

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8034(35)	1	31

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION

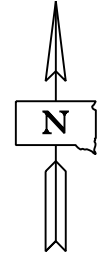
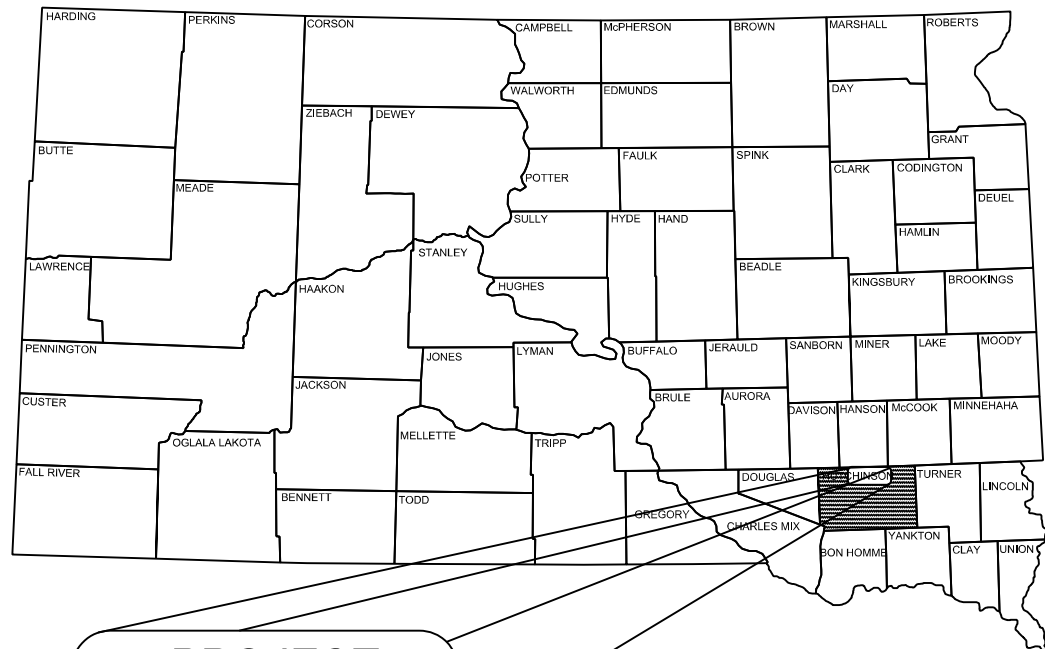
PLANS FOR PROPOSED  
**BRO-B 8034(35)**  
**HUTCHINSON COUNTY**

Structure Replacement and Approach Grading

Str. No. 34-173-057  
PCN 08MX

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**PROJECT**

1.3 miles North and 11.3 miles East of Parkston, SD on County Road 11 over Plum Creek

**BEGIN PROJECT BRO-B 8034(35)**

At Sta. 6+50  
1308.0' North and 3695.1' West of the SE Quarter of Sec. 01 - T99N - R59W

Str. No. 34-173-057

**END PROJECT BRO-B 8034(35)**

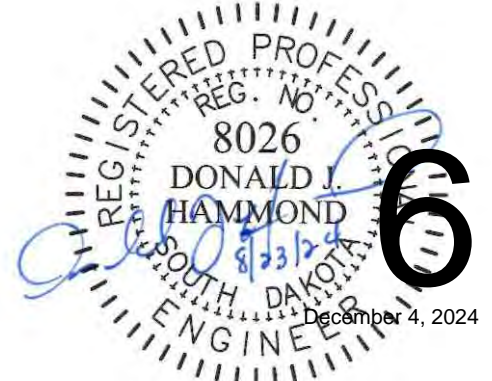
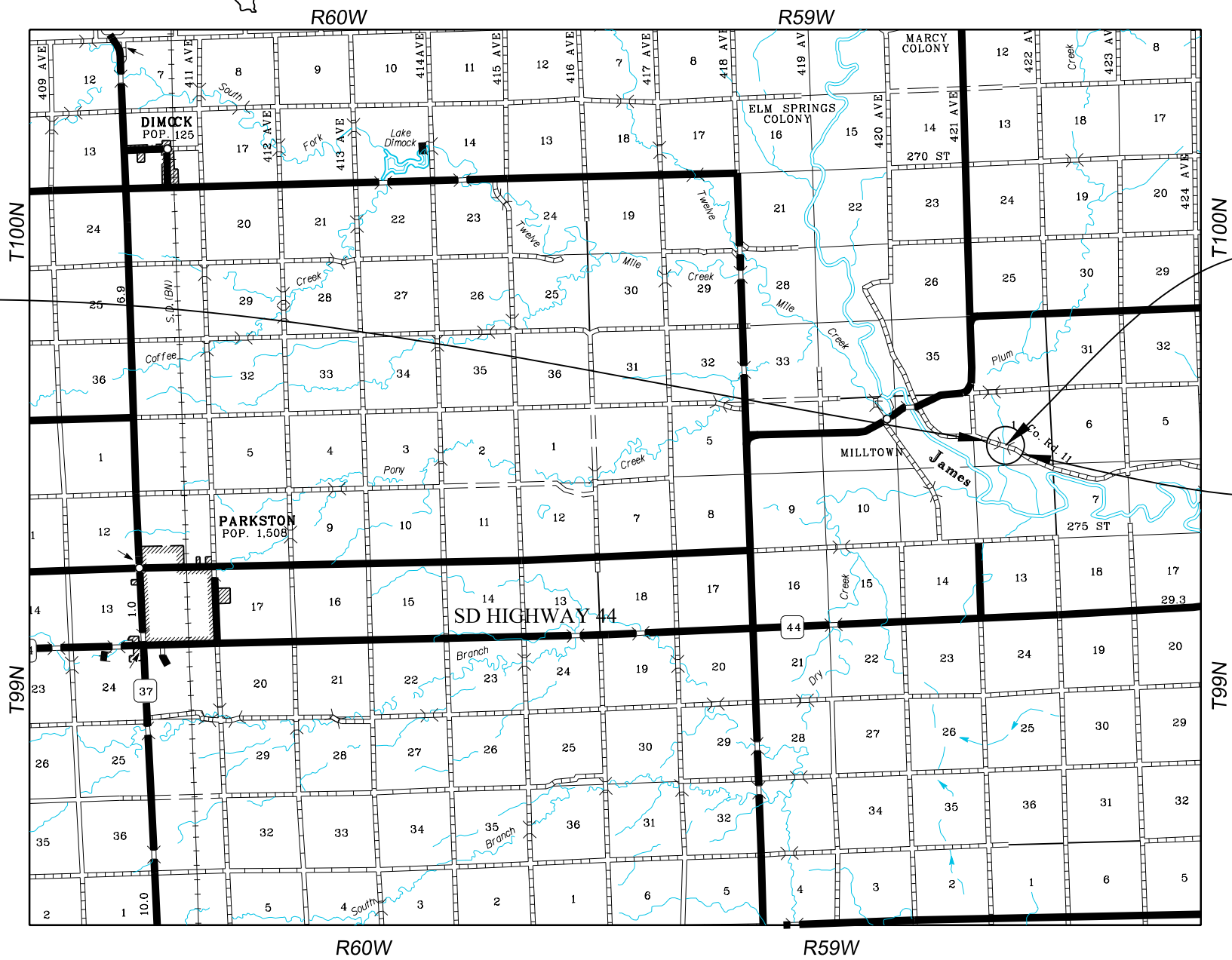
At Sta. 15+00  
1049.9' North and 2884.3' West of the SE Quarter of Sec. 01 - T99N - R59W

**DESIGN DESIGNATION**

ADT (2019)	69
ADT (2039)	110
DHV	17
d	50%
T DHV	3.5%
T ADT	7.7%
V	55 mph

**STORM WATER PERMIT DATA**

Major Receiving Body of Water: Plum Creek  
Area Disturbed: 1.76 Acres  
Total Project Area: 3.30 Acres  
Latitude: 43° 25' 05.59" N  
Longitude: -97° 46' 13.80" W



# ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

Revised 11-06-2024  
 FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8034(35)	2	31

## Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	0.152	Mile
009E3250	Miscellaneous Staking	0.152	Mile
009E3280	Slope Staking	0.152	Mile
009E3290	Structure Staking	1	Each
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
100E0100	Clearing	Lump Sum	LS
110E0135	Remove Delineator	14	Each
110E1690	Remove Sediment	1.0	CuYd
110E5020	Salvage Traffic Sign	2	Each
120E0010	Unclassified Excavation	3,326	CuYd
230E0010	Placing Topsoil	798	CuYd
634E0110	Traffic Control Signs	121.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	9	Each
730E0212	Type G Permanent Seed Mixture	46	Lb
732E0100	Mulching	6.0	Ton
734E0102	Type 2 Erosion Control Blanket	140	SqYd
734E0154	12" Diameter Erosion Control Wattle	440	Ft
734E0510	Shaping for Erosion Control Blanket	79	Ft
734E0602	Low Flow Silt Fence	500	Ft
734E0610	Mucking Silt Fence	35	CuYd
734E0620	Repair Silt Fence	125	Ft
734E0900	Temporary Diversion Channel for Fish Passage	1	Each

## Section E – Structure Structure No. 34-173-057

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0200	Structure Excavation, Box Culvert	85	CuYd
421E0200	Box Culvert Undercut	238	CuYd
464E0100	Controlled Density Fill	12.8	CuYd
560E0182	12'x5' Precast Concrete Box Culvert, Furnish	46.0	Ft
560E0183	12'x5' Precast Concrete Box Culvert, Install	46.0	Ft
560E1182	12'x5' Precast Concrete Box Culvert End Section, Furnish	2	Each
560E1183	12'x5' Precast Concrete Box Culvert End Section, Install	2	Each
560E2164	2-12'x5' Precast Concrete Box Culvert, Furnish	46.0	Ft
560E2165	2-12'x5' Precast Concrete Box Culvert, Install	46.0	Ft
560E3164	2-12'x5' Precast Concrete Box Culvert End Section, Furnish	2	Each
560E3165	2-12'x5' Precast Concrete Box Culvert End Section, Install	2	Each
700E0210	Class B Riprap	76.0	Ton
831E0110	Type B Drainage Fabric	98	SqYd
831E0300	Reinforcement Fabric (MSE)	344	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

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

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

## COMMITMENT A: AQUATIC RESOURCES

### COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.03 acre(s) of stream (includes temporary and permanent) becoming impacted. Refer to the plans for location and boundaries of the impacted streams.

### Table of Impacted Streams

Stream Name	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
Plum Creek	9+54 to 10+31	0.02	0.01	0.00	0.00	0.03

## Action Taken/Required:

It has been determined that project impacts do not require mitigation. Temporary impacts identified in the Table of Impacted Streams will not be mitigated as the finished ground under the bridge will be shaped to match the upstream channel and flood plain and the existing low water channel will be maintained as near as practical to the existing location as designated in the plans.

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

## COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

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

The SDDOT Environmental Office has identified the following as Topeka Shiner streams.

### Table of Topeka Shiner Streams

Station	Stream Name	Ordinary High-Water Elevation
9+54 to 10+31	Plum Creek	1203.8'

## Action Taken/Required:

The Contractor will 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 are to be taken in conjunction with normal storm water inspections but can also be taken at the Project Engineer's discretion during construction activities that may result in increased turbidity (e.g., placing riprap or installing a coffer dam).

Prior to the pre-construction meeting the Contractor will produce and provide the SDDOT Environmental Office a comprehensive Construction Plan that includes all products, materials, and methods of installation 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. Work will not proceed on any of the streams identified in the Table of Topeka Shiner Streams without approval of the Construction Plan by the SDDOT Environmental Office. Upon plan approval, the Construction Plan will be amended to the SWPPP.



**COMMITMENT B2: WHOOPING CRANE**

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

**Action Taken/Required:**

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

**COMMITMENT C: WATER SOURCE**

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

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

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

< [South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04](https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04) >

**COMMITMENT D: WATER QUALITY STANDARDS**

**COMMITMENT D1: SURFACE WATER QUALITY**

Plum Creek is classified as warm water, marginal fishery with a total suspended solids standard of less than 150 mg/L 30-day average, less than 263 mg/L daily maximum.

**Action Taken/Required:**

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

**COMMITMENT D2: SURFACE WATER DISCHARGE**

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

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

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

**Action Taken/Required:**

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

<[https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR\\_AddTemplInfoFillable.pdf](https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_AddTemplInfoFillable.pdf)>

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

Effluent monitoring, as a result of dewatering activities, will be summarized for each month and recorded on a separate Discharge Monitoring Report (DMR) and submitted to DANR monthly. Additional information can be found at:  
<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/swdpermitting/Ereporting.aspx>

**COMMITMENT E: STORM WATER**

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

**Action Taken/Required:**

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

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

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

The form can be found at:  
 <[https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR\\_CGPAappendixCCA2018Fillable.pdf](https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_CGPAappendixCCA2018Fillable.pdf)>

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

**Storm Water Pollution Prevention Plan**

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

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

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

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

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

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

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

**COMMITMENT H: WASTE DISPOSAL SITE**

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

**Action Taken/Required:**

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

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

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

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

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

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

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

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

**COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES**

The SDDOT has obtained concurrence with the State Historic Preservation Office for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

**Action Taken/Required:**

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

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

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

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 150 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

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

**COMMITMENT N: SECTION 404 PERMIT**

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

**Action Taken/Required:**

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

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

**HUTCHINSON COUNTY REQUIREMENTS**

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

- 1) Right of way acquisition.
- 2) Temporary and permanent easements.
- 3) Coordination of any utility adjustments.
- 4) Furnish and install final surfacing.
- 5) Furnish and install permanent signing.
- 6) Furnish and install temporary and/or permanent fencing.
- 7) Remove silt fence in permanently seeded areas.
- 8) Environmental mitigation.

**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 17 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

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 section will be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer will contact the Designer for the proposed change.

Generally, all shallow inlet and outlet ditches as noted on the plan sheets will 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.

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

**CLEARING**

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



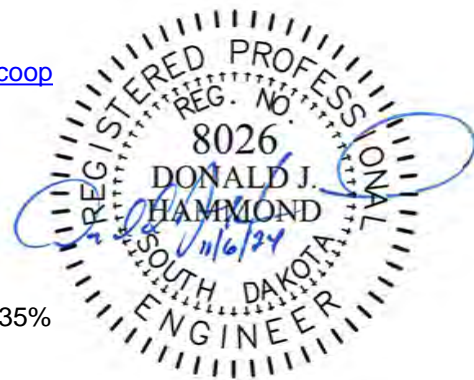
**UTILITIES**

The Contractor will 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 will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided below:

Southeastern Electric Cooperative, Inc  
 47077 276<sup>th</sup> St.  
 Lennox, SD 57039  
 Bob Kalda, Line Superintendent - 605-360-5856

Santel Communications  
 PO Box 67  
 Woonsocket, SD 57385  
 Brayden Leischner – [bleischner@santel.coop](mailto:bleischner@santel.coop)

B-Y Water District  
 PO Box 248  
 Tabor, SD 57063  
 Terry Wootton – [byh2o@hcinet.net](mailto:byh2o@hcinet.net)



**SHRINKAGE FACTOR:** Embankment +35%

**UNCLASSIFIED EXCAVATION**

All excavation that must be performed to construct the new grade in conformance with the cross sections and plan details will be included in the contract unit price per cubic yards for “Unclassified Excavation.” The plans quantity for “Unclassified Excavation” as shown in the Estimate of Quantities will be the basis of payment for this item without further field measurement. If changes are necessary on construction, the altered quantities will be measured for payment.

**TABLE OF UNCLASSIFIED EXCAVATION**

	(CuYd)
Excavation	1737
Topsoil	798
Exc. for RCBC Installation	791
<b>Total</b>	<b>3326</b>

**REMOVE DELINEATOR**

Existing signs that are shown as being removed in the Table of Remove Delineator will become the property of the Contractor. Existing signposts and bases will be removed in their entirety. All existing signs, posts, and/or hardware removed will not be reused. Holes remaining from the removal of wood posts will be backfilled and compacted with material placed in layers not to exceed 6 inches in depth.

All costs associated with the removal of existing signs, posts, hardware, and backfilled holes will be incidental to the contract unit price per each for “Remove Delineator”. Quantities will be per assembly at the contract unit price per each. At locations shown in the Table of Remove Delineator, where Object Markers will be removed, cost for removing the existing Object Markers will be included in the contract unit price per each for “Remove Delineator”.

**TABLE OF REMOVE DELINEATOR**

Station	L/R	Remarks:
7+75 to 12+25	L&R	Remove all delineators within project area.
9+72	L&R	Remove 2 Type 3 Object Markers
10+25	L&R	Remove 2 Type 3 Object Markers

**SALVAGE TRAFFIC SIGN**

All signs listed for salvage in the Table of Salvage Traffic Sign will have the existing posts, bases, and signs dismantled and stockpiled on site. The Contractor will coordinate with the County for pickup by Hutchinson County Highway Department. All bolts, nuts, and washers will be placed in individual 5-gallon pails. All signs listed for salvage will be handled with care so that the signs are not damaged during removal. The Contractor will replace and pay for any salvaged signs damaged in their care.

All costs for labor and equipment necessary to remove and dismantle signs will be incidental to the contract unit price per each for Salvage Traffic Sign. The quantity of signs to be salvaged is shown in the Table of Salvage Traffic Sign. The plans quantity is shown as per assembly. Payment for salvaging signs will be paid per assembly at the contract unit price per each for “Salvage Traffic Sign”.

**TABLE OF SALVAGE TRAFFIC SIGNS**

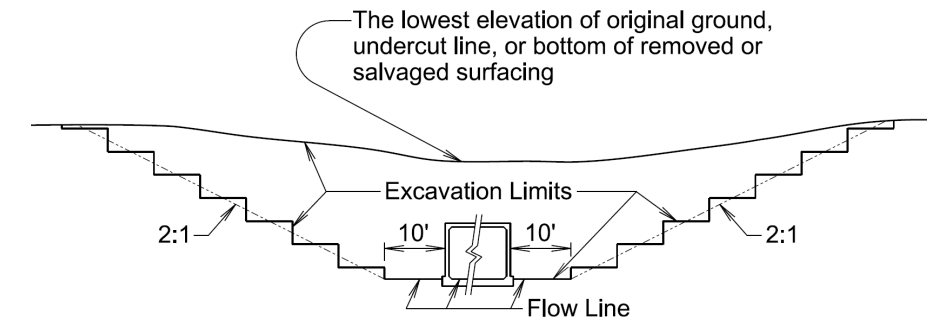
Station	L/R	Remarks:
8+78	R	Remove and Salvage Load Limit Sign
11+08	L	Remove and Salvage Load Limit Sign

**EXCAVATION FOR REINFORCED CONCRETE BOX CULVERT INSTALLATION**

Included in the quantity of “Unclassified Excavation” are 791 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 will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”. Payment for excavation of reinforced concrete box culverts will be based only on plans quantity and measurement of these excavation quantities during construction will 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.



**PLACING TOPSOIL**

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements. The topsoil thickness for the option borrow pits will be as stated on the option borrow pit sheets.

The estimated amount of topsoil to be placed is as follows:

Station	to	Station	Topsoil (CuYd)
6+75		14+75	798
<b>Total:</b>			<b>798</b>

**MYCORRHIZAL INOCULUM**

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species claimed and the live propagule count. The inoculum will include a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

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

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

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 <a href="http://www.mycorrhizae.com">www.mycorrhizae.com</a>
AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 <a href="http://www.reforest.com">www.reforest.com</a>
LALRISE Prime and Max WP	Lallemand Specialties Inc. Milwaukee, WI Phone: 1-844-590-7781 <a href="http://www.lallemandplantcare.com">www.lallemandplantcare.com</a>

**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 G Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Indiangrass	Holt, Tomahawk, Chief, Nebraska 54	3
Big Bluestem	Bison, Bonilla, Champ, Sunnyview, Rountree, Bonanza	3
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
Total:		26

**MULCHING (GRASS HAY OR STRAW)**

An additional 2 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction.

