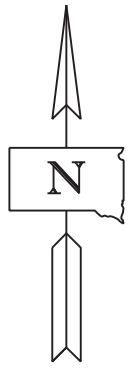


STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	1	43

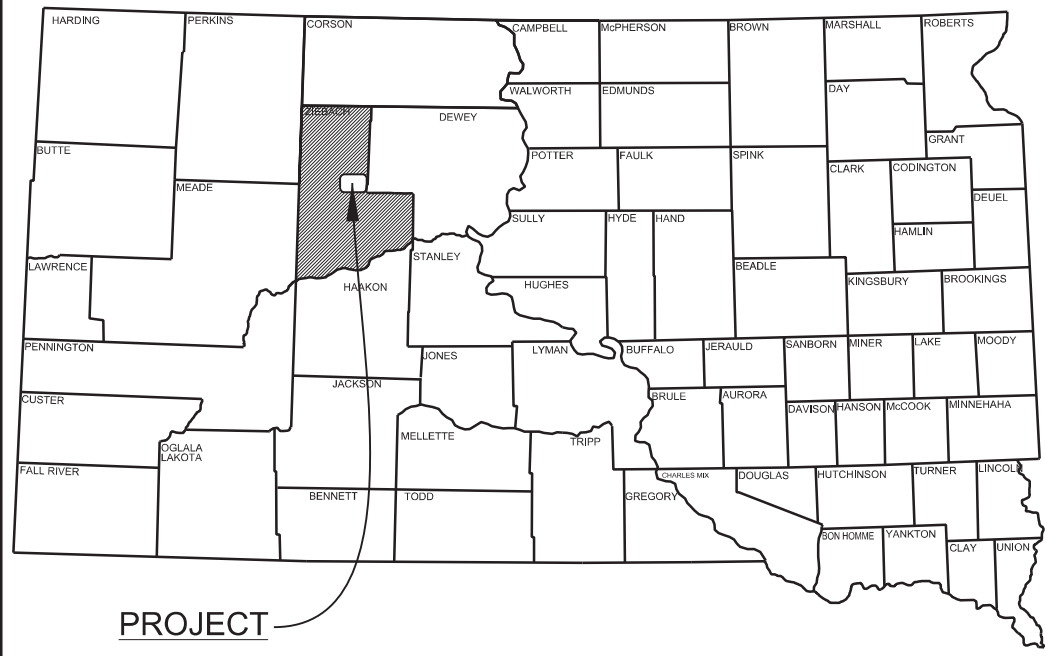
STATE OF SOUTH DAKOTA **FOR BIDDING PURPOSES ONLY**
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED
PROJECT BRO-B 8069(04)
ZIEBACH COUNTY

STRUCTURE REPLACEMENT AND APPROACH GRADING
 Str. No. 69-203-288
 PCN 08NE



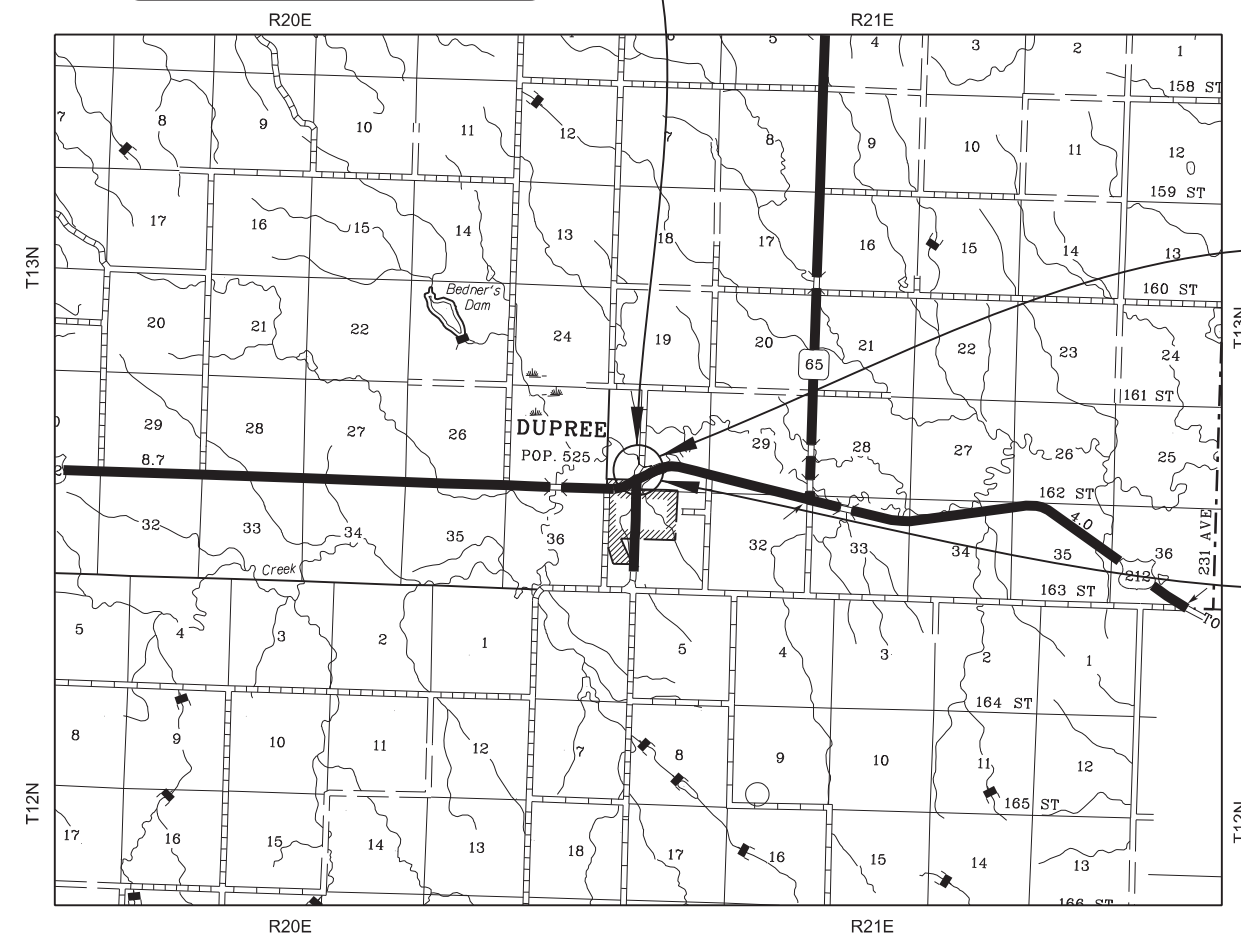
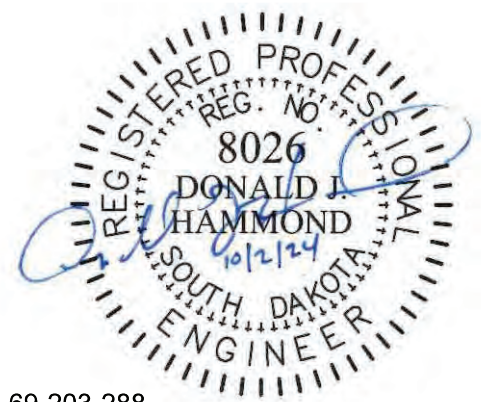
INDEX OF SHEETS

SHEET NO. 1	TITLE AND LAYOUT MAP
SHEET NO. 2-9	ESTIMATE OF QUANTITIES AND NOTES
SHEET NO. 10	TYPICAL SECTIONS AND CONTROL DATA
SHEET NO. 11	TRAFFIC CONTROL
SHEET NO. 12-13	EROSION AND SEDIMENT CONTROL DETAILS
SHEET NO. 14-17	SWPPP NOTES
SHEET NO. 18-19	PLAN & PROFILE VIEWS
SHEET NO. 20-30	STRUCTURE SHEETS
SHEET NO. 31-35	STANDARD PLATES
SHEET NO. 36-40	CROSS SECTIONS - MAIN CENTERLINE
SHEET NO. 41-43	CROSS SECTIONS - TRAFFIC DIVERSION



PROJECT

END PROJECT BRO-B 8069(04)
 At Sta. 12+75
 1019.4' North and 1626.5' East
 of the SW Corner of
 Sec. 30 - T13N - R21E



Str. No. 69-203-288

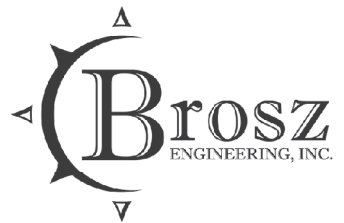
BEGIN PROJECT BRO-B 8069(04)
 At Sta. 7+00
 481.2' North and 1551.4' East
 of the SW Corner of
 Sec. 30 - T13N - R21E

DESIGN DESIGNATION

ADT (2018)	10
ADT (2032)	10
DHV	15
D	50.0%
T DHV	3.5%
T ADT	2.0%
V	30 mph

STORM WATER PERMIT DATA

Major Receiving Body of Water: Bear Creek
 Area Disturbed: 2.38 Acres
 Total Project Area: 2.50 Acres
 Latitude: 45° 03' 18.0" N
 Longitude: -101° 36' 11.6" W



ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

REVISED 11/21/24
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8069(04)	2	43

Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0030	Maintenance of Traffic Diversion(s)	Lump Sum	LS
004E0050	Remove Traffic Diversion(s)	Lump Sum	LS
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	0.214	Mile
009E3250	Miscellaneous Staking	0.214	Mile
009E3280	Slope Staking	0.214	Mile
009E3290	Structure Staking	1	Each
100E0020	Clear and Grub Tree	31	Each
110E0135	Remove Delineator	20	Each
110E1700	Remove Silt Fence	600	Ft
110E5020	Salvage Traffic Sign	7	Each
110E5500	Salvage Pipe	24	Ft
120E0010	Unclassified Excavation	5,970	CuYd
230E0010	Placing Topsoil	893	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
260E3030	Gravel Surfacing, Salvaged	205.0	Ton
270E0110	Salvage and Stockpile Granular Material	205.0	Ton
450E4758	18" CMP 14 Gauge, Furnish	38	Ft
450E4760	18" CMP, Install	38	Ft
450E5306	18" CMP Sloped End, Furnish	2	Each
450E5307	18" CMP Sloped End, Install	2	Each
600E0200	Type II Field Laboratory	1	Each
634E0110	Traffic Control Signs	205.7	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	6	Each
730E0210	Type F Permanent Seed Mixture	62	Lb
731E0100	Fertilizing	3,563	Lb
732E0100	Mulching	6.1	Ton
734E0103	Type 3 Erosion Control Blanket	405	SqYd
734E0154	12" Diameter Erosion Control Wattle	420	Ft
734E0602	Low Flow Silt Fence	1,175	Ft
734E0610	Mucking Silt Fence	82	CuYd
734E0620	Repair Silt Fence	294	Ft

Structure No. 69-203-288

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0200	Structure Excavation, Box Culvert	122	CuYd
421E0200	Box Culvert Undercut	151	CuYd
460E0120	Class A45 Concrete, Box Culvert	264.5	CuYd
480E0100	Reinforcing Steel	31,509	Lb
700E0210	Class B Riprap	560.0	Ton
831E0110	Type B Drainage Fabric	526	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 0.11 acres of stream (includes temporary and permanent) becoming impacted. Refer to 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)
Bear Creek	10+00	0.015	0.015	0.06	0.02	0.11

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 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.

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 D: WATER QUALITY STANDARDS**COMMITMENT D1: SURFACE WATER QUALITY**

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

Action Taken/Required:

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

COMMITMENT D2: SURFACE WATER DISCHARGE

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

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

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

Action Taken/Required:

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

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

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

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

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

COMMITMENT E: STORM WATER

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

Action Taken/Required:

The EPA 2022 Construction General Permit is required for this project. The SDDOT is the owner of this permit and will submit the NOI to EPA 15 days prior to project start in order to obtain coverage. Work can begin after authorization is received from the EPA. This permit provides coverage for construction and dewatering activities for this project.

The Contractor must adhere to the "Special Provision Regarding Storm Water Discharge to Waters of the United States within Indian Reservations".

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 Tribal Historic Preservation Office (THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require 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. But must complete any needed cultural resource survey in coordination with the THPO. 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.

THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor 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 J: CONSTRUCTION PRACTICES FOR TEMPORARY WORKS IN WATERWAYS OF THE U.S.

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

Action Taken/Required:

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

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

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

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

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

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

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

Table of U.S. Waterways to Protect

Station	Waterway	Ordinary High-Water Elevation
10+00	Bear Creek	2,348.4'

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

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

COMMITMENT 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.

COMMITMENT O: SECTION 401 WATER QUALITY CERTIFICATION

The SDDOT has obtained a Clean Water Act Section 401 Water Quality Certification from the Environmental Protection Agency (EPA) regarding an US Army Corp of Engineers CWA Section 404 Permit for the actions associated with this project.

Action Taken/Required:

The Contractor will comply with all requirements contained in the Section 401 certification. A copy of the EPA CWA 401 Certification must be retained on-site.

COMMITMENT T: TRIBAL COORDINATION FOR PLANT HARVEST

The THPO has requested to collect local flora and fauna prior to any ground disturbing activities.

Action Taken/Required:

Prior to construction, the THPO will be provided the opportunity to relocate or harvest plants within the limits of the Structure No. 69-203-288 replacement project. The time period for plant relocation and/or collection will be discussed and agreed upon during the pre-construction meeting.

The Contractor will notify the SDDOT Environmental Office and the THPO (Steve Vance, Phone: 605-964-7554) of the scheduled pre-construction meeting for the purposes of coordinating the schedule for harvesting and relocating plants.



COMMITMENT U: CULTURAL RESOURCE CONSTRUCTION MONITORING

As a result of coordination with the THPO, the potential for sensitive sites have been identified within and/or adjacent to the project rights-of-way.

Action Taken/Required:

During construction, a Secretary of Interior-qualified archaeologist will be present to monitor ground disturbing activities associated with the replacement of Structure No. 69-203-288 over Bear Creek.

Prior to the pre-construction meeting, the Contractor will contact ARC (Phone: 605-394-1936) and the THPO (Steve Vance, Phone: 605-964-7554) to be present at the meeting for the purposes of coordinating the monitoring schedule. Ground disturbing activities associated with construction will not begin until monitors are present.

All costs associated with monitoring will be submitted to the Project Engineer for reimbursement.

Before earth disturbing activities in the project footprint occur, there will be seven (7) days prior notification provided to ARC for scheduling monitoring. ARC and tribal monitors are to be present during earth disturbing activities to monitor the removal of topsoil and identify any culturally sensitive sites that may be uncovered.

ZIEBACH COUNTY REQUIREMENTS

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

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

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 60 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 sheet.

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.

SHRINKAGE FACTOR: Embankment +35%

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 elsewhere in the plans or bidding documents.

TABLE OF CLEAR AND GRUB TREE (>6" DIAMETER)

Station	L/R	Quantity (Each)
9+65 - 9+70	L	3
9+75 - 9+85	L	3
9+95	R	2
9+95	L	1
10+15	L	1
10+25 - 10+45	L	7
10+50	L	1
10+75-90	L	4
11+00	R	1
11+05	L	2
11+20	L	1
11+30	R	1
11+40	L	1
11+60	L	1
11+65	R	1
11+85	L	1
Total:		31

TRAFFIC DIVERSION

The traffic diversion is located at Sta. 10+00. The traffic diversion will be constructed according to Section 4.5 A of the Specifications. Installation and removal of the traffic diversion will meet all requirements as set forth in the South Dakota Surface Water Quality Standards.

The traffic diversion(s) located at Station 10+00 will be constructed according to the geometric layouts shown in the plans with the temporary drainage structure(s) provided in the following table. The temporary structure sizes are designed to pass the design flood frequency flows without overtopping the traffic diversion grade, to minimize potential upstream flooding, and are sized to meet FEMA (Federal Emergency Management Agency) requirements where applicable. The structure(s) will be placed at the flowline elevation and location as stated in the "Table of Temporary Drainage Structures in Traffic Diversions". If the Contractor proposes to use a different size drainage structure and/or a different geometric layout for the temporary diversion, the proposal must be submitted to the Engineer during the project preconstruction meeting. This information will be forwarded to the DOT Hydraulics Office for review. Construction of the traffic diversion(s) will not be allowed until approval of the proposal is obtained from the Hydraulics Office.

Table of Temporary Drainage Structures in Traffic Diversion

Traffic Diversion Location	Design Flood Frequency	* Flowline Elevation	Ordinary High Water Elevation	Temporary Structure Option 1	Temporary Structure Option 2
10+00	2-year	2341.80	2348.40	2-96" CMP	2-96" CMP Equivalent

* The flowline elevation is at the centerline of the traffic diversion.

Costs to provide temporary drainage structures will be incidental to the contract lump sum price for "Maintenance of Traffic Diversion(s)".

The topsoil will be removed from the limits of the traffic diversion prior to construction and replaced upon removal of the traffic diversion.

Traffic diversions in waterways will be constructed such that any material placed below the ordinary high-water elevation will conform to the requirements of Class B riprap. Type B drainage fabric will be placed under the riprap and under the diversion embankment that is placed in a wetland as shown in the construction plans. The Type B drainage fabric will also be placed above the riprap. The quantity of riprap used in the traffic diversion is included in the quantity for "Class B Riprap" in the estimate of quantities. The quantity of riprap used for the traffic diversion will be reused as riprap for the structure and channel banks, as detailed in the plans, and all costs incurred to place and remove the riprap at the traffic diversion and subsequently place the riprap at the structure will be incidental to the contract unit price per ton for "Class B Riprap". The traffic diversions will be built in close conformity to the plan grade line. Unless otherwise shown in the plans, the traffic diversions will be removed such that the original ground surface contours and elevations are restored and the hydraulic capacity of the waterway is maintained. The removal will be done in such a manner that there is minimal disturbance to the channel bed.

The removed traffic diversion embankment will be used in the mainline embankment unless otherwise approved by the Engineer.



Table of Temporary Drainage Structures in Traffic Diversion (Cont.)

Traffic Diversion Excavation as shown on the plans profile sheet is the excavation required to construct the traffic diversion. The Traffic Diversion Excavation Quantity is shown in the Table of Excavation Quantities by Balances and is included in the bid item quantity for "Unclassified Excavation".

Added Traffic Diversion Excavation as shown on the plans profile sheet for Traffic Diversion is the excavation required to construct the traffic diversion portion that is located outside the mainline cross section work limits. The Added Traffic Diversion Excavation quantity is added to the unclassified excavation quantity in the respective bid items.

All costs associated with removal of the embankment material, base course surfacing and placing on approach and temporary drainage structure will be incidental the contract lump sum price for "Remove Traffic Diversion".

TABLE OF TRAFFIC DIVERSION RIPRAP AND DRAINAGE FABRIC

Station	L/R	Ordinary High-Water Elevation	Traffic Diversion		Structure	
			Traffic Diversion Riprap (Ton)	Traffic Type B Drainage Fabric (SqYd)	Structure Class B Riprap (Ton)	Structure Type B Drainage Fabric (SqYd)
10+00	L	2348.4	560	445	560	526
Totals			560	445	560	526

SALVAGE AND STOCKPILE GRANULAR MATERIAL

The Contractor will salvage and stockpile the existing gravel surfacing from the mainline roadway. The existing surfacing consists of approximately 4 inches of gravel surfacing. Scrapers may be used for removal of existing surfacing; however, Scrapers will not be driven over top of the existing or new structures. Stockpiling procedures will be done in accordance with the Specifications. Contamination of the gravel will be kept to a minimum, to the satisfaction of the Engineer. Sieve analysis requirements will be waived.

The cost for all labor, materials, and equipment required for removal, haul, and stockpile the salvaged surfacing will be included in the contract unit price per ton for "Salvage and Stockpile Granular Material". Plan's quantity will be used for this contract item without further field measurement.

Upon completion of the excavation and construction of the Traffic Diversion subgrade, the Contractor will place and compact the Salvaged and Stockpiled Granular Material on the finished Traffic Diversion subgrade to serve as temporary surfacing. Compaction will be to the satisfaction of the Engineer. The rate of application of the salvage gravel will be determined in the field by the Engineer. Water may be required to achieve compaction.

"Gravel Surfacing, Salvage" will be obtained from the salvaged and Stockpiled Granular material and may be used without further testing.

The cost for all labor, materials, and equipment needed to haul, install, and compact the salvaged surfacing will be included in the contract unit price per ton for "Gravel Surfacing, Salvaged". Plan's quantity will be used for this contract item without further field measurement.

Prior to removal of the Traffic Diversion the Contractor will salvage any remaining suitable temporary gravel surfacing from the Traffic Diversion for use on the Mainline prior to county installation of new mainline final surfacing at the Engineer's discretion. All costs for this work will be incidental to the bid item "Remove Traffic Diversion".

The County will be responsible for the proper and timely placement of gravel surfacing on the completed placed salvaged gravel.

INCIDENTAL WORK, GRADING

Concrete Rubble near the in-place structure will be disposed of at a site approved by the Engineer and in compliance with Commitment H: Waste Disposal.

It is the Contractor's responsibility to contact and coordinate their work schedule with the Ziebach County Highway Department. Cost for this work will be incidental to the contract lump sum price for "Incidental Work, Grading".

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

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

TABLE OF UNCLASSIFIED EXCAVATION

Excavation	(CuYd)
Salvage Gravel Surfacing	1180
Topsoil	105
Exc. for RCBC Installation	893
Added Traffic Diversion Excavation	2,691
	1101
Total	5970

TABLE OF SUPERELEVATION

Station	to	Station	
7+00.00		9+71.00	- Normal Crown Section
9+71.00		10+71.00	- Superelevation Transition
10+71.00		11+69.21	- 250' Radius Curve Right 0.04' Superelevation Rate Point of Rotation at Centerline
11+69.21		12+69.21	- Superelevation Transition
12+69.21		12+75	- Normal Crown Section

TYPE II FIELD LABORATORY

The lab will be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection will be provided with a multi-port wireless router. The internet connection will be a minimum speed of 5 Mbps unless limited by job location and approved by the DOT. Prior to installing the wireless router, the Contractor will submit the wireless router's technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. These items will be incidental to the contract unit price per each for "Type II Field Laboratory".

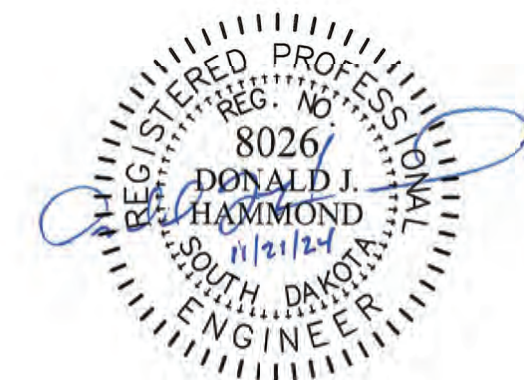
SALVAGE TRAFFIC SIGN

All signs listed for salvage in the Table of Salvage Traffic Sign will have the existing posts, bases, and signs dismantled and delivered to the Ziebach County Highway Department. The Contractor will notify the Engineer two days prior to time of delivery to the Ziebach County Highway Department so correct placement for storage and inventory of materials can be made upon receipt. All bolts, nuts, and washers will be placed in individual 5-gallon pails. Wooden posts will be stockpiled separately from steel posts. All signs listed for salvage will be handled with care so that the signs are not damaged during removal or transport. The Contractor will replace and pay for any salvaged signs damaged in their care.

All costs for labor and equipment necessary to remove, dismantle, and deliver signs to the Ziebach County Highway Department 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 SIGN

Station	L/R	Remarks
7+07	R	Remove and Salvage Street Sign
7+29	L	Remove and Salvage Stop Sign
8+38	R	Remove and Salvage Weight Limit Sign
9+75	R	Remove and Salvage Two Height Restriction Signs
11+67	L	Remove and Salvage Height Restriction Sign
12+15	L	Remove and Salvage Weight Limit Sign



REMOVE DELINEATORS

Existing signs that are shown as being removed in the Table of Remove Delineators 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.

TABLE OF REMOVE DELINEATORS

Station	L/R	Remarks	Quantity
7+81 to 12+21	L&R	Delineator	16
9+82	L&R	Type 3 Object Marker	2
10+21	L&R	Type 3 Object Marker	2
Total:			20

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, warning signs, and delineation will be temporarily reset and maintained during construction as directed by the Engineer. Removing, relocating, salvaging, and resetting of the above items will be the responsibility of the Contractor.

Non-applicable traffic control devices will be completely covered or removed during periods of inactivity. Periods of inactivity will be defined as no work taking place for a period of more than 2 calendar days.

Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the County or State.

The Contractor will provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

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

Access to the Wastewater Utility Pump Station at 8+65 R will be maintained throughout the life of the project.

