.1	580	18.6



OUTLET DETAILS (3 of 3)  
FOR  
2 - 10' x 8' CIP BOX CULVERT

STA. 10+00 0° SKEW  
OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
STR. NO. 42-050-207 BRO 8042(31)  
PCN 5552 HL-93

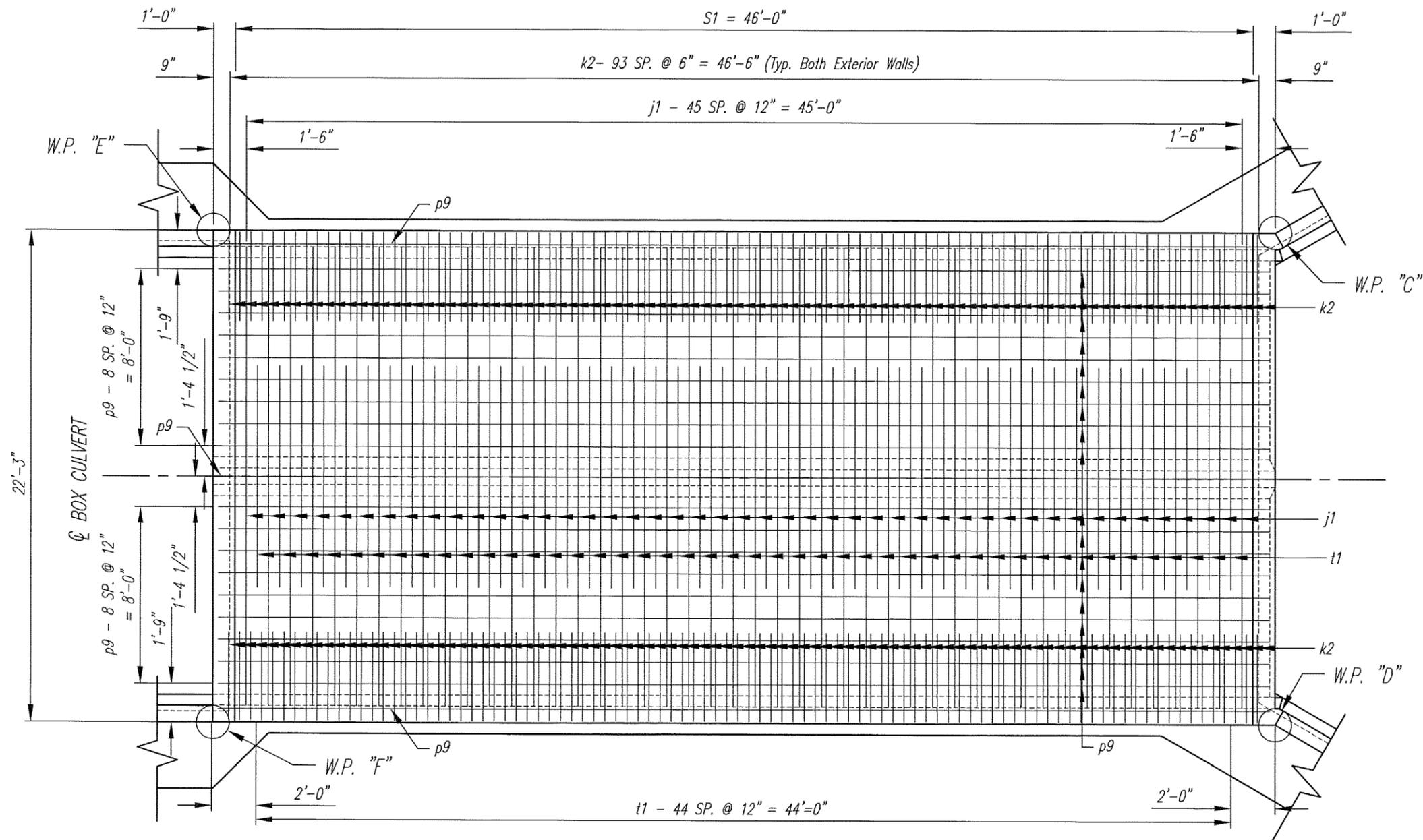
LINCOLN COUNTY  
S.D. DEPT. OF TRANSPORTATION  
JANUARY 2016

NOTE: USE THIS SHEET IN CONJUNCTION WITH SHEET 6 & 7.

DESIGNED BY VLV	DRAWN BY VLV	CHECKED BY KRG	APPROVED BRIDGE ENGINEER
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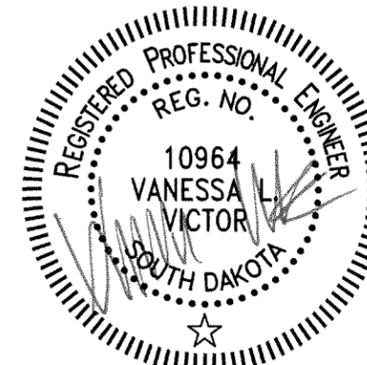
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	27	35



PLAN  
(TOP OF TOP SLAB)

NOTE: USE THIS SHEET IN CONJUNCTION WITH SHEET 10, 11, 12 & 13.



1-27-16  
PLANS BY: CLARK ENGINEERING, SIOUX FALLS, SD

S1 BARREL SECTION DETAILS (1 of 5)  
 FOR  
 2 - 10' x 8' CIP BOX CULVERT  
 STA. 10+00 0° SKEW  
 OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
 STR. NO. 42-050-207 BRO 8042(31)  
 PCN 5552 HL-93