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

**TABLE OF CONSTRUCTION STAKING**

(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking			Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Structure Staking Quantity (Each)	
					Length (Mile)	Lane Factor	*Sets of Stakes				
County Road 11 (2 Lanes Gravel Road)	6+75	14+75	2	800	0.152	1	1	0.152	0.152		
County Road (Precast RCBC)	9+83.60	10+16.40								1	
Totals:								0.152	0.152	0.152	1

\* 1 = Blue Top Stakes Only (Subgrade for Gravel Surface)  
 2 = Blue Top and Paving Hub Stakes (PCC Pavement)

\*\* Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)

**TABLE OF MULCHING (GRASS HAY OR STRAW)**

Station	Location	Quantity (Ton)
6+50 to 9+85 L/R	Inslope/Backslope/Ditch	2
10+20 to 15+00 L/R	Inslope/Backslope/Ditch	2
Additional Quantity:		2
Total:		6

**EROSION CONTROL WATTLE**

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

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

Erosion control wattles will remain on the project to decompose.

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

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

An additional quantity 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 wetland areas adjacent to the highway.

**TABLE OF EROSION CONTROL WATTLE**

Station	Location	Diameter (Inch)	Quantity (Ft)
8+25 L & R	Ditch Bottom	12	40
9+50 L & R	Ditch Bottom	12	40
10+25 L & R	Ditch Bottom	12	40
10+75 L & R	Ditch Bottom	12	40
11+50 L & R	Ditch Bottom	12	40
12+50 L & R	Ditch Bottom	12	40
13+00 L & R	Ditch Bottom	12	40
13+50 L & R	Ditch Bottom	12	40
14+00 L	Ditch Bottom	12	20
Additional Quantity:		12	100
Total:			440

**LOW FLOW SILT FENCE**

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

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

Low flow silt fence will be placed at the locations noted in the table and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.04 for details.

An additional quantity of low flow silt fence has been added to the Estimate of Quantities for temporary sediment control.



**TABLE OF LOW FLOW SILT FENCE**

Station	Location	Quantity (Ft)
8+00 to 9+15 L	Perimeter of Storage	220
8+35 to 9+35 R	Perimeter of Storage	180
	Additional Quantity:	100
	Total:	500

**EROSION CONTROL BLANKET**

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

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

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

**TABLE OF EROSION CONTROL BLANKET**

Station	Location	Type	Quantity (SqYd)
13+00 to 13+75 L	Ditch Bottom	2	140
	Total Type 2 Erosion Control Blanket:		140

**SHAPING FOR EROSION CONTROL BLANKET**

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

**TABLE OF TEMPORARY DIVERSION CHANNEL FOR FISH PASSAGE**

The Contractor will construct a temporary diversion channel in accordance with standard plate 734.30 at the location(s) listed in the following table:

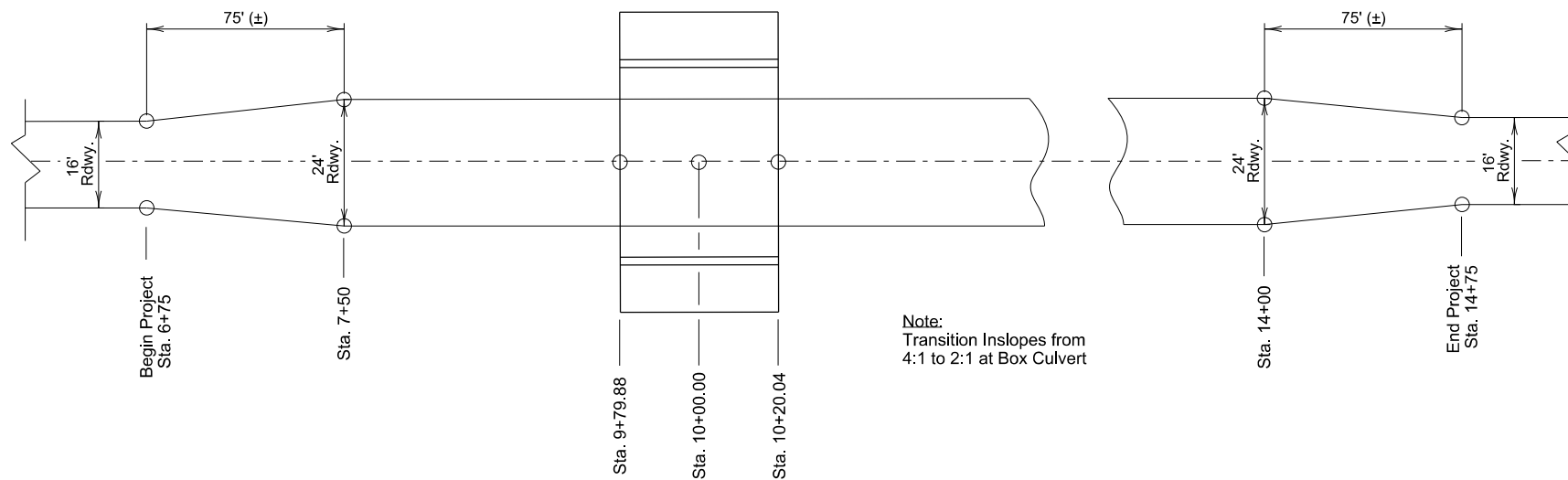
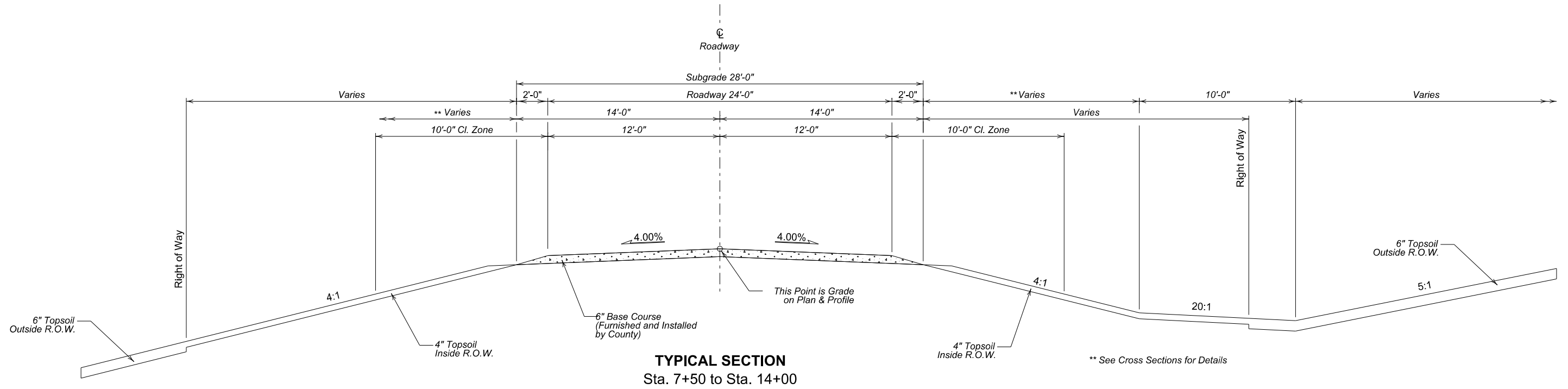
Station	Quantity (Each)
9+60	1
Total:	1



# TYPICAL SECTIONS AND CONTROL DATA

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8034(35)	8	31



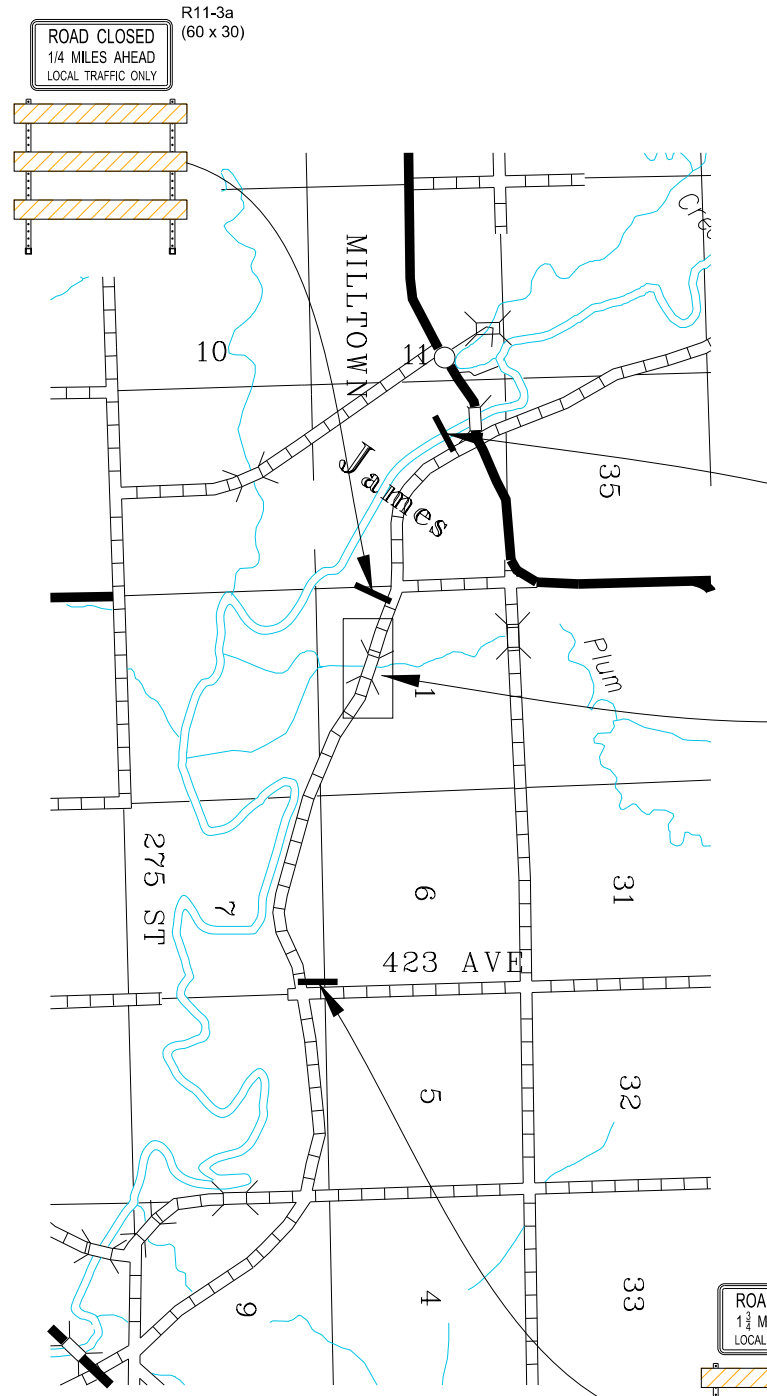
HORIZONTAL ALIGNMENT (ROADWAY)					
Element	Curve Data	Station	Northing	Easting	Tangent Direction
POB		-2+23.00	406279.93	406279.93	S 72°33'17" E
PC		14+71.38	405771.97	2649709.50	
PI		16+10.58	405730.24	2649841.84	
POE		17+48.00	405653.82	2649958.20	S 56°42'20" E
	Delta=15°50'57"R				
	DOC=5°43'46"				
	R=1000.00'				
	L=276.62'				
	T=139.20'				

CONTROL POINTS						
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION	DESC.
CP1	10+63.23	42.49' Rt.	405853.820	2649306.940	1203.41	REBAR
CP2	9+53.76	31.33' Lt.	405957.030	2649224.630	1203.24	REBAR

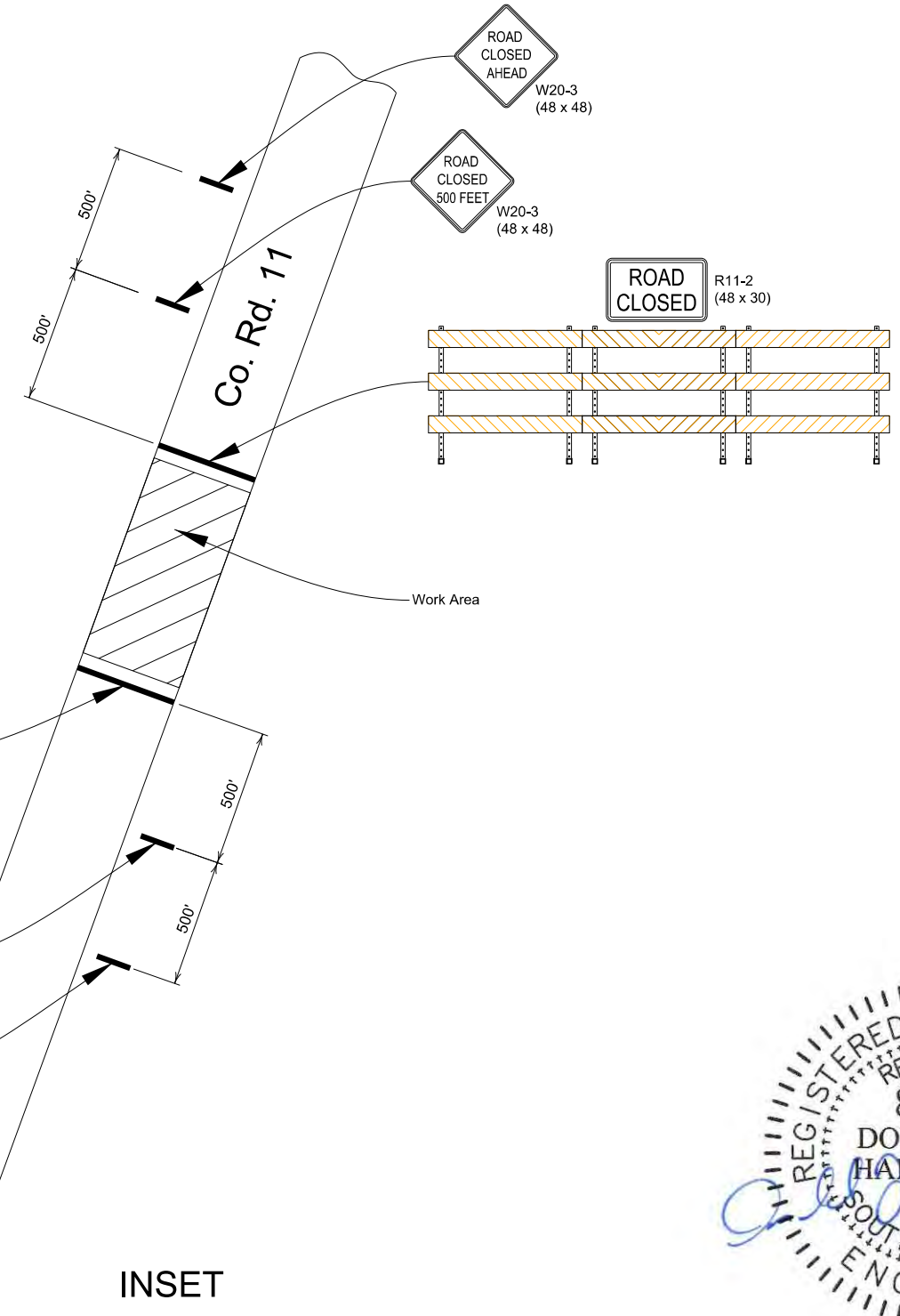
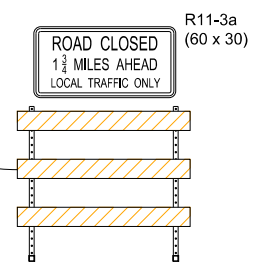
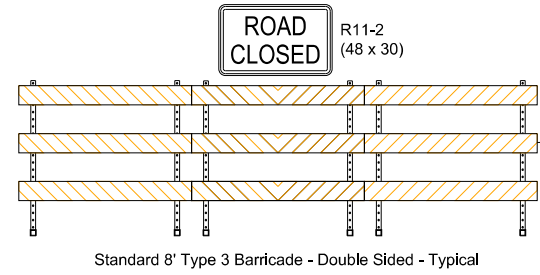
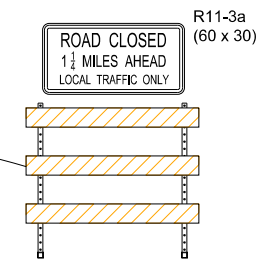
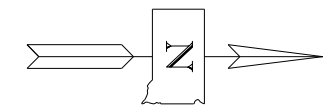


FOR BIDDING PURPOSES ONLY

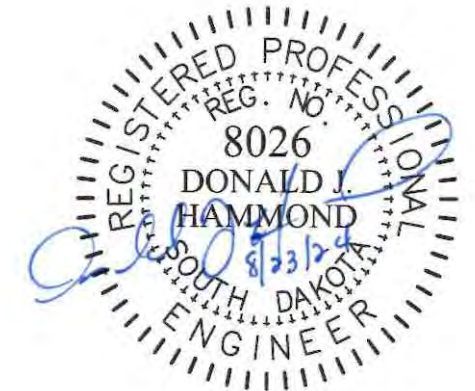
### TRAFFIC CONTROL DETAILS



AREA MAP



INSET



### ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

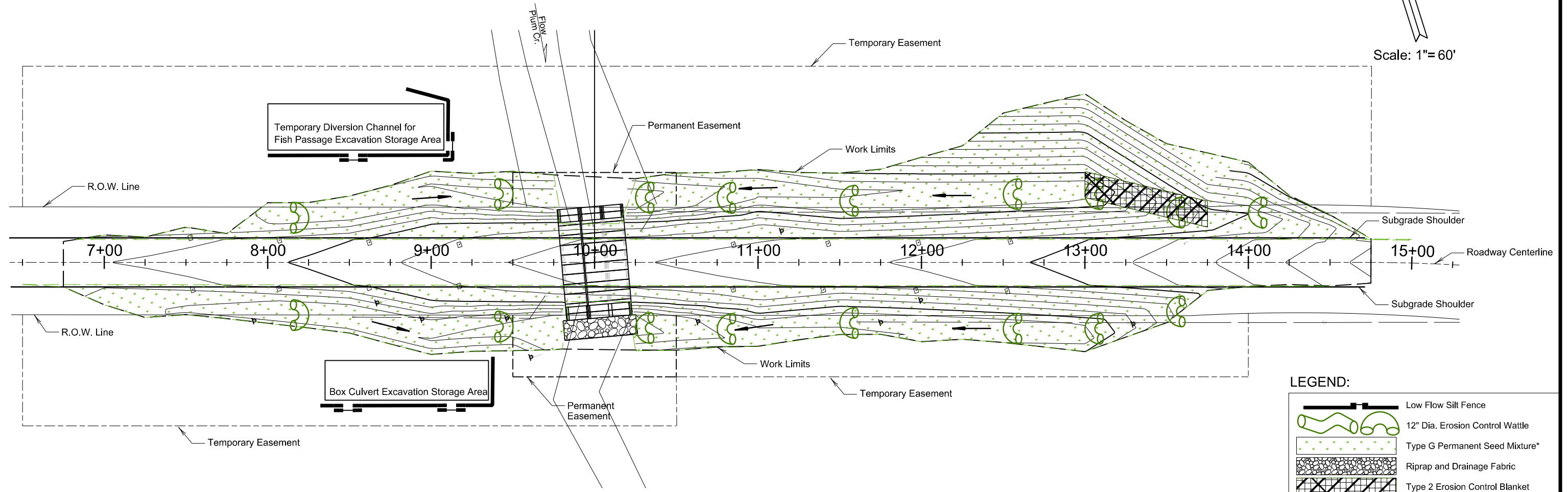
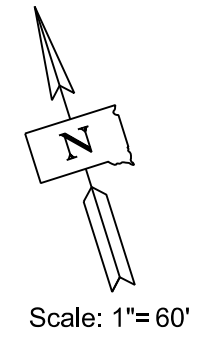
SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R11-2	ROAD CLOSED	2	48" x 30"	10.0	20.0
R11-3a	ROAD CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY	3	60" x 30"	12.5	37.5
W20-3	ROAD CLOSED AHEAD	4	48" x 48"	16.0	64.0
<b>CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT</b>					<b>121.5</b>

# EROSION AND SEDIMENT CONTROL DETAILS

FOR BIDDING PURPOSES ONLY

REVISED  
11-06-2024

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8034(35)	10	31



**LEGEND:**

	Low Flow Silt Fence
	12" Dia. Erosion Control Wattle
	Type G Permanent Seed Mixture*
	Riprap and Drainage Fabric
	Type 2 Erosion Control Blanket

\*Note: Any additional areas disturbed within the Temporary Easements will also be seeded.