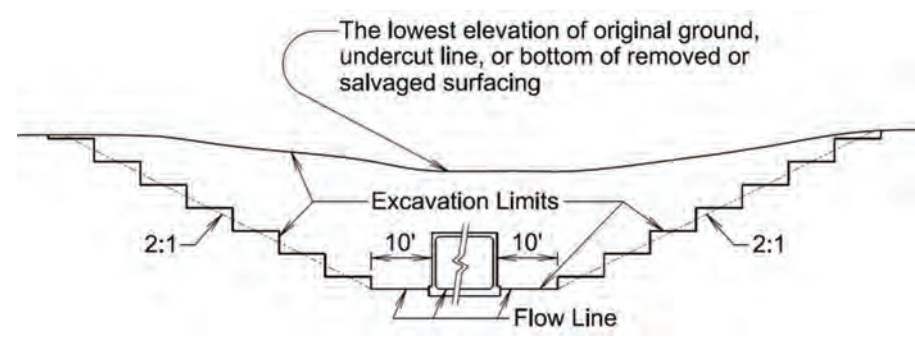
EXCAVATION FOR REINFORCED CONCRETE BOX CULVERT INSTALLATION

Included in the quantity of "Unclassified Excavation" are 2691 cubic yards of excavation for installation of reinforced concrete box culvert.

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.



SALVAGED ITEMS

The 15" corrugated metal pipe and flared end sections located at Sta. 8+65 Rt. will be salvaged for future highway use and hauled to the Ziebach County Highway Department (519 6th St., Dupree, SD) as directed by the Engineer. Care will be taken not to damage the structural properties of the items during dismantling and transporting. All materials not salvaged will be disposed of in accordance with the Specifications. All costs for salvaging and transporting the 15" corrugated metal pipe will be paid for under the contract unit price per foot for "Salvage Pipe". Before preparing his/her bid, the Contractor will make a visual inspection of the project to verify the extent of the work and material involved.

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 3/8-inch x 1/2-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes will have 3-inch x 1-inch or 5-inch x 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

Areas within the project have soils that are highly corrosive to steel. Corrugated metal pipe in these areas will be polymer coated 14-gauge steel as specified in the Table of Pipe Quantities. Any required connection bands, elbows, tees, crosses, wyes, reducers, and transitions will also be polymer coated. The connection bands will be 24 inches wide. All polymer coated corrugated metal pipe and components will be in conformance with AASHTO M245. Riveted pipe will not be allowed.

All damage to the polymer coating will be repaired in accordance with the manufacturer's recommendations prior to installation of the pipe. All costs associated with the polymer coating including repair of polymer coating will be incidental to the corresponding CMP contract items.

Metal pipe end sections connected to polymer coated CMP will be aluminum-coated (Type 2) in accordance with AASHTO M36 as specified in the Table of Pipe Quantities. All costs associated for gauge, coating, and connections will be incidental to the corresponding CMP End Section contract items

PIPE COVER

The earthen subgrade cover for some pipe installations is less than one foot. The Contractor will take the necessary precautions to ensure the structural properties of the pipes are not damaged after installation and prior to the placement of final surfacing. Any additional costs for preventing damage to these pipes will be incidental to the contract unit price per foot for the corresponding pipe installation contract item.

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements. The plans quantity for "Placing Topsoil" as shown in the Estimate of Quantities will be the basis of payment for this item without further field measurements. If changes are necessary on construction, the alter quantities will be measured for payment.

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

Station	to	Station	Topsoil (CuYd)
8+50		12+00	893
Total:			893

MYCORRHIZAL INOCULUM

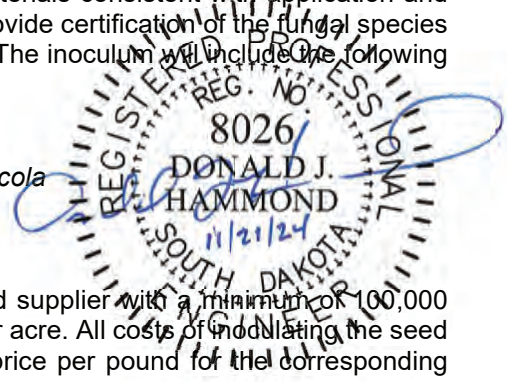
Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of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

- 25% *Glomus intraradices*
- 25% *Glomus aggregatum or deserticola*
- 25% *Glomus mosseae*
- 25% *Glomus etunicatum*

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 www.mycorrhizae.com
AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 www.reforest.com



PERMANENT SEEDING

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

Type F Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
Total:		26

FERTILIZING

The Contractor will apply an all-natural slow-release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer's recommended method of application.

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

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 www.sustane.com
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 www.perfect-blend.com

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 MULCHING (GRASS HAY OR STRAW)

Station	Location	Quantity (Ton)
6+91 to 12+75 L&R	Inslope/Backslope/Ditch	4.1
	Additional Quantity:	2.0
Total:		6.1

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>



TABLE OF EROSION CONTROL WATTLE

Station	L/R	Diameter (In.)	Location	Quantity (Ft.)
* 0+75 to 1+50	L	12	Toe of Inslope	75'
* 2+00	L & R	12	Ditch Bottom	30'
* 3+40	L	12	Ditch Bottom	15'
* 3+50	R	12	Ditch Bottom	15'
* 4+75	R	12	Ditch Bottom	15'
9+00	L	12	Ditch Bottom	20'
9+50	R	12	Ditch Bottom	20'
9+65	L	12	Ditch Bottom	20'
10+75	R	12	Ditch Bottom	20'
10+80	L	12	Ditch Bottom	20'
11+50	R	12	Ditch Bottom	20'
Additional Quantity			Engineer's Discretion	150'
Total:				420'

* Traffic diversion stationing

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)
* 1+00 to 3+25	Storage Pile Perimeter	600'
7+50 to 9+50	Storage Pile Perimeter	450'
8+45 to 8+50 R	Inlet of Pipe	25'
Additional Quantity	Engineer's Discretion	100'
Total:		1175'

* Traffic diversion stationing

REMOVE SILT FENCE

The Contractor will remove the storage pile perimeter protection silt fencing immediately following the removal of the soil stockpiles. All costs related to removal of silt fence is to be included in the unit price bid for Remove Silt Fence.

EROSION CONTROL BLANKET

Erosion control blanket will be installed 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>

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

TABLE OF EROSION CONTROL BLANKET

Station	Location	Type	Quantity (SqYd)
9+46 to 9+85 R	SE Quadrant	2	135
10+17 to 10+65 R	NE Quadrant	2	170
	Additional Quantity:	2	100
Total Type 2 Erosion Control Blanket:			405

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				
225 th Avenue (2 Lanes Gravel Road)	7+00	12+75	2	575	0.109	1	1	0.109	0.109		
Traffic Diversion	0+18	5+73	2	555	0.105	1	1	0.105	0.105		
Structure No. 69-203-288 (CIP RCBC)	9+76.89	10+13.11								1	
Totals:								0.214	0.214	0.214	1

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

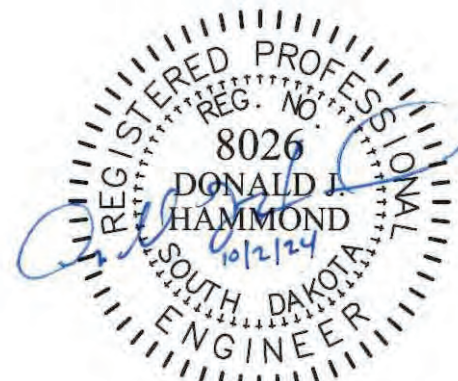
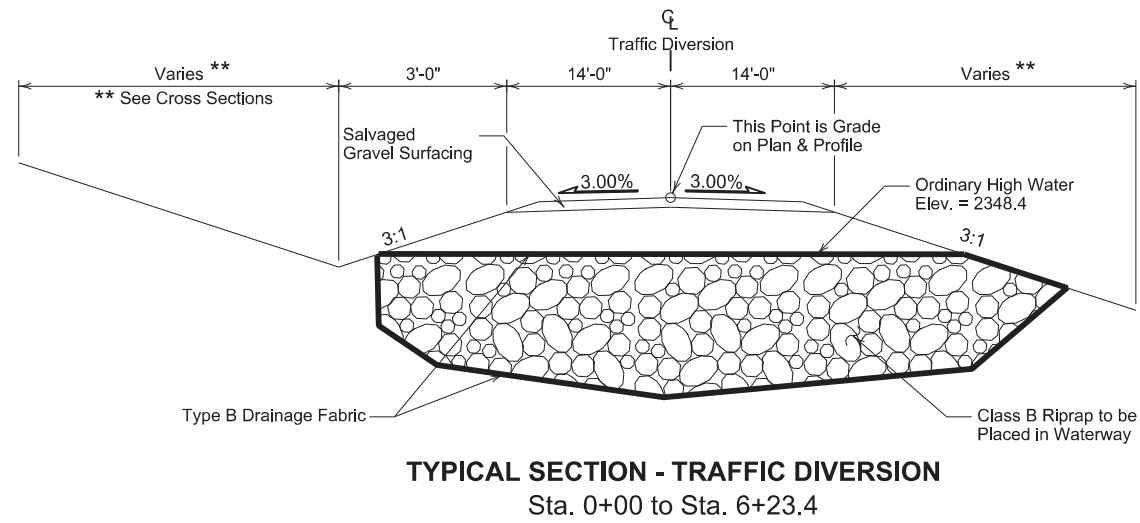
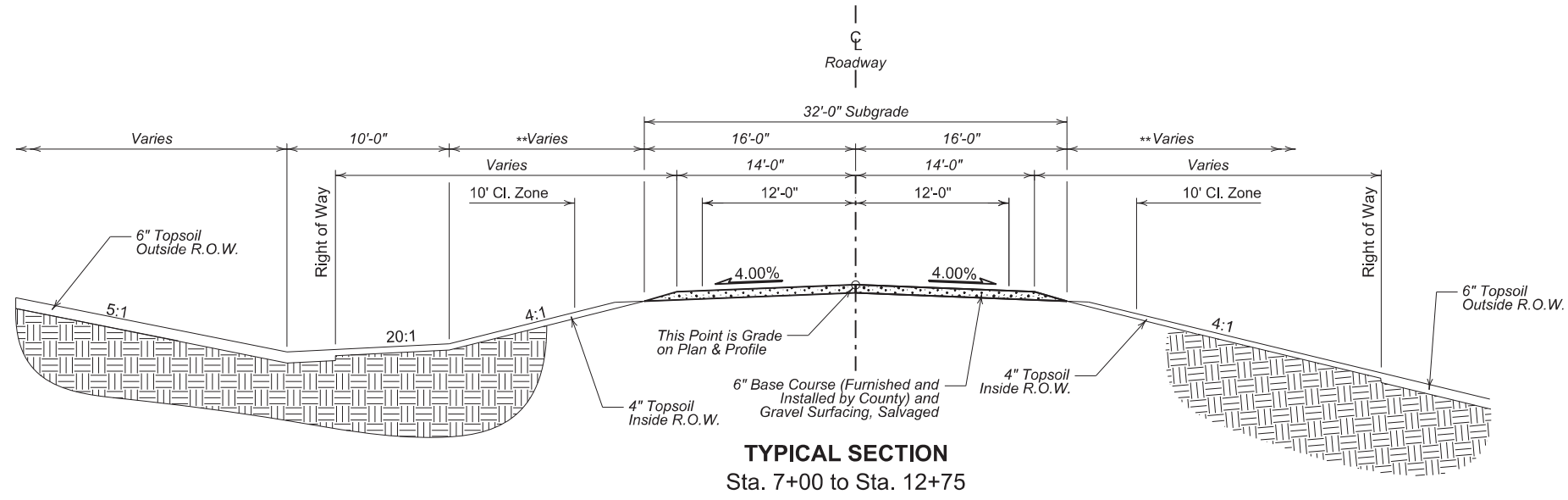
** Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)



TYPICAL GRADING SECTIONS

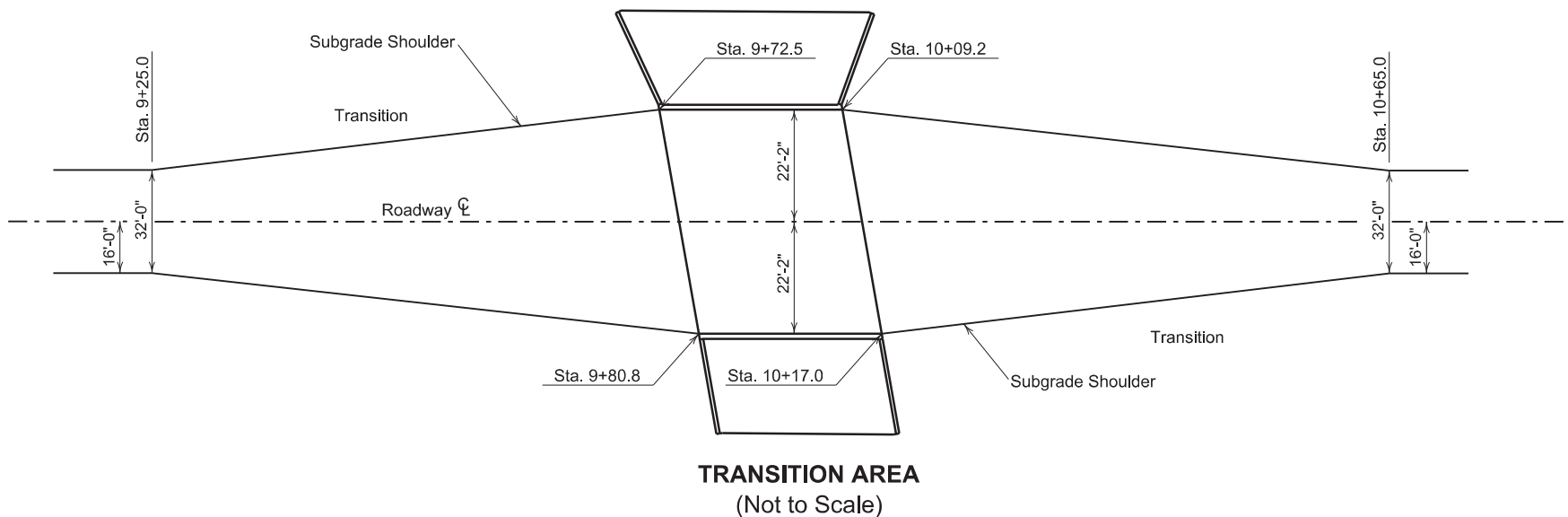
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	10	43



HORIZONTAL ALIGNMENT (MAINLINE)				
ELEMENT	Curve Data	STATION	NORTHING	EASTING
P.O.B.		6+73.25	449175.60	1554268.77
P.C.		7+04.74	449203.56	1554254.30
P.I.		7+68.75	449260.41	1554224.88
P.T.		8+30.07	449324.41	1554226.40
	Delta=28°43'29"R			
	DOC=22°55'06"			
	R=250.00'			
	L=125.34'			
	T=64.01'			
P.C.		10+20.98	449515.27	1554230.94
P.I.		11+24.63	449618.88	1554233.41
P.T.		12+19.21	449695.09	1554303.65
	Delta=41°18'01"R			
	DOC=20°50'05"			
	R=275.00'			
	L=198.23'			
	T=103.64'			
P.O.E.		12+75	449736.11	1554341.45

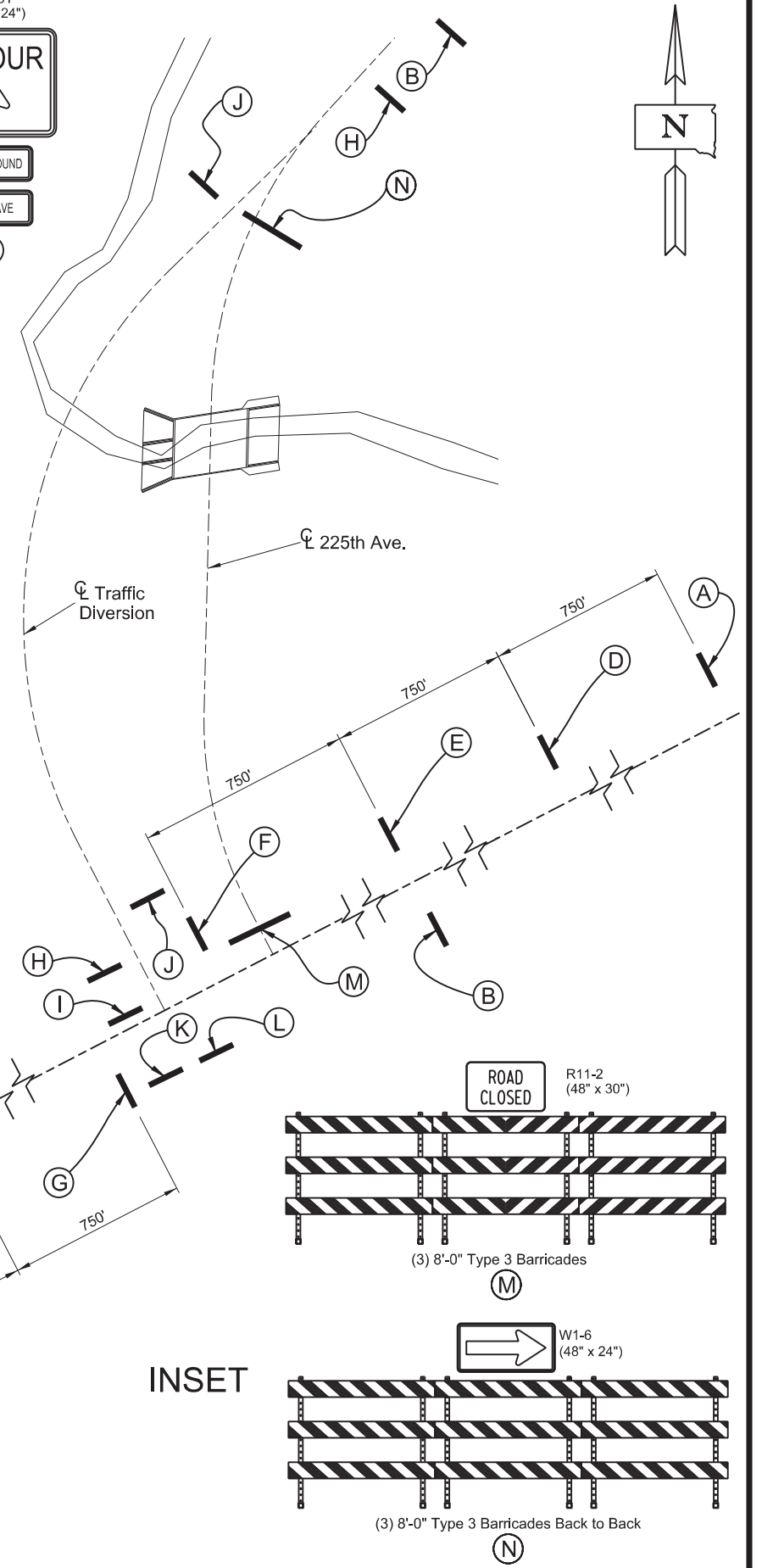
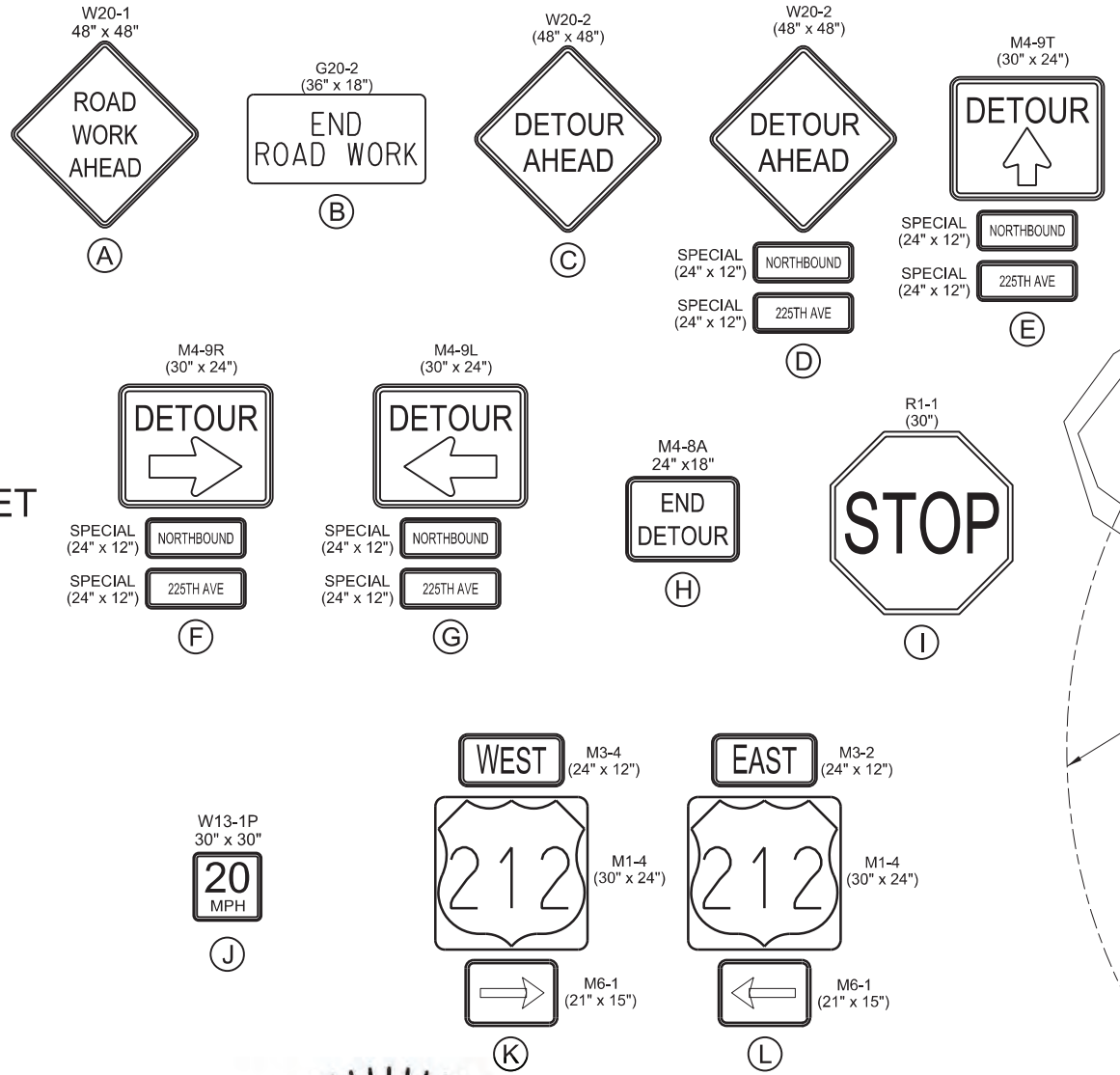
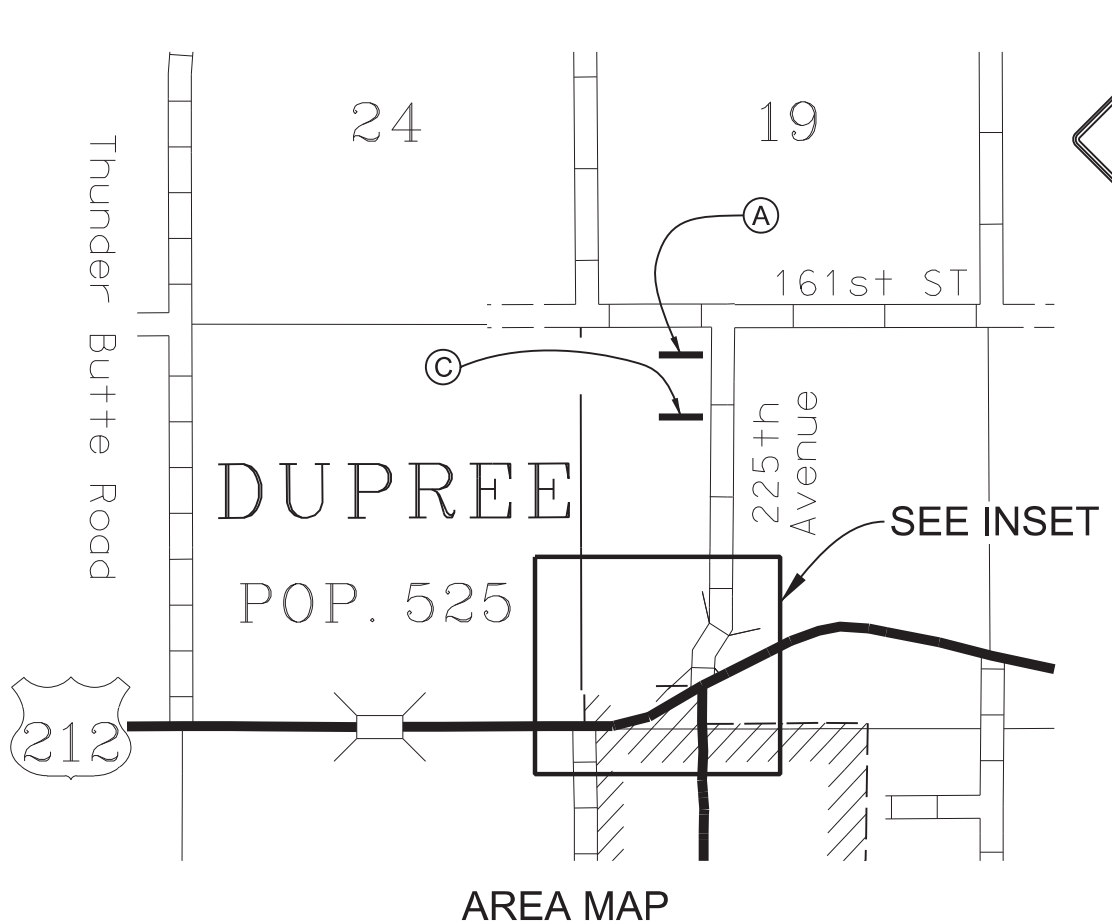
HORIZONTAL ALIGNMENT (TRAFFIC DIVERSION)				
ELEMENT	Curve Data	STATION	NORTHING	EASTING
P.O.B.		0+00.00	449141.12	1554202.16
P.C.		1+15.66	449141.12	1554202.16
P.I.		3+37.66	449441.01	1554046.97
P.T.		4+97.90	449596.22	1554205.69
	Delta=73°00'06"R			
	DOC=19°05'55"			
	R=300.00'			
	L=382.24'			
	T=221.99'			
P.O.E.		6+23.44	449683.99	1554295.45