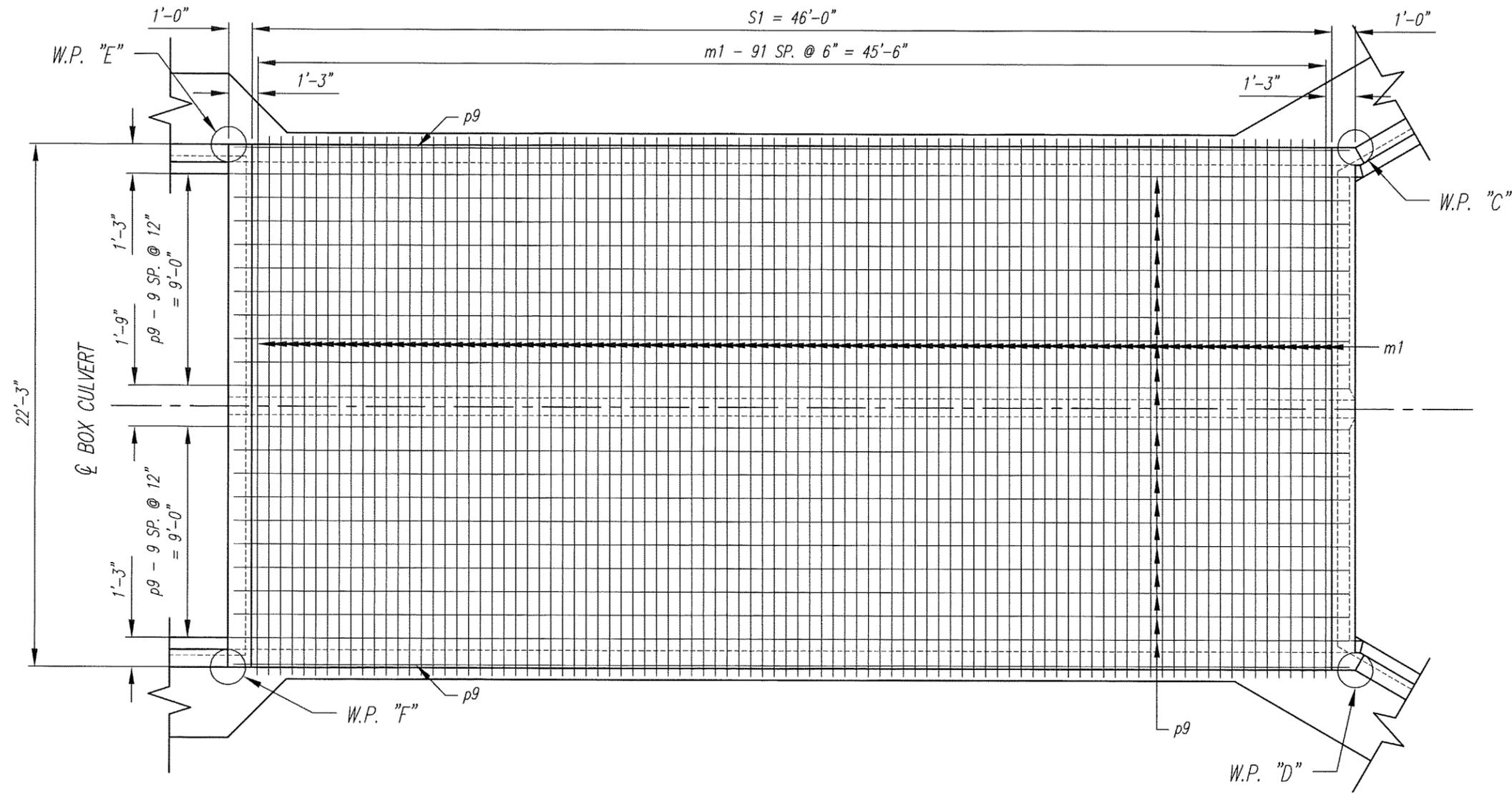
LINCOLN COUNTY  
 S.D. DEPT. OF TRANSPORTATION  
 JANUARY 2016

DESIGNED BY VLV	DRAWN BY VLV	CHECKED BY KRG	APPROVED BRIDGE ENGINEER
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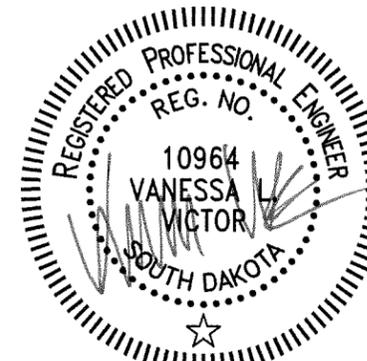
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	29	35



PLAN  
(TOP OF BOTTOM SLAB)

NOTE: USE THIS SHEET IN CONJUNCTION WITH SHEET 9, 10, 12 & 13.



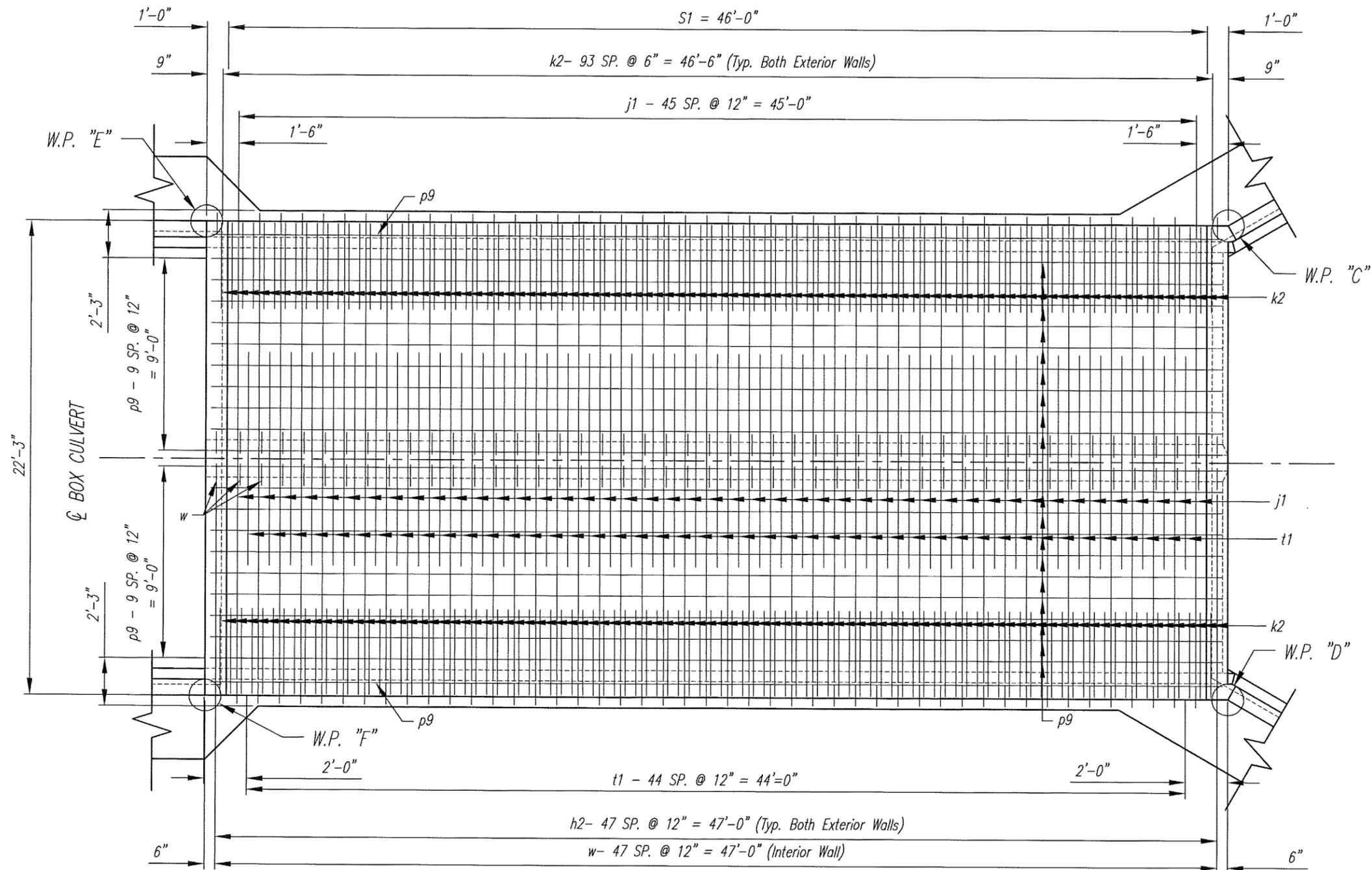
1-27-16  
PLANS BY: CLARK ENGINEERING, SIOUX FALLS, SD