**Table of Erosion Control Wattles**

Station	L/R	Dia (In.)	Location	Quantity (Ft.)
8+25	L&R	12	Ditch Bottom	40
9+50	L&R	12	Ditch Bottom	40
10+25	L&R	12	Ditch Bottom	40
10+75	L&R	12	Ditch Bottom	40
11+50	L&R	12	Ditch Bottom	40
12+50	L&R	12	Ditch Bottom	40
13+00	L&R	12	Ditch Bottom	40
13+50	L&R	12	Ditch Bottom	40
14+00	L	12	Ditch Bottom	20
Additional Quantity: Engineer's Discretion				100
<b>Total:</b>				<b>440</b>

**Table of Low Flow Silt Fence**

Station	L/R	Location	Quantity (Ft.)
8+00 to 9+15	L	Perimeter of Storage	220
8+35 to 9+35	R	Perimeter of Storage	180
Additional Quantity: Engineer's Discretion			100
<b>Total:</b>			<b>500</b>

**Table of Type 2 Erosion Control Blanket**

Station	L/R	Location	Quantity (Sq.Yd.)
13+00 to 13+75	L	Ditch Bottom	140
<b>Total:</b>			<b>140</b>



**STORMWATER POLLUTION PREVENTION PLAN CHECKLIST**

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

**5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION**

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

**5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES**

- **5.3 (3a): Project Limits** (See Title Sheet)
- **5.3 (3a): Project Description** (See Title Sheet)
- **5.3 (4): Site Map(s)** (See Title Sheet and Plans)
- **Major Soil Disturbing Activities** (check all that apply)
  - Clearing and grubbing
  - Excavation/borrow
  - Grading and shaping
  - Filling
  - Other (describe):
- **5.3 (3b): Total Project Area** 3.69 Acres
- **5.3 (3b): Total Area to be Disturbed** 1.76 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 1.76 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 100%
- **5.3 (3d): Description of Vegetative Cover** Grass
  
- **5.3 (3e): Soil Properties:** AASHTO Soil Classification  
Bon Loam, channeled, 0 to 2 percent slopes, frequently flooded.  
Davis Loam, 2 to 6 percent slopes.
- **5.3 (3f): Name of Receiving Water Body/Bodies** Plum Creek
- **5.3 (3g): Location of Construction Support Activity Areas** NE or SW within Temporary Easement Areas

**5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES**

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install perimeter protection where runoff may exit site.	
Install perimeter protection around stockpiles.	
Remove and stockpile topsoil.	
Stabilize disturbed areas.	
Final grading.	
Install ditch bottom protection.	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

**5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES**

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

**FOR BIDDING PURPOSES ONLY**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8034(35)	11	31

**Perimeter Controls (See Detail Plan Sheets)**

Description	Estimated Start Date
<input type="checkbox"/> Natural Buffers (within 50 ft of Waters of State)	
<input checked="" type="checkbox"/> Silt Fence	
<input checked="" type="checkbox"/> Erosion Control Wattles	
<input type="checkbox"/> Temporary Berm / Windrow	
<input type="checkbox"/> Floating Silt Curtain	
<input type="checkbox"/> Stabilized Construction Entrances	
<input type="checkbox"/> Entrance/Exit Equipment Tire Wash	
<input type="checkbox"/> Other:	

**Structural Erosion and Sediment Controls**

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

**Dust Controls**

Description	Estimated Start Date
<input type="checkbox"/> Tarps & Wind impervious fabrics	
<input type="checkbox"/> Watering	
<input type="checkbox"/> Stockpile location/orientation	
<input type="checkbox"/> Dust Control Chlorides	
<input type="checkbox"/> Other	

**Dewatering BMPs**

Description	Estimated Start Date
<input type="checkbox"/> Sediment Basins	
<input type="checkbox"/> Dewatering bags	
<input type="checkbox"/> Weir tanks	
<input type="checkbox"/> Temporary Diversion Channel	
<input type="checkbox"/> Other:	

**Stabilization Practices (See Detail Plan Sheets)**

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

Description	Estimated Start Date
<input type="checkbox"/> Vegetation Buffer Strips	
<input type="checkbox"/> Temporary Seeding (Cover Crop Seeding)	
<input checked="" type="checkbox"/> Permanent Seeding	
<input type="checkbox"/> Sodding	
<input type="checkbox"/> Planting (Woody Vegetation for Soil Stabilization)	
<input checked="" type="checkbox"/> Mulching (Grass Hay or Straw)	
<input type="checkbox"/> Fiber Mulching (Wood Fiber Mulch)	
<input type="checkbox"/> Soil Stabilizer	
<input type="checkbox"/> Bonded Fiber Matrix	
<input type="checkbox"/> Fiber Reinforced Matrix	
<input checked="" type="checkbox"/> Erosion Control Blankets	
<input type="checkbox"/> Surface Roughening (e.g. tracking)	
<input type="checkbox"/> 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.

**5.3 (6): PROCEDURES FOR INSPECTIONS**

- Inspections will be conducted at least once every 7 days.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches 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 Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

**5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT**

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

**5.3 (8): POLLUTION PREVENTION PROCEDURES**

**5.3 (8a): Spill Prevention and Response Procedures**

➤ **Material Management**

- Housekeeping
  - Only needed products will be stored on-site by the Contractor.
  - Except for bulk materials the contractor will store all materials under cover and/or in appropriate containers.
  - Products must be stored in original containers and labeled.
  - Material mixing will be conducted in accordance with the manufacturer's recommendations.
  - When possible, all products will be completely used before properly disposing of the container off-site.
  - The manufacturer's directions for disposal of materials and containers will be followed.
  - The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
  - Dust generated will be controlled in an environmentally safe manner.
- Hazardous Materials
  - Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
  - Original labels and material safety data sheets will be retained in a safe place to relay important product information.

- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any stormwater system or stormwater treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of stormwater runoff.

➤ **Spill Control Practices**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

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

➤ **Spill Response**

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

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

- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SDDANR.
- Personnel with primary responsibility for spill response and cleanup will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

**5.3 (8b): WASTE MANAGEMENT PROCEDURES**

➤ **Waste Disposal**

- All liquid waste materials will be collected and stored in approved sealed containers. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal and notices stating proper practices will be posted. The Contractor is responsible for ensuring waste disposal procedures are followed.

➤ **Hazardous Waste**

- All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the Contractor will be responsible for seeing that these practices are followed.

➤ **Sanitary Waste**

- Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units which must be secured to prevent tipping and serviced in a timely manner by a licensed waste management Contractor or as required by any local regulations.

**5.3 (9): CONSTRUCTION SITE POLLUTANTS**

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the heading "POLLUTION PREVENTION PROCEDURES" (check all that apply).

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

**Product Specific Practices**

- **Petroleum Products**

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

- **Fertilizers**

Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to stormwater. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

- **Paints**

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

- **Concrete Trucks**

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

**5.3 (10): NON-STORMWATER DISCHARGES**

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

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

**5.3 (11): INFEASIBILITY DOCUMENTATION**

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

**7.0: SPILL NOTIFICATION**

In the event of a spill, the Contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

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

**5.4: SWPPP CERTIFICATIONS**

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

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

➤ **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



\_\_\_\_\_  
Authorized Signature (See the General Permit, Section 7.4 (1))

➤ **Prime Contractor**

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

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

\_\_\_\_\_  
Authorized Signature

**CONTACT INFORMATION**

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

➤ **Contractor Information:**

- Prime Contractor Name: \_\_\_\_\_
- Contractor Contact Name: \_\_\_\_\_
- Address: \_\_\_\_\_
- \_\_\_\_\_
- City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_
- Office Phone: \_\_\_\_\_ Field: \_\_\_\_\_
- Cell Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

➤ **Erosion Control Supervisor**

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

➤ **SDDOT Project Engineer**

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

➤ **SDDANR Contact Spill Reporting**

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➤ **SDDANR Contact for Hazardous Materials.**

- (605) 773-3153

➤ **National Response Center Hotline**

- (800) 424-8802.

➤ **SDDANR Stormwater Contact Information**

- SDDANR Stormwater (800) 737-8676
- Surface Water Quality Program (605) 773-3351

**5.5: REQUIRED SWPPP MODIFICATIONS**

➤ **5.5 (1): Conditions Requiring SWPPP Modification**

The SWPPP must be modified, including the site map(s), in response to any of the following conditions:

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

➤ **5.5 (2): Deadlines for SWPPP Modification**

Any required revisions to the SWPPP must be completed within 7 calendar days following any of the items listed above.

➤ **5.5 (3): Documentation of Modifications to the Plan**

All SWPPP modification records are required to be maintained showing the dates of when the modification occurred. The records must include the name of the person authorizing each change and a brief summary of all changes.

➤ **5.5 (4): Certification Requirements**

All modifications made to the SWPPP must be signed and certified as required in Section 7.4.

➤ **5.5 (5): Required Notice to Other Operators**

If there are multiple operators at the site, the Contractor's Erosion Control Supervisor must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

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

# PLAN AND PROFILE

**FOR BIDDING PURPOSES ONLY**

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8034(35)	15	31

Sta. 7+00 to 12+50 Lt & Rt  
Clear all Trees and Brush in the Excavation Limits & Permanent Easement (Clearing)

Sta. 9+73.5 to 10+23.3  
Remove 49'-0" Two Span Steel Beam Bridge with Concrete Deck. (Incidental Work, Structure)

Sta. 7+75 to 12+25 - Lt. & Rt.  
Remove all Delineators and Object Markers near the existing Bridge, 14 Total. (Remove Delineator)

Sta. 8+78 Rt. and 11+08 Lt.  
Remove and Salvage Load Limit Signs, 2 Total. (Salvage Traffic Sign)

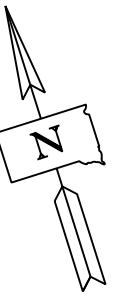
Sta. 10+00.00  
Install 3 - 12'x5' Box Culvert (Precast)  
DA = 54.5 Sq. Miles  
See Structure Sheets.

Sta. 9+80.71 to 10+26.71 - Rt.  
Install Class B Riprap & Type B Drainage Fabric.  
See Structure Sheets.

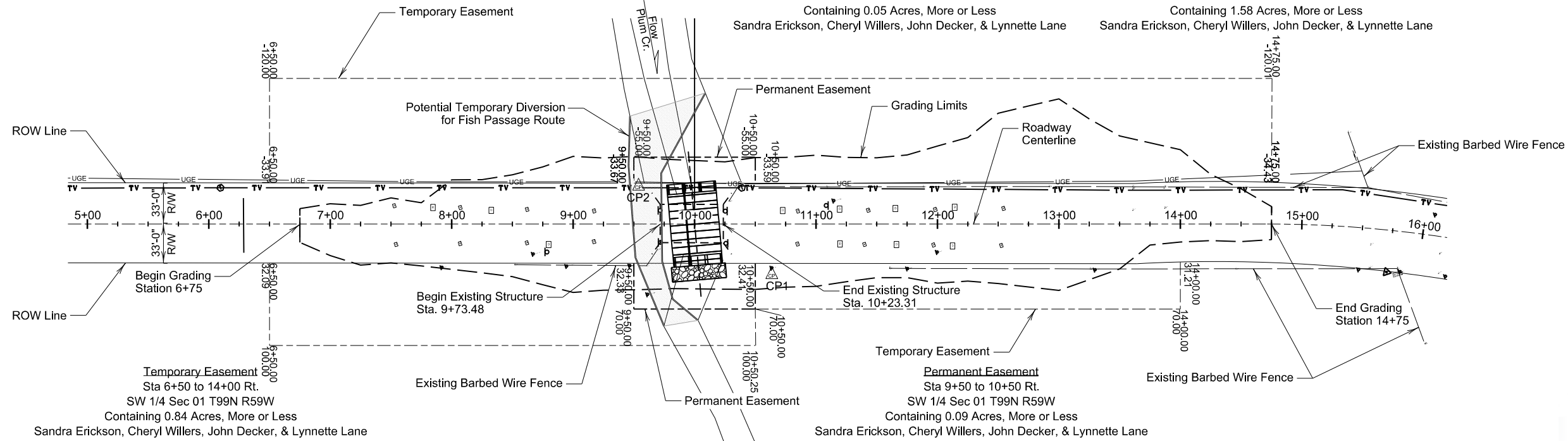
Note: Plum Creek is Identified as a Topeka Shiner Stream.  
A Temporary Diversion Channel for Fish Passage is Required.

**Permanent Easement**  
Sta 9+50 to 10+50 Lt.  
SW 1/4 Sec 01 T99N R59W  
Containing 0.05 Acres, More or Less  
Sandra Erickson, Cheryl Willers, John Decker, & Lynnette Lane

**Temporary Easement**  
Sta 6+50 to 14+75 Lt.  
SW 1/4 Sec 01 T99N R59W  
Containing 1.58 Acres, More or Less  
Sandra Erickson, Cheryl Willers, John Decker, & Lynnette Lane

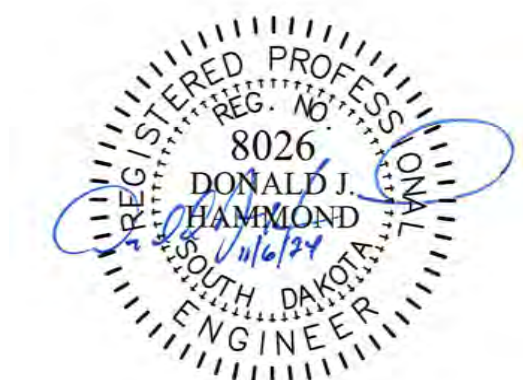
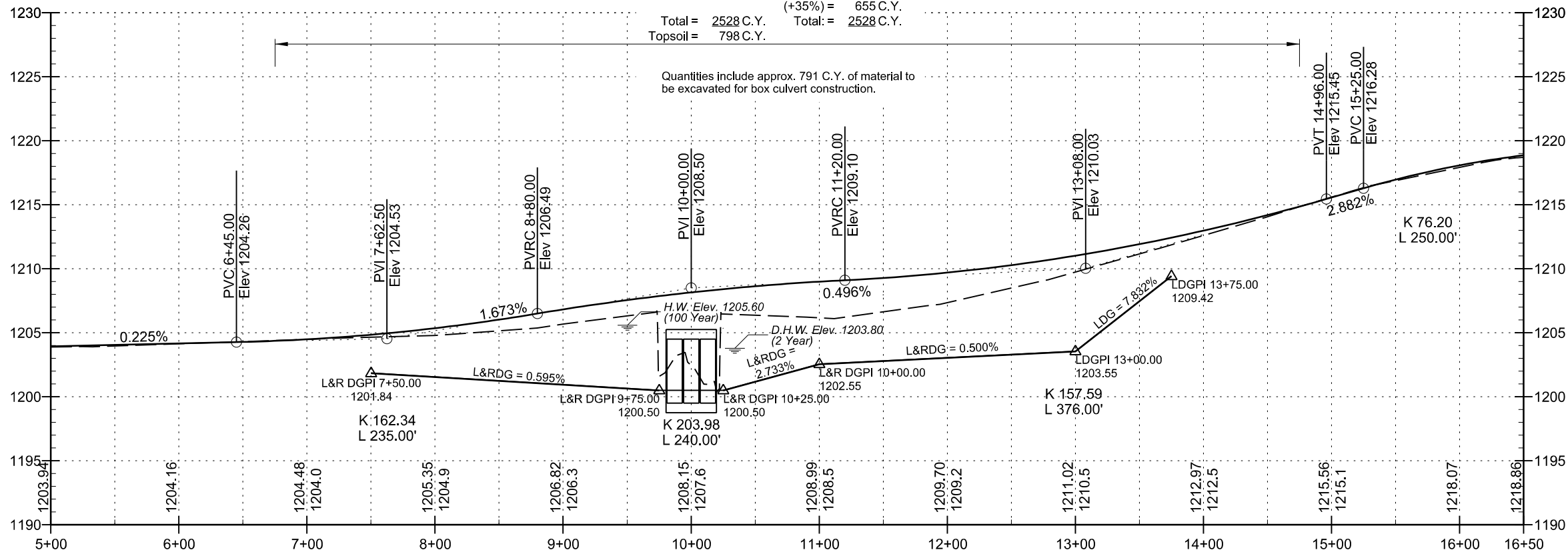


Scale: 1" = 100'



Excav. = 2528 C.Y.    Emb. = 1873 C.Y.  
Total = 2528 C.Y.    (+35%) = 655 C.Y.  
Topsoil = 798 C.Y.    Total = 2528 C.Y.

Quantities include approx. 791 C.Y. of material to be excavated for box culvert construction.



FLOW	ELEVATION
$Q_d = 105$ cfs	1203.50
$Q_{100} = 3420$ cfs	1205.60
$Q_{OT} = 405$ cfs	1203.80

Note: Hydraulic data only valid if overtopping section is maintained.

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

- ⌀ Dimension may vary with fabricator and/or installation. See Shop Plans for actual installation length.
- ★ Minimum distance to satisfy clear zone.
- △ Based on dimensions shown.
- ⌈ Based on 8" Walls.

FOR BIDDING PURPOSES ONLY

REVISED  
01-08-2024

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8034(35)	16	31

**-X028-  
INDEX OF CULVERT SHEETS**

- Sheet No. 1 - General Drawing and Quantities
- Sheet No. 2 - Notes and Undercut Details
- Sheet No. 3 - Standard Plate No's. 460.02 & 560.01
- Sheet No. 4 - Standard Plate No's. 560.11 & 560.21
- Sheet No. 5 - Standard Plate No. 620.16

**HYDRAULIC DATA**

$Q_d$	105 cfs
$A_d$	75 sq ft
$V_d$	1.4 fps
$Q_F$	105 cfs
$Q_{100}$	3420 cfs
$Q_{OT}$	405 cfs
$V_{Max}$	8.2 fps

- $Q_d$  = Design discharge for the proposed culvert based on 2 year frequency. El. 1203.50
- $Q_{OT}$  = Overtopping discharge and frequency 5.0 year recurrence interval. El. 1203.80 at Station 4+35
- $Q_F$  = Designated peak discharge for the basin approaching proposed project based on 2 year frequency.
- $Q_{100}$  = Computed discharge for the basin approaching proposed project based on 100 year frequency. El. 1205.60
- $V_{max}$  = Maximum computed outlet velocity for the proposed culvert based on 100 year frequency.

Note: Hydraulic data only valid if overtopping 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.