CONTROL DATA					
HORIZONTAL AND VERTICAL CONTROL POINTS					
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
CP1 - REBAR	14+86.82	50.02' Rt.	449879.443	1554520.026	2355.14
CP2 - REBAR	8+66.30	53.02' Rt.	449359.365	1554280.273	2355.24
CP3 - REBAR			448958.551	1538940.495	2435.53

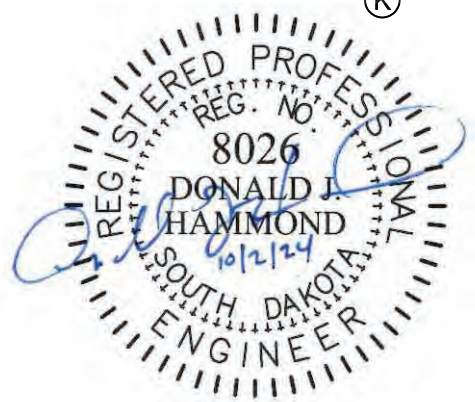
The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System, North Zone (NAD 88) SF = 0.999889

TRAFFIC CONTROL DETAILS FOR BIDDING PURPOSES ONLY



ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	1	30"	5.2	5.2
R11-2	ROAD CLOSED	1	48" x 30"	10.0	10.0
W1-6	LARGE ARROW (one direction)	1	48" x 24"	8.0	8.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6
W20-1	ROAD WORK AHEAD	3	48" x 48"	16.0	48.0
W20-2	DETOUR AHEAD	3	48" x 48"	16.0	48.0
SPECIAL	NORTHBOUND	4	24" x 12"	2.0	8.0
SPECIAL	225TH AVE	4	24" x 12"	2.0	8.0
G20-2	END ROAD WORK	3	36" x 18"	4.5	13.5
M1-4	US ROUTE MARKER (212)	2	30" x 24"	5.0	10.0
M3-2	DIRECTION MARKER - EAST	1	24" x 12"	2.0	2.0
M3-4	DIRECTION MARKER - WEST	1	24" x 12"	2.0	2.0
M4-8a	END DETOUR	2	24" x 18"	3.0	6.0
M4-9L	DETOUR LEFT ARROW	1	30" x 24"	5.0	5.0
M4-9R	DETOUR RIGHT ARROW	1	30" x 24"	5.0	5.0
M4-9T	DETOUR UP ARROW	2	30" x 24"	5.0	10.0
M6-1	DIRECTION ARROW - Horizontal Single Head (L or R)	2	21" x 15"	2.2	4.4
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT		205.7	



INSET

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** 3.18 Ac.
- **5.3 (3b): Total Area to be Disturbed** 1.41 Ac.
- **5.3 (3c): Maximum Area Disturbed at One Time** 1.41 Ac.
- **5.3 (3d): Existing Vegetative Cover (%)** 100%
- **5.3 (3d): Description of Vegetative Cover** Grass and Trees
- **5.3 (3e): Soil Properties: AASHTO Soil or USDA-NRCS Soil Series Classification** Reeder loam and Daglum-Rhoades loam
- **5.3 (3f): Name of Receiving Water Body/Bodies** Bear Creek
- **5.3 (3g): Location of Construction Support Activity Areas** On Site

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.	
Install channel and ditch bottom protection.	
Clearing and grubbing.	
Remove and stockpile topsoil.	
Stabilize disturbed areas.	
Remove existing structure	
Install box culvert and rough grade roadway	
Install riprap	
Final grading.	
Replace topsoil	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES FOR BIDDING PURPOSES ONLY

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

Perimeter Controls (See Detail Plan Sheets)

Description	Estimated Start Date
<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 checked="" 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 checked="" 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 VIEW

FOR BIDDING PURPOSES ONLY

REVISED 11/21/24

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	18	43

Sta. 8+65 R
Salvage and Stockpile 15'-24' CMP
(Salvage Pipe)

Sta. 9+80.1 to 10+19.5
Remove 40'-0" Single Span
Steel Pony Truss Bridge
(Incidental Work, Structure)

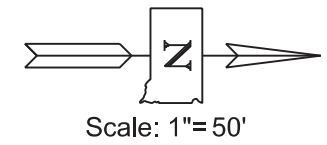
Sta. 9+50 to 10+25
Remove Concrete Rubble
Near Existing Structure
(Incidental Work, Grading)

Sta. 7+81 to 12+21 - L & R
Remove all delineators and
object markers near existing bridge.
4 Object Markers and 16 Delineators total.
(Remove Delineators)

Salvage Signs at the following Locations:
Station L/R Remarks
7+07 R Intersection Road Sign
7+29 L Stop Sign
8+38 R Weight Limit Sign
9+75 R (2) Height Restriction Signs
11+67 L Height Restriction Sign
12+15 L Weight Limit Sign

Clear and Grub Trees at the Following Locations:
Station/Location No. Trees

Sta. 9+65 - 30' Lt. to 9+70 - 15' Lt.	3
Sta. 9+75 - 25' Rt. to 9+85 25' Rt.	3
Sta. 9+95 - 30' Rt.	1
Sta. 9+95 - 55' Rt.	1
Sta. 9+95 - 60' Lt.	1
Sta. 10+15 - 70' Lt.	1
Sta. 10+25 - 60' Lt. to 10+35 - 60' Lt.	2
Sta. 10+30 - 90' Lt. to 10+45' - 90' Lt.	2
Sta. 10+35 - 110' Lt.	1
Sta. 10+35 - 2' Lt. to 10+45 2' Lt.	2
Sta. 10+50 - 55' Lt.	1
Sta. 10+75 - 50' Lt. to 10+85 - 70' Lt.	3
Sta. 10+90 - 35' Lt.	1
Sta. 11+00 - 30' Rt.	1
Sta. 11+05 - 35' Lt. to 11+05 - 55' Lt.	2
Sta. 11+20 - 30' Lt.	1
Sta. 11+30 - 20' Rt.	1
Sta. 11+40 - 30' Lt.	1
Sta. 11+60 - 25' Lt.	1
Sta. 11+65 - 30' Rt.	1
Sta. 11+85 - 25' Lt.	1
Total:	31

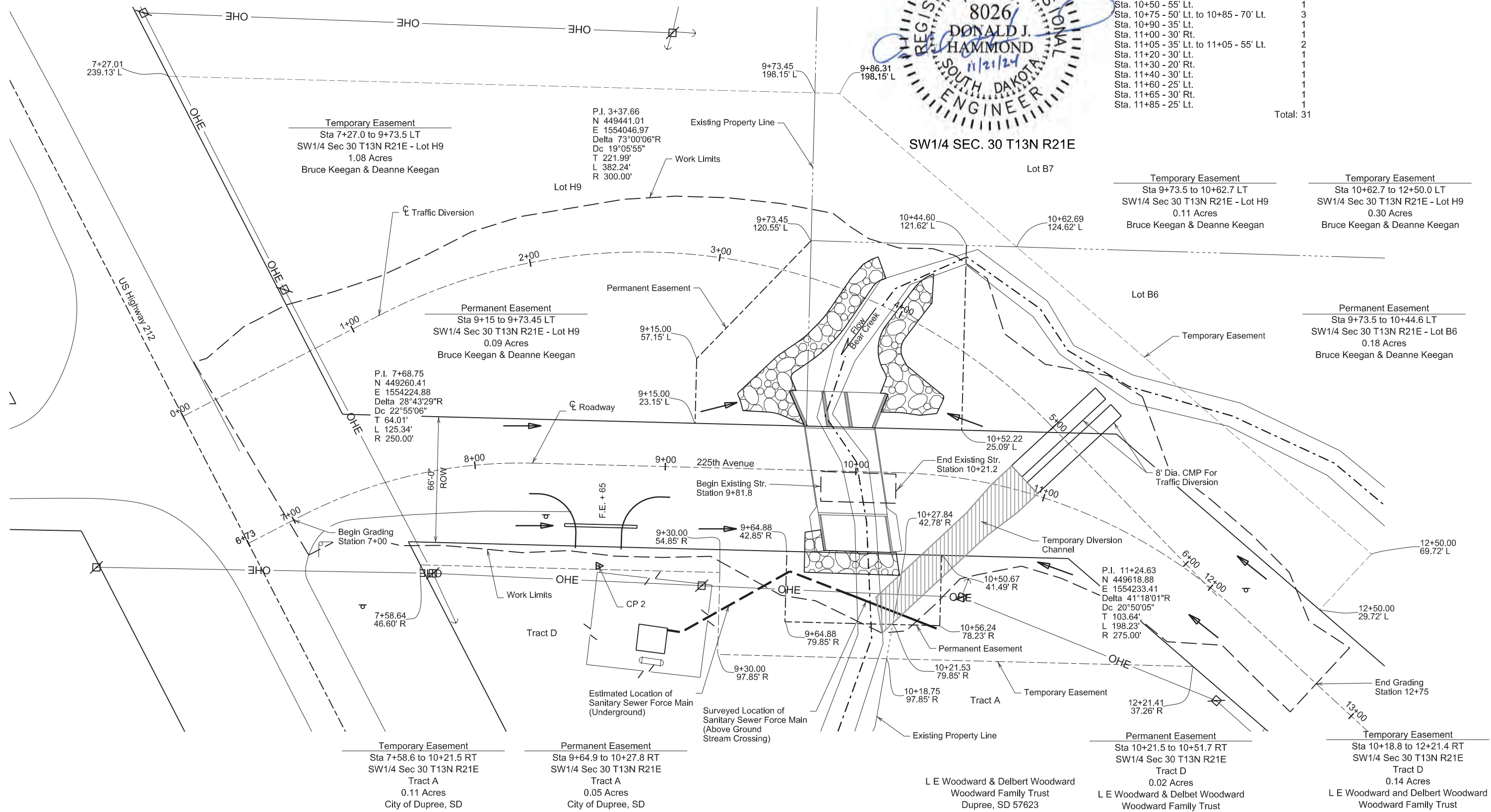


7+00 to 12+00
Install Traffic Diversion

Sta. 8+47.9 to 8+85.9 - 32' R
Install 18"-38" CMP
& 2 Sloped Ends

Sta. 9+95.00
Install 3-11"x10'- 84'-10"
Box Culvert (CIP)
DA = 90.7 Sq. Miles

9+95.00 - L & R
Install Class B Riprap &
Type B Drainage Fabric
See Structure Sheets



Temporary Easement
Sta 7+58.6 to 10+21.5 RT
SW1/4 Sec 30 T13N R21E
Tract A
0.11 Acres
City of Dupree, SD

Permanent Easement
Sta 9+64.9 to 10+27.8 RT
SW1/4 Sec 30 T13N R21E
Tract A
0.05 Acres
City of Dupree, SD

L E Woodward & Delbert Woodward
Woodward Family Trust
Dupree, SD 57623

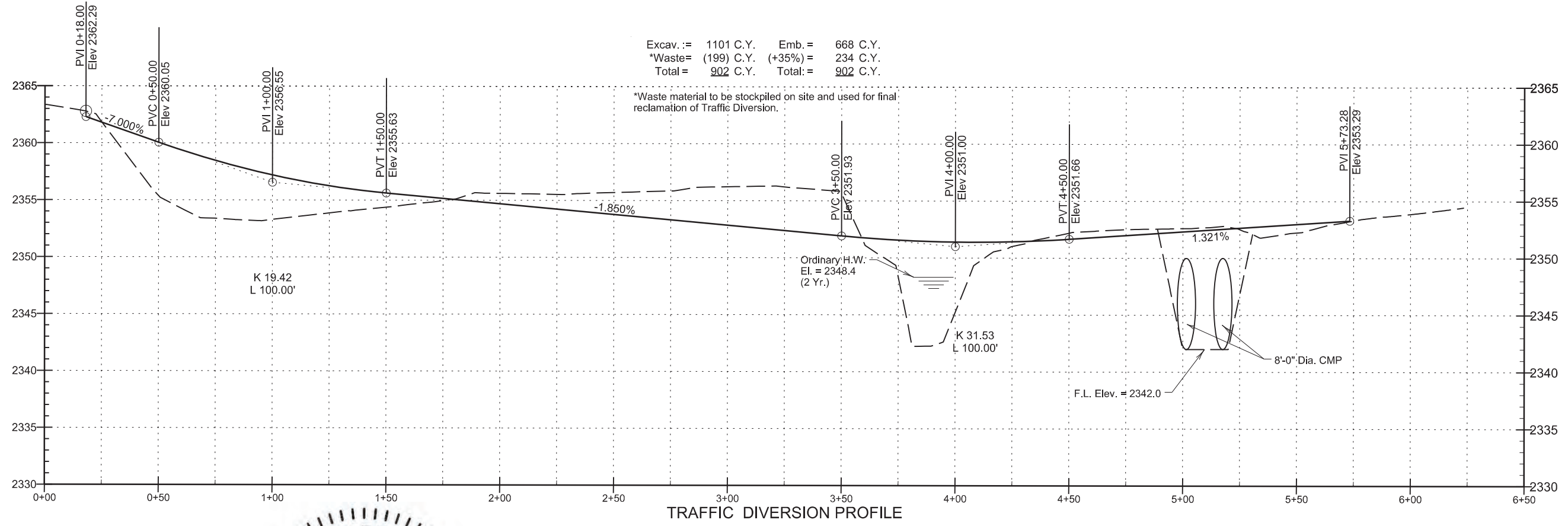
Permanent Easement
Sta 10+21.5 to 10+51.7 RT
SW1/4 Sec 30 T13N R21E
Tract D
0.02 Acres
L E Woodward & Delbet Woodward
Woodward Family Trust

Temporary Easement
Sta 10+18.8 to 12+21.4 RT
SW1/4 Sec 30 T13N R21E
Tract D
0.14 Acres
L E Woodward and Delbert Woodward
Woodward Family Trust

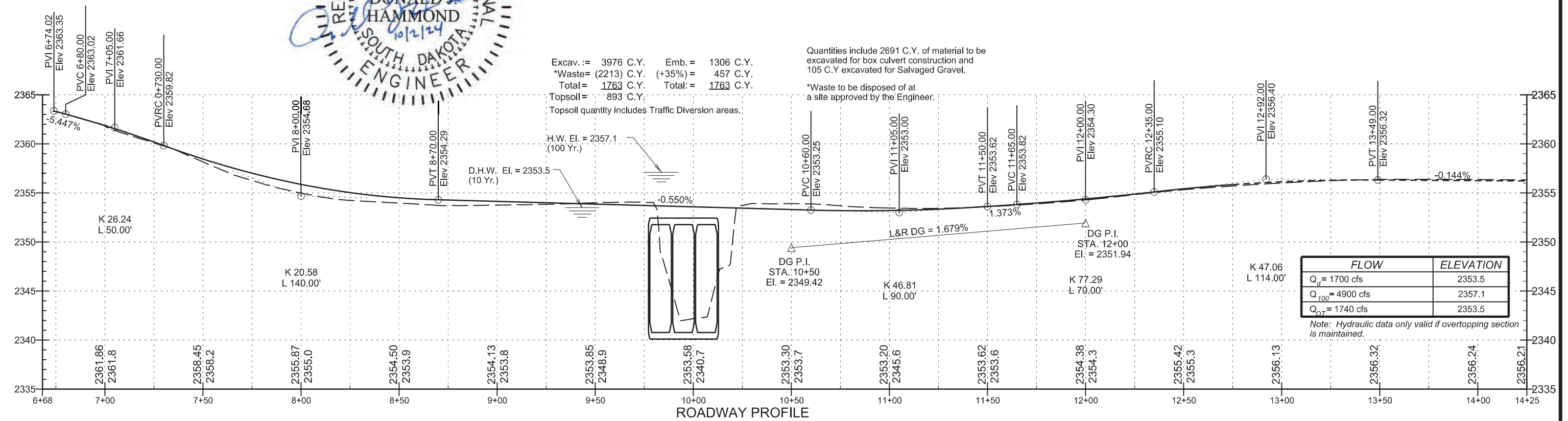
PROFILE VIEWS

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	19	43



TRAFFIC DIVERSION PROFILE



ROADWAY PROFILE

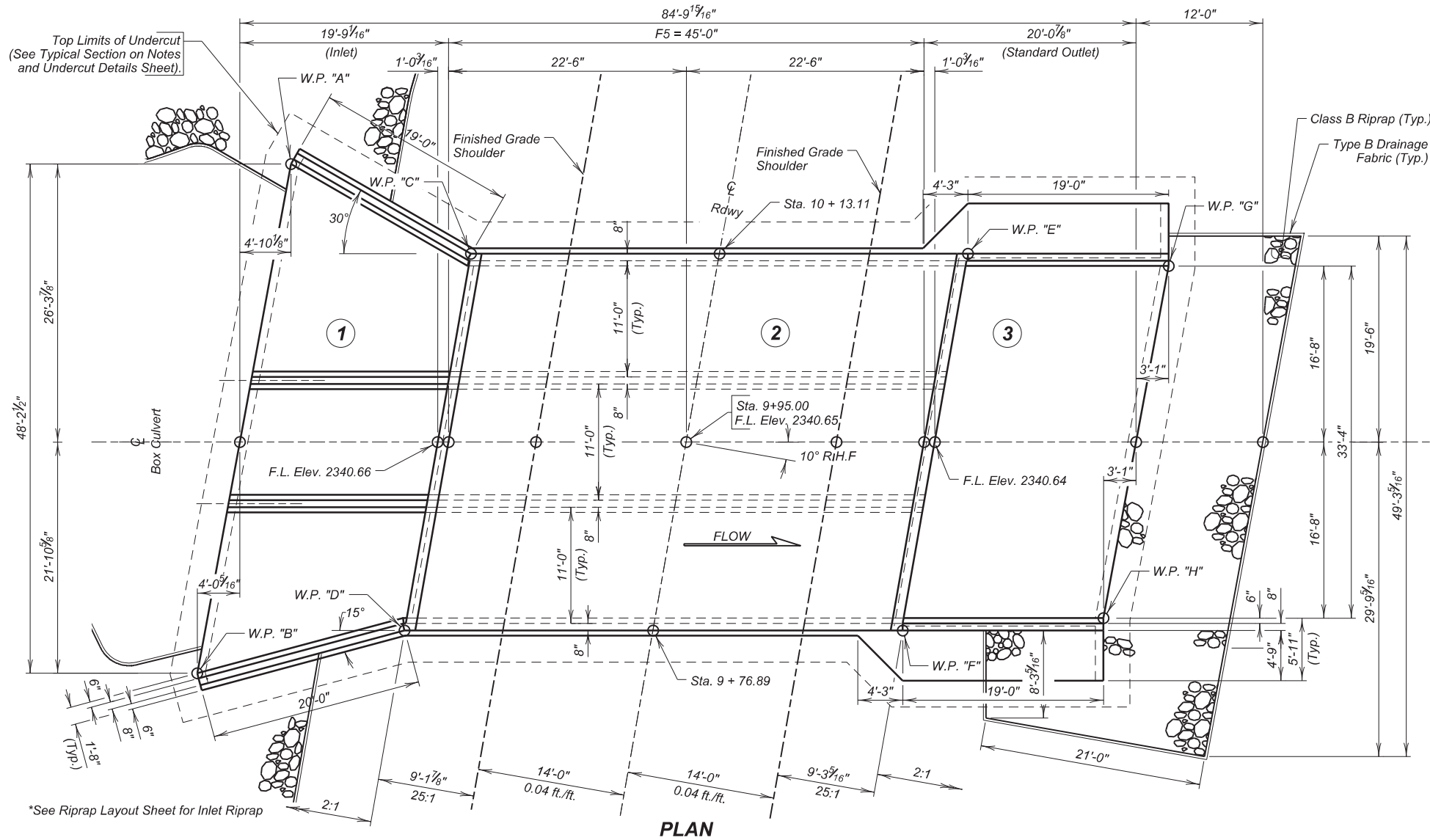
FLOW	ELEVATION
Q _d = 1700 cfs	2353.5
Q ₁₀₀ = 4900 cfs	2357.1
Q ₅₀ = 1740 cfs	2353.5

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).

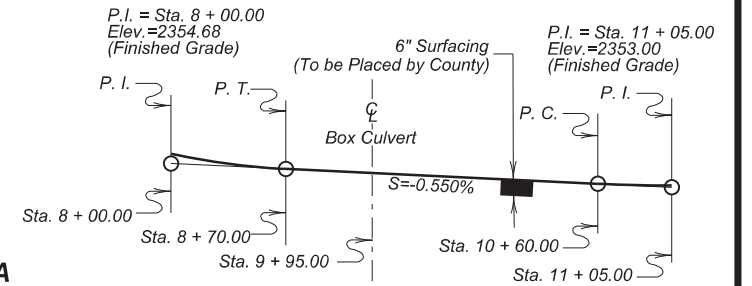
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	20	43



- X028 -
INDEX OF CULVERT SHEETS

- Sheet No. 1 - General Drawing and Quantities
- Sheet No. 2 - Notes and Undercut Details
- Sheet No. 3, 4, & 5 - Inlet Details
- Sheet No. 6 & 7 - Outlet Details
- Sheet No. 8 & 9 - F5 Barrel Details
- Sheet No. 10 - Riprap Layout Details
- Sheet No. 11 - Details of Standard Plate No's. 460.02 & 620.16



HYDRAULIC DATA

Q_d	1700 cfs
A_d	298 sq ft
V_d	5.7 fps
Q_F	1700 cfs
Q_{100}	4900 cfs
Q_{OT}	1740 cfs
V_{Max}	5.9 fps

Q_d = Design discharge for the proposed culvert based on 25 year frequency. El. 2353.5.

Q_{OT} = Overtopping discharge and frequency 11 year recurrence interval. El. 2353.5 at Station 11+12.

Q_e = Designated peak discharge for the basin approaching proposed project based on 10 year frequency.

Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency. El. 2357.14.

V_{Max} = Maximum computed outlet velocity for the proposed culvert based on 111 year frequency.