S1 BARREL SECTION DETAILS (3 of 5)  
FOR  
2 - 10' x 8' CIP BOX CULVERT  
STA. 10+00 0° SKEW  
OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
STR. NO. 42-050-207 BRO 8042(31)  
PCN 5552 HL-93

LINCOLN COUNTY  
S.D. DEPT. OF TRANSPORTATION  
JANUARY 2016

DESIGNED BY VLV	DRAWN BY VLV	CHECKED BY KRG	APPROVED  BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY



PLAN  
(BOTTOM OF BOTTOM SLAB)

NOTE: USE THIS SHEET IN CONJUNCTION WITH SHEET 9, 10, 11 & 13.



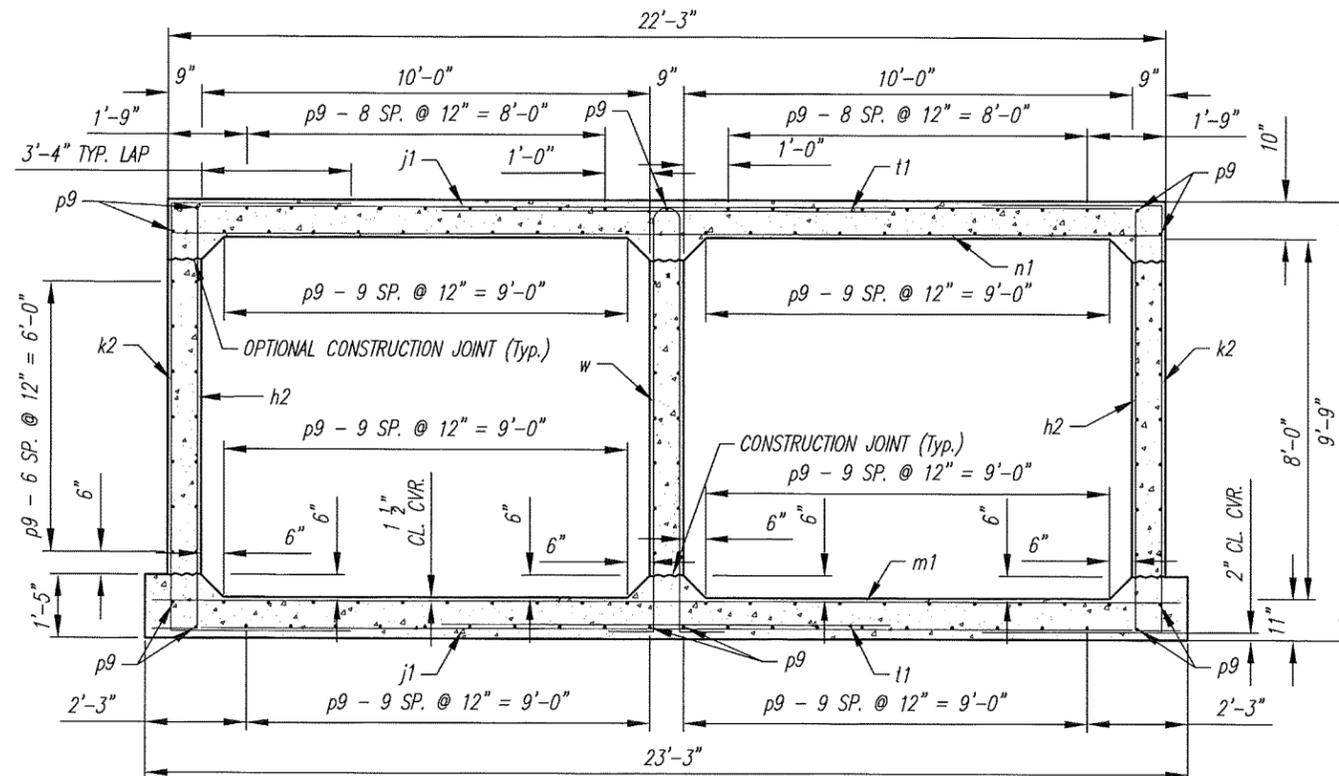
1-27-16  
PLANS BY: CLARK ENGINEERING, SIOUX FALLS, SD

S1 BARREL SECTION DETAILS (4 of 5)  
FOR  
2 - 10' x 8' CIP BOX CULVERT  
STA. 10+00 0° SKEW  
OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
STR. NO. 42-050-207 BRO 8042(31)  
PCN 5552 HL-93