**ESTIMATED QUANTITIES**

ITEM	UNIT	QUANTITY
Incidental Work, Structure	L.S.	L.S.
Structure Excavation, Box Culvert	Cu. Yd.	85
Box Culvert Undercut	Cu. Yd.	238
Controlled Density Fill	Cu. Yd.	12.8
12'x5' Precast Concrete Box Culvert, Furnish	Ft.	46.0
12'x5' Precast Concrete Box Culvert, Install	Ft.	46.0
12'x5' Precast Concrete Box Culvert End Section, Furnish	Each	2
12'x5' Precast Concrete Box Culvert End Section, Install	Each	2
2-12'x5' Precast Concrete Box Culvert, Furnish	Ft.	46.0
2-12'x5' Precast Concrete Box Culvert, Install	Ft.	46.0
2-12'x5' Precast Concrete Box Culvert End Section, Furnish	Each	2
2-12'x5' Precast Concrete Box Culvert End Section, Install	Each	2
Class B Riprap	Ton	76.0
Type B Drainage Fabric	Sq. Yd.	98
Reinforcement Fabric (MSE)	Sq. Yd.	344

Quantity is based on 9" bottom slab, 9" top slab and 8" walls.

For estimating purposes only, a factor of 1.4 tons/cu. yd. was used to convert Cu. Yd. to Tons

**GENERAL DRAWING AND QUANTITIES**

FOR

**3 - 12' X 5' BOX CULVERT (PRECAST)**

OVER PLUM CREEK  
STA. 10+00.00  
STR. NO. 34-173-057  
PCN 08MX

5° RHF SKEW  
SEC. 01-T99N-R48W  
BRO-B 8034(35)  
HL-93

HUTCHINSON COUNTY

S. D. DEPT. OF TRANSPORTATION

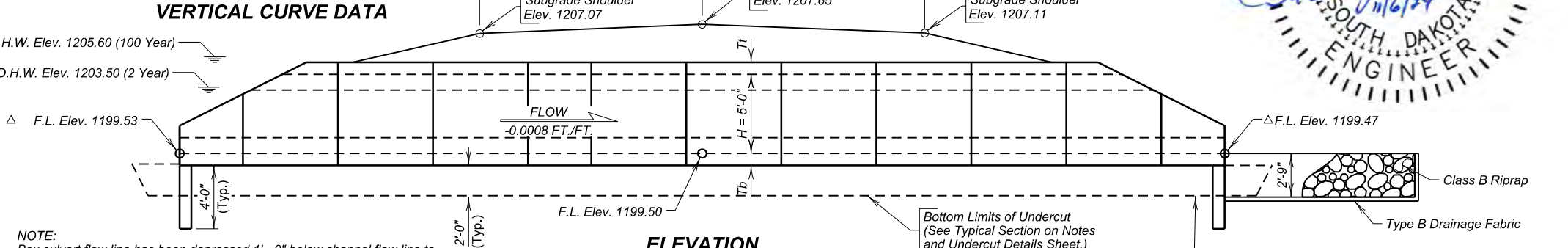
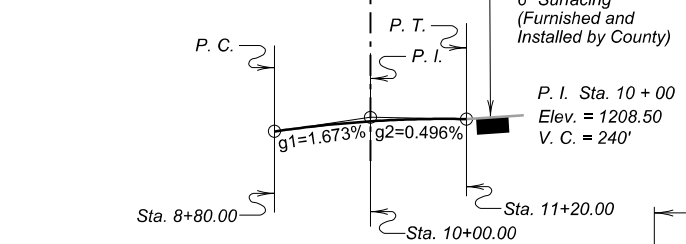
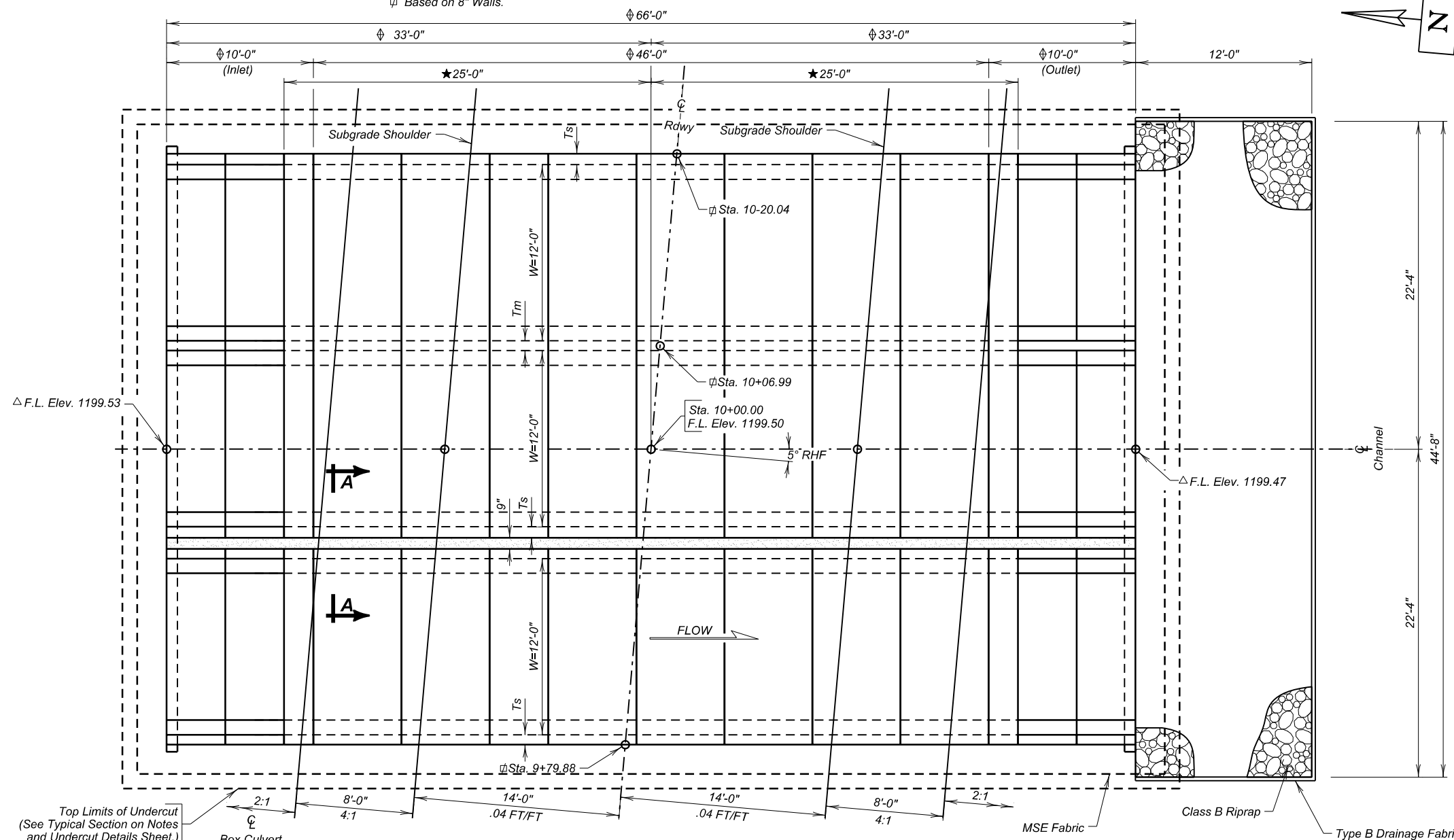
AUGUST 2024

1 OF 5

Topeka Shiner Stream - X028 -

DESIGNED BY	CK. DES. BY	DRAFTED BY	BRIDGE ENGINEER
SDD	DJH	ZBW	

Plans By:  
Brosz Engineering, Inc.  
Consulting Engineers



NOTE: Box culvert flow line has been depressed 1'-0" below channel flow line to accommodate aquatic organisms. The 1'-0" depression will be allowed to fill in naturally over time.

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





**SPECIFICATIONS**

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

**INCIDENTAL WORK, STRUCTURE**

- The in-place structure is a 49'-0" Two Span Steel Beam Bridge with Reinforced Concrete Deck and Reinforced Concrete Substructure. The Contractor will remove and dispose of the in-place structure. The bent and abutments will be removed to 1' below the bottom of the undercut.
- The foregoing is a general description of the in-place structure and should not be considered complete in all details. Before preparing a bid, it is the Contractor's responsibility to make a visual inspection of the structure to verify the extent of work and materials involved.
- All costs associated with the aforementioned work shall be incidental to the contract lump sum price for "Incidental Work, Structure".

**GENERAL NOTES**

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

- Box culvert and box culvert end section design will conform to the AASHTO LRFD Bridge Design Specifications, 9th Edition.
- Design Live Load: HL-93. No construction loading in excess of legal load is anticipated. If construction loading in excess of legal load is anticipated by the Contractor, the Contractor will submit a proposal including a design analysis for the anticipated construction loading, through the proper channels, to Brosz Engineering for approval. Upon approval, the construction load shall not be applied until the depth of fill over the box culvert as required by analysis has been placed. At a minimum, 4 feet of fill will be placed over the box culvert prior to applying the construction load. All costs associated with accommodating any construction loads will be borne by the Contractor.
- The box culvert will be load rated in accordance with the AASHTO Manual for Bridge Evaluation, 2018 Edition with latest Interim Revisions using the LRFR method. The rating will include evaluation of the Design HL-93 truck at both Inventory and Operating levels and a Legal Load rating for the three SD legal trucks (Type 3, 3S2, and 3-2) as well as the notional rating load and four specialized hauling vehicles. The structure will also be evaluated for the emergency vehicles, EV2 and EV3, at the legal load rating level. All sections of the box culvert will rate at HL-93 or better (Inventory Level). The three SD Legal Loads, the notional rating load, and the four specialized hauling vehicles will rate greater than 1.0 at legal load rating level. The emergency vehicles, EV2 and EV3, will rate 0.8 or greater at the legal load rating level. AASHTO Ware Bridge Rating (BrR) is required to be used to rate the box culvert. Include the BrR rating model and a load rating summary sheet with load rating calculations. Submit load rating calculations with the design and independent check design calculations or shop plans, as appropriate.
- The design of the barrel sections will be based on a minimum fill height of 0 feet and include all subsequent fill heights up to and including the maximum fill height of 5 feet over the box culvert.
- Minimum inside corner fillet will be 6-inch.
- Minimum precast barrel section length will be 6-foot sections; however, no more than two 4-foot sections are allowed in any one length of precast barrel.
- Lift holes will be plugged with an approved non-shrinkable grout.
- The fabricator will imprint on the structure the date of construction as specified and detailed on Standard Plate 460.02.
- Alternate end section details will be allowed, subject to the approval of the Bridge Construction Engineer. No additional payment will be made for any change in the barrel/end section configuration.
- Installation of the precast sections will be in accordance with the final approved shop plans.
- Care will be taken when placing sections. Sections will be only moved using the lifting holes by approved equipment.
- Compaction of earth embankment and box culvert backfill material will be governed by the Ordinary Compaction method.
- Adjust cutoff wall shown on Standard Plates 560.11 and 560.21 to extend the full width of the end sections (out to out) plus the 9-inch spacing.
- Dewatering will be required to construct the box culvert. All costs incurred for dewatering will be incidental to other contract items.
- Soils below the bottom of the proposed RBCB consist of soft dark brown clay silt. Groundwater was encountered at an elevation of 1199.0 feet during the subsurface investigation conducted in November 2022.

**REINFORCEMENT FABRIC (MSE)**

- A layer of Reinforcement Fabric (MSE) will be placed at the bottom of the undercut prior to backfilling with granular material.

**GEOTEXTILE SPECIFICATION**

- Reinforcement Fabric (MSE) will conform to Section 831. The Reinforcement Fabric (MSE) provided will be on the Approved Products List or will be certified by the supplier to meet this specification prior to installation.
- Reinforcement Fabric (MSE) will be paid for at the contract unit price per sq. yd. for Reinforcement Fabric (MSE). Payment will be full compensation for furnishing and installing the Reinforcement Fabric (MSE) only. Granular backfill materials will be paid for as part of the Box Culvert Undercut bid item.

**Geotextile Installation Procedure**

- Place the Reinforcement Fabric (MSE) on as level and smooth of a surface as possible. Any protrusions that might damage the geotextile will be removed prior to placing the geotextile. All seams in the geotextile will be stitched in accordance with the seaming procedure and as shown on the detail labeled "Seam Types." No equipment will be allowed on the geotextile until the granular backfill material is in place. The geotextile will be kept as taut as possible prior to backfilling. Granular backfill material will be dumped behind the leading edge of the fill and pushed into place with a loader or dozer.

**Geotextile Seaming Procedure**

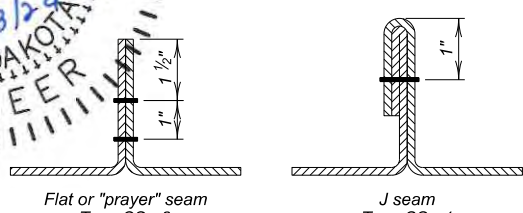
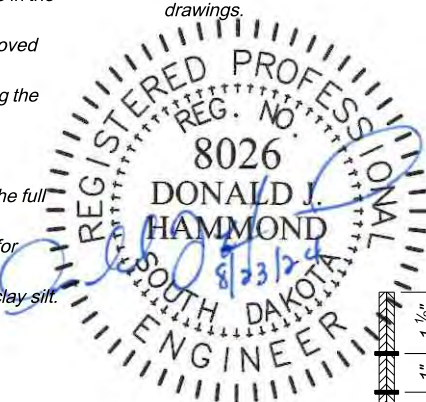
- The sewn seams will consist of two parallel rows of stitching ("prayer" seam, Type SSa-2), or a J-seam (Type SSn-1), using a single row of stitching. The stitching will be a lock type stitch.
- If the Type SSa-2 seam is used, the two rows of stitching will be 1" apart with a tolerance of plus or minus 0.5" and will not cross, except for restitching. The minimum seam allowance, i.e., minimum distance from the geotextile edge to the stitch line nearest to that edge, will be 1.5".
- If the J seam (Type SSn-1) is used, the minimum seam allowance will be 1".
- The seam, stitch type, and the equipment used to perform the stitching will be as recommended by the manufacturer of the geotextile and approved by the Engineer. The seams will be sewn in such a manner that the seam can be readily inspected by the Engineer.
- The thread used will be high-strength polypropylene, polyester, or Kevlar thread.

**DESIGN MIX OF PRECAST CONCRETE**

Mix will be as per fabricator's design; however, a minimum compressive strength shall not be less than 4,500 psi at 28 days.

**SHOP PLANS**

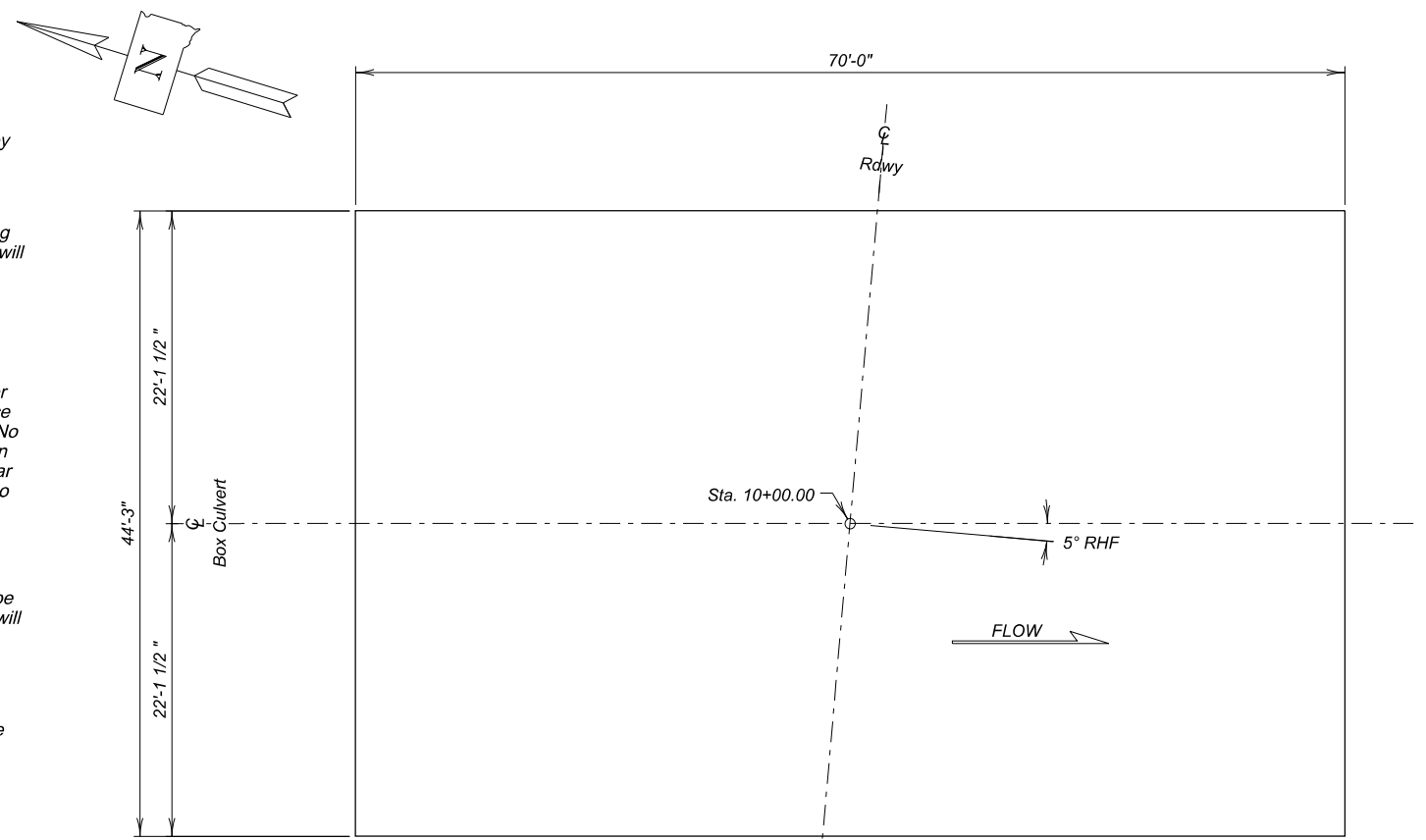
The fabricator will submit shop plans in accordance with the Construction Specifications to Brosz Engineering, Inc., 2309 W. 50<sup>th</sup> street, Sioux Falls, SD 57105 (donh@broszengineering.com). After review and corrections (if necessary), and approval by Brosz Engineering the Office of Bridge Design will review the submittals, authorize fabrication, arrange for fabrication inspection, and distribute the shop drawings.