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

TABLE OF WORKING POINTS

W.P.	STATION	OFFSET
"A"	10 + 14.43	41.41' L
"B"	9 + 65.41	41.78' L
"C"	10 + 09.03	23.16' L
"D"	9 + 72.81	23.16' L
"E"	10 + 17.19	23.16' R
"F"	9 + 80.95	23.27' R
"G"	10 + 19.34	42.07' R
"H"	9 + 85.44	41.78' R

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Incidental Work, Structure	L.S.	L.S.
Structure Excavation, Box Culvert	Cu. Yd.	122
Box Culvert Undercut	Cu. Yd.	151
Class A45 Concrete, Box Culvert	Cu. Yd.	264.5
Reinforcing Steel	Lb.	31509
Class B Riprap	Ton	560.0
Type B Drainage Fabric	Sq. Yd.	526

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

GENERAL DRAWING AND QUANTITIES

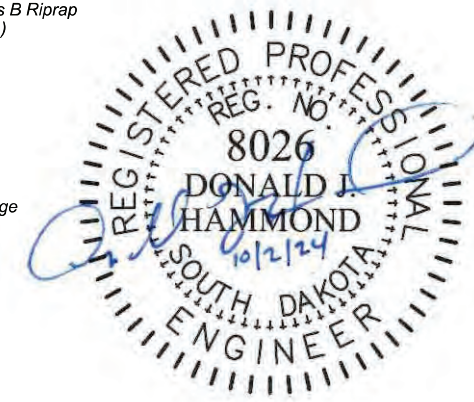
FOR
3 - 11' X 10' BOX CULVERT

BEAR CREEK 10° SKEW RHF
STA 9+95.00 SEC. 30, T13N, R21E
STR. NO. 69-203-288 BRO-B 8069(04)
PCN 08NE HL-93

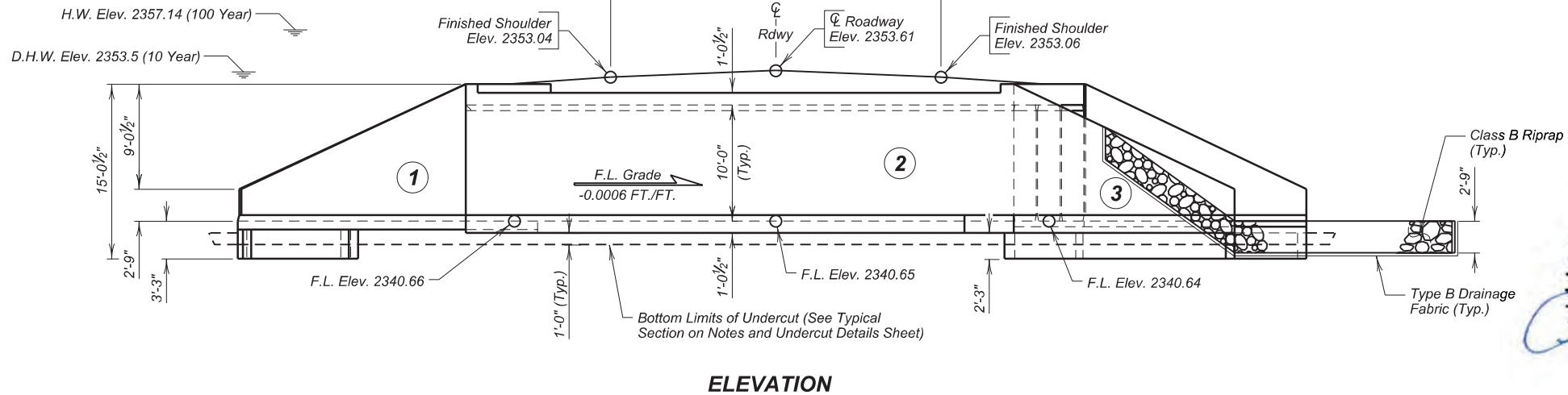
ZIEBACH COUNTY
S. D. DEPT. OF TRANSPORTATION

- X028 - SEPTEMBER 2024 1 OF 11

DESIGNED BY CH	CK. DES. BY DH	DRAFTED BY ZW	BRIDGE ENGINEER
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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.



SPECIFICATIONS

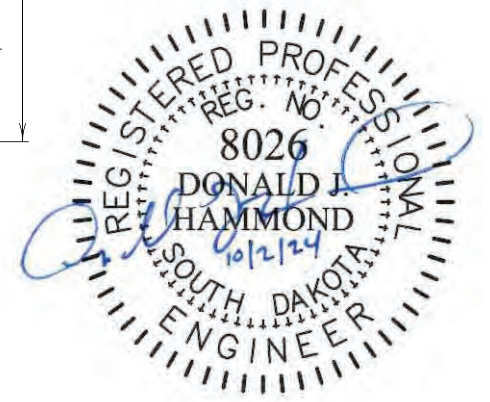
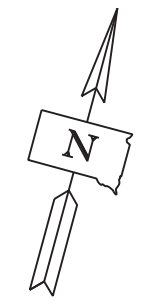
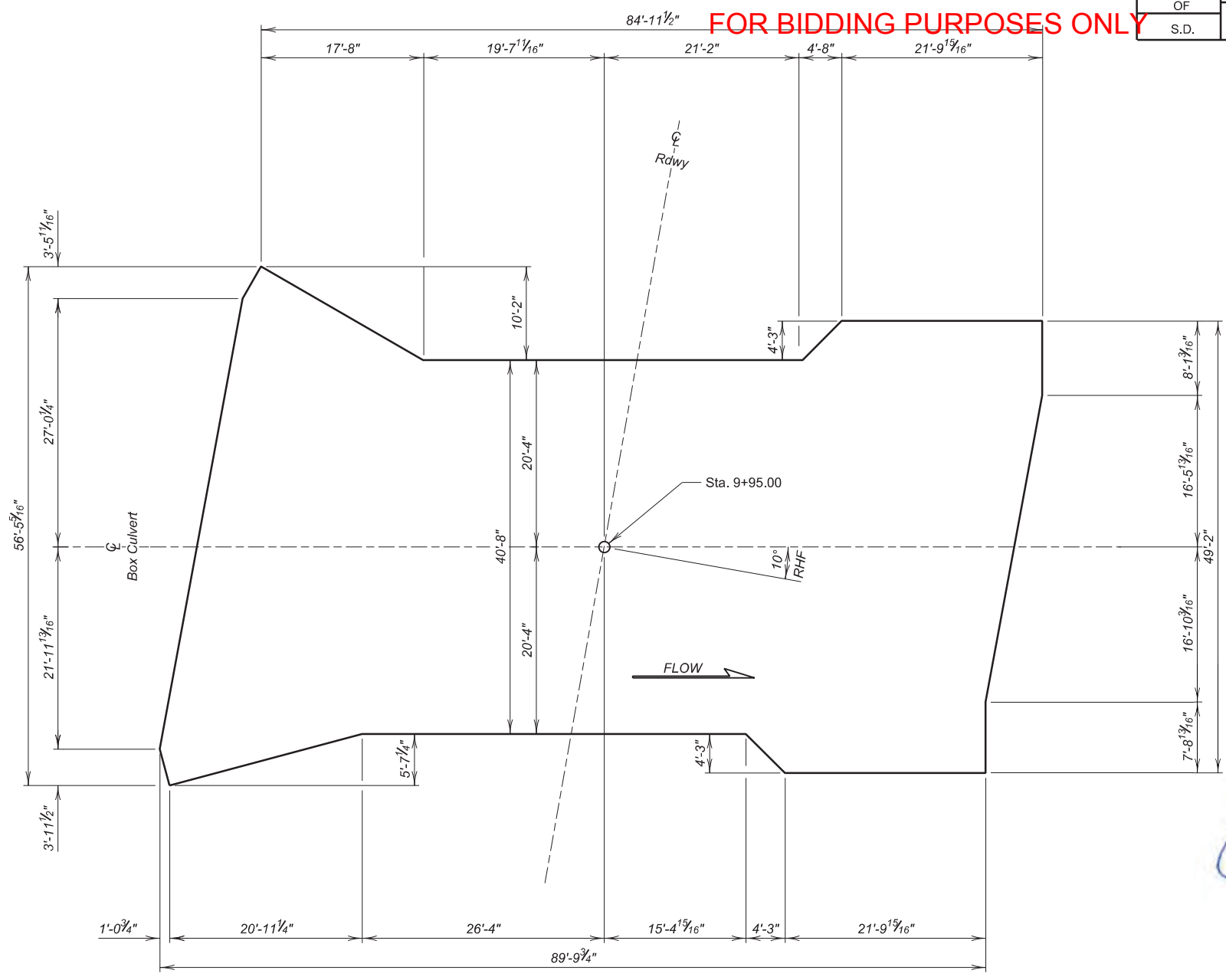
- Design Specifications: AASHTO LRFD Bridge Design Specifications, 9th Edition.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

INCIDENTAL WORK, STRUCTURE

- The in-place structure is a 40'-0" single span warren pony truss bridge. The Contractor will remove the in-place structure. The abutments will be removed 1' below the bottom of the undercut. The Contractor will contact the County Highway Superintendent prior to the removal of the in-place structure to determine its disposition with all salvageable items being delivered to the County by the Contractor. All items not salvaged and delivered to the County will be properly disposed of by the Contractor.
- 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 will be incidental to the contract lump sum price for "Incidental work, Structure".

GENERAL NOTES

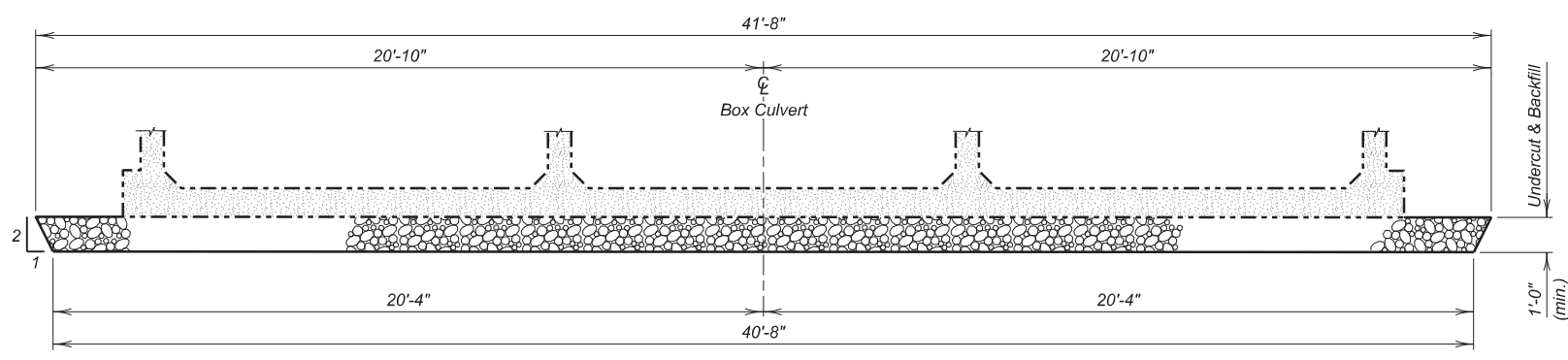
- Design Live Load: HL-93. No construction loading in excess of legal load was considered.
- The design of the barrel section is based on a minimum fill height of 0 feet and includes all subsequent fill heights up to and including the maximum fill height of 5 feet (F5).
- Design Material Strengths: Concrete $f'_c = 4,500$ psi
Reinforcing Steel $f_y = 60,000$ psi
- High sulfate levels are likely to be encountered on this project. All concrete will be Class A45 Concrete, Box Culvert conforming to Section 460 of the Construction Specifications, with the following modifications: the type of cement will be either a Type V or Type II with 20 to 25% Class F Modified Fly Ash substituted for cement in accordance with Section 605 of the Construction Specifications.
- All reinforcing steel will conform to ASTM A615 Grade 60.
- All lap splices shown are contact lap splices unless noted otherwise.
- All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise in the plans.
- Use 1-inch clear cover on all reinforcing steel EXCEPT as shown.
- The Contractor will imprint on the structure the date of construction as specified and detailed on Standard Plate 460.02.
- Care will be taken to establish Working Points (W.P.) as shown on the wings.
- Circled numbers in PLAN and ELEVATION views on the General Drawing are section I.D. Numbers (see SDDOT Materials Manual).
- Cost of Preformed Expansion Joint Filler used in outlet apron construction will be incidental to the other contract items.
- Soils below the bottom of the proposed RCBC consist of 5' of brown silt clay overlying shale.
- Groundwater was encountered at an elevation of 2346.1 on the south side of the box and 2341.3 on the north side of the box during the subsurface investigation conducted in September 2020. Dewatering will be required for construction of the RCBC. All cost incurred for dewatering will be incidental to other contract items.
- Compaction of earth embankment and box culvert backfill material will be governed by the Ordinary Compaction method.



UNDERCUT LAYOUT
(Bottom Dimensions)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Box Culvert Undercut	Cu. Yd.	151

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



TYPICAL SECTION
(For Limits of Undercut)

UNDERCUT DETAILS AND NOTES
FOR
3 - 11' X 10' BOX CULVERT

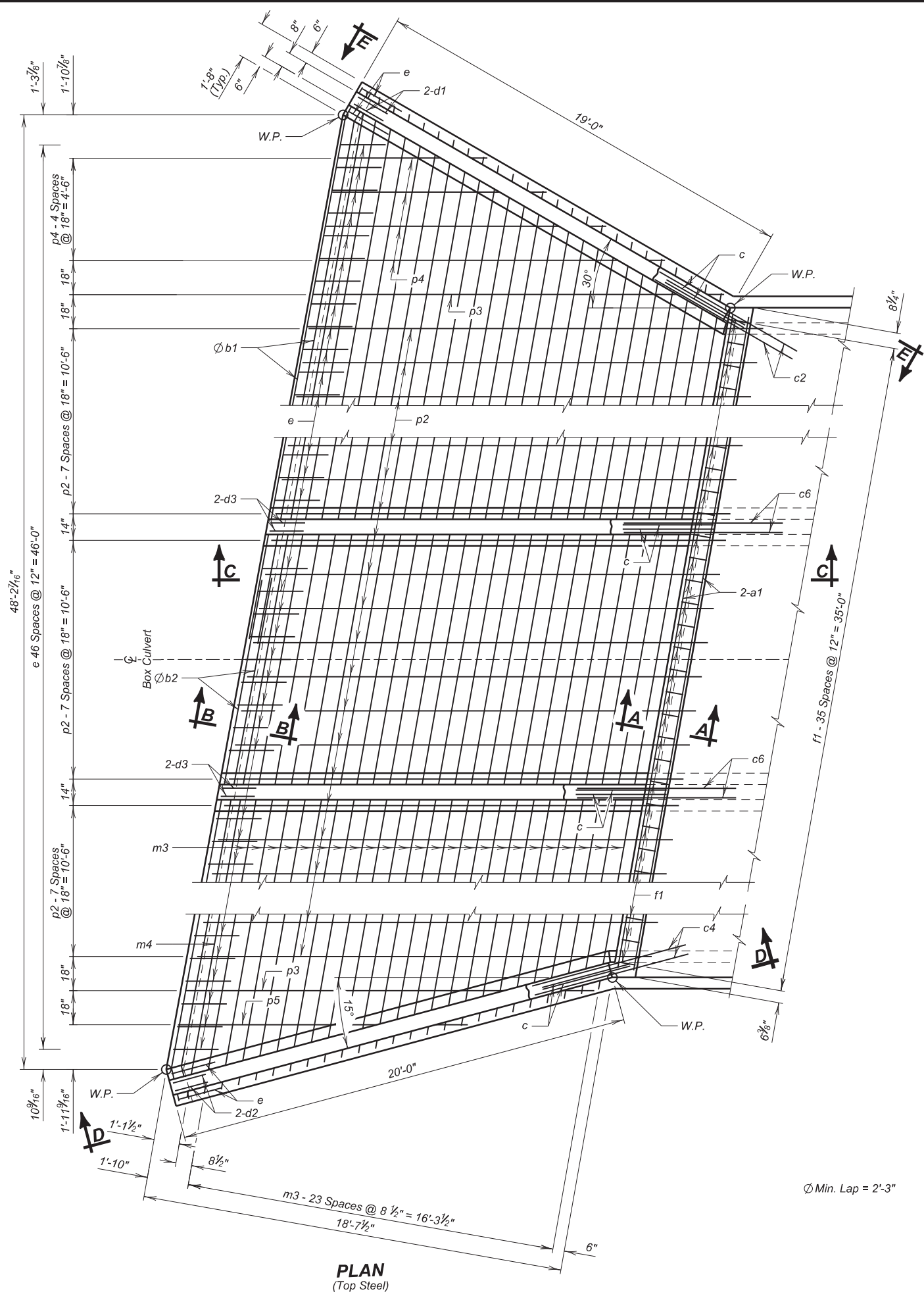
BEAR CREEK 10° SKEW RHF
STA 9+95.00 SEC. 30, T13N, R21E
STR. NO. 69-203-288 BRO-B 8069(04)
PCN 08NE HL-93

ZIEBACH COUNTY
S. D. DEPT. OF TRANSPORTATION
SEPTEMBER 2024

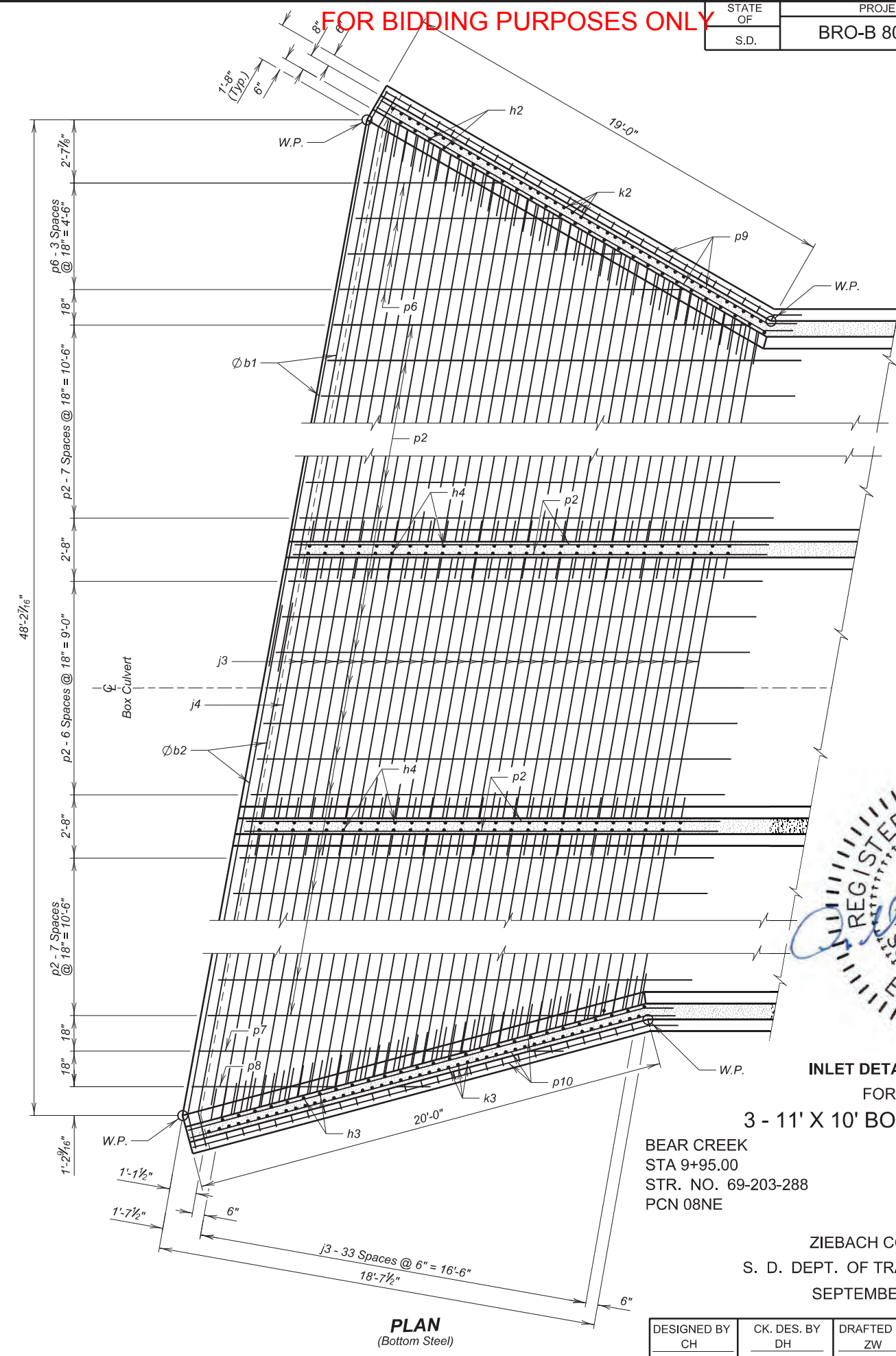
DESIGNED BY CH	CK. DES. BY DH	DRAFTED BY ZW	BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	22	43

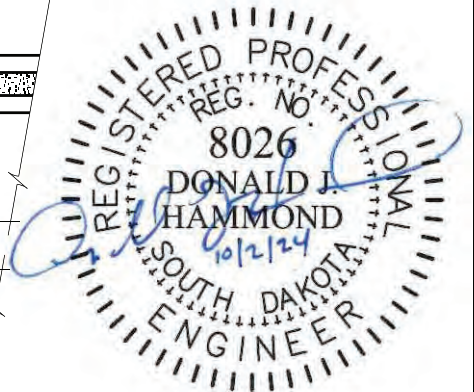
FOR BIDDING PURPOSES ONLY



PLAN (Top Steel)



PLAN (Bottom Steel)

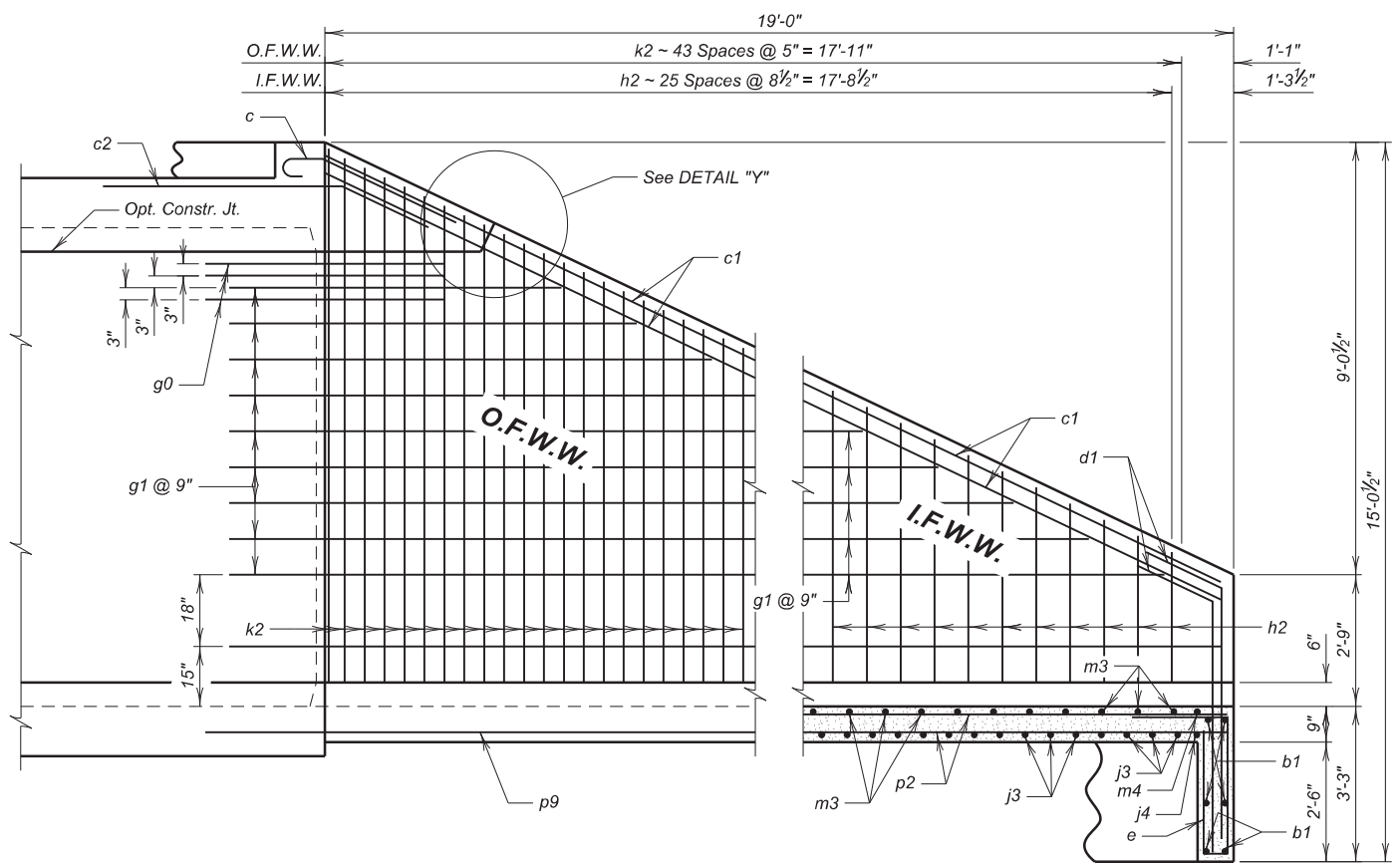


INLET DETAILS (A)
 FOR
3 - 11' X 10' BOX CULVERT
 BEAR CREEK
 STA 9+95.00
 STR. NO. 69-203-288
 PCN 08NE
 10° SKEW RHF
 SEC. 30, T13N, R21E
 BRO-B 8069(04)
 HL-93