LINCOLN COUNTY  
S.D. DEPT. OF TRANSPORTATION  
JANUARY 2016

DESIGNED BY VLV	DRAWN BY VLV	CHECKED BY KRG	APPROVED  BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

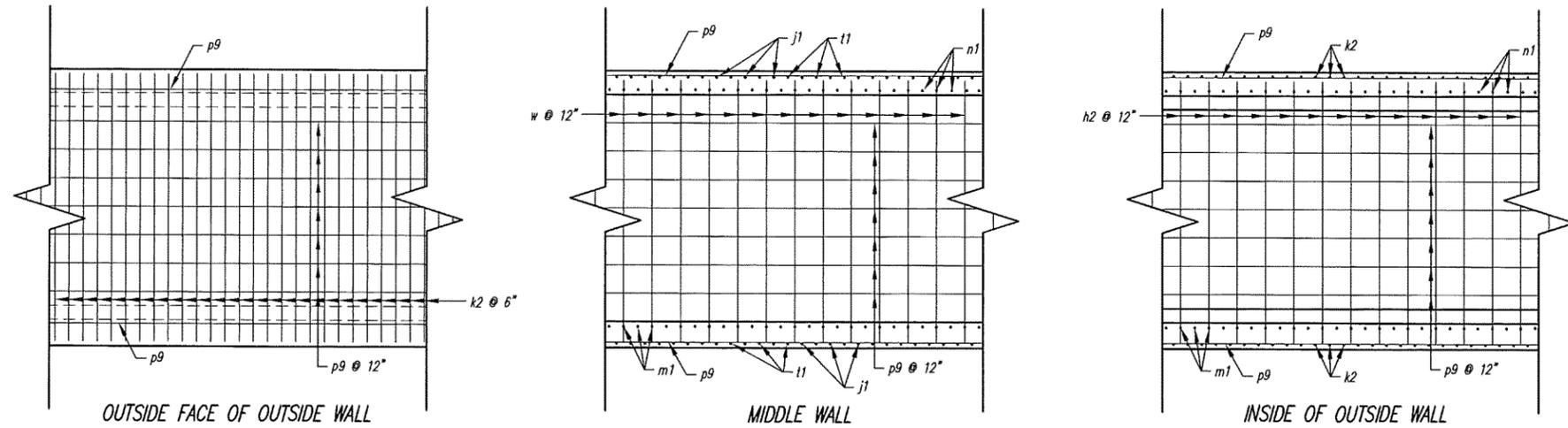


S1 BARREL SECTION  
(1' TO 5' FILL MAX)

REINFORCING SCHEDULE				
MK.	NO.	SIZE	LENGTH	TYPE
h2	96	4	10'-4"	17A
j1	92	7	20'-9"	STR.
k2	188	5	17'-6"	17
m1	92	6	22'-11"	STR.
n1	92	6	21'-11"	STR.
p9	129	4	47'-6"	STR.
t1	90	7	10'-0"	STR.
w	48	4	21'-2"	S11A

NOTES:  
 1. ALL DIMENSIONS ARE OUT TO OUT OF BARS.  
 2. REQUEST FOR ADDITIONAL REINFORCING STEEL SPLICES AT POINTS OTHER THAN THOSE SHOWN MUST BE SUBMITTED TO THE ENGINEER FOR PRIOR APPROVAL. NO PAYMENT WILL BE ALLOWED FOR THE ADDED QUANTITY OF REINFORCING STEEL.



ELEVATION

ESTIMATED QUANTITIES			
ITEM	CLASS A45 CONCRETE, BOX CULVERT	REINFORCING STEEL	STRUCTURE EXCAVATION, BOX CULVERT
UNIT	CUYD	LB	CUYD
S1 BARREL SEC. @ 46'-0"	107.0	20,803	79.3

NOTE: USE THIS SHEET IN CONJUNCTION WITH SHEET 9, 10, 11 & 12.



S1 BARREL SECTION DETAILS (5 of 5)  
FOR  
2 - 10' x 8' CIP BOX CULVERT

STA. 10+00 0° SKEW  
 OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
 STR. NO. 42-050-207 BRO 8042(31)  
 PCN 5552 HL-93

LINCOLN COUNTY  
 S.D. DEPT. OF TRANSPORTATION  
 JANUARY 2016

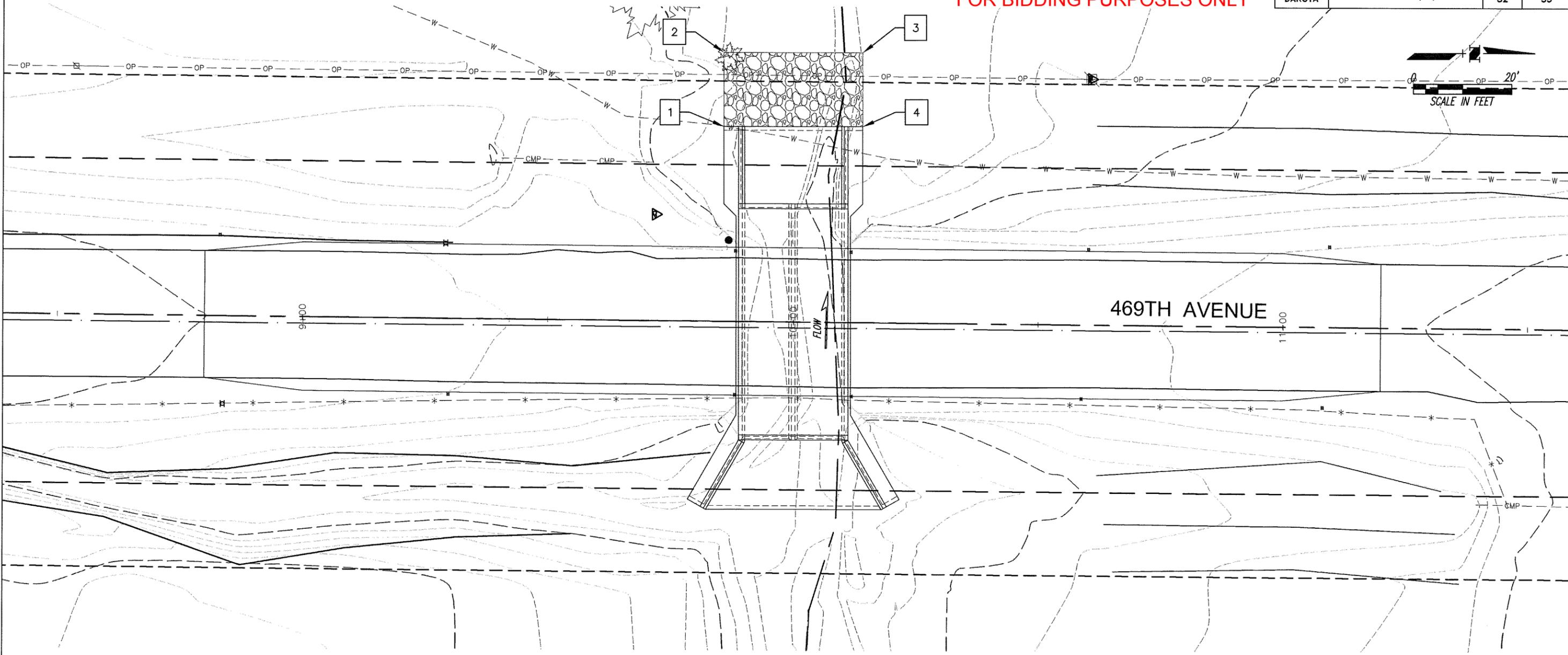
DESIGNED BY VLV	DRAWN BY VLV	CHECKED BY KRG	APPROVED  BRIDGE ENGINEER
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1-27-16  
 PLANS BY: CLARK ENGINEERING, SIOUX FALLS, SD