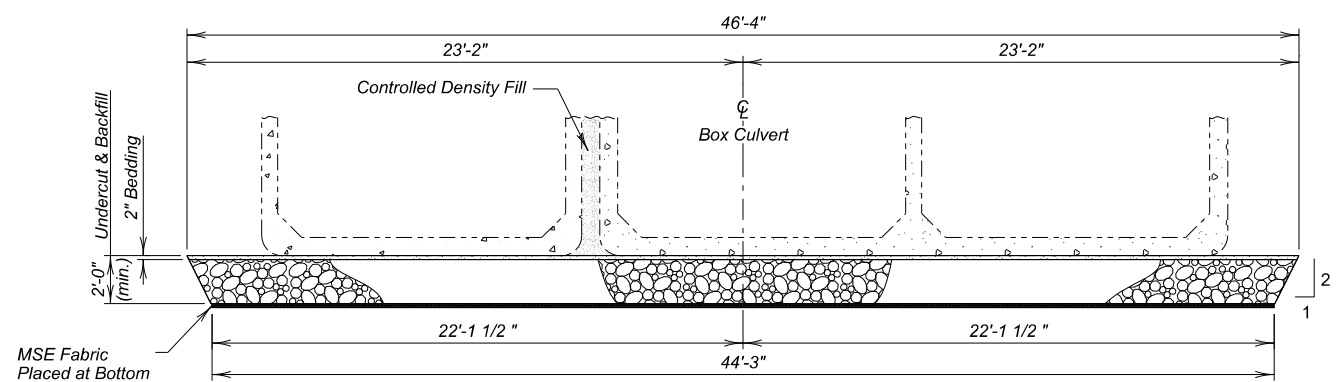
**GEOTEXTILE SEAM TYPES**

**FOR BIDDING PURPOSES ONLY**

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8034(35)	17	31



**UNDERCUT LAYOUT**  
(Bottom Dimensions)



**TYPICAL SECTION**  
(For Limits of Undercut)

**NOTES AND UNDERCUT DETAILS**

FOR  
**3 - 12' X 5' BOX CULVERT (PRECAST)**  
 OVER PLUM CREEK 5° RHF SKEW  
 STA. 10+00.00 SEC. 01-T99N-R59W  
 STR. NO. 34-173-057 BRO-B 8034(35)  
 PCN 08MX HL-93

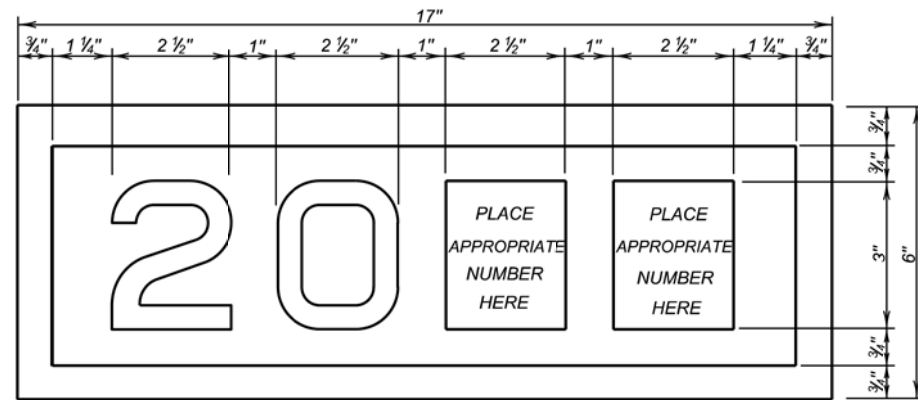
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Box Culvert Undercut	Cu. Yd.	238
Reinforcement Fabric (MSE)	Sq. Yd.	344

For payment, quantity is based on plan shown undercut dimensions and will not be measured unless the Engineer orders a change.

HUTCHINSON COUNTY  
 S. D. DEPT. OF TRANSPORTATION  
 AUGUST 2024

DESIGNED BY SDD  
 CK. DES. BY DJH  
 DRAFTED BY ZBW

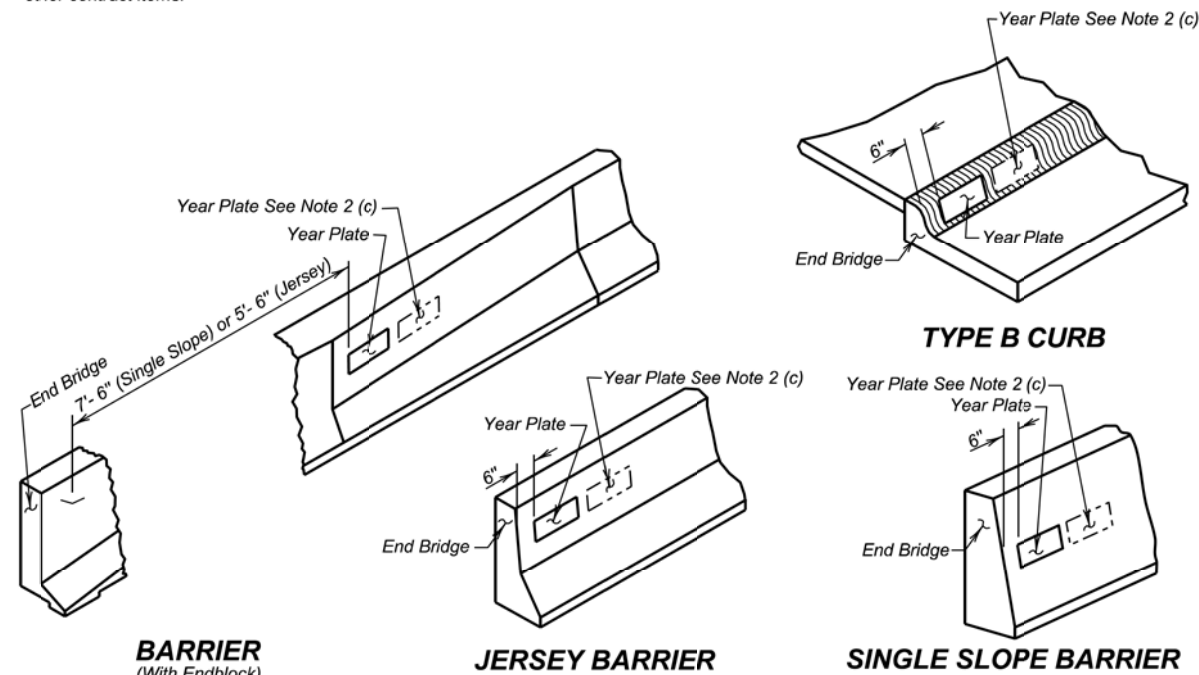
BRIDGE ENGINEER



**YEAR PLATE DETAILS**

**GENERAL NOTES:**

- Year plates of the general dimensions shown will be constructed on all box culverts and bridges. The year plates will 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 will be located on structure(s) as follows:
  - On cast-in-place box culverts the year plates will 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 will be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate will be centered in an adjacent barrel.
  - On bridges with six (6) inch curbs, "Jersey" shaped barriers with no endblocks, or "Single Slope" shaped barriers with no endblocks, the year plate will 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 barrier endblocks, the year plate will be centered on the upper sloped portion of the barrier approximately 5'-6" for "Jersey" shaped barriers from the end of the bridge and 7'-6" for "Single Slope" shaped barriers from the end of bridge, or as designated by the Engineer. There will 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 will be placed as listed above and the other located adjacent to it. Both year plates will 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 will be incidental to other contract items.



**TYPE B CURB**

January 22, 2021

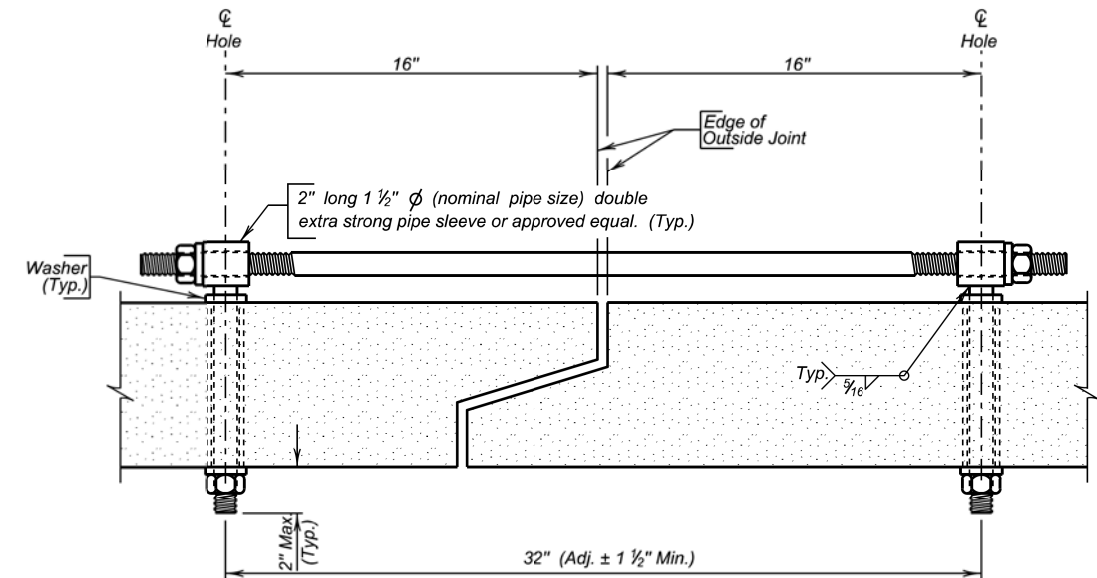
Published Date: 2025

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**YEAR PLATE DETAILS**

PLATE NUMBER  
460.02

Sheet 1 Of 1



**TIE BOLT ASSEMBLY**

**GENERAL NOTES:**

- All holes for tie bolts shall be cast-in-place, 16 inches from outside edge of joint. Cast in inserts or sleeves, if used, shall be made of a corrosion resistant material.
- Ties shall be 1 inch diameter and conform to the requirements of ASTM A36, ASTM A307, or ASTM F1554, Gr. 36. Nuts shall be heavy hex in conformance with ASTM A563. Washers shall conform to ASTM F436, Type 1. The welded pipe sleeve shall conform to ASTM A53, Grade B.
- Welding and weld inspection shall be in conformance with AWS/ANSI D1.1 - (Current Year) Structural Welding Code - Steel.
- Tie Bolt Assembly shall be galvanized in accordance with ASTM A153 or ASTM F2329 as applicable.
- Tie Bolt Assembly details may vary from that shown, but alternate tie bolt assemblies are subject to testing to demonstrate equal strength. Submit details, through proper channels, to the Office of Bridge Design for approval.
- All costs for furnishing and installing the precast box culvert tie bolt assembly shall be incidental to the contract unit price per Foot for "Precast Concrete Box Culvert, Furnish".

March 21, 2016

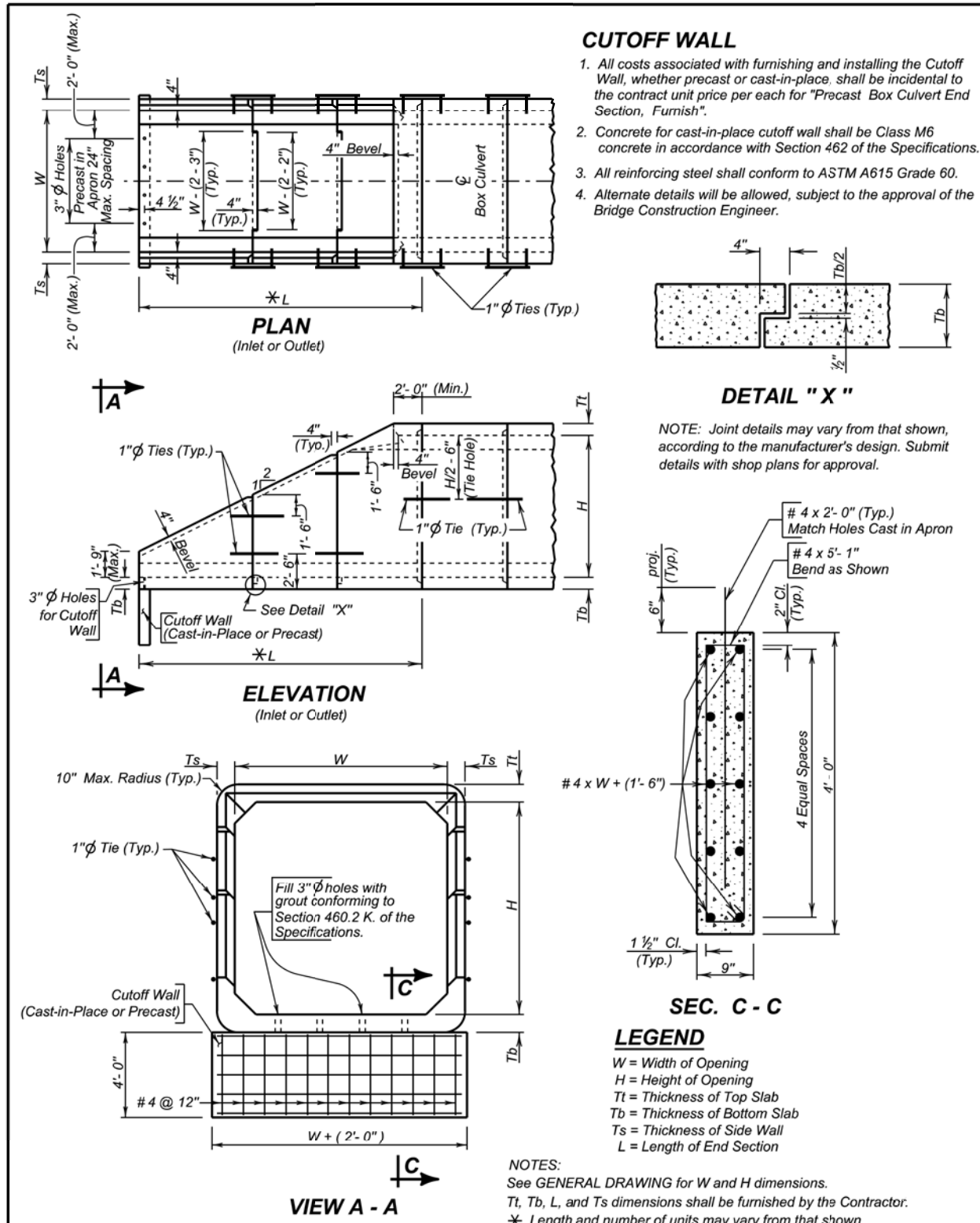
Published Date: 2025

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**PRECAST BOX CULVERT  
TIE BOLT ASSEMBLY DETAILS**

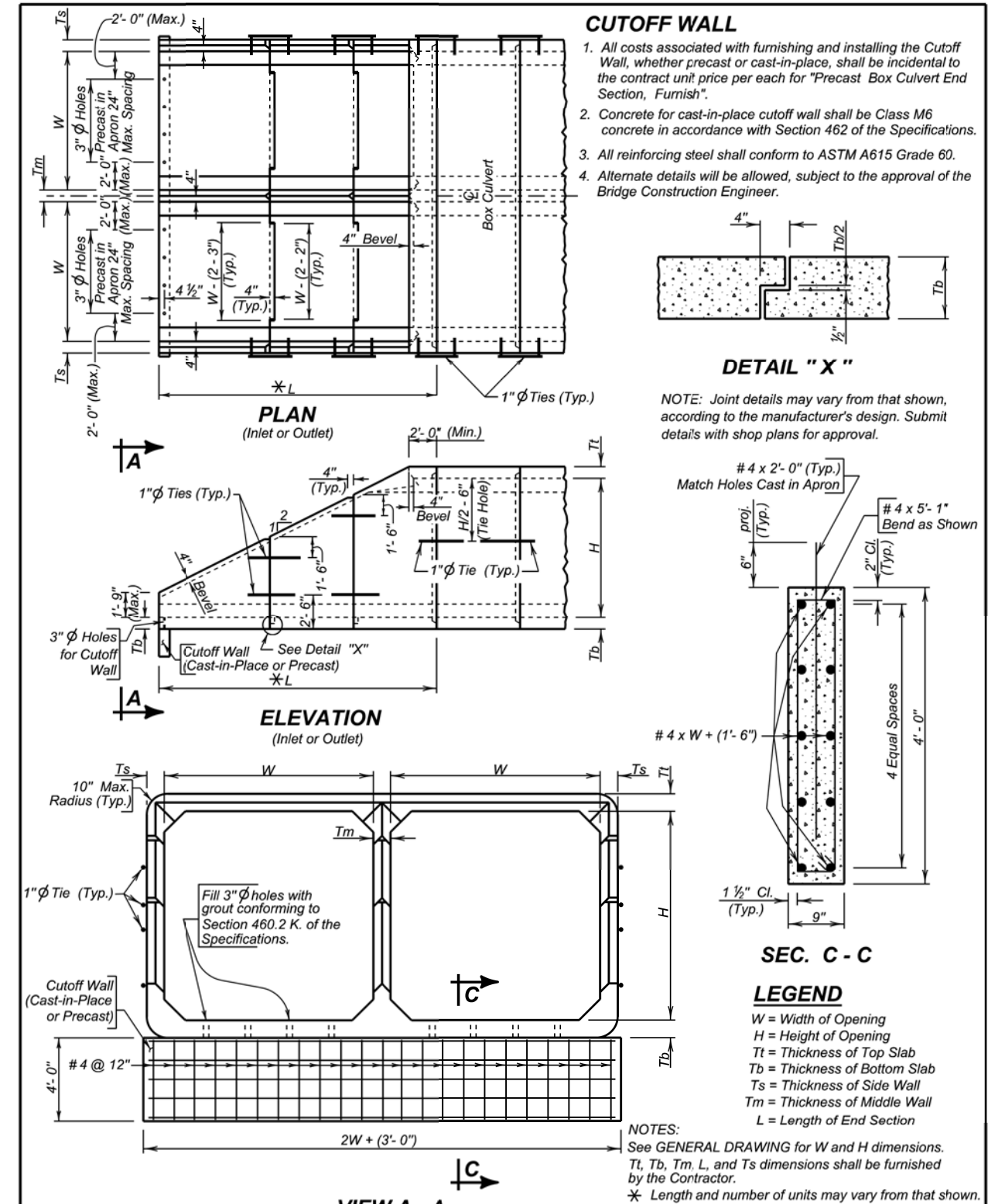
PLATE NUMBER  
560.01

Sheet 1 of 1



June 26, 2015

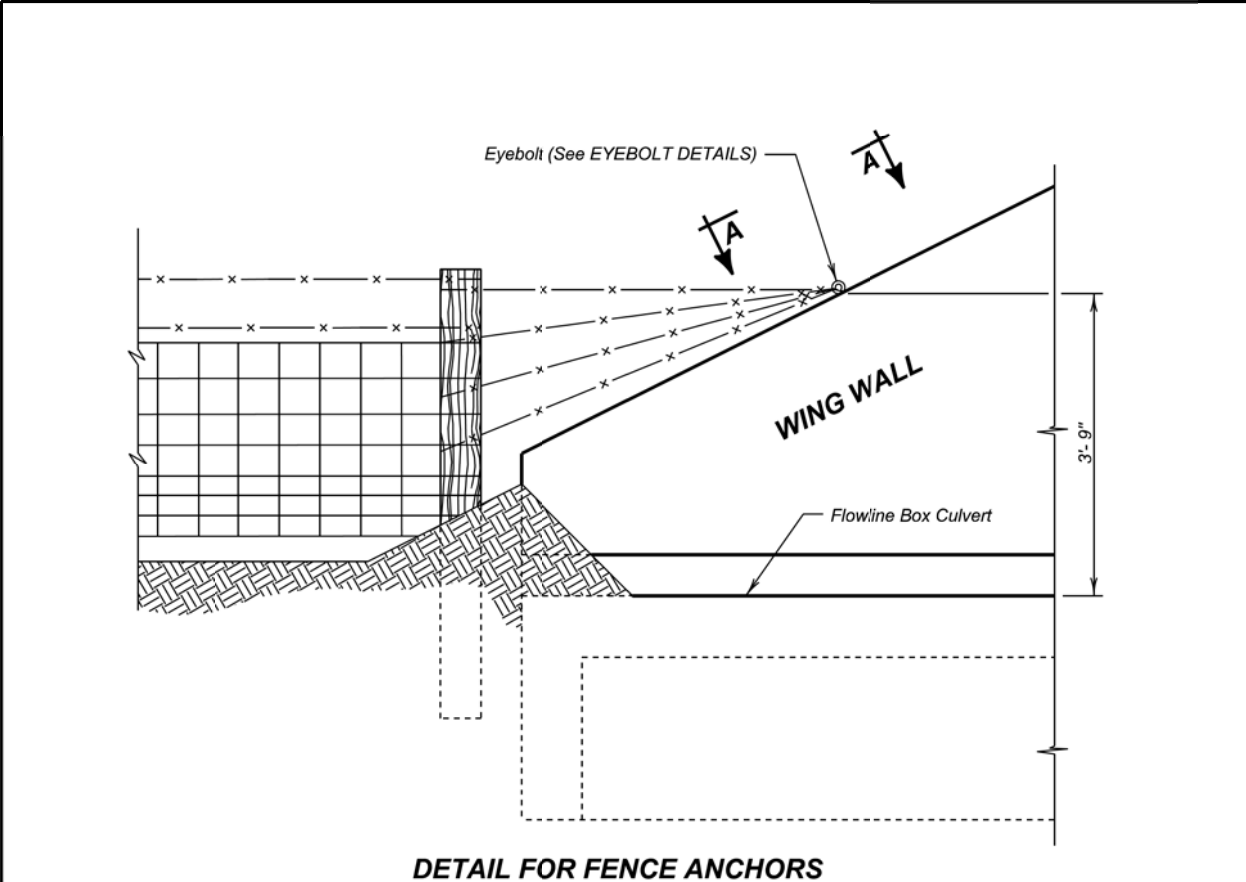
Published Date: 2025	S D D O T	PRECAST SINGLE BOX CULVERT SLOPED END SECTION DETAILS WITH 4'-0" CUTOFF WALL	PLATE NUMBER 560.11
			Sheet 1 of 1