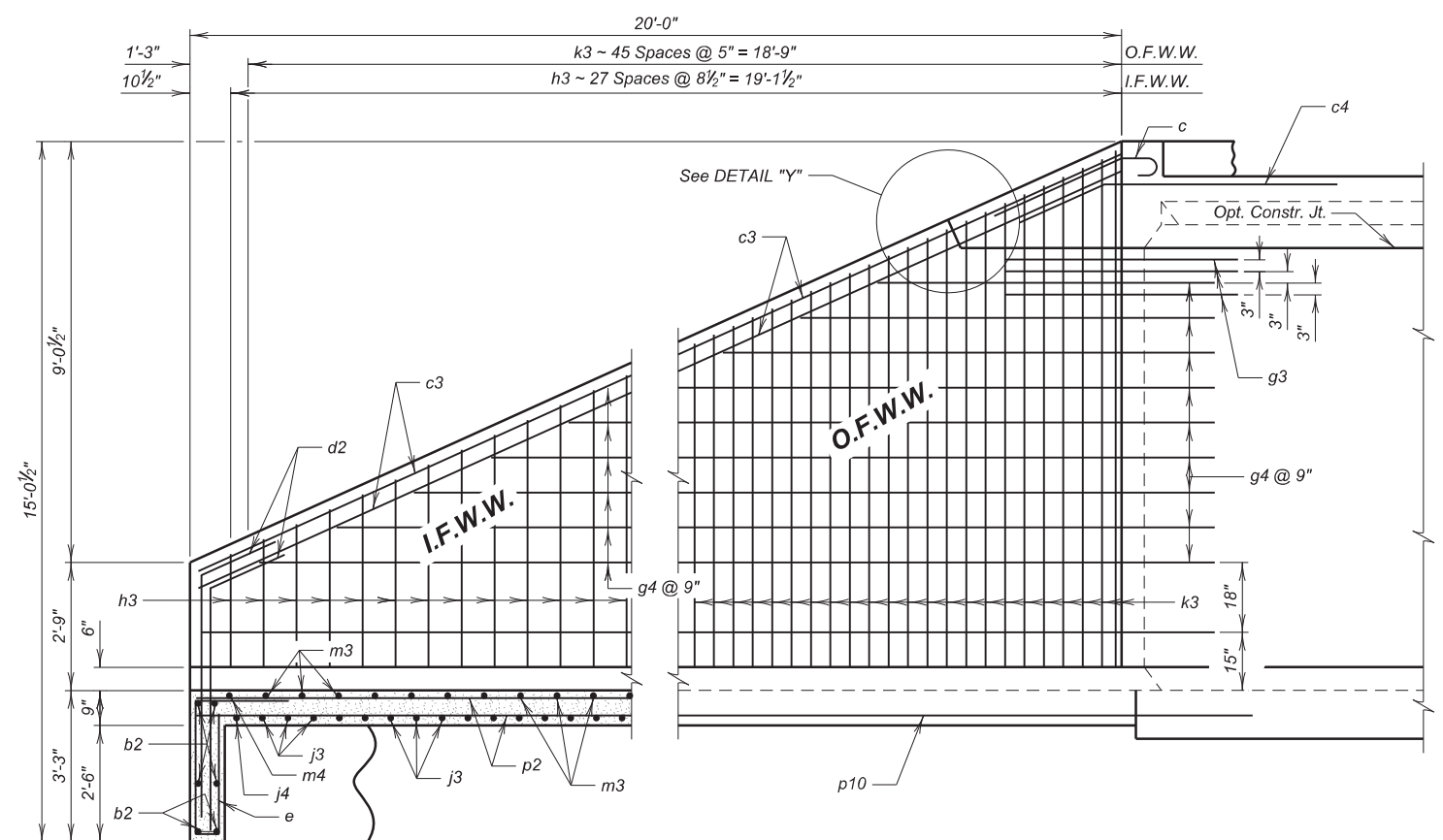
ZIEBACH COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

DESIGNED BY CH	CK. DES. BY DH	DRAFTED BY ZW	BRIDGE ENGINEER
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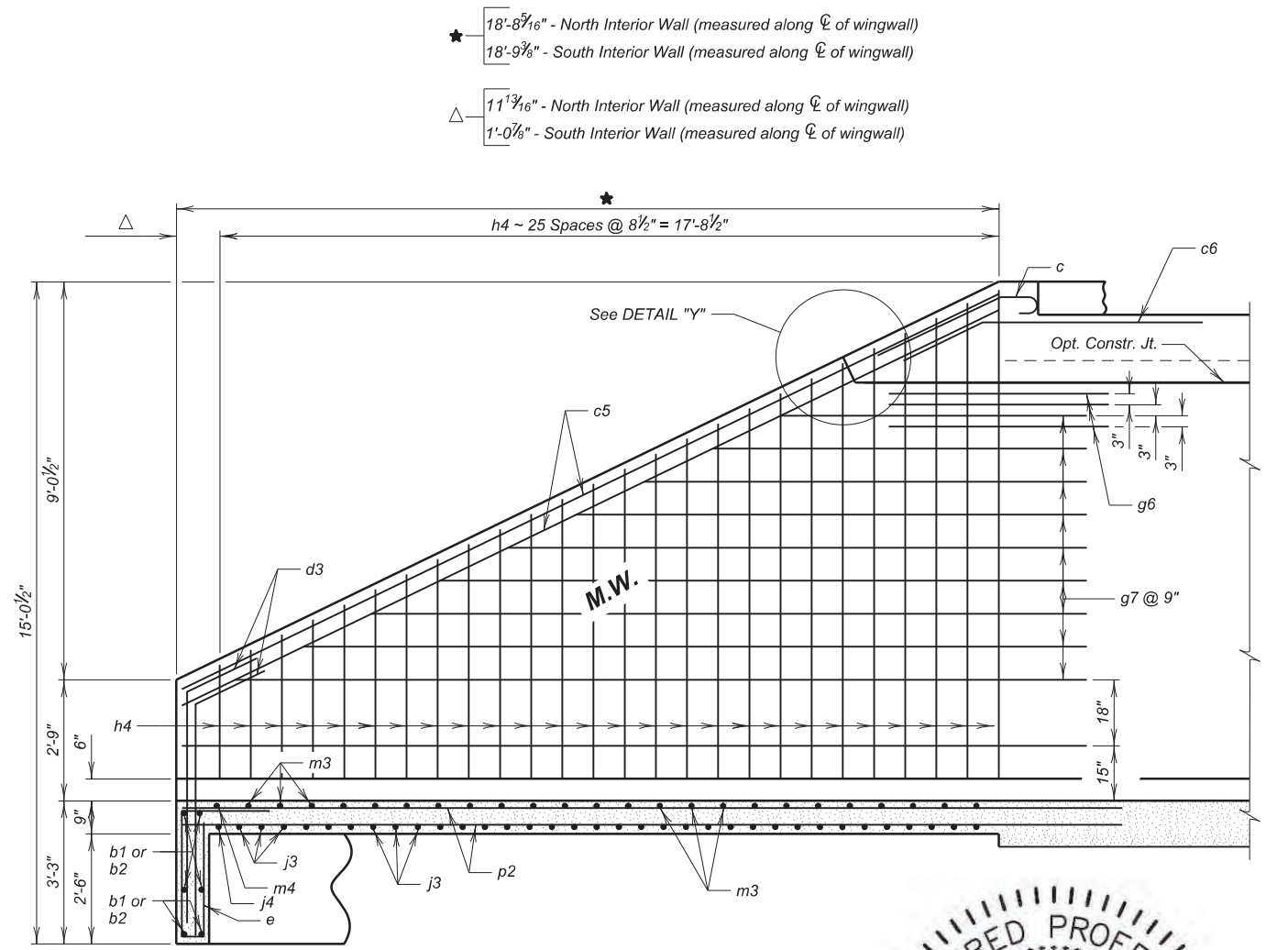
FOR BIDDING PURPOSES ONLY



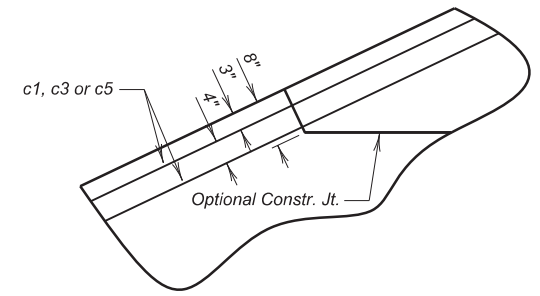
VIEW E - E



VIEW D - D

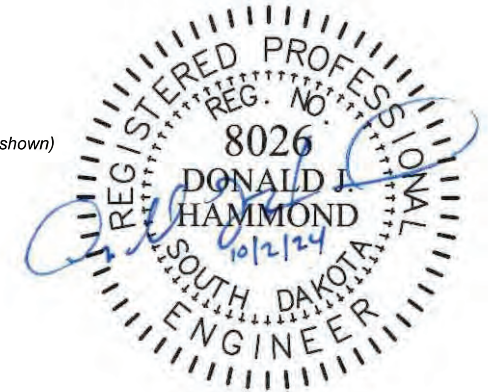


SECTION C - C
(Both Interior Walls similar except as shown)



DETAIL "Y"

- ★ 18'-8 1/16" - North Interior Wall (measured along ϕ of wingwall)
- ★ 18'-9 7/8" - South Interior Wall (measured along ϕ of wingwall)
- △ 11'-3 1/16" - North Interior Wall (measured along ϕ of wingwall)
- △ 1'-0 7/8" - South Interior Wall (measured along ϕ of wingwall)



INLET DETAILS (B)
FOR

3 - 11' X 10' BOX CULVERT
 BEAR CREEK 10° SKEW RHF
 STA 9+95.00 SEC. 30, T13N, R21E
 STR. NO. 69-203-288 BRO-B 8069(04)
 PCN 08NE HL-93

ZIEBACH COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

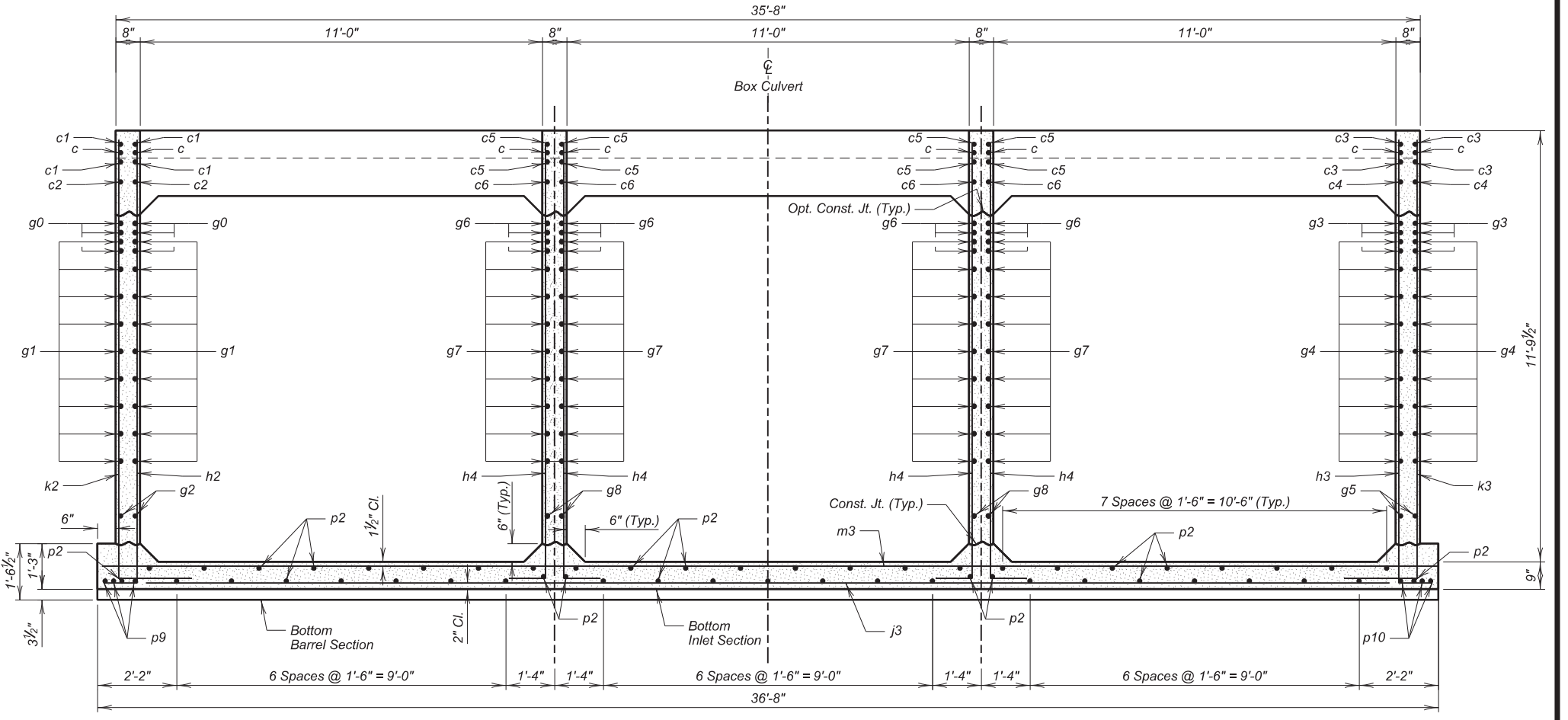
LEGEND FOR PLACING RE-STEEL	
I.F.W.W.	- Inside Face of Wing Wall
O.F.W.W.	- Outside Face of Wing Wall
M.W.	- Middle Wall

DESIGNED BY CH	CK. DES. BY DH	DRAFTED BY ZW	BRIDGE ENGINEER
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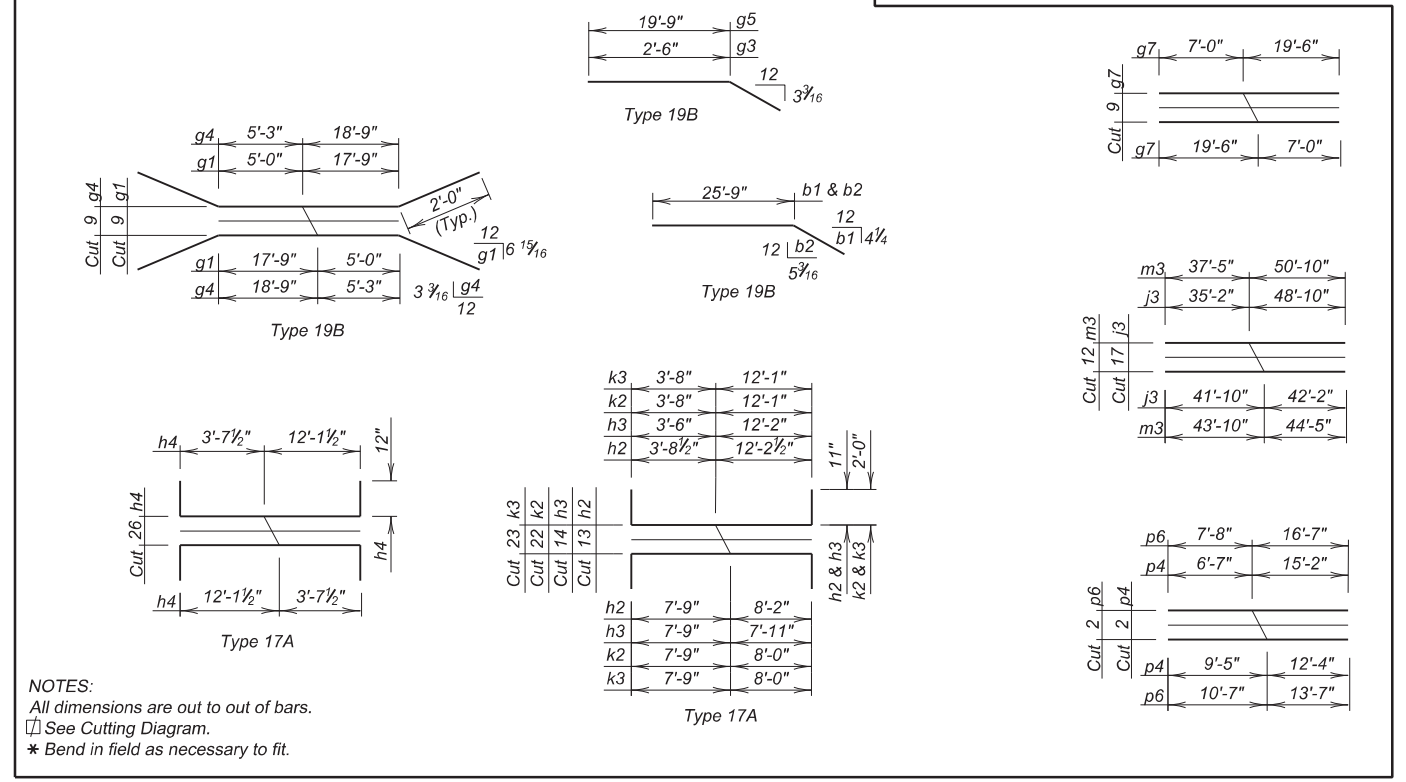
FOR BIDDING PURPOSES ONLY

REINFORCING SCHEDULE

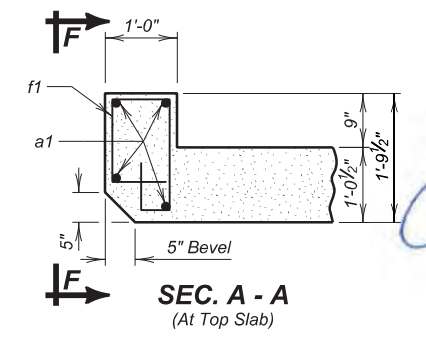
Mk.	No.	Size	Length	Type	Bending Details
a1	4	6	35'-6"	Str.	
b1	6	6	27'-3"	19B	
b2	6	6	27'-3"	19B	
c	8	5	4'-6"	1A	
c1	4	5	20'-9"	Str.	
c2	2	5	7'-0"	19B	
c3	4	5	21'-9"	Str.	
c4	2	5	7'-0"	19B	
c5	8	5	20'-6"	Str.	
c6	4	5	7'-0"	19B	
d1	4	5	7'-0"	19B	
d2	4	5	7'-0"	19B	
d3	8	5	7'-0"	19B	
e	51	4	8'-0"	S12	
f1	36	4	5'-6"	S6A	
g0	6	5	5'-0"	19B	
g1	9	4	26'-9"	19B	
g2	2	4	20'-9"	19B	
g3	6	5	5'-0"	19B	
g4	9	4	28'-0"	19B	
g5	2	4	21'-9"	19B	
g6	12	5	5'-0"	Str.	
g7	18	4	26'-6"	Str.	
g8	4	4	20'-9"	Str.	
h2	13	5	17'-9"	17A	
h3	14	5	17'-6"	17A	
h4	52	5	17'-9"	17A	
j3	17	6	84'-0"	Str.	
j4	1	6	48'-6"	Str.	
k2	22	4	19'-9"	17A	
k3	23	4	19'-9"	17A	
m3	12	5	88'-3"	Str.	
m4	1	5	51'-3"	Str.	
p2	51	4	20'-0"	Str.	
p3	2	4	18'-0"	Str.	
p4	2	4	21'-9"	Str.	
p5	1	4	12'-9"	Str.	
p6	2	4	24'-3"	Str.	
p7	1	4	15'-3"	Str.	
p8	1	4	10'-0"	Str.	
p9	3	4	20'-0"	Str.	
p10	3	4	21'-3"	Str.	



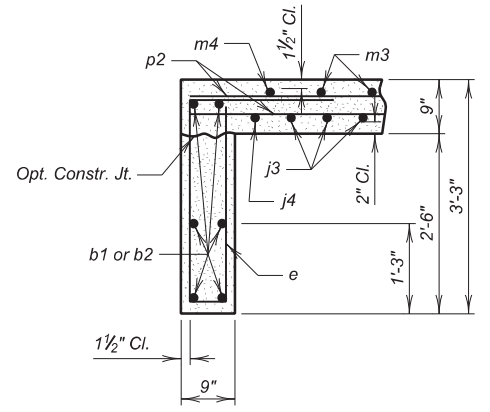
TYPICAL INLET SECTION (At parapet)



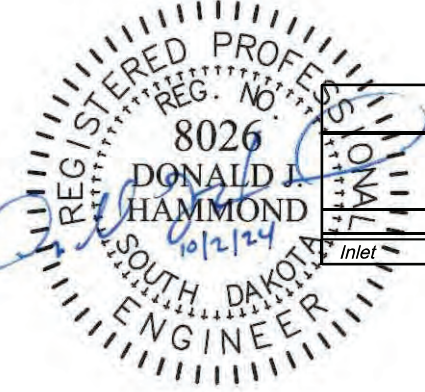
NOTES:
 All dimensions are out to out of bars.
 See Cutting Diagram.
 * Bend in field as necessary to fit.



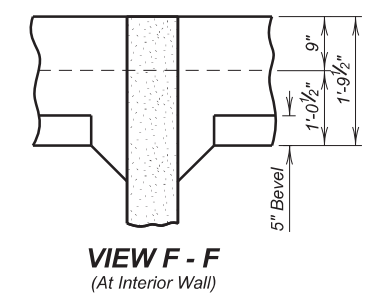
SEC. A - A (At Top Slab)



SEC. B - B



ESTIMATED QUANTITIES (Inlet)			
ITEM	Class A45 Concrete, Box Culvert	Reinforcing Steel	Structure Excavation, Box Culvert
Unit	Cu. Yd.	Lb.	Cu. Yd.
Inlet	46.1	8859	27.7



VIEW F - F (At Interior Wall)

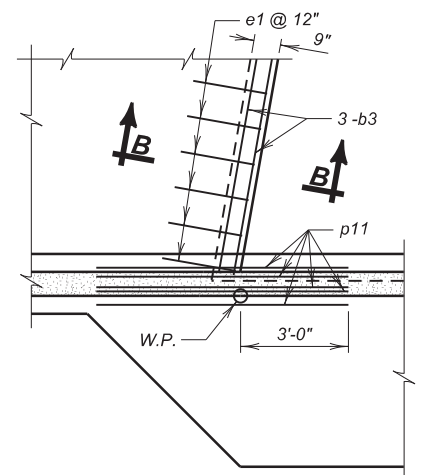
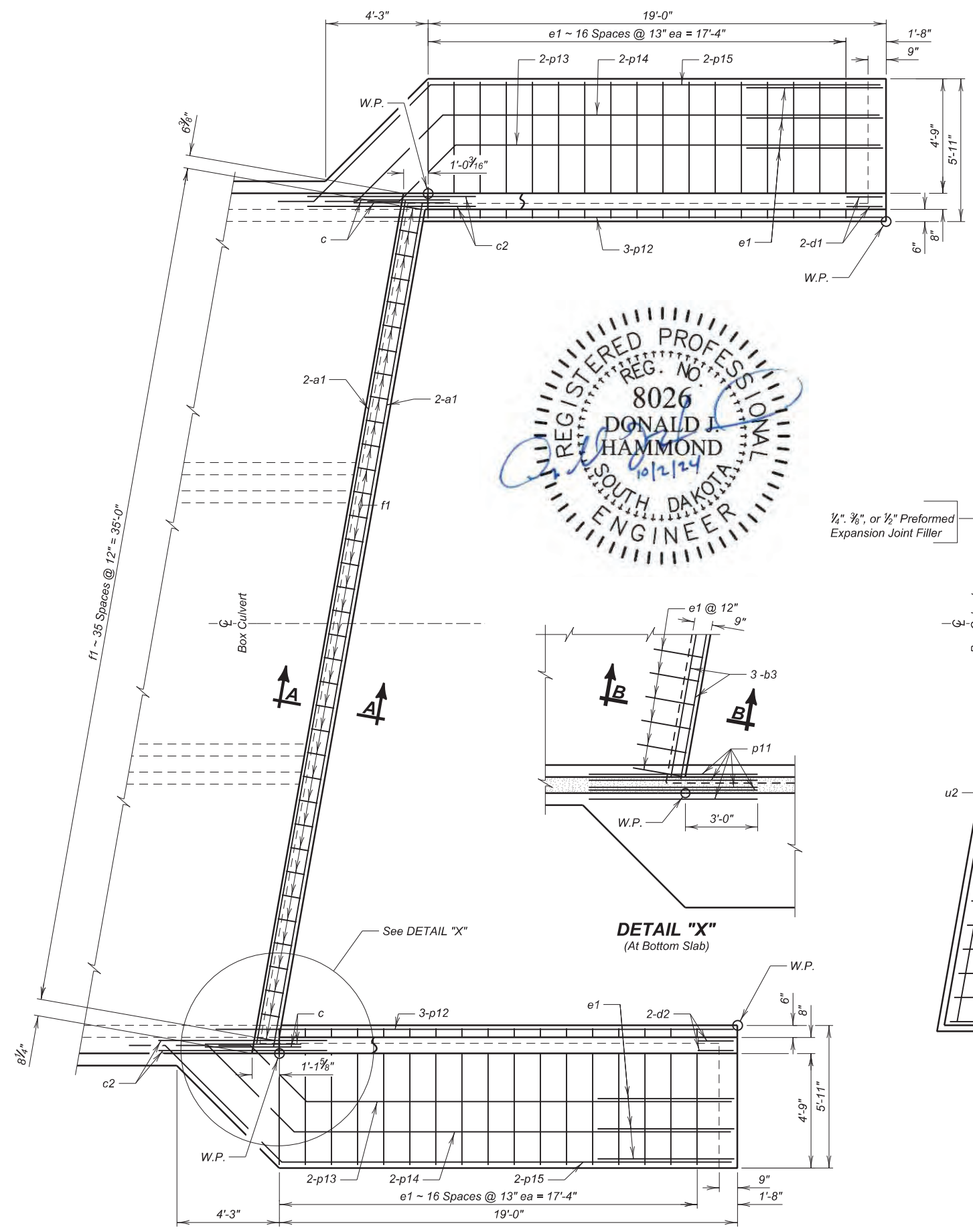
INLET DETAILS (C)
 FOR
3 - 11' X 10' BOX CULVERT
 BEAR CREEK STA 9+95.00
 STR. NO. 69-203-288 PCN 08NE
 10° SKEW RHF
 SEC. 30, T13N, R21E
 BRO-B 8069(04)
 HL-93