THE ELEVATIONS SHOWN ARE BASED UPON NAVD 88 DATUM

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8D42(31)	32	35

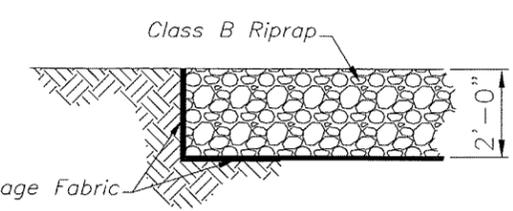


CLASS B RIPRAP SHALL BE QUARRIED LEDGE ROCK; FIELD STONE SHALL NOT BE USED.

	STATION	OFFSET	NORTHING (y)	EASTING (x)
1	9+86	40' LI	5029.01	4975.71
2	9+86	55' LI	5029.01	4960.71
3	10+14	55' LI	5057.26	4960.71
4	10+14	40' LI	5057.26	4975.71

ITEM	UNIT	QUANTITY
CLASS B RIPRAP	TON	44.0
TYPE B DRAINAGE FABRIC	SQYD	66

FOR ESTIMATING PURPOSES ONLY, A FACTOR OF 1.4 TONS/CUYD WAS USED TO CONVERT CUYDS TO TONS. THE ESTIMATE IS EQUIVALENT TO APPROXIMATELY 31.4 CUYDS.



DRAINAGE FABRIC DETAIL

RIPRAP DETAILS FOR 2 - 10' x 8' CIP BOX CULVERT

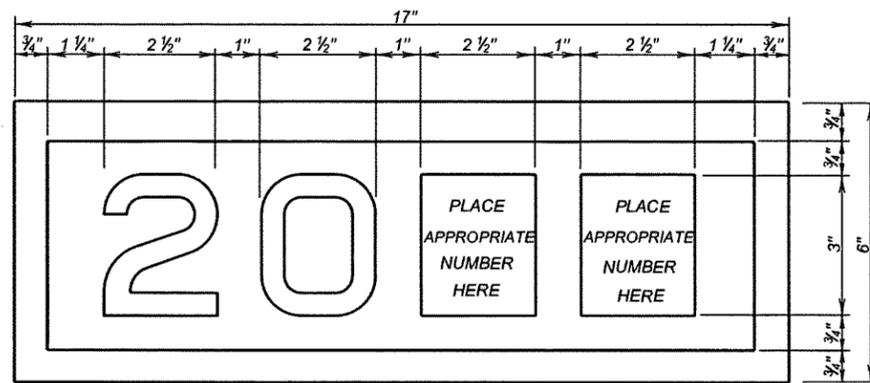
STA. 10+00 0° SKEW  
 OVER UNNAMED CREEK\* SEC. 23/24-T97N-R51W  
 STR. NO. 42-050-207 BRO 8042(31)  
 PCN 5552 HL-93



LINCOLN COUNTY  
 S.D. DEPT. OF TRANSPORTATION  
 JANUARY 2016

DESIGNED BY VLV	DRAWN BY VLV	CHECKED BY KRG	APPROVED  BRIDGE ENGINEER
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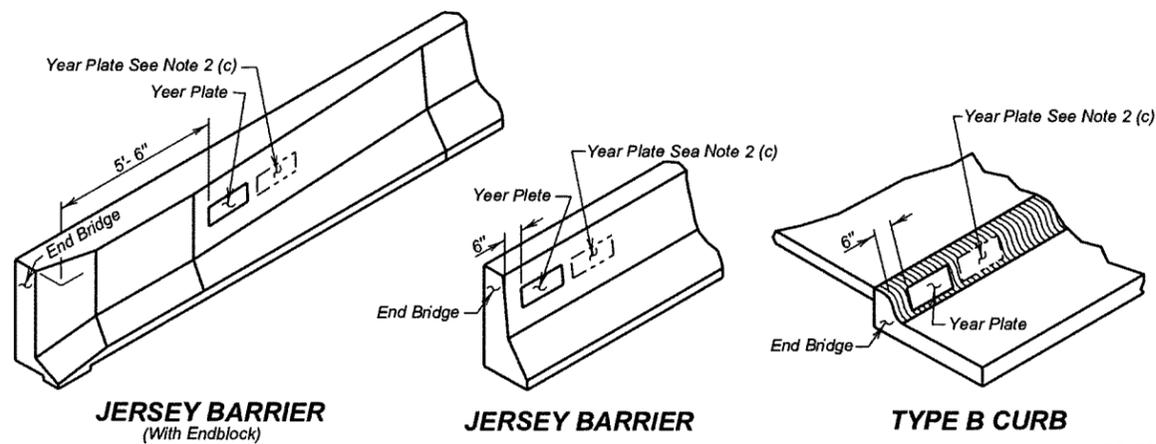
PLANS BY: CLARK ENGINEERING, SIOUX FALLS, SD