June 26, 2015

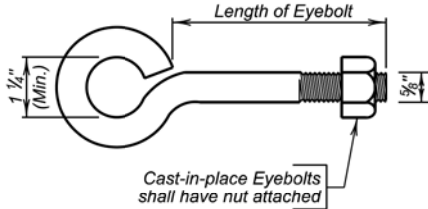
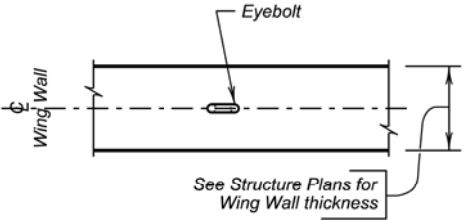
Published Date: 2025	S D D O T	PRECAST DOUBLE BOX CULVERT SLOPED END SECTION DETAILS WITH 4'-0" CUTOFF WALL	PLATE NUMBER 560.21
			Sheet 1 of 1

THIS SPACE INTENTIONALLY LEFT BLANK



**GENERAL NOTES:**

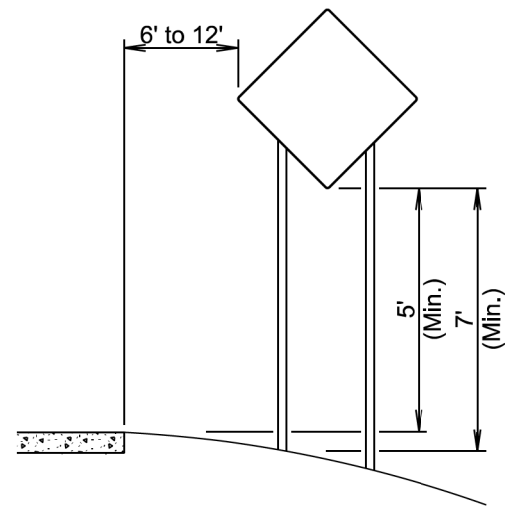
1. The fence and post details shown are for illustrative purpose only. The fence shall be as specified elsewhere in the plans.
2. Eyebolts shall be placed on all of the box culvert wing walls.
3. Eyebolts shall be 5/8 inch diameter and shall conform to ASTM A307.
4. Eyebolts, nuts, and concrete inserts shall be galvanized in accordance with AASHTO M232 (ASTM A153). Concrete inserts of corrosion resistant material need not be galvanized.
5. 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.
6. The cost for furnishing and installing eyebolts and/or concrete inserts shall be incidental to various contract items.



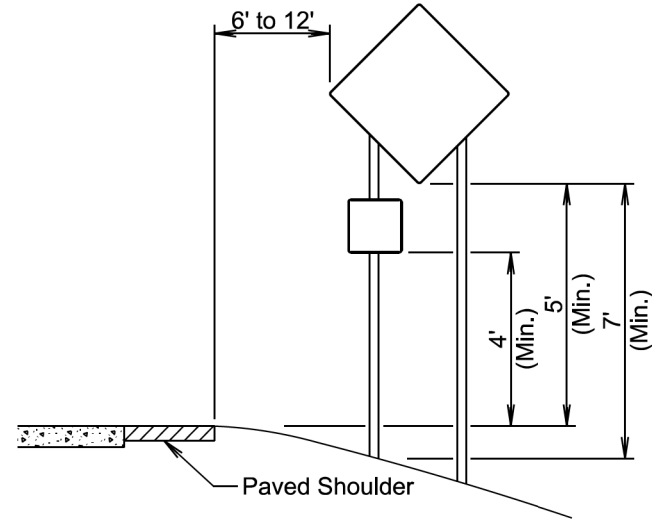
December 23, 2012

<b>S D D O T</b>	<b>FENCE ANCHORS FOR BOX CULVERT WING WALLS</b>	PLATE NUMBER <b>620.16</b>
		Sheet 1 of 1

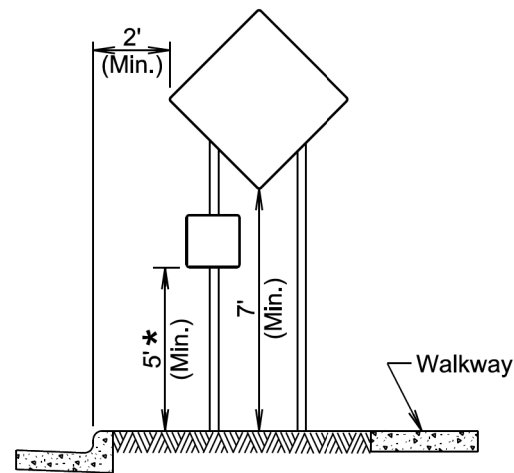
Published Date: 2025



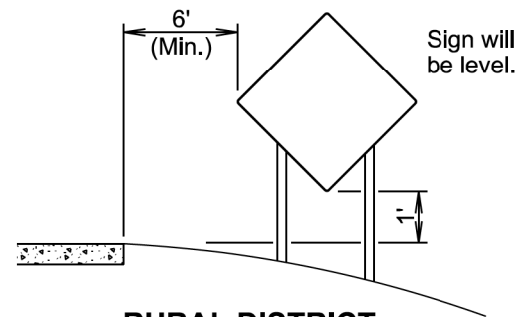
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

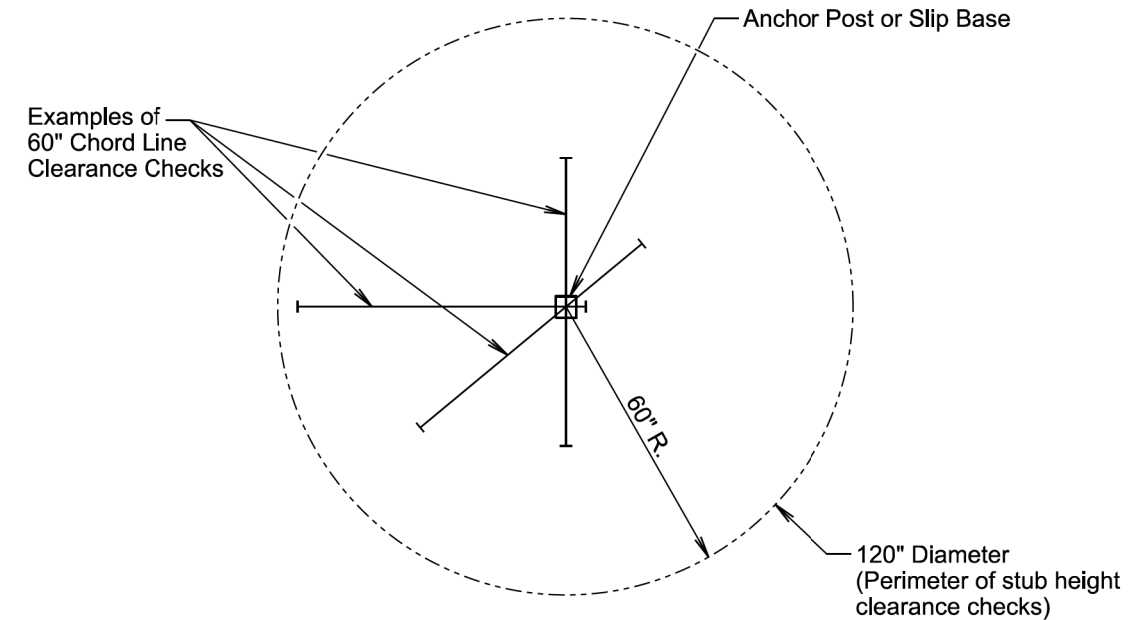


RURAL DISTRICT 3 DAY MAXIMUM  
(Not applicable to regulatory signs)

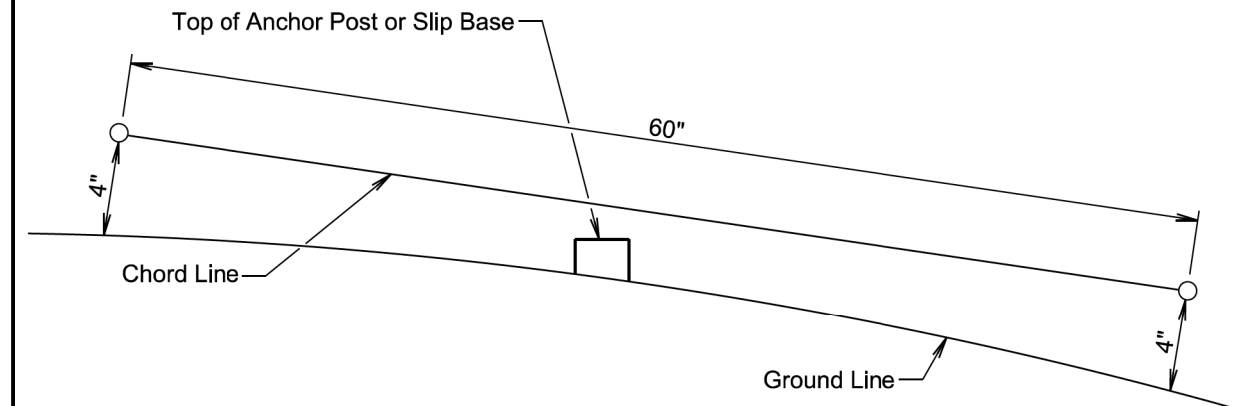
\* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2025	S D D O T	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:

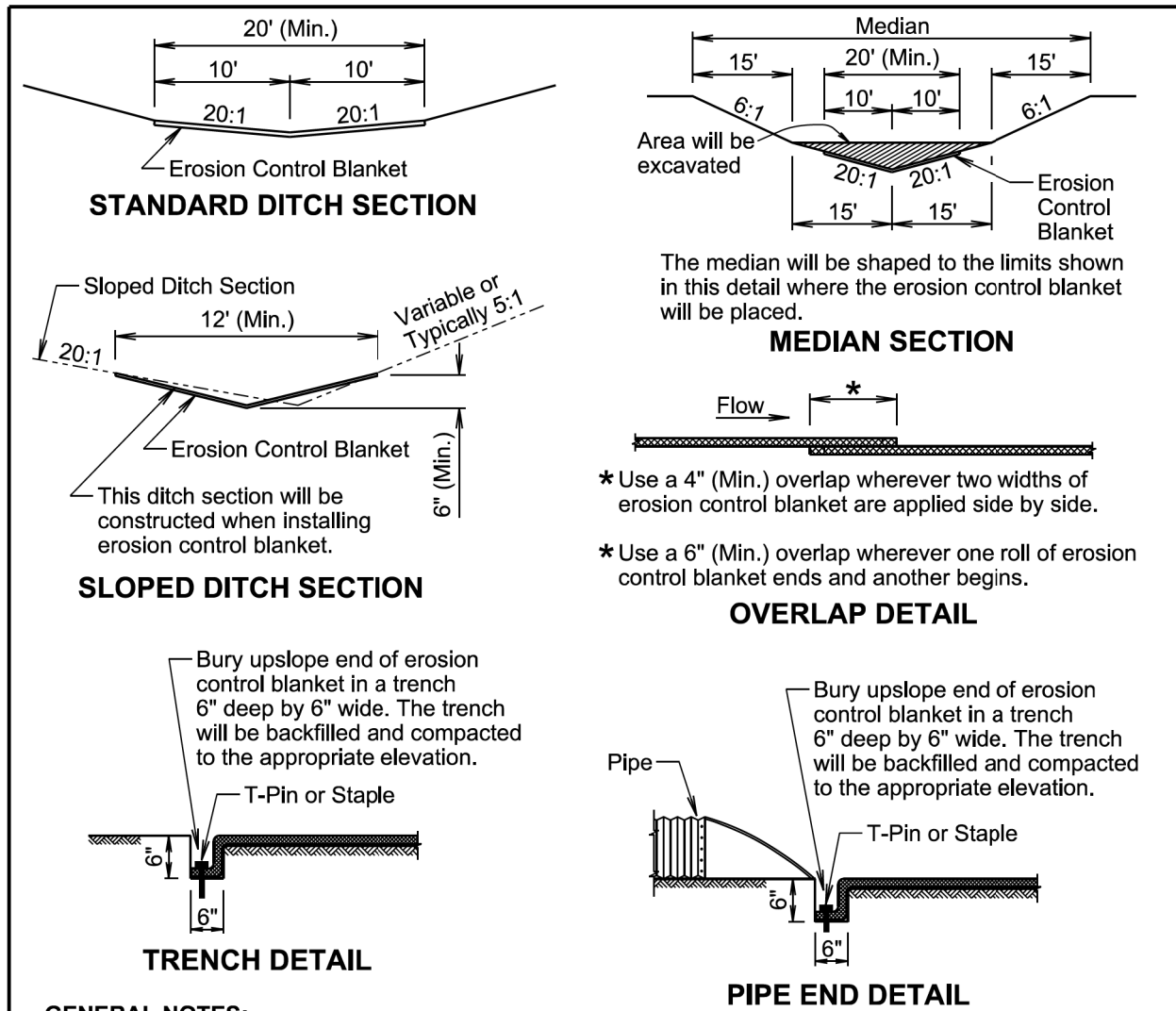
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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

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

January 22, 2021

Published Date: 2025	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1



**GENERAL NOTES:**

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

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

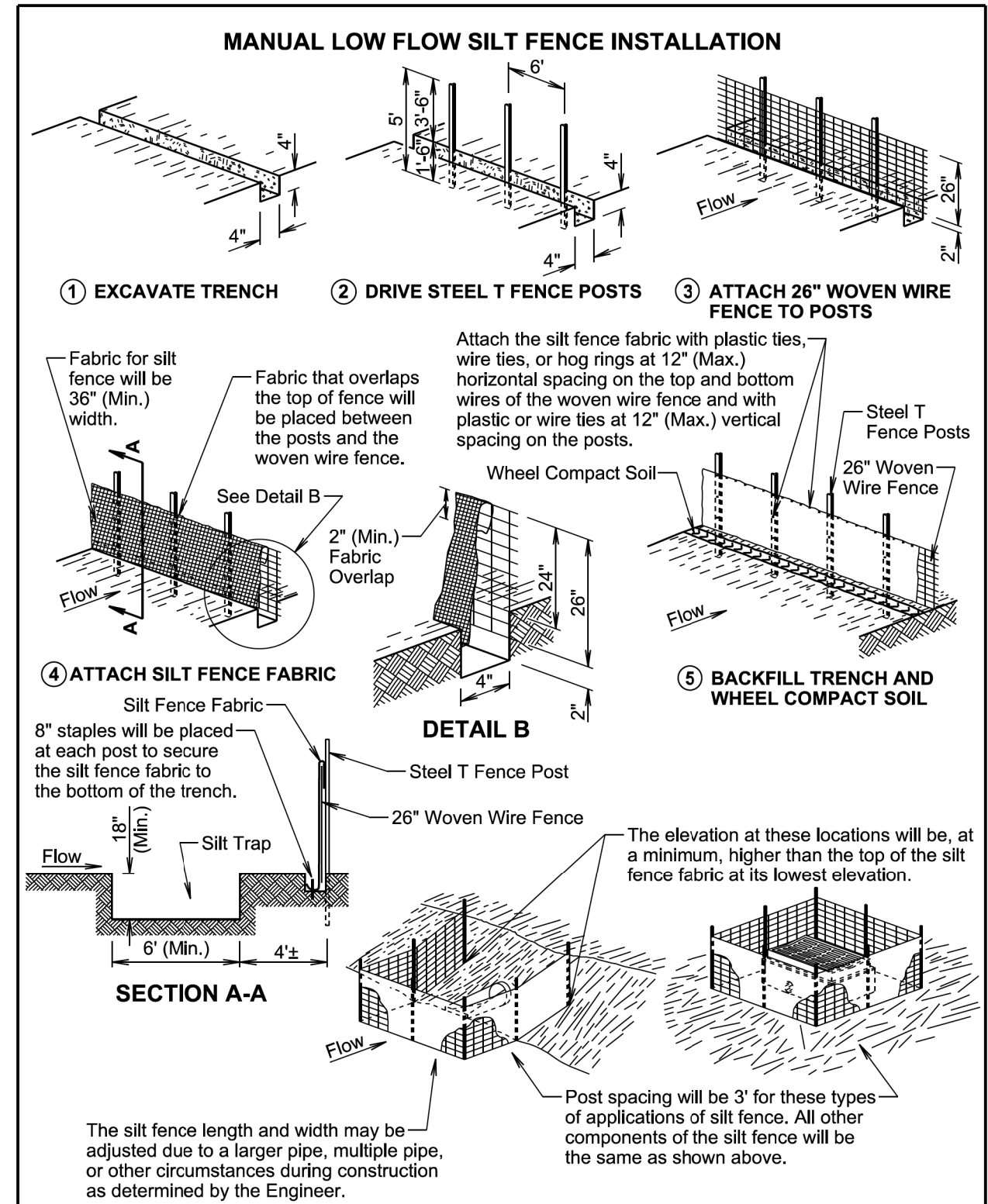
The erosion control blanket will be pinned to the ground according to the manufacturer's installation recommendations.