ZIEBACH COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

DESIGNED BY CH	CK. DES. BY DH	DRAFTED BY ZW	BRIDGE ENGINEER
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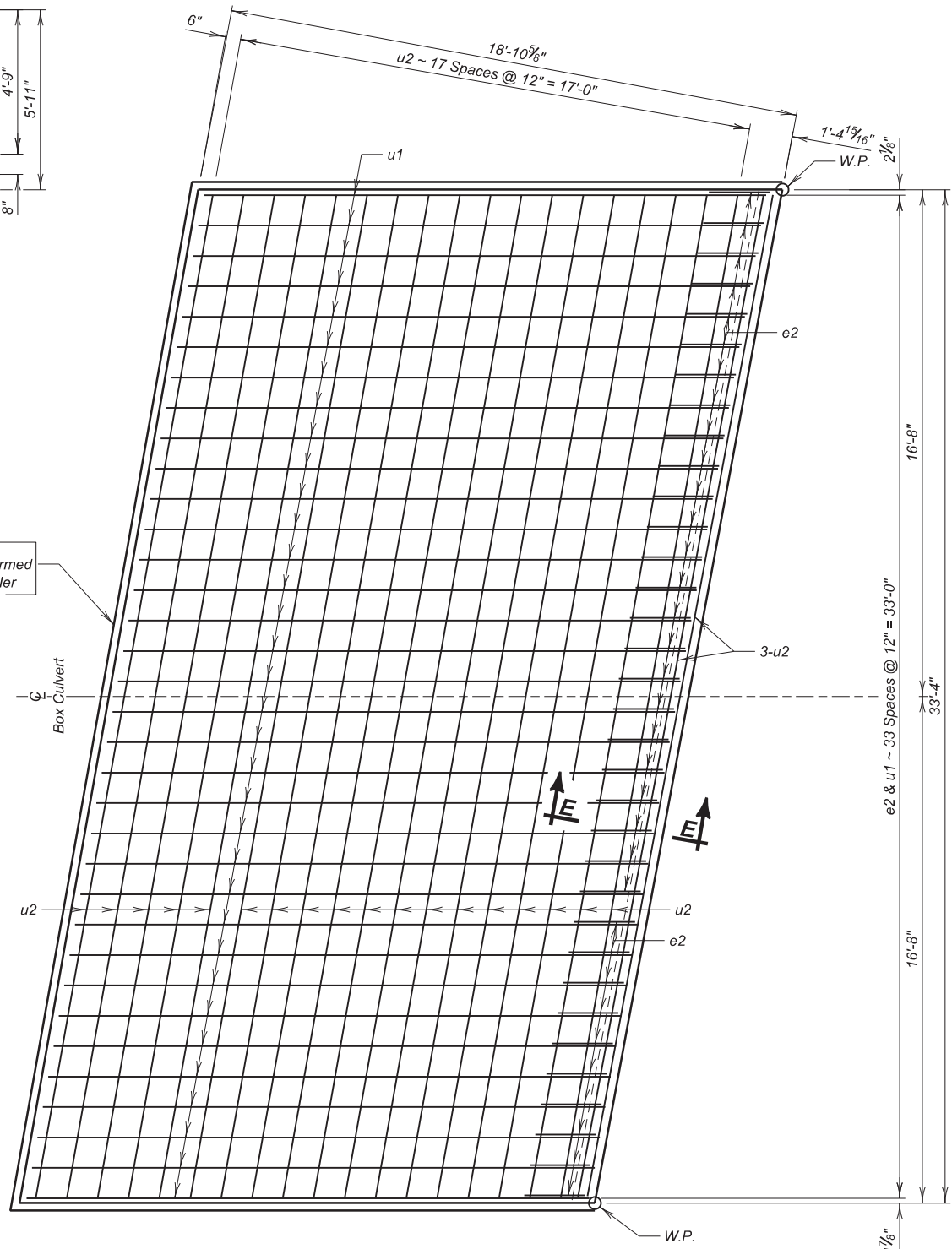
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	25	43

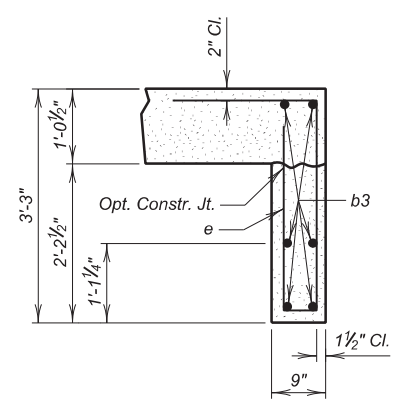


DETAIL "X"
(At Bottom Slab)

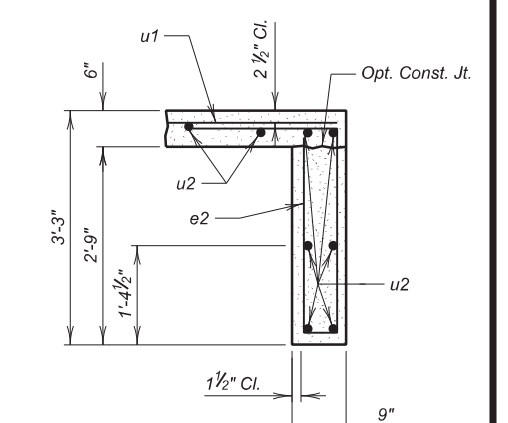
PLAN



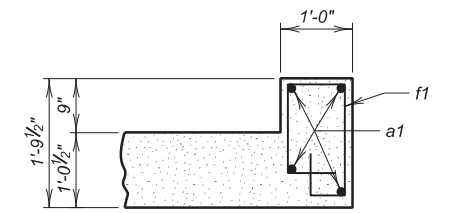
PLAN
(Outlet Apron)



SEC. B - B
(At Bottom Slab)



SEC. E - E



SEC. A - A
(At Top Slab)

OUTLET DETAILS (A)
FOR

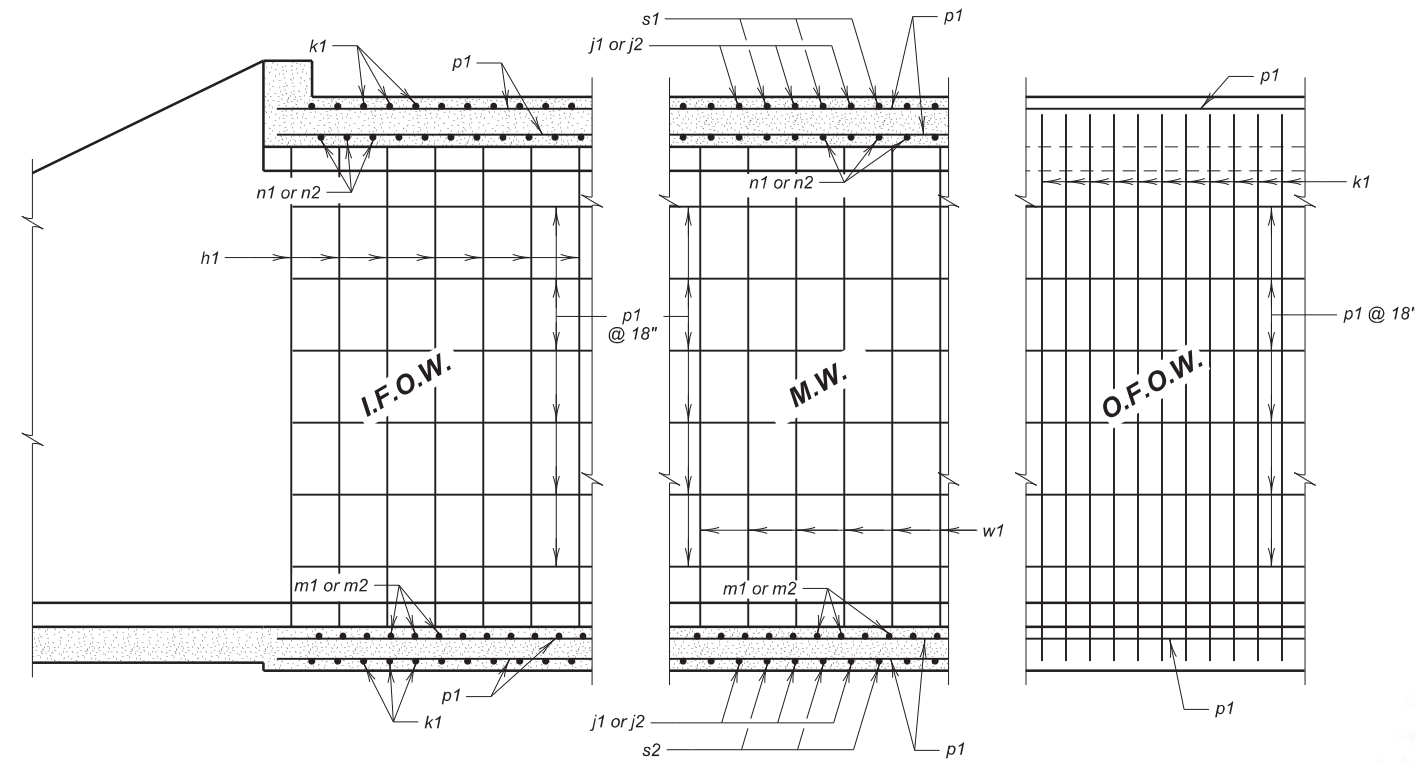
3 - 11' X 10' BOX CULVERT
 BEAR CREEK 10° SKEW RHF
 STA 9+95.00 SEC. 30, T13N, R21E
 STR. NO. 69-203-288 BRO-B 8069(04)
 PCN 08NE HL-93

ZIEBACH COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

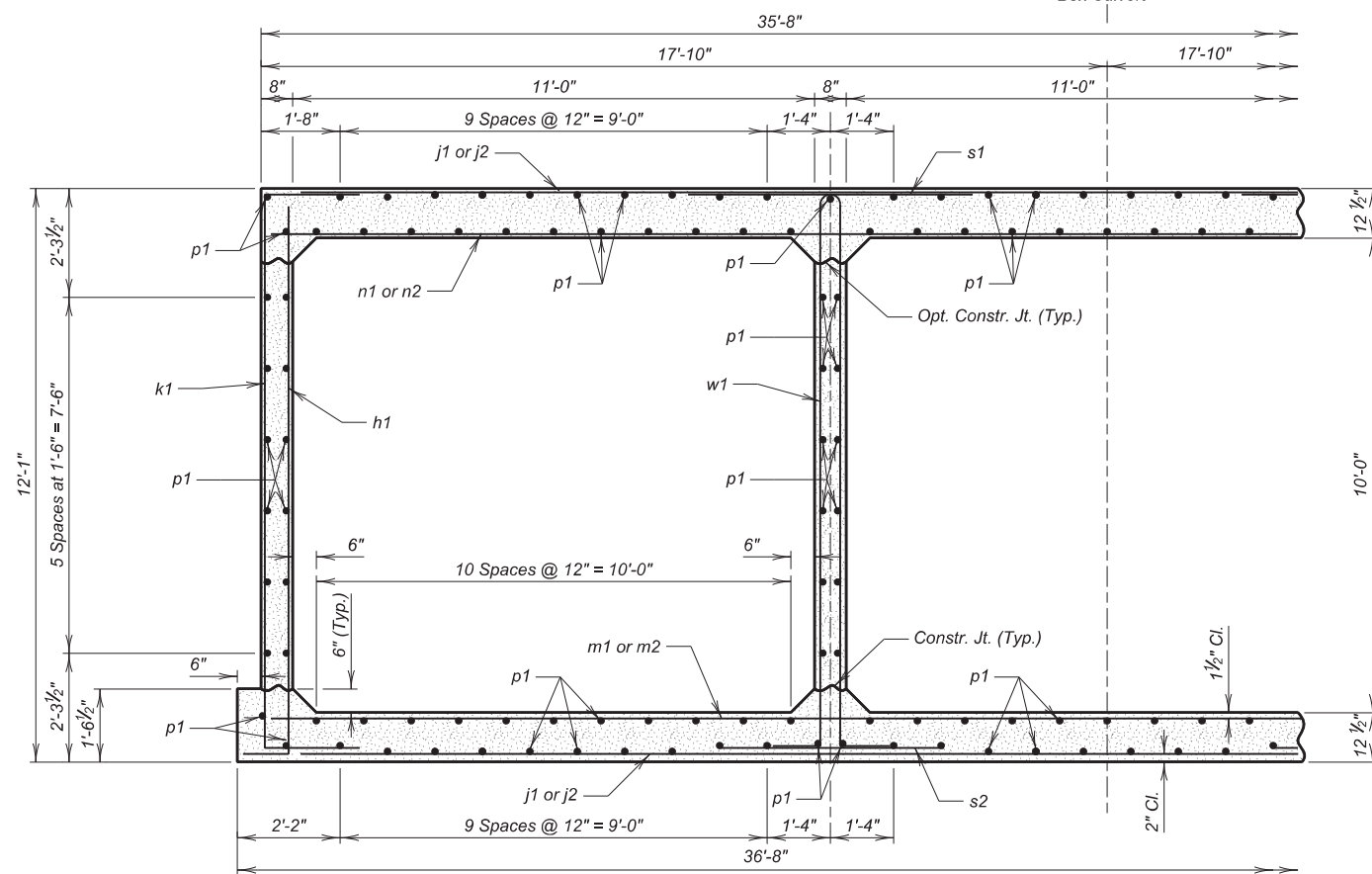
DESIGNED BY CH	CK. DES. BY DH	DRAFTED BY ZW	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	28	43

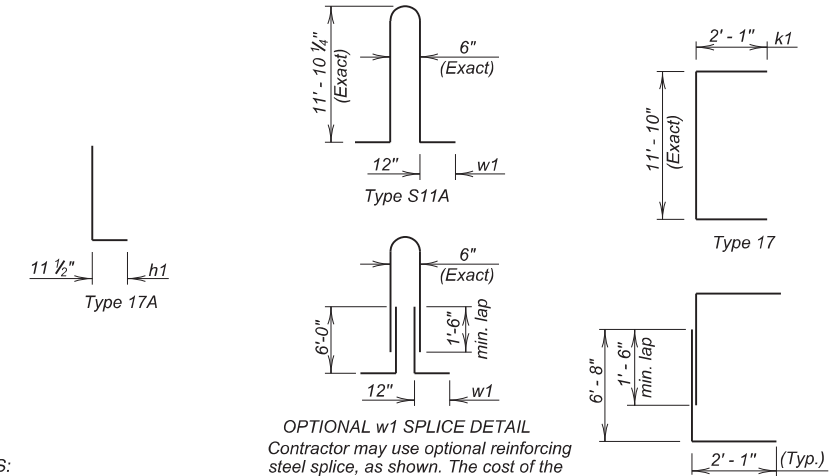


ELEVATION
(Apron steel not shown)



F5 BARREL HALF SECTION
(5'-0" Maximum Fill)

REINFORCING SCHEDULE					
Mk.	No.	Size	Length	Type	Bending Details
h1	94	4	12'-6"	17A	
j1	98	4	34'-3"	Str.	
j2	12	4	35'-0"	Str.	
k1	170	4	16'-0"	17	
m1	79	4	35'-3"	Str.	
m2	12	4	38'-3"	Str.	
n1	73	5	35'-3"	Str.	
n2	11	5	38'-3"	Str.	
p1	188	4	46'-0"	Str.	
s1	110	4	6'-0"	Str.	
s2	110	4	4'-9"	Str.	
w1	92	4	26'-0"	S11A	



NOTES:

All dimensions are out to out of bars.

See Cutting Diagram.

Request for additional reinforcing steel splices at points other than those shown, must be submitted to the Engineer for prior approval. If additional splices are approved, no payment will be allowed for the added quantity of reinforcing steel.

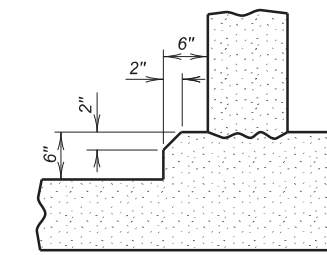
OPTIONAL w1 SPLICE DETAIL
Contractor may use optional reinforcing steel splice, as shown. The cost of the additional reinforcing steel will be borne by the Contractor.

OPTIONAL k1 SPLICE DETAIL
Contractor may use optional reinforcing steel splice, as shown. The cost of the additional reinforcing steel shall be borne by the Contractor.



ESTIMATED QUANTITIES

ITEM	Class A45 Concrete, Box Culvert	Reinforcing Steel	Structure Excavation, Box Culvert
Unit	Cu. Yd.	Lb.	Cu. Yd.
1- F5 Barrel Section	173.2	18579	63.6



OPTIONAL FILLET DETAIL
(At Bottom Slab)

Note: Contractor may form the optional full fillet, with 2" Chamfer, as detailed. The cost of the additional concrete shall be borne by the Contractor.

LEGEND FOR PLACING RE-STEEL

I.F.O.W. - Inside Face of Outside Wall
O.F.O.W. - Outside Face of Outside Wall
M.W. - Middle Wall

F5 BARREL DETAILS (B)

FOR

3 - 11' X 10' BOX CULVERT

BEAR CREEK
STA 9+95.00
STR. NO. 69-203-288
PCN 08NE

10° SKEW RHF
SEC. 30, T13N, R21E
BRO-B 8069(04)
HL-93

ZIEBACH COUNTY

S. D. DEPT. OF TRANSPORTATION

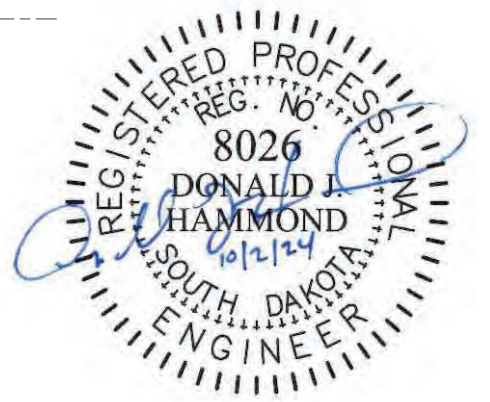
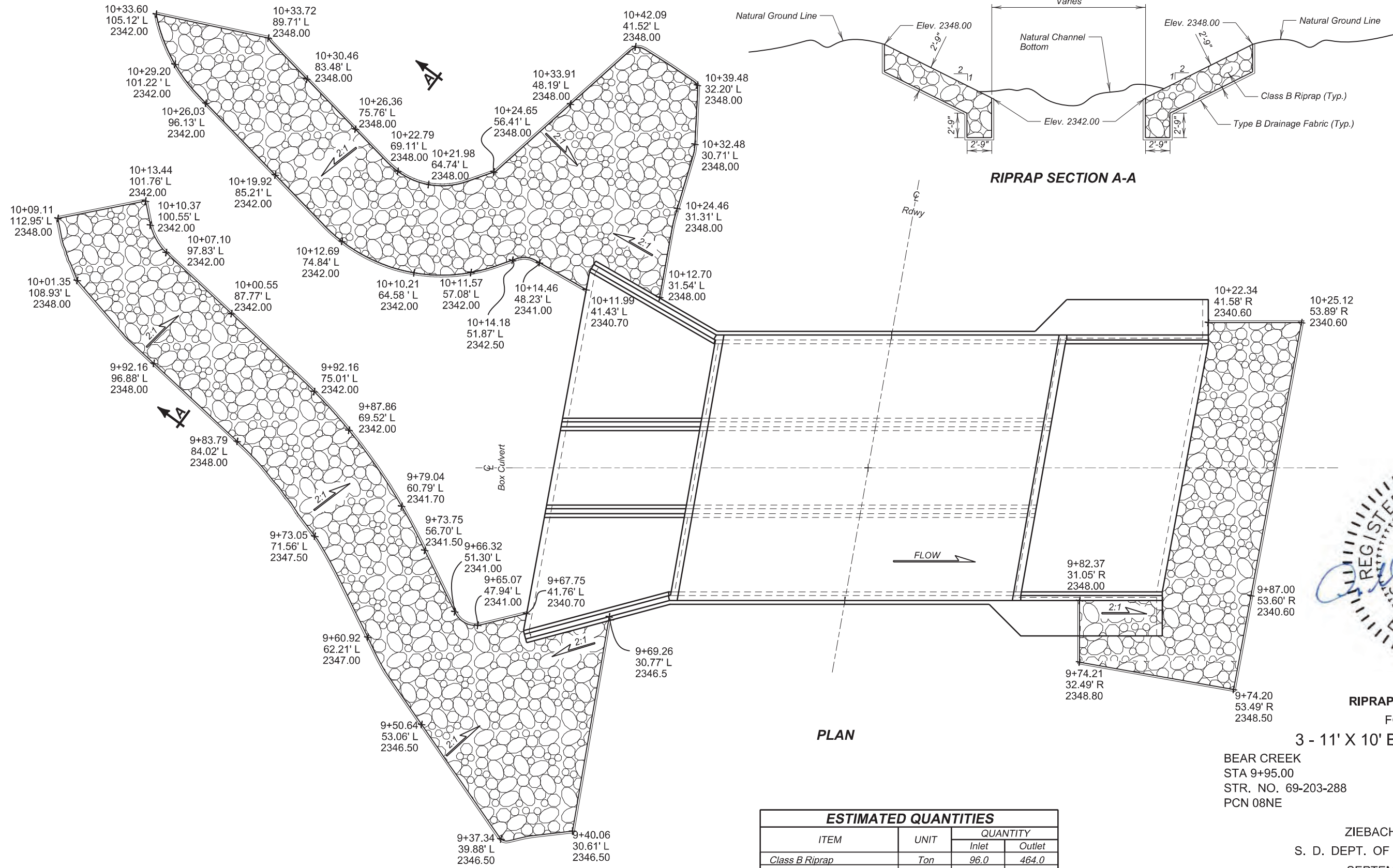
SEPTEMBER 2024

DESIGNED BY SD	CK. DES. BY DH	DRAFTED BY ZW	BRIDGE ENGINEER
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The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	29	43



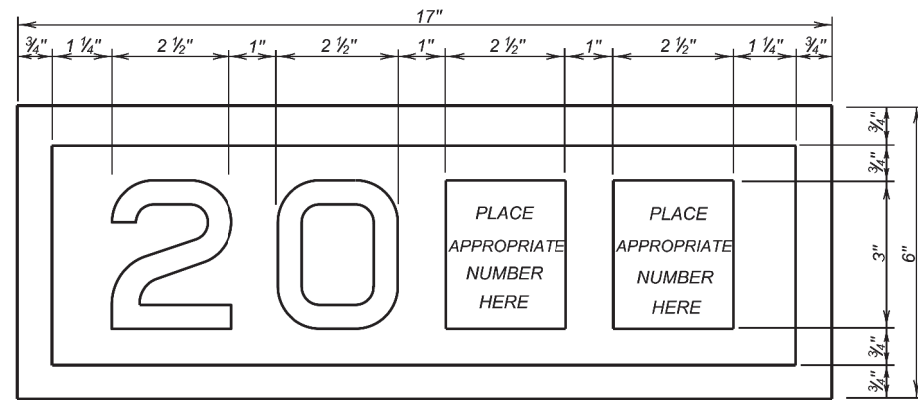
RIPRAP DETAILS

FOR
3 - 11' X 10' BOX CULVERT
 BEAR CREEK
 STA 9+95.00
 STR. NO. 69-203-288
 PCN 08NE
 10° SKEW RHF
 SEC. 30, T13N, R21E
 BRO-B 8069(04)
 HL-93

ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Inlet	Outlet
Class B Riprap	Ton	96.0	464.0
Type B Drainage Fabric	Sq. Yd.	121	405

ZIEBACH COUNTY
 S. D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2024

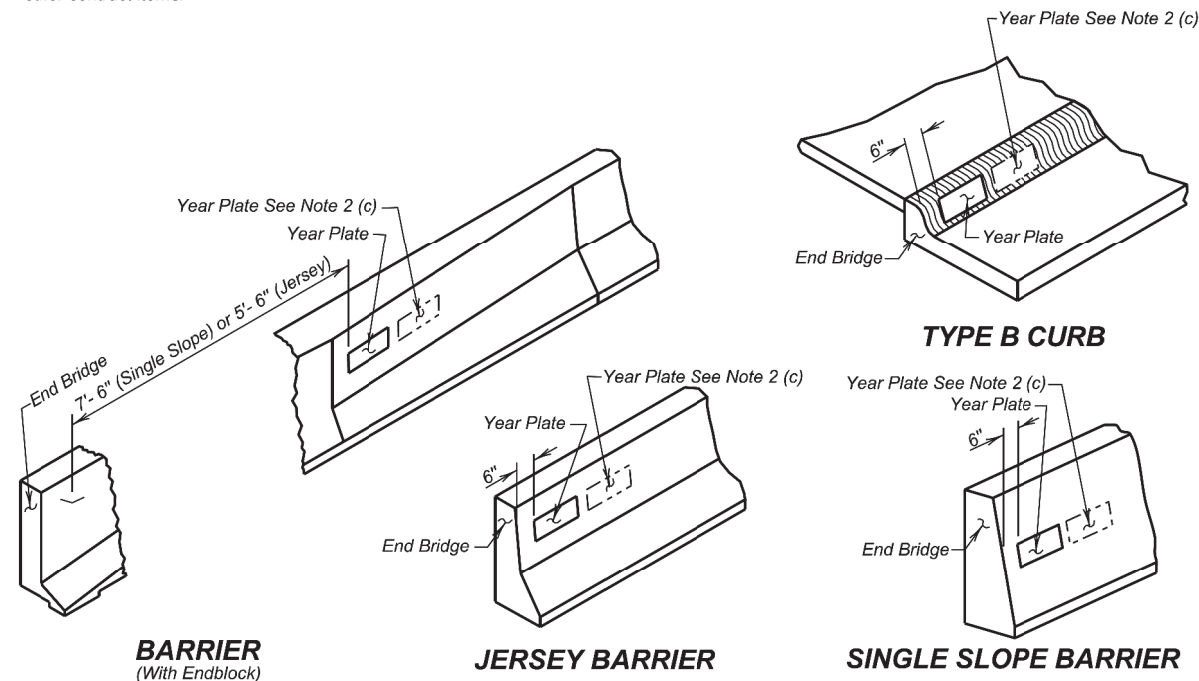
DESIGNED BY CH	CK. DES. BY DH	DRAFTED BY ZW	
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YEAR PLATE DETAILS

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

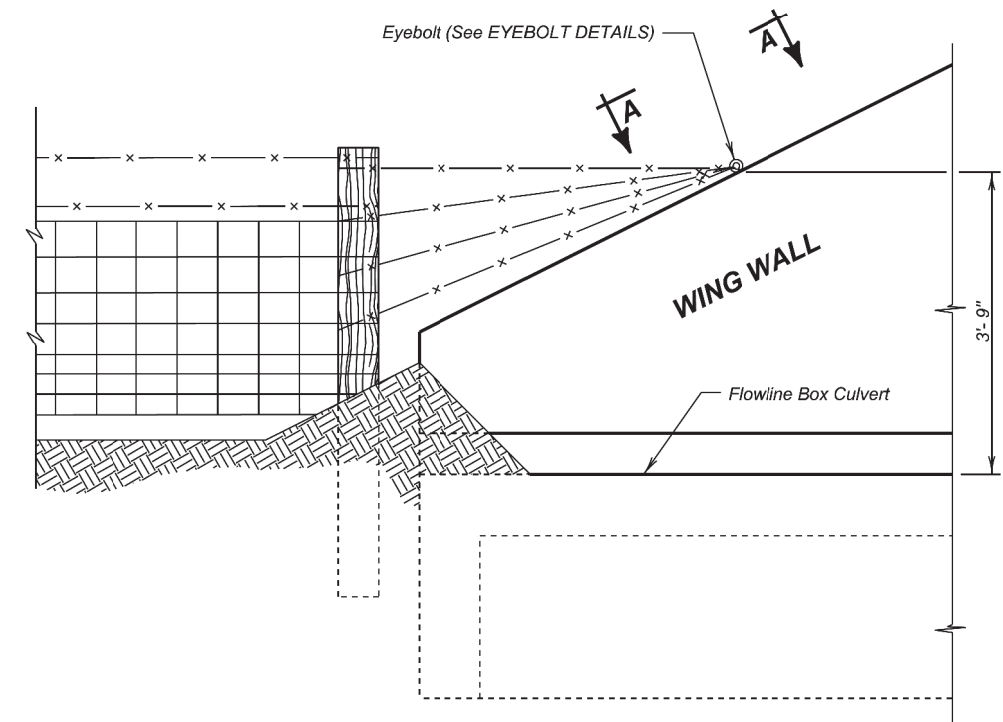
Published Date: 2025

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YEAR PLATE DETAILS

PLATE NUMBER
460.02

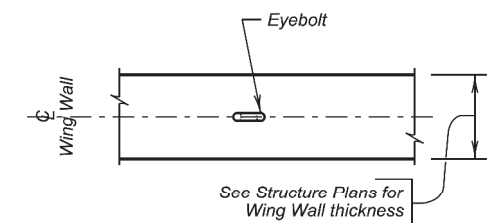
Sheet 1 Of 1



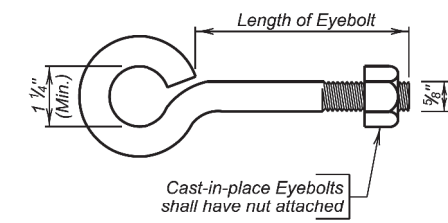
DETAIL FOR FENCE ANCHORS

GENERAL NOTES:

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



VIEW A - A



EYEBOLT DETAILS

December 23, 2012

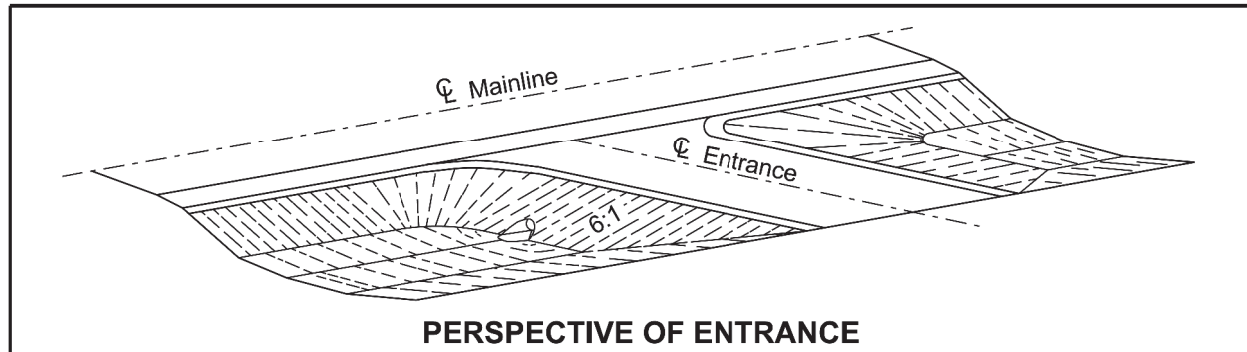
Published Date: 2025

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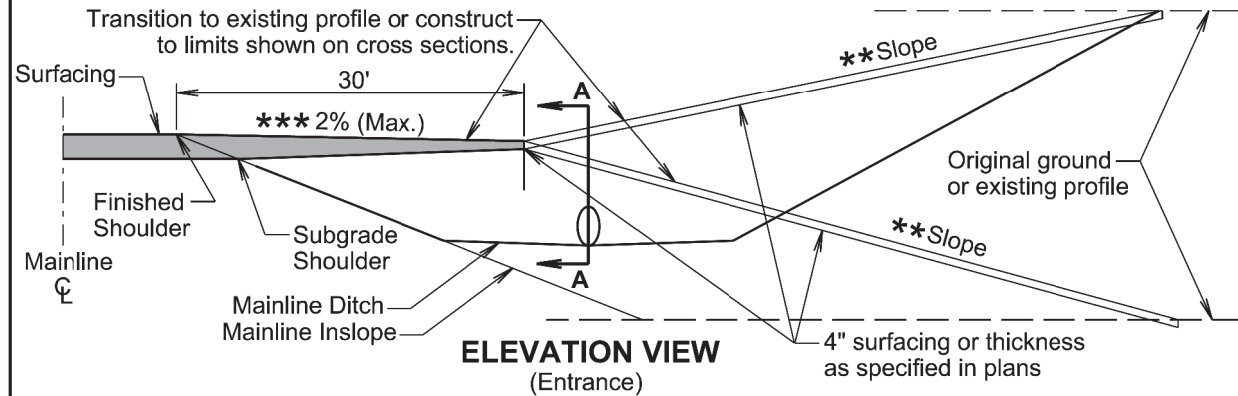
**FENCE ANCHORS FOR
BOX CULVERT WING WALLS**

PLATE NUMBER
620.16

Sheet 1 of 1

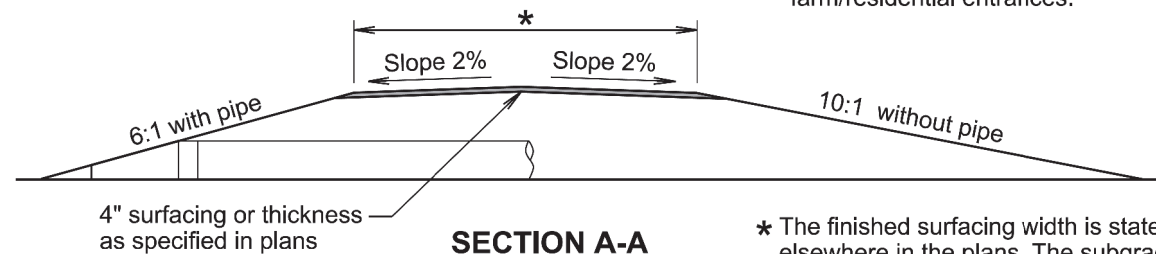


PERSPECTIVE OF ENTRANCE



*** 2% When on the inside of superelevation and 0% or flat when on outside of superelevation.

** Entrance maximum slope is typically 10:1 for field entrances and 15:1 for farm/residential entrances.



* The finished surfacing width is stated elsewhere in the plans. The subgrade width is 4' wider than the finished surfacing width unless stated otherwise in the plans.

GENERAL NOTES:

The ditch section shown above in the perspective view is only for illustrative purpose.

The elevation view above is typical for either a ditch cut or fill section. Entrances that vary from above should be specified in the plans.

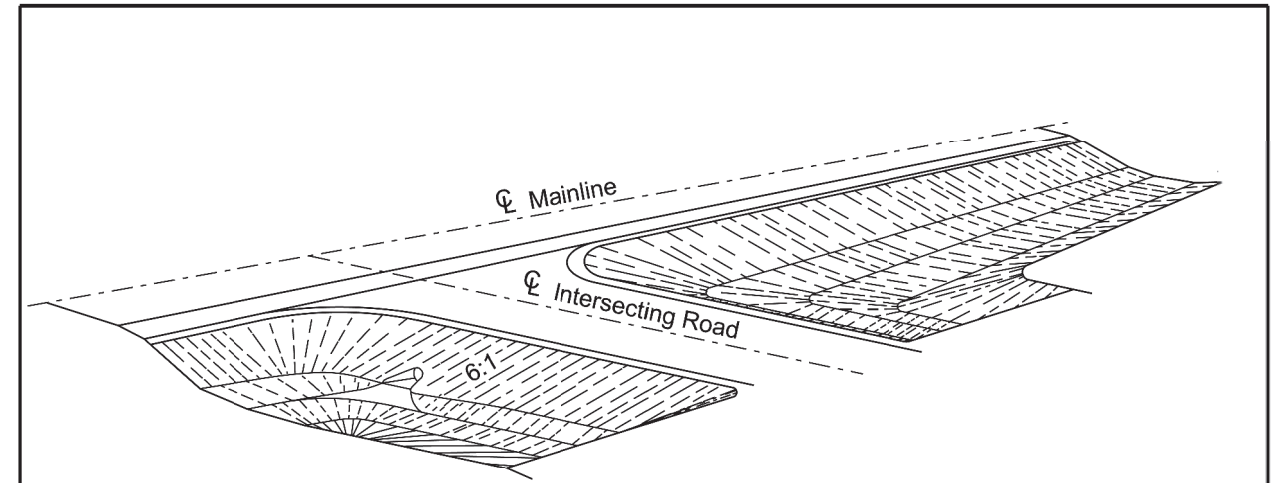
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the entrance or intersecting road inslope will be rounded to eliminate an abrupt transition.

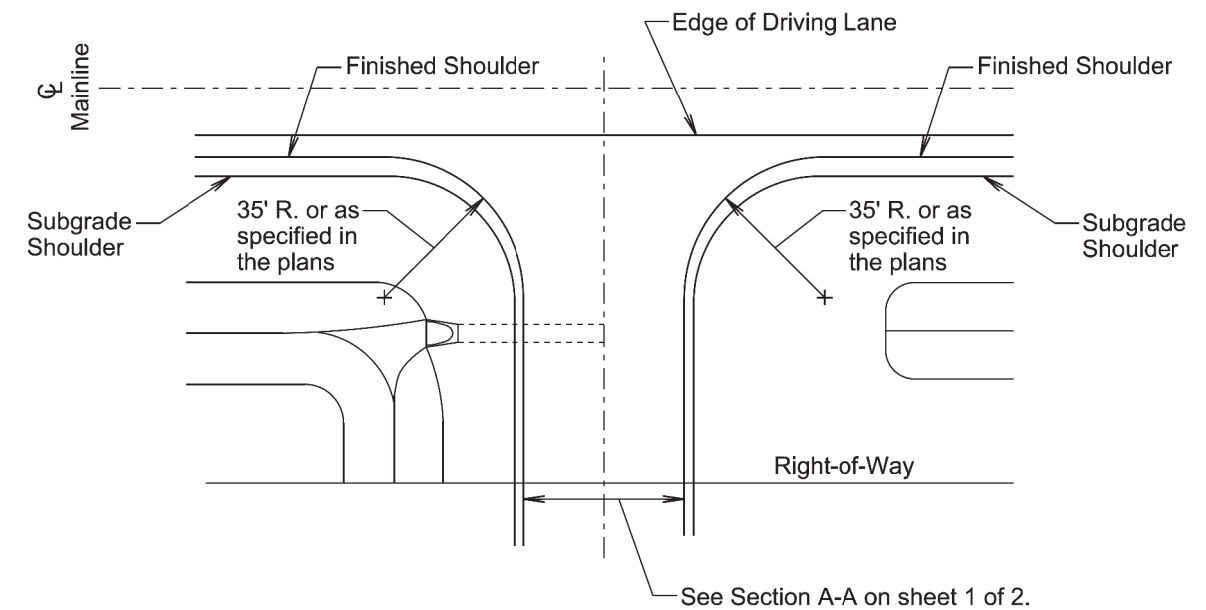
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

Published Date: 2025	S D D O T	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



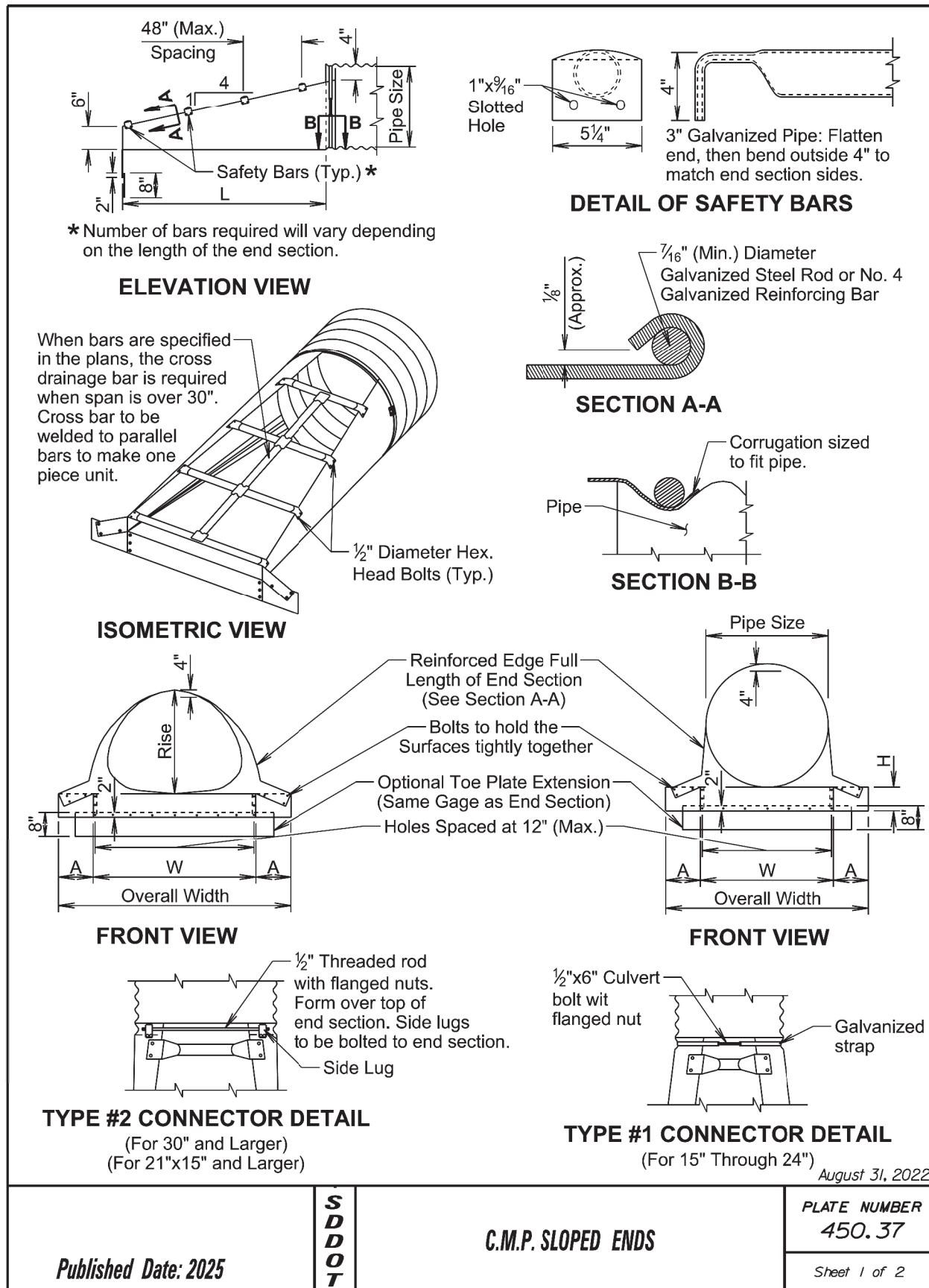
PLAN VIEW

GENERAL NOTES:

The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

November 19, 2021

Published Date: 2025	S D D O T	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2



ARCH C.M.P. SLOPED ENDS

Equiv. Dia. (Inch)	(Inches)		(Min.) Thick. Dimensions (Inches)				L Dimensions			
	Span	Rise	Inch	Gage	A	H	W	Overall Width	Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	4:1	20
21	24	18	.064	16	8	6	30	46	4:1	32
24	28	20	.064	16	8	6	34	50	4:1	40
30	35	24	.079	14	12	9	41	65	4:1	56
36	42	29	.109	12	12	9	48	72	4:1	76
42	49	33	.109	12	16	12	55	87	4:1	92
48	57	38	.109	12	16	12	63	95	4:1	112
54	64	43	.109	12	16	12	70	102	4:1	132
60	71	47	.109	12	16	12	77	109	4:1	148
72	83	57	.109	12	16	12	89	121	4:1	188

CIRCULAR C.M.P. SLOPED ENDS

Pipe Dia. (Inch)	(Min.) Thick. Dimensions (Inches)		L Dimensions					
	Inch	Gage	A	H	W	Overall Width	Slope	Length (Inch)
15	.064	16	8	6	21	37	4:1	20
18	.064	16	8	6	24	40	4:1	32
21	.064	16	8	6	27	43	4:1	44
24	.064	16	8	6	30	46	4:1	56
30	.109	12	12	9	36	60	4:1	80
36	.109	12	12	9	42	66	4:1	104
42	.109	12	16	12	48	80	4:1	128
48	.109	12	16	12	54	86	4:1	152
54	.109	12	16	12	60	92	4:1	176
60	.109	12	16	12	66	98	4:1	200

GENERAL NOTES:

Safety bars will be provided when specified in the plans.

Sloped ends will be fabricated from galvanized steel and will conform to the requirements of the Specifications.

Safety bars will be fabricated from steel schedule 40 pipe in conformance with ASTM A53, grade B or HSS 3.5x.216 in conformance with ASTM A500, grade B.

Slotted holes for safety bar attachment will be provided for all end sections.

Attachment to circular pipes 15" through 24" diameter will be made with Type #1 straps. All other sizes will be attached with Type #2 rods and lugs.

When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

Installation will be performed in accordance with the Specifications.

Cost of all work and materials required for fabrication and installation of sloped ends will be incidental to the bid items for the various sizes of sloped ends.