**YEAR PLATE DETAILS**

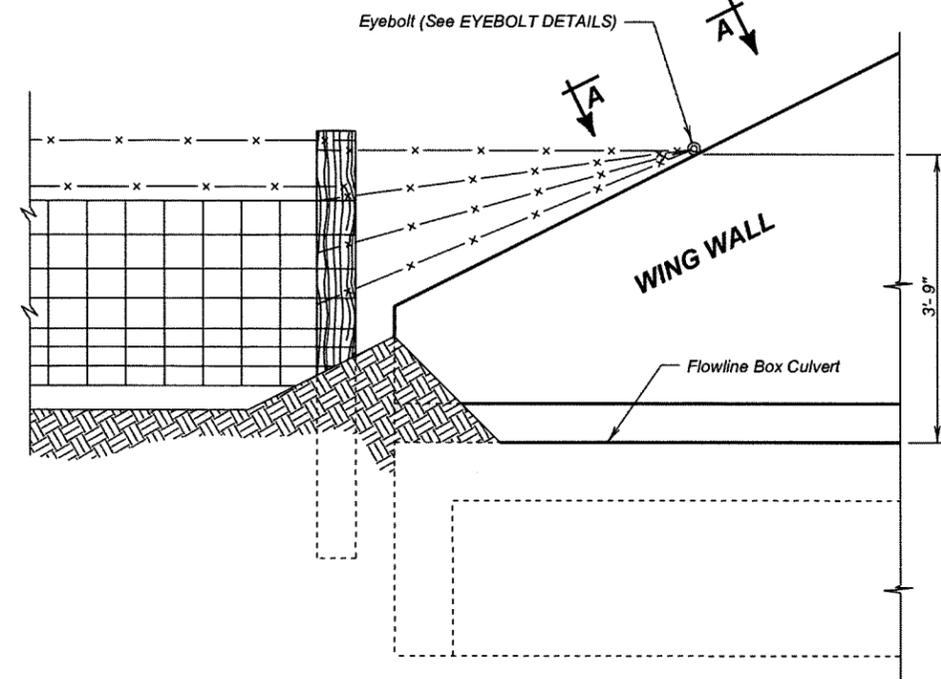
**GENERAL NOTES:**

- 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 (1/2) inch in depth.
- Year plates shall be located on structure (s) as follows:
  - On cast-in-place box culverts the year plates shall be four and one-half (4 1/2) 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.
  - 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.
  - 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.
- 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.



June 26, 2012

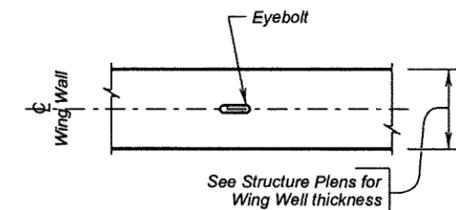
Published Date: 1st Qtr. 2016	S D D O T	YEAR PLATE DETAILS	PLATE NUMBER
			460.02
			Sheet 1 of 1



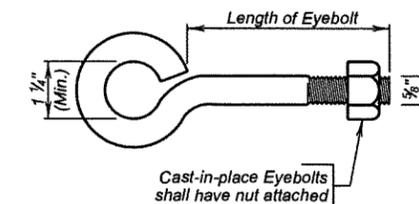
**DETAIL FOR FENCE ANCHORS**

**GENERAL NOTES:**

- The fence and post details shown are for illustrative purpose only. The fence shall be as specified elsewhere in the plans.
- Eyebolts shall be placed on all of the box culvert wing walls.
- Eyebolts shall be 5/8 inch diameter and shall conform to ASTM A307.
- Eyebolts, nuts, and concrete inserts shall be galvanized in accordance with AASHTO M232 (ASTM A153). Concrete inserts of corrosion resistant material need not be galvanized.
- Cast-in-place eyebolts shall have a nut attached, be 4 1/2 inches (Min.) in length and shall be embedded such that the eye of the bolt is flush with the concrete surface. (See Eyebolt Details) As an alternate, cast-in-place concrete inserts, capable of developing the full strength of the 5/8 inch diameter threaded eyebolt, may be used and shall be set in the concrete in accordance with the manufacturer's recommendations. The eyebolt shall be of sufficient length to develop its full strength. The eye of the eyebolt shall be flush with the concrete surface.
- The cost for furnishing and installing eyebolts and/or concrete inserts shall be incidental to various contract items.