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

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

February 14, 2020

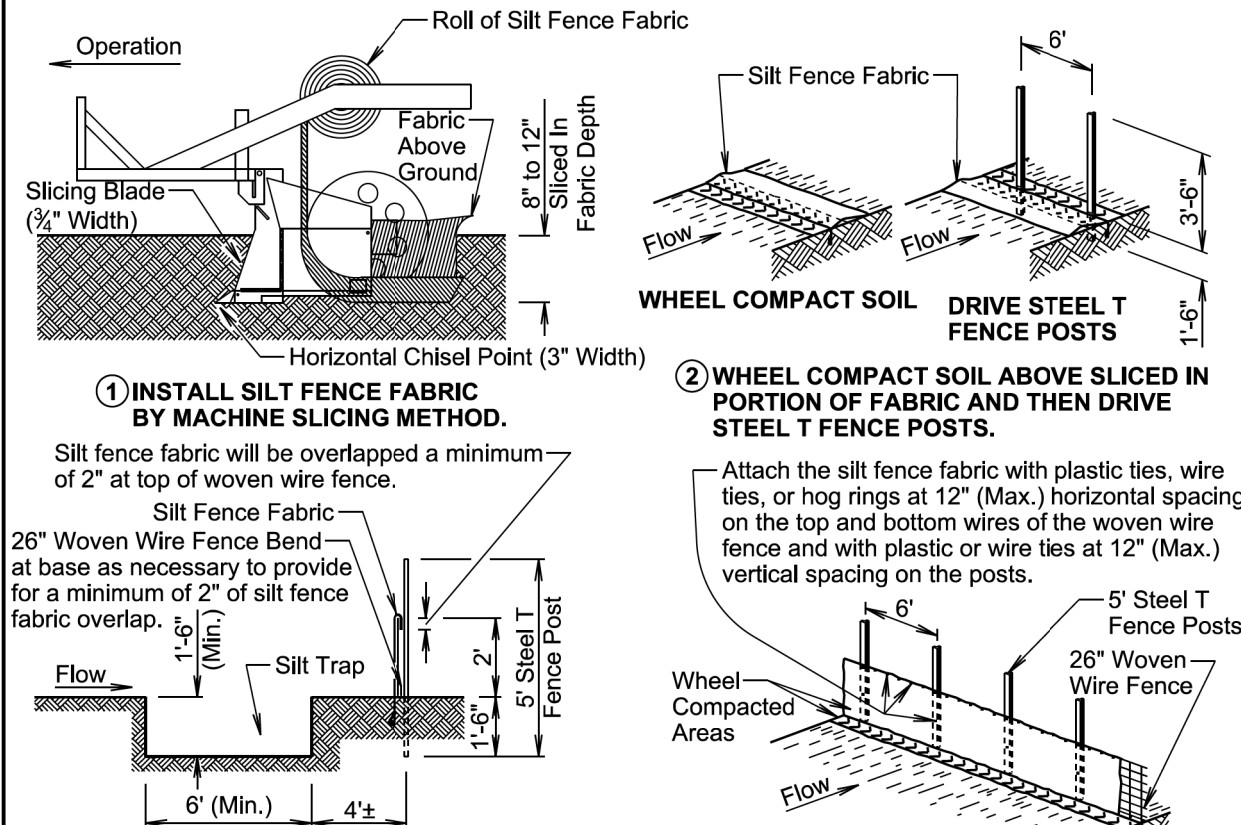
Published Date: 2025	S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1



February 14, 2020

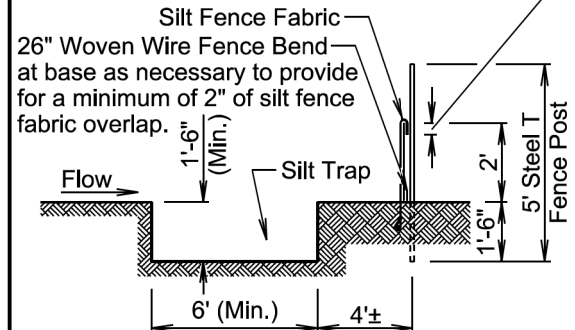
Published Date: 2025	S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 1 of 2

**MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION**



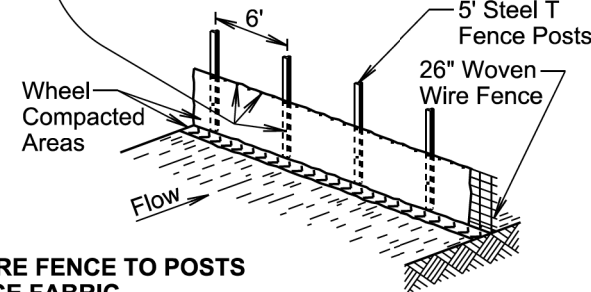
**1 INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.**

Silt fence fabric will be overlapped a minimum of 2" at top of woven wire fence.



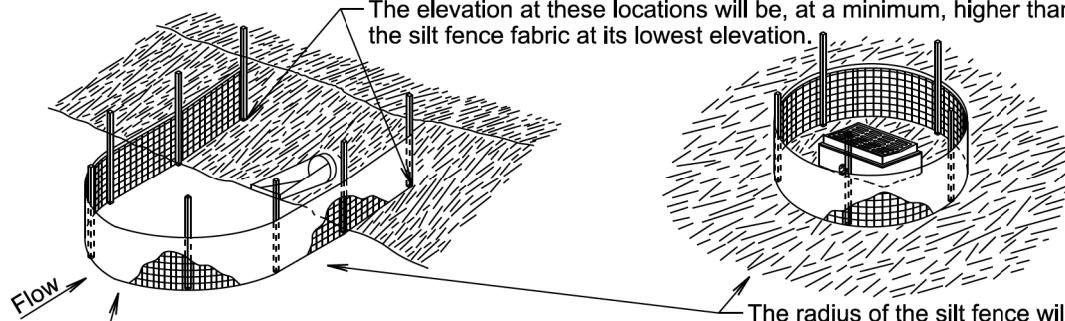
**2 WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.**

Attach the silt fence fabric with plastic ties, wire ties, or hog rings at 12" (Max.) horizontal spacing on the top and bottom wires of the woven wire fence and with plastic or wire ties at 12" (Max.) vertical spacing on the posts.



**3 ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.**

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

**GENERAL NOTES:**

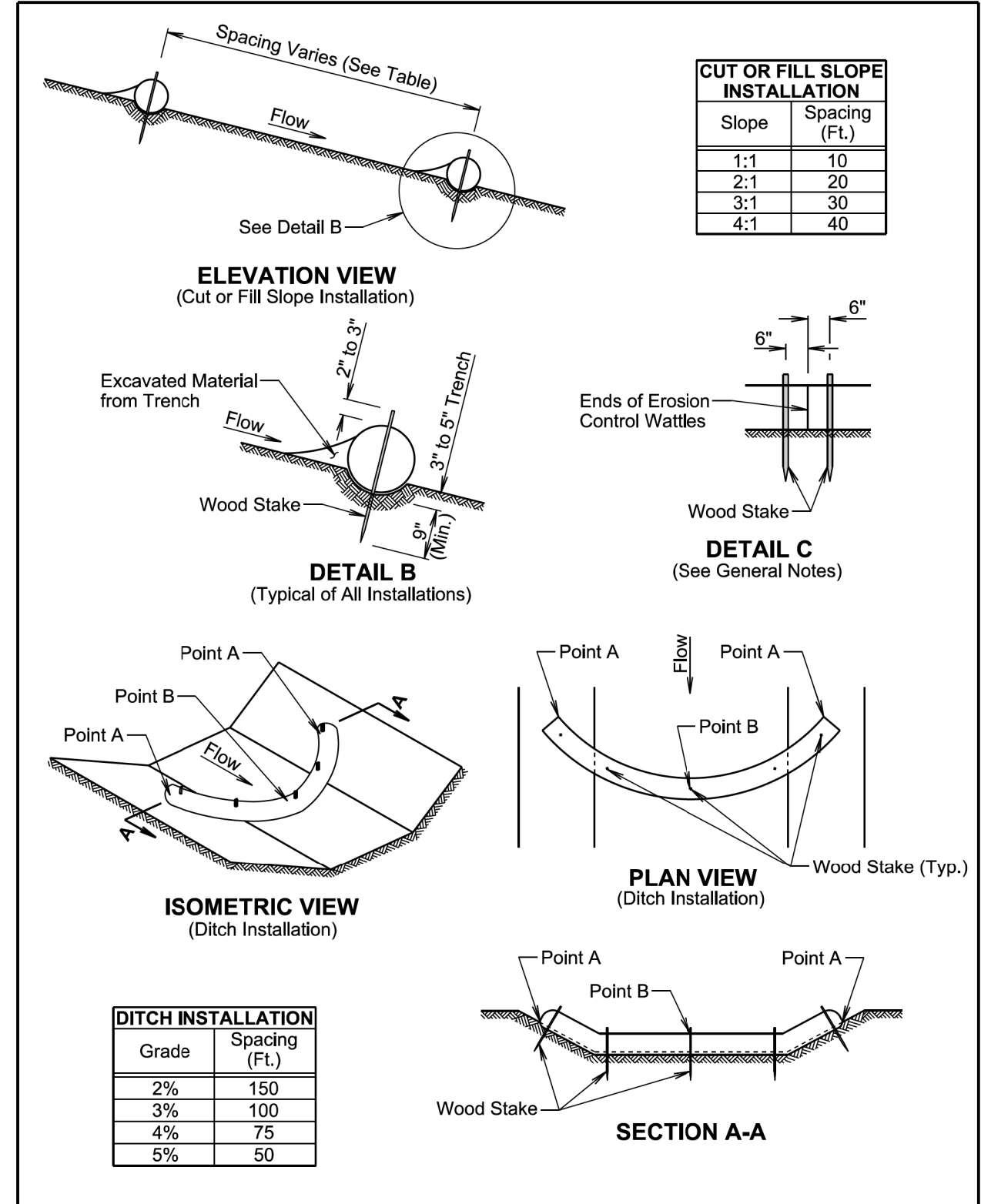
A silt trap will be provided when specified by a plan note. All costs for constructing the silt trap will be incidental to the contract unit price per cubic yard for "Silt Trap".

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

February 14, 2020

<b>S D D O T</b>	<b>LOW FLOW SILT FENCE AND SILT TRAP</b>	PLATE NUMBER <b>734.04</b>
		Sheet 2 of 2

Published Date: 2025



**CUT OR FILL SLOPE INSTALLATION**

Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40

**DITCH INSTALLATION**

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

February 14, 2020

<b>S D D O T</b>	<b>EROSION CONTROL WATTLE</b>	PLATE NUMBER <b>734.06</b>
		Sheet 1 of 2

Published Date: 2025

**GENERAL NOTES:**

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

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

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

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

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

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

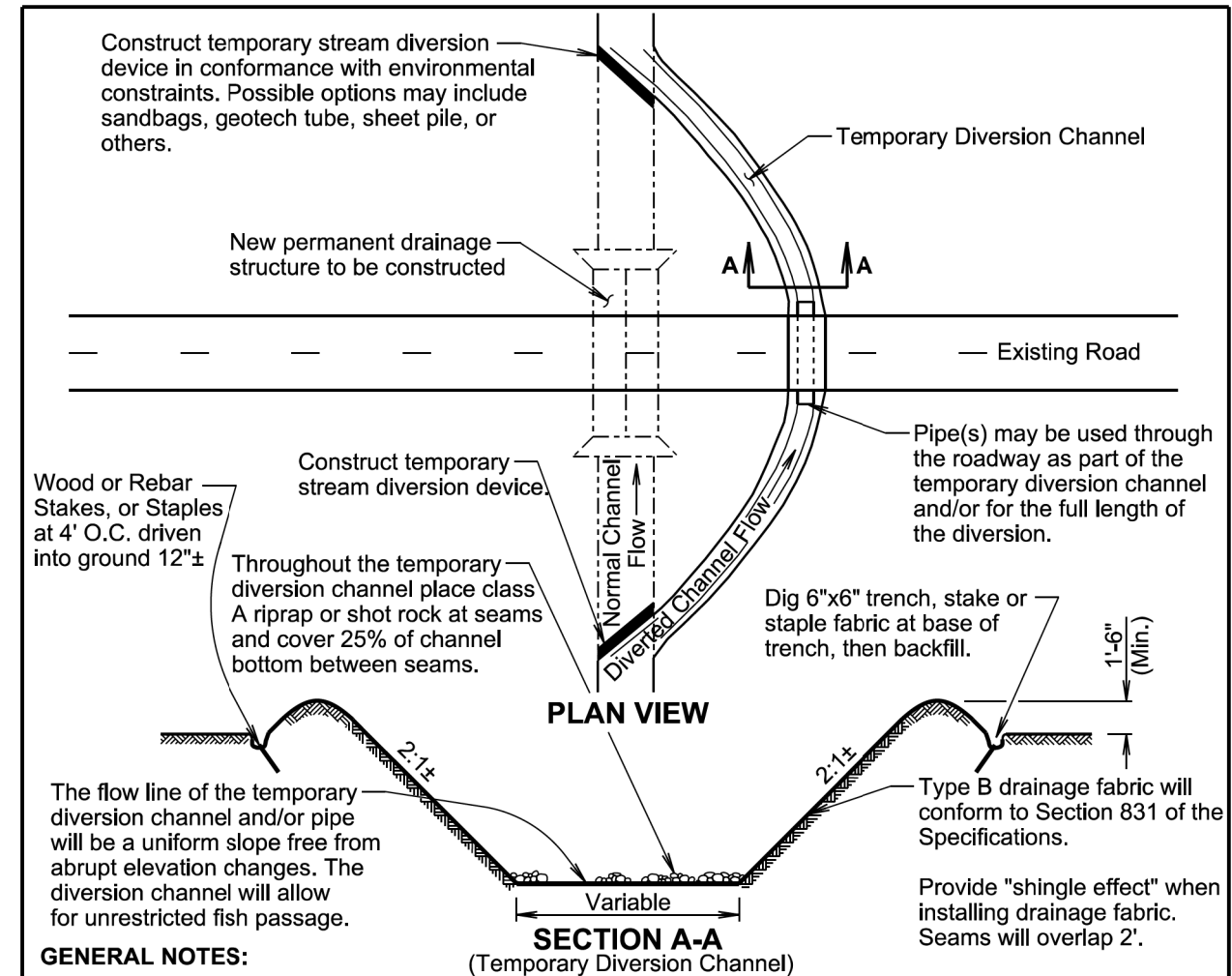
Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

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

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

February 14, 2020

Published Date: 2025	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2



**GENERAL NOTES:**

A temporary diversion channel and/or pipe(s) will 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 will not cross through the stream outside of the work area.

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

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

The Contractor will 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 will be removed in a manner that will not cause violation of water quality standards. The temporary diversion channel will then be backfilled and any pipe(s) (if used) will be removed. The entire work area will 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) will be incidental to the contract unit price per each for "Temporary Diversion Channel For Fish Passage". "Temporary Diversion Channel For Fish Passage" will be paid for once per structure site regardless of the number of times water is diverted at the individual site.

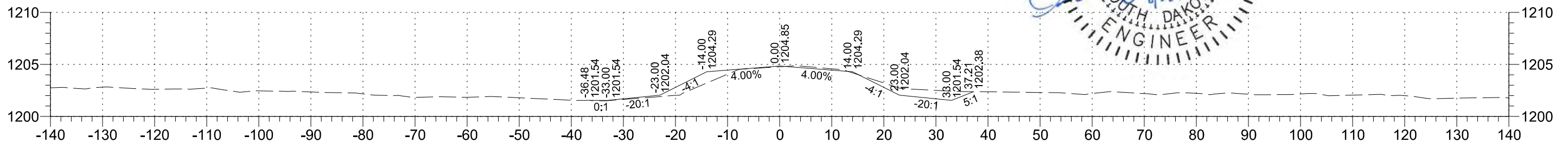
February 14, 2020

Published Date: 2025	S D D O T	TEMPORARY DIVERSION CHANNEL FOR FISH PASSAGE	PLATE NUMBER 734.30
			Sheet 1 of 1

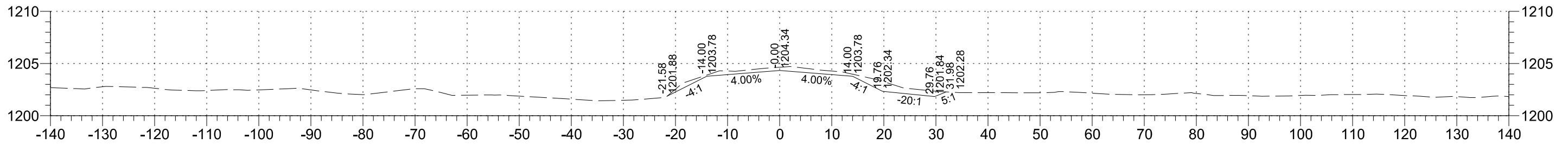


FOR BIDDING PURPOSES ONLY

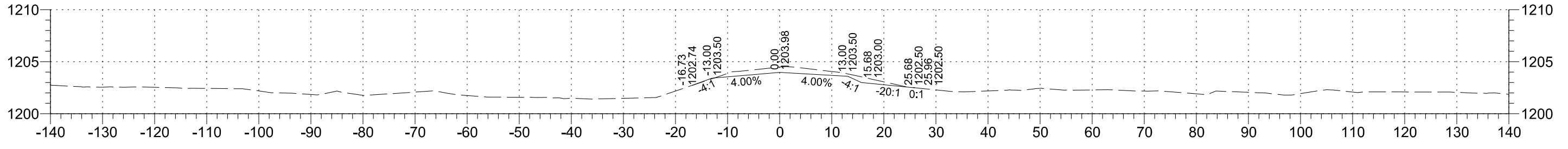
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S.D.	BRO-B 8034(35)	25	31



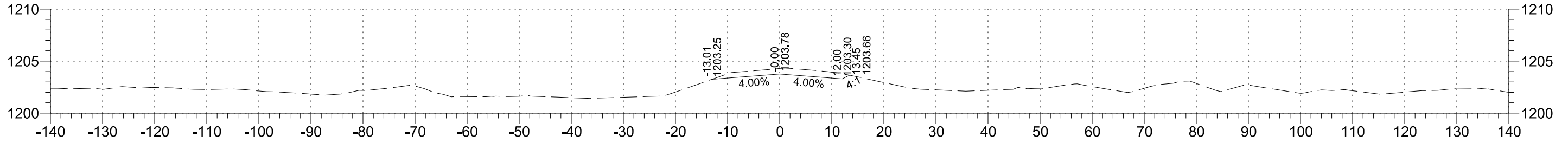
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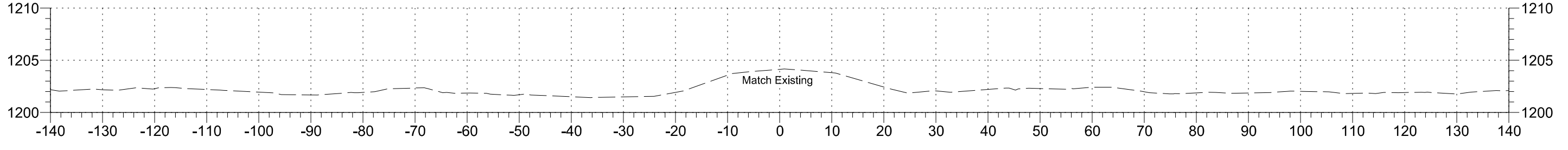
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7+00

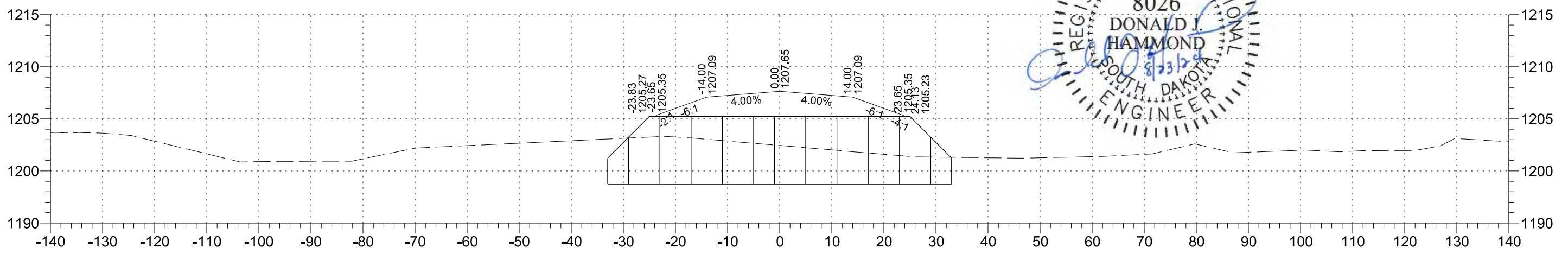
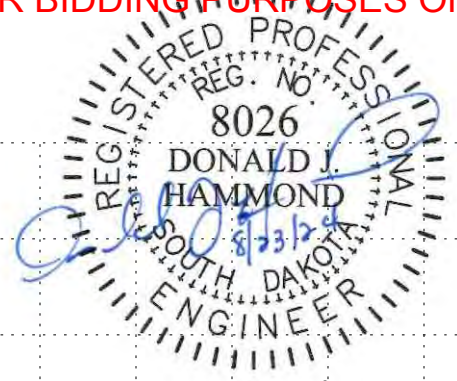