August 31, 2022

Published Date: 2025

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C.M.P. SLOPED ENDS

PLATE NUMBER
450.37

Sheet 1 of 2

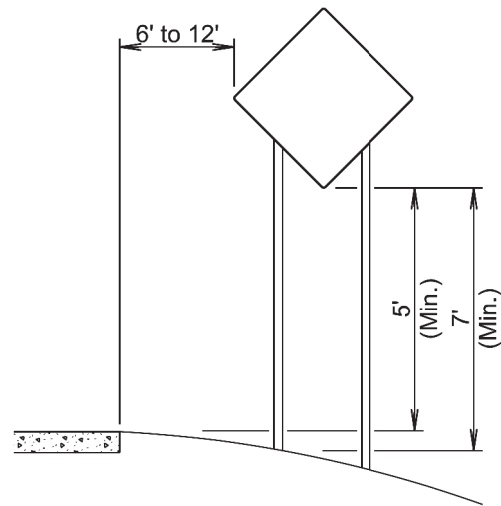
Published Date: 2025

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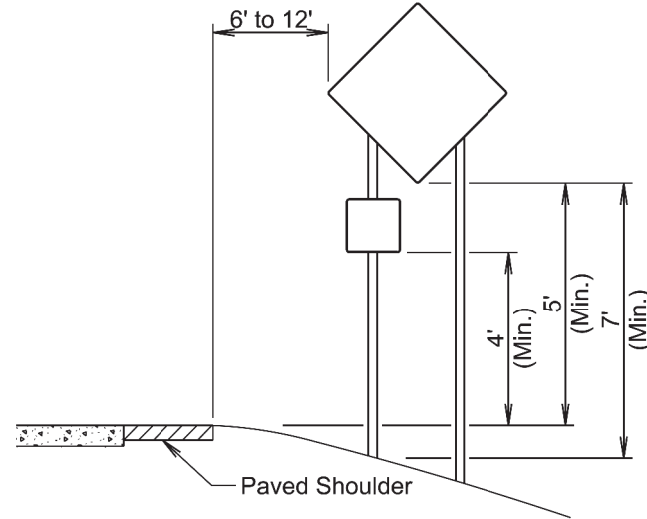
C.M.P. SLOPED ENDS

PLATE NUMBER
450.37

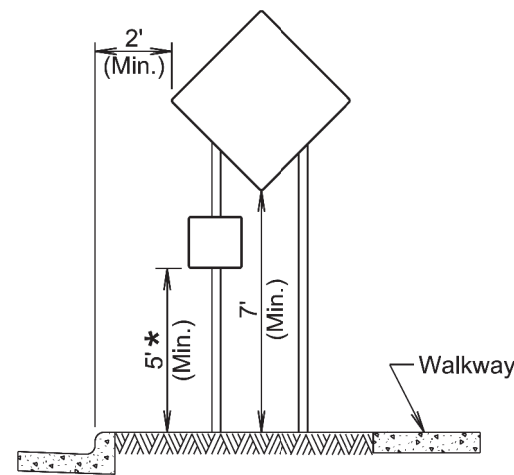
Sheet 2 of 2



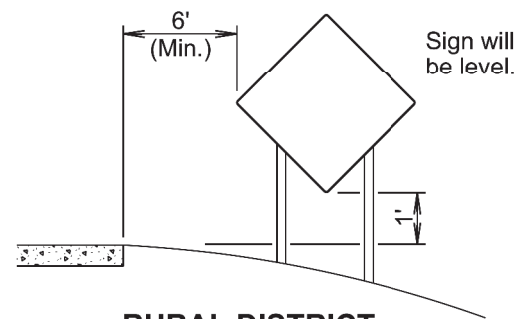
RURAL DISTRICT



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

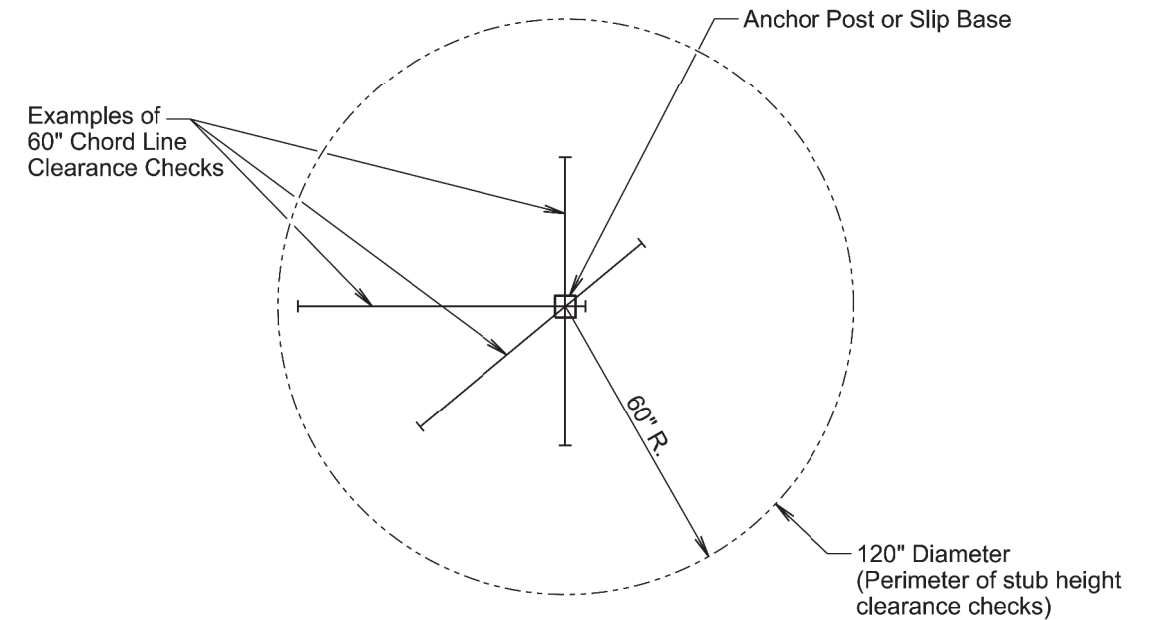
Published Date: 2025

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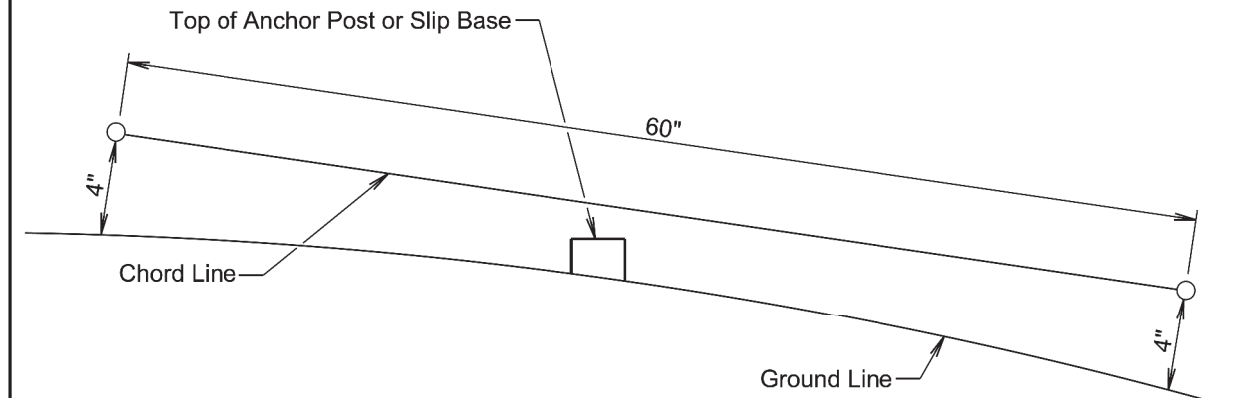
CRASHWORTHY SIGN SUPPORTS
(Typical Construction Signing)

PLATE NUMBER
634.85

Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases 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

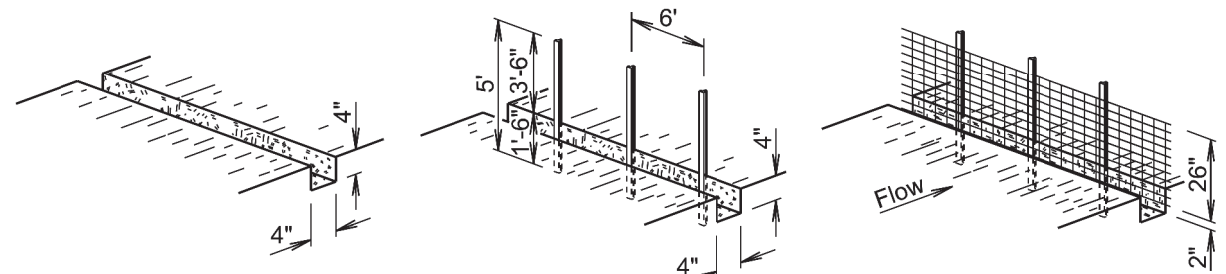
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BREAKAWAY SUPPORT STUB CLEARANCE

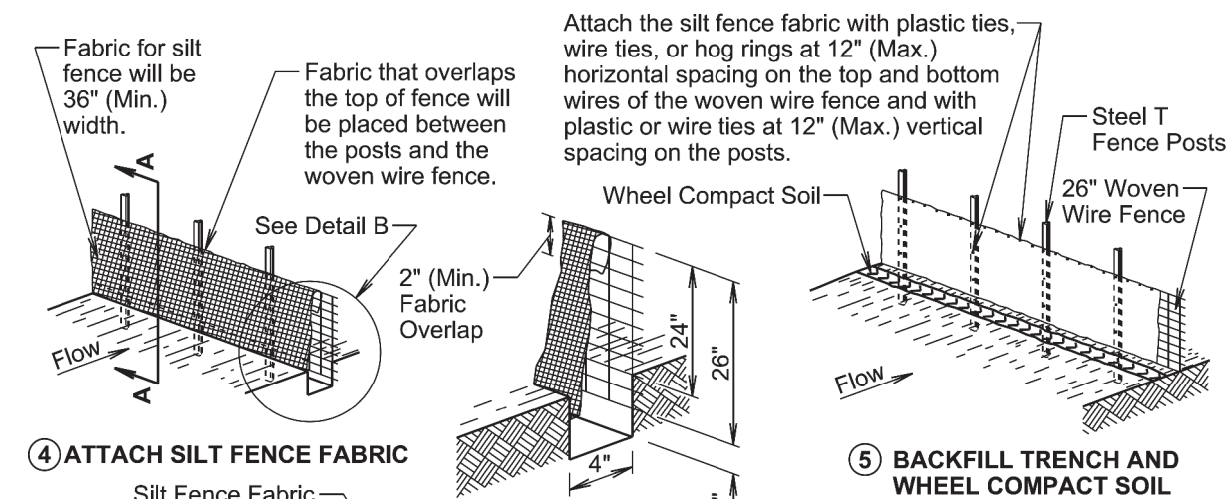
PLATE NUMBER
634.99

Sheet 1 of 1

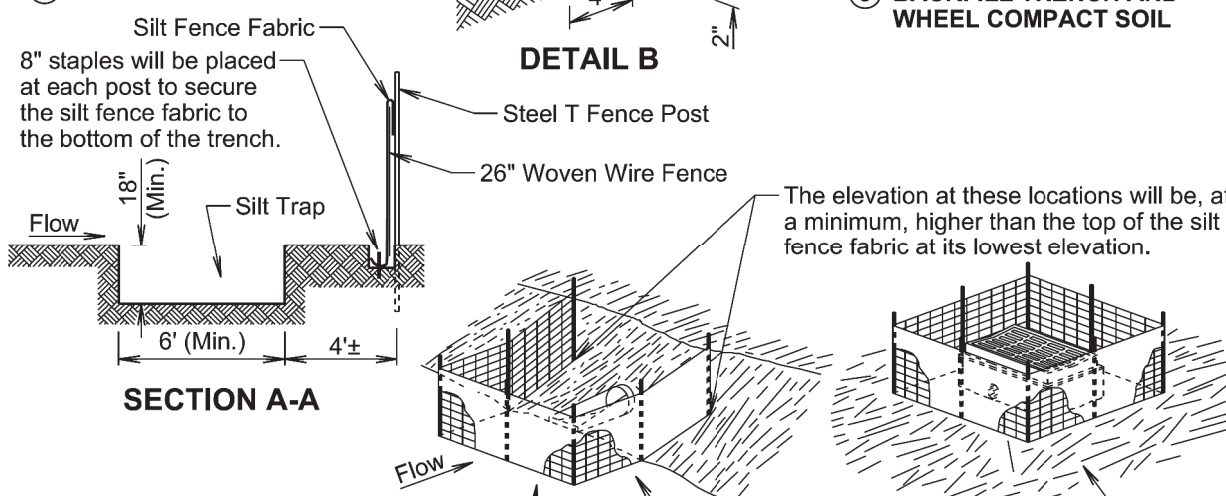
MANUAL LOW FLOW SILT FENCE INSTALLATION



- 1 EXCAVATE TRENCH
- 2 DRIVE STEEL T FENCE POSTS
- 3 ATTACH 26" WOVEN WIRE FENCE TO POSTS



- 4 ATTACH SILT FENCE FABRIC



- 5 BACKFILL TRENCH AND WHEEL COMPACT SOIL

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

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

February 14, 2020

Published Date: 2025

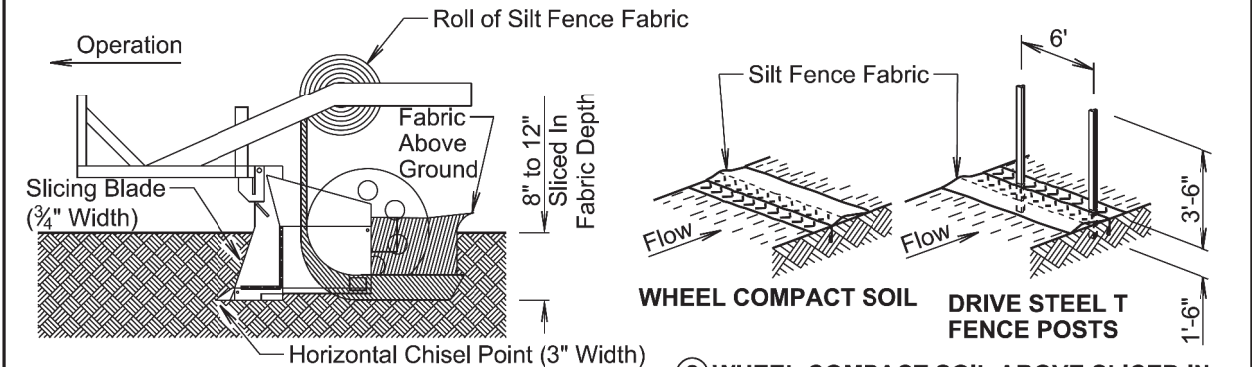
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LOW FLOW SILT FENCE
AND SILT TRAP

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.

Silt Fence Fabric

26" Woven Wire Fence Bend at base as necessary to provide for a minimum of 2" of silt fence fabric overlap.

1'-6" (Min.)

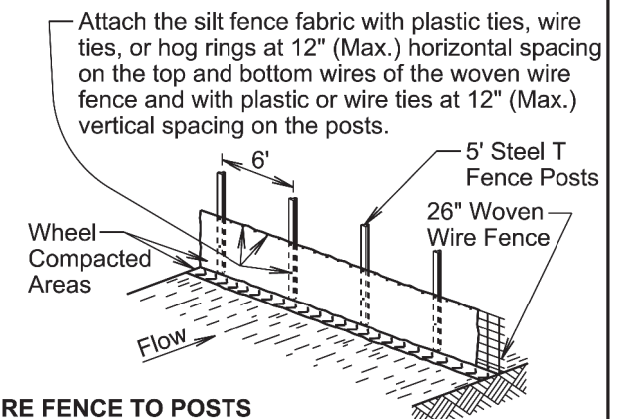
4'±

5' Steel T Fence Post

2'

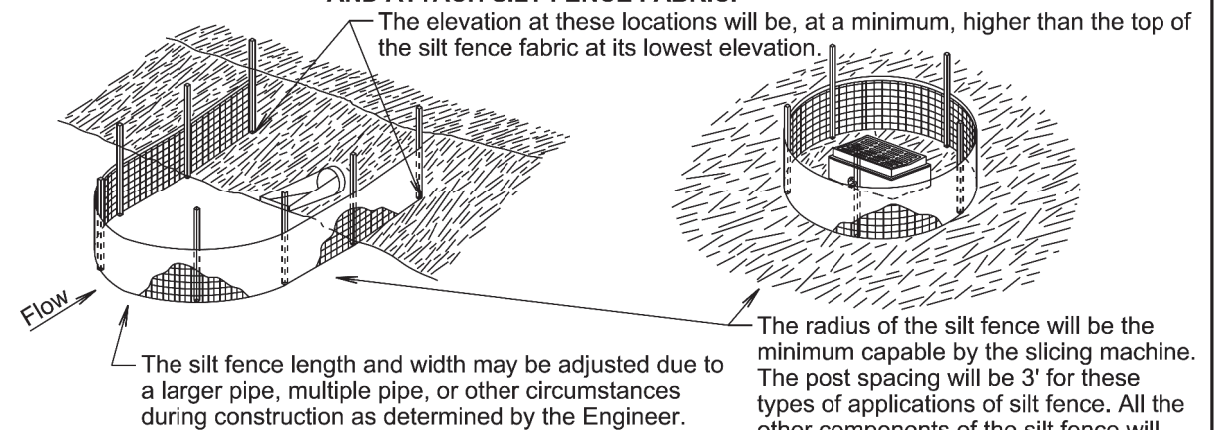
6' (Min.)

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



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

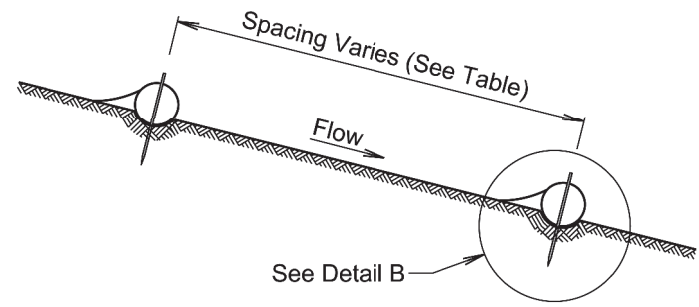
Published Date: 2025

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LOW FLOW SILT FENCE
AND SILT TRAP

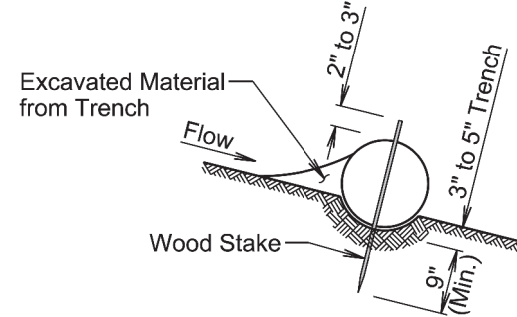
PLATE NUMBER
734.04

Sheet 2 of 2

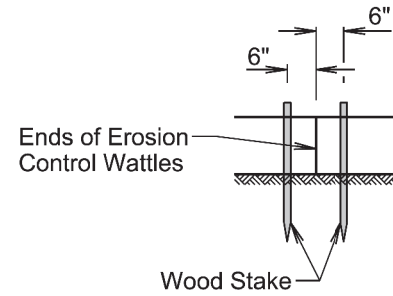


ELEVATION VIEW
(Cut or Fill Slope Installation)

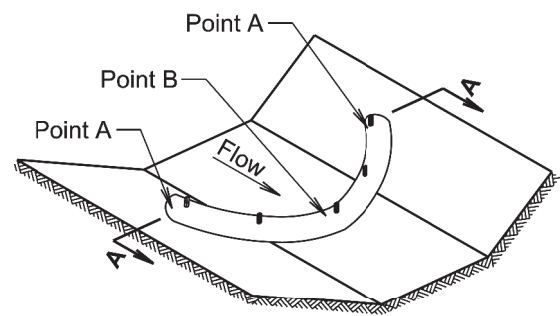
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



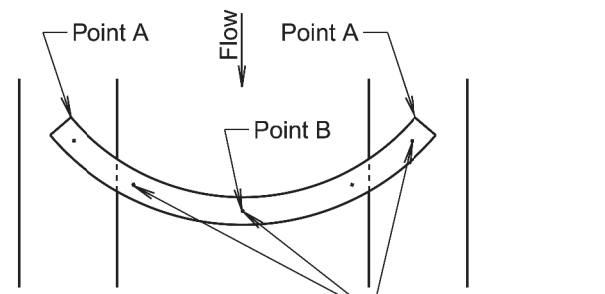
DETAIL B
(Typical of All Installations)



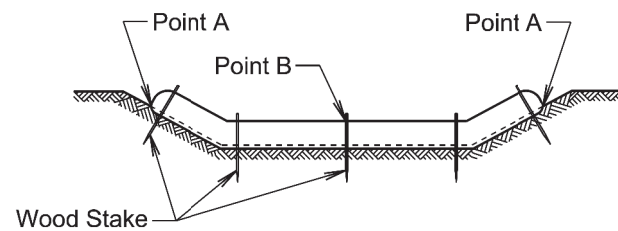
DETAIL C
(See General Notes)



ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)



SECTION A-A

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

February 14, 2020

February 14, 2020

Published Date: 2025

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EROSION CONTROL WATTLE

PLATE NUMBER
734.06

Sheet 1 of 2

GENERAL NOTES:

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

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

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

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

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

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

Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for 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".

Published Date: 2025

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EROSION CONTROL WATTLE

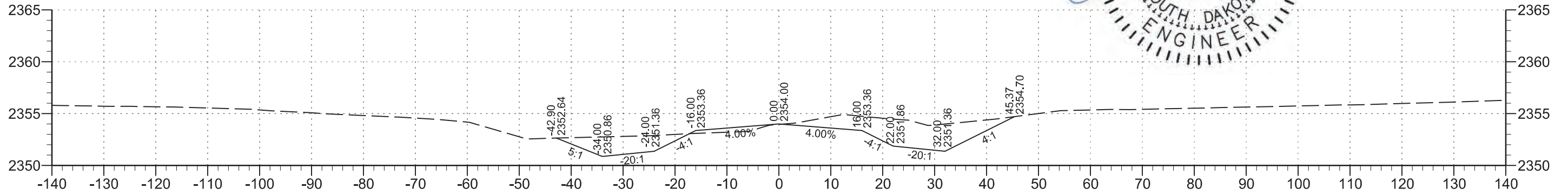
PLATE NUMBER
734.06

Sheet 2 of 2

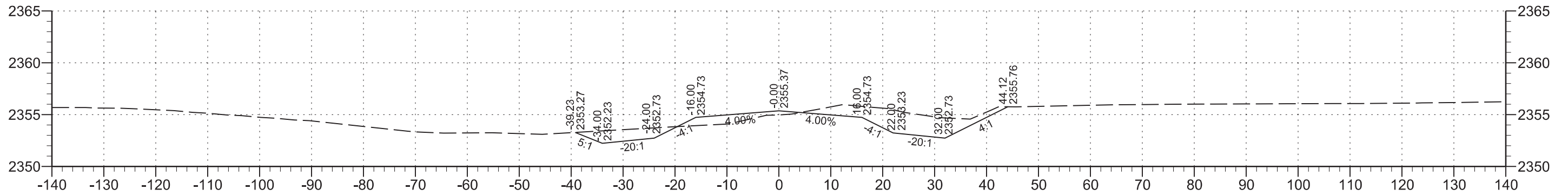
CROSS SECTIONS - ROADWAY CENTERLINE

FOR BIDDING PURPOSES ONLY

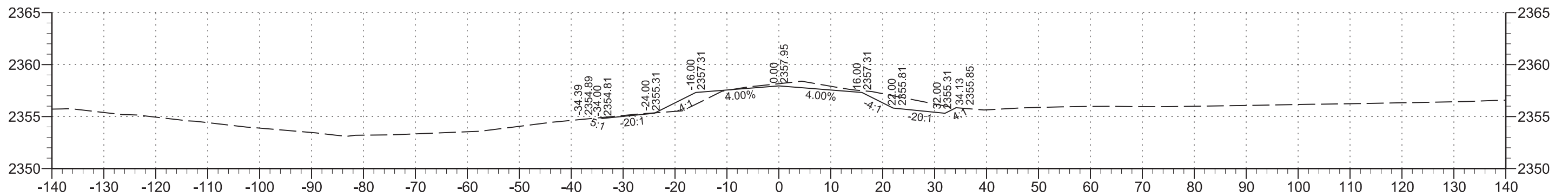
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S.D.	BRO-B 8069(04)	36	43



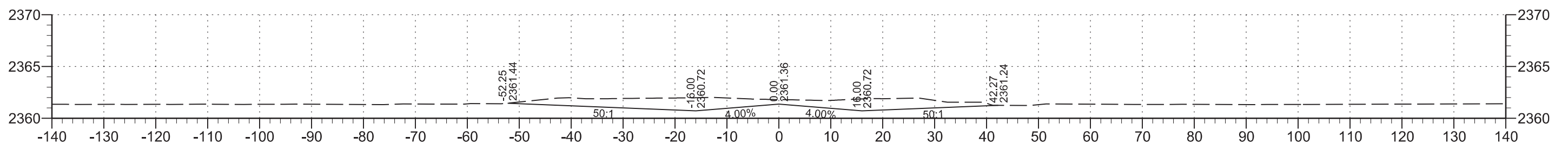
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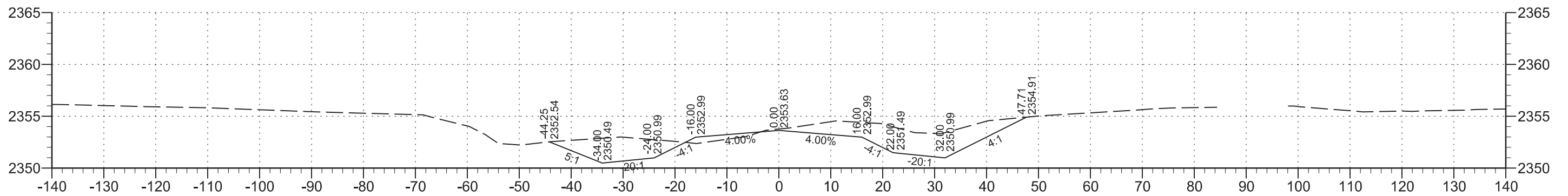
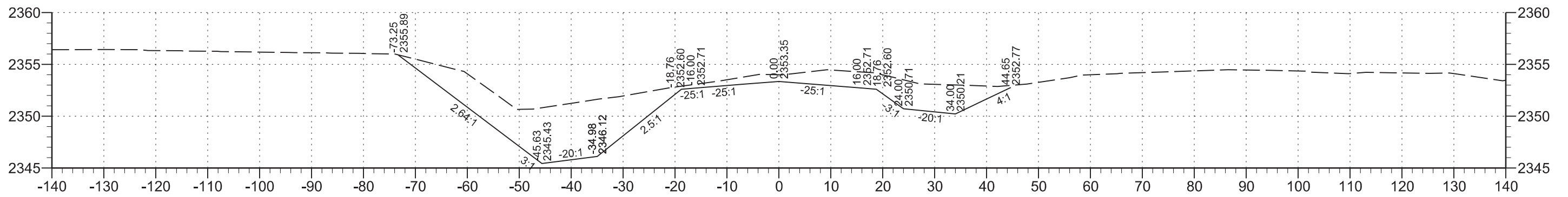