**VIEW A - A**



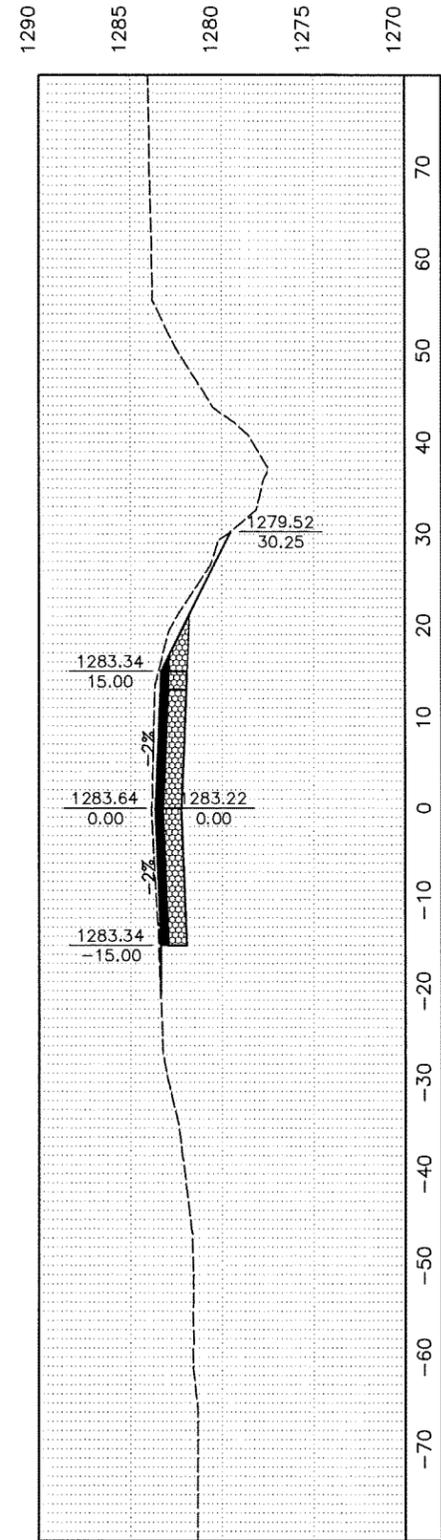
**EYEBOLT DETAILS**

December 23, 2012

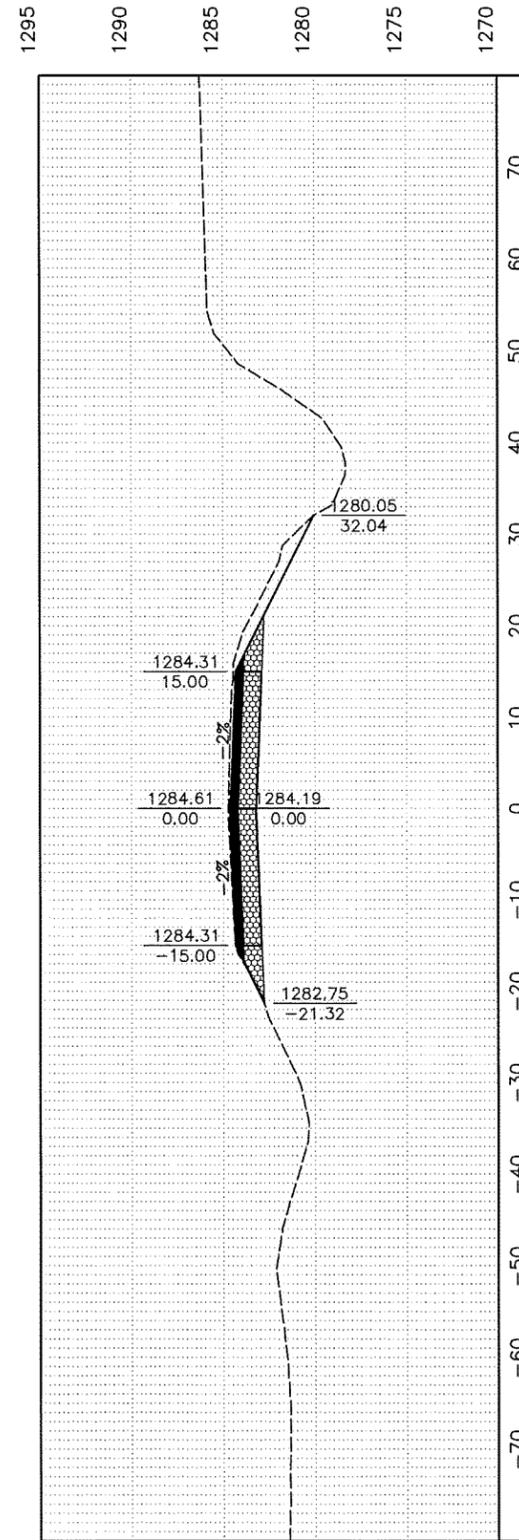
Published Date: 1st Qtr. 2016	S D D O T	FENCE ANCHORS FOR BOX CULVERT WING WALLS	PLATE NUMBER
			620.16
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

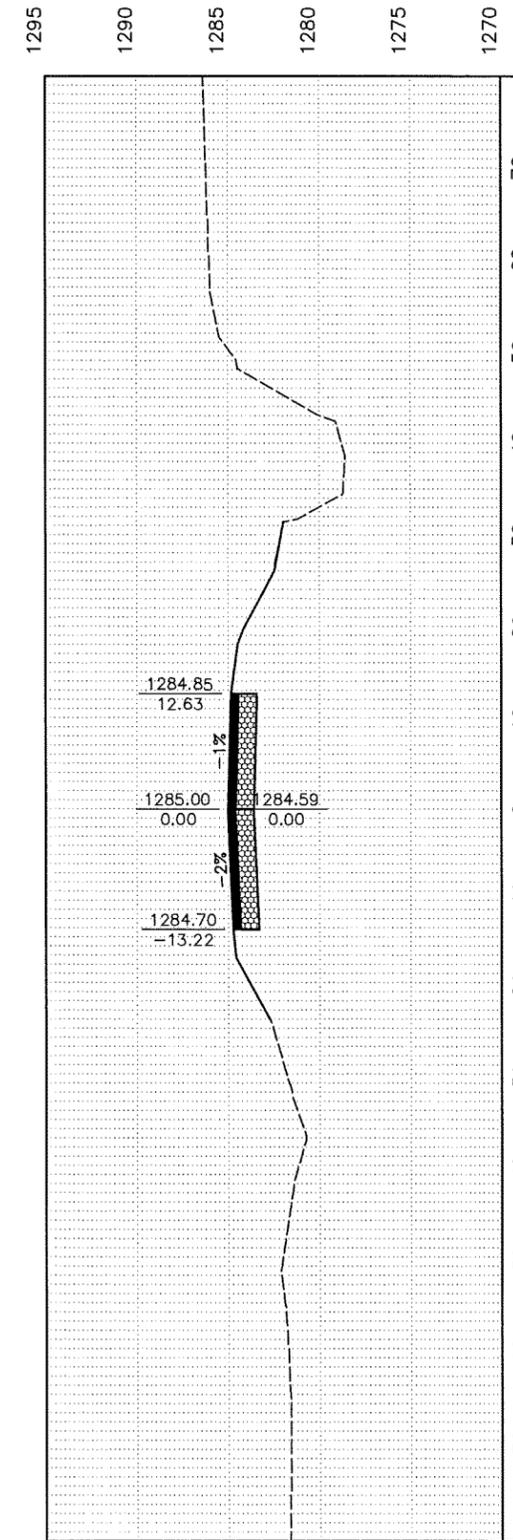
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	34	35