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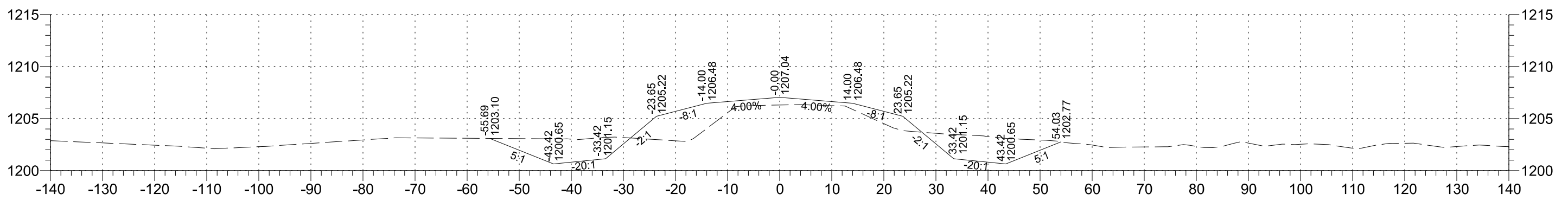


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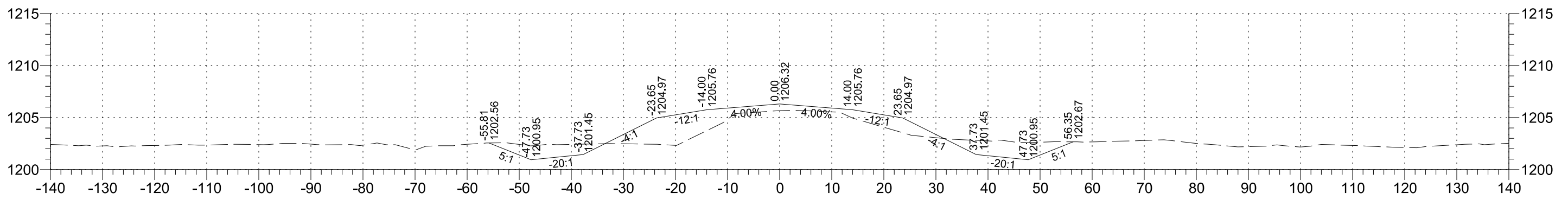
FOR BIDDING PURPOSES ONLY



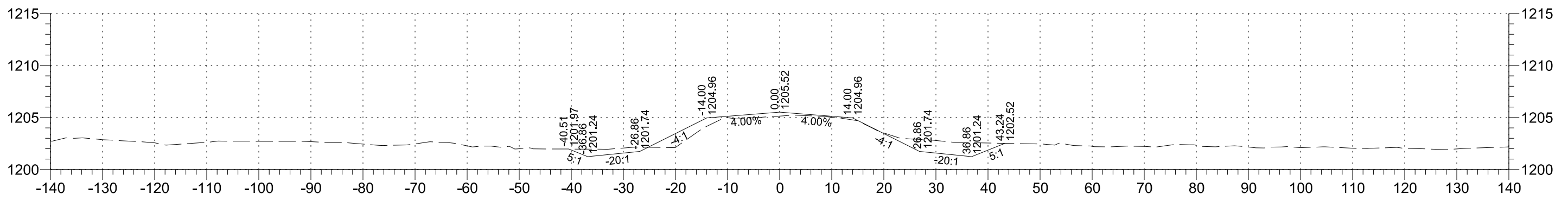
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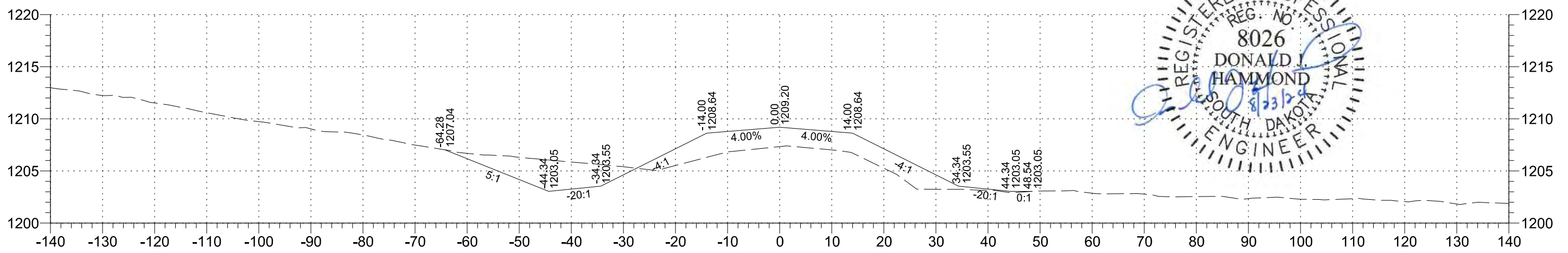
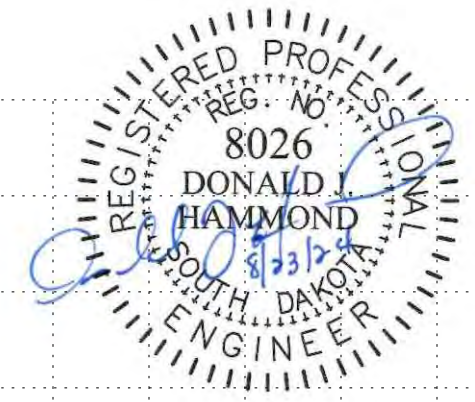
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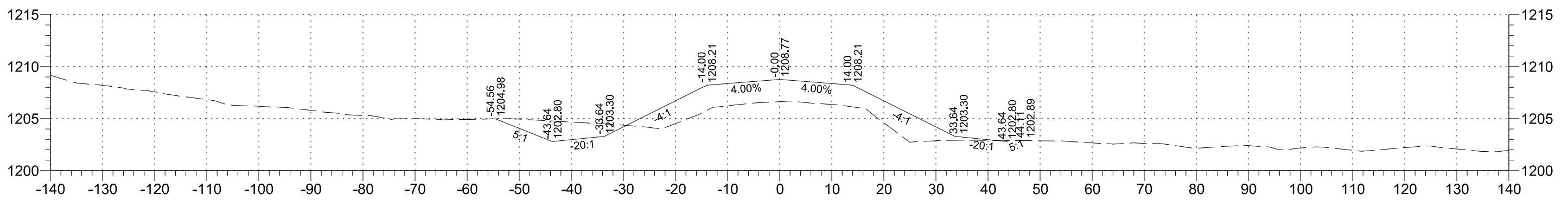
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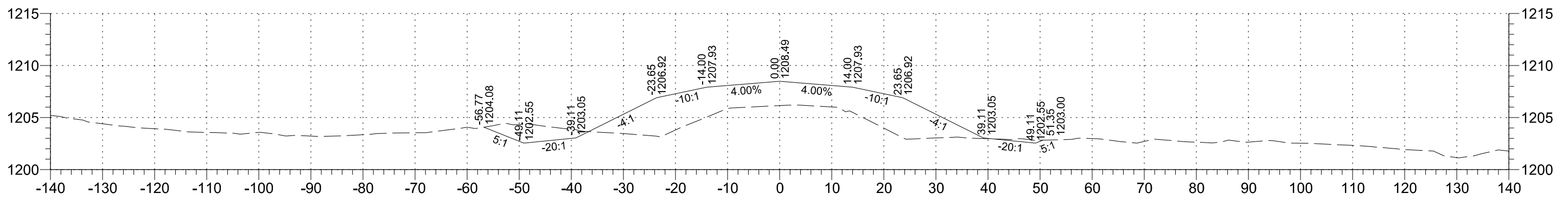
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8034(35)	27	31



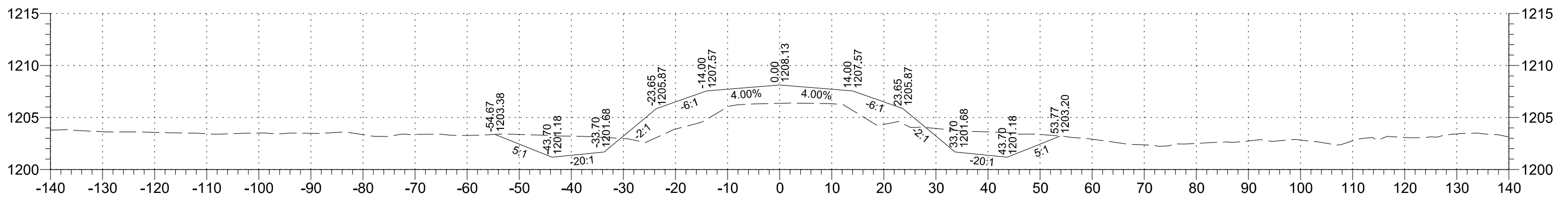
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11+50



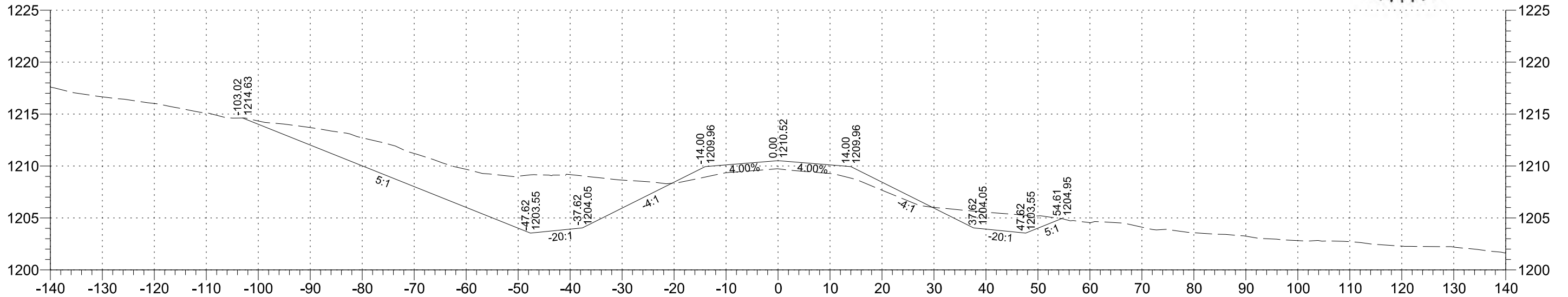
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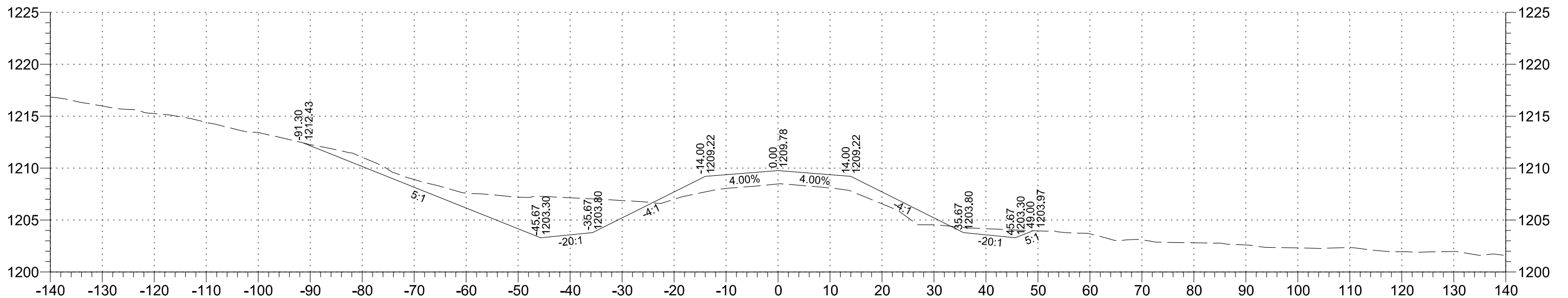
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FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8034(35)	28	31



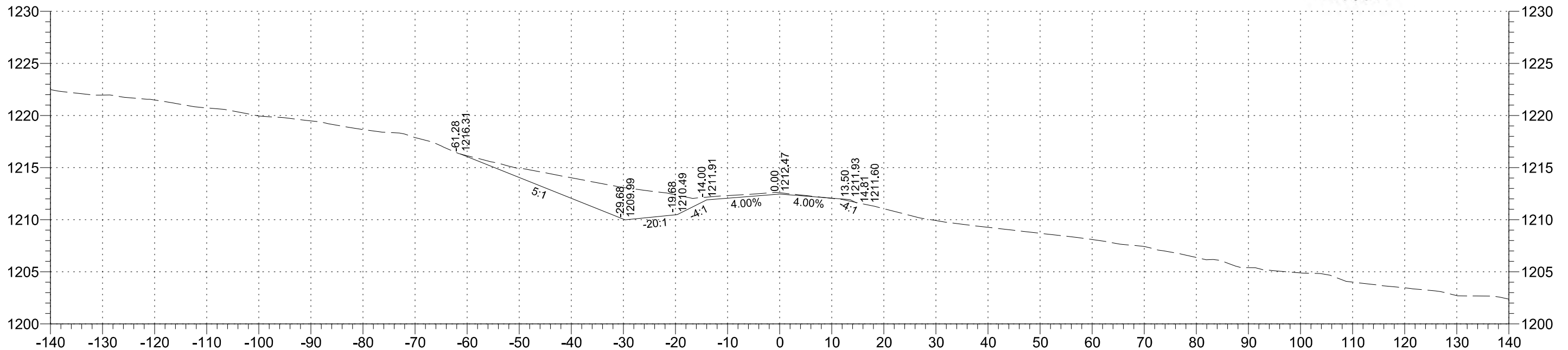
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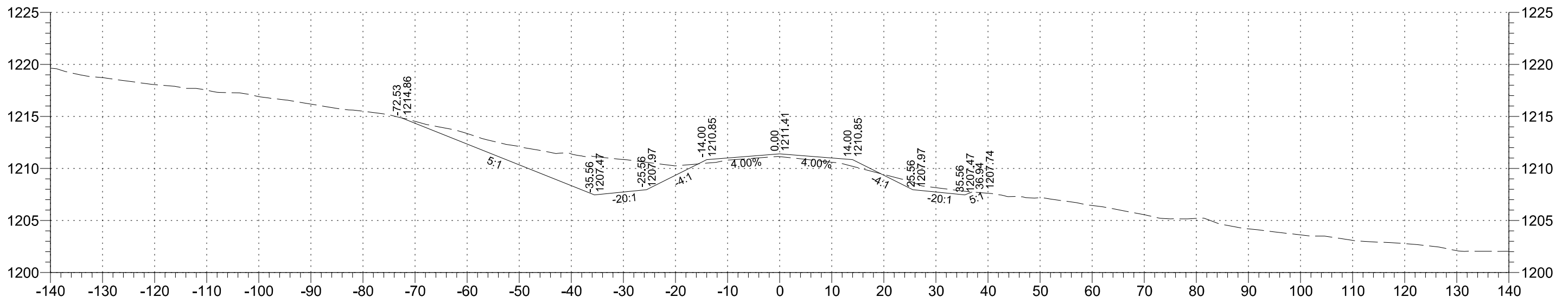
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FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8034(35)	29	31

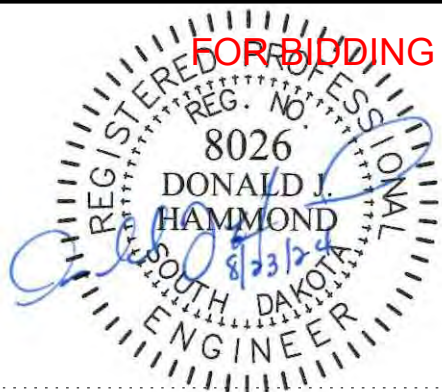


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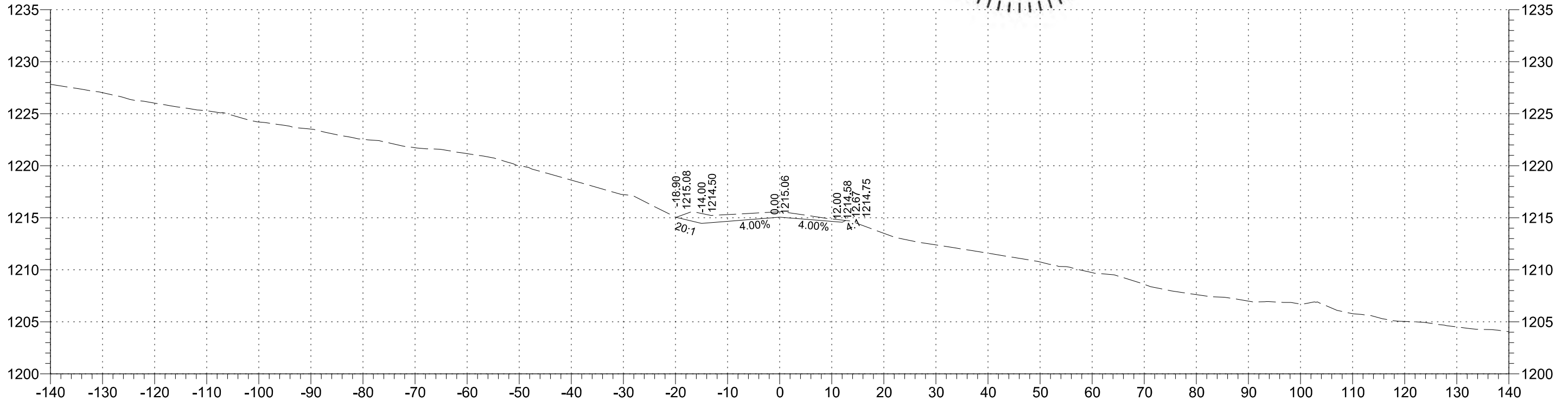


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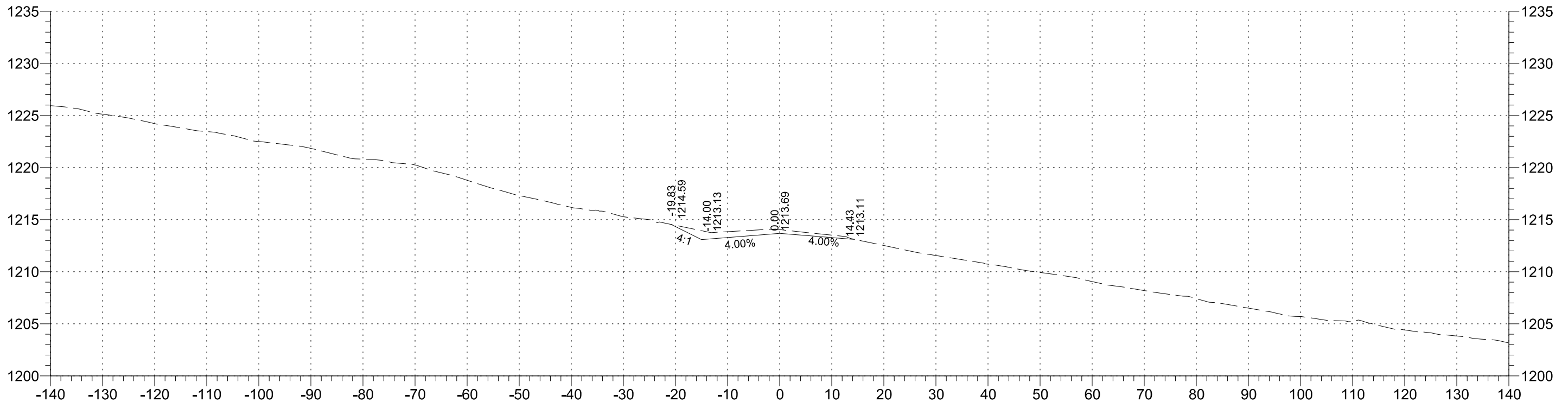
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8034(35)	30	31



FOR BIDDING PURPOSES ONLY



15+00



14+50

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8034(35)	31	31