STA. 9+50.00



STA. 9+00.00



STA. 8+80.00

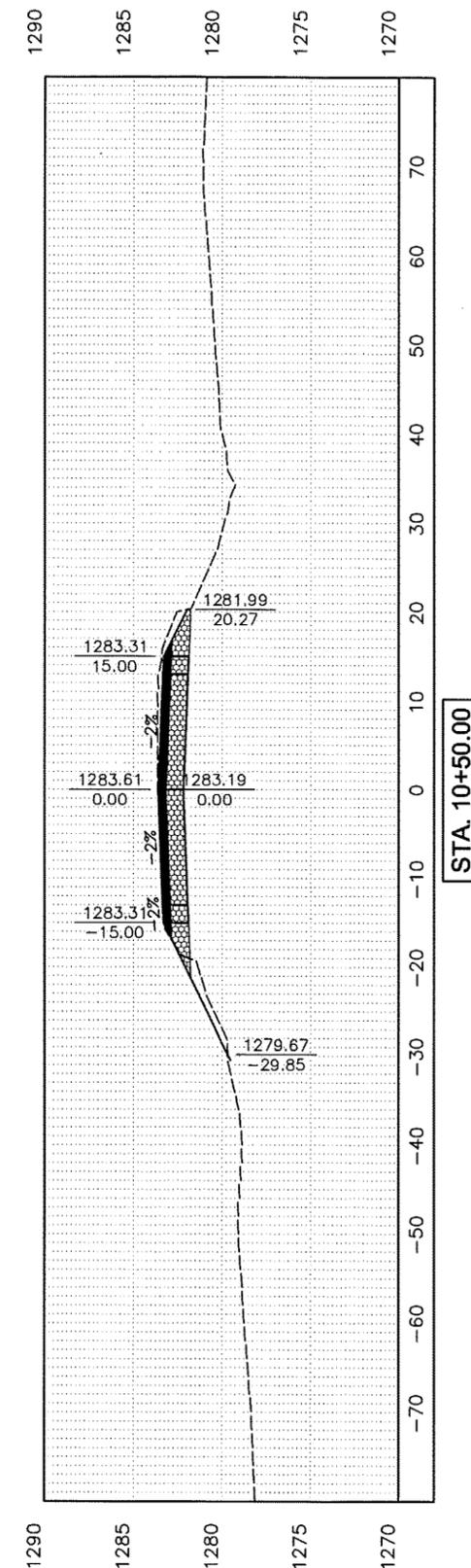
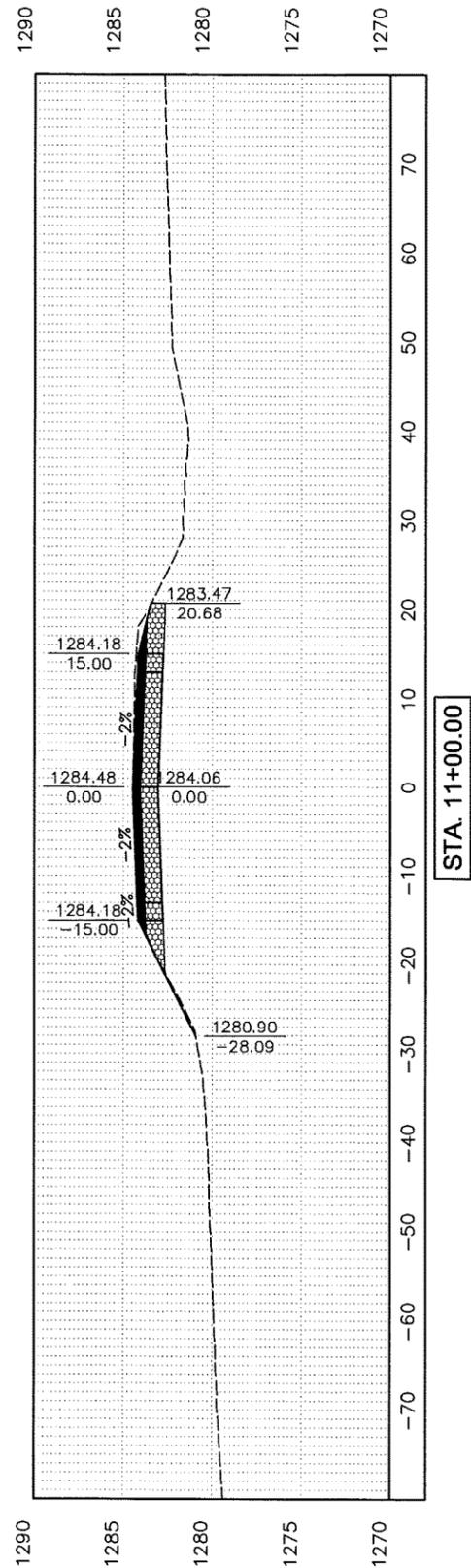
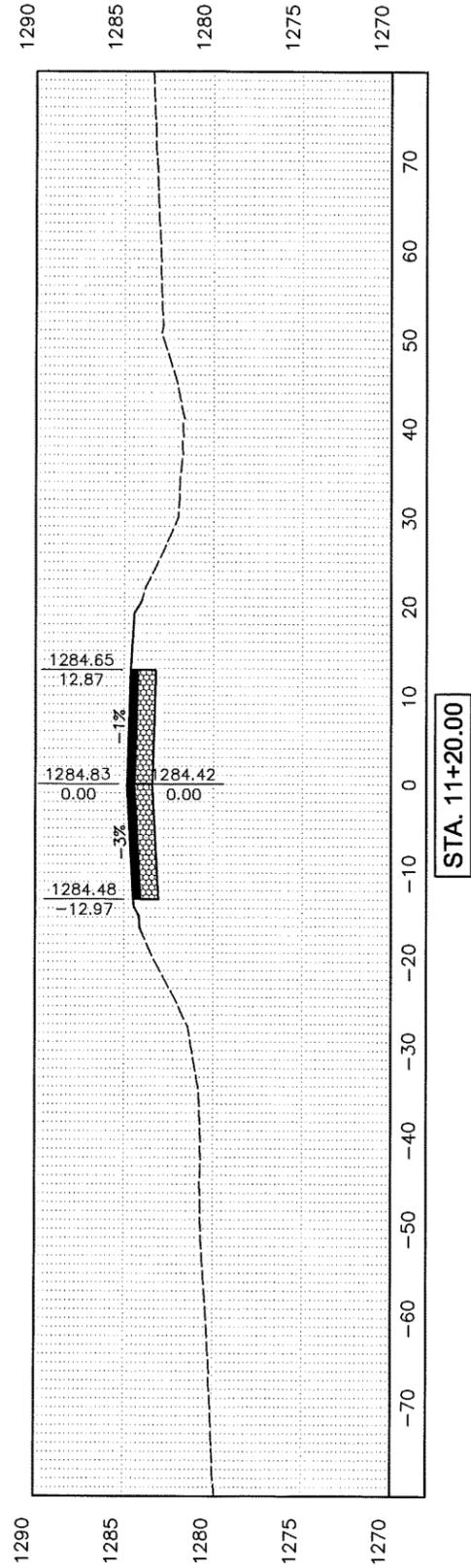
HORIZONTAL SCALE: 1"=20'  
VERTICAL SCALE: 1"=10'



1-27-16  
PLANS BY: CLARK ENGINEERING, SIOUX FALLS, SD

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO 8042(31)	35	35



HORIZONTAL SCALE: 1"=20'  
VERTICAL SCALE: 1"=10'

1-27-16  
PLANS BY: CLARK ENGINEERING, SIOUX FALLS, SD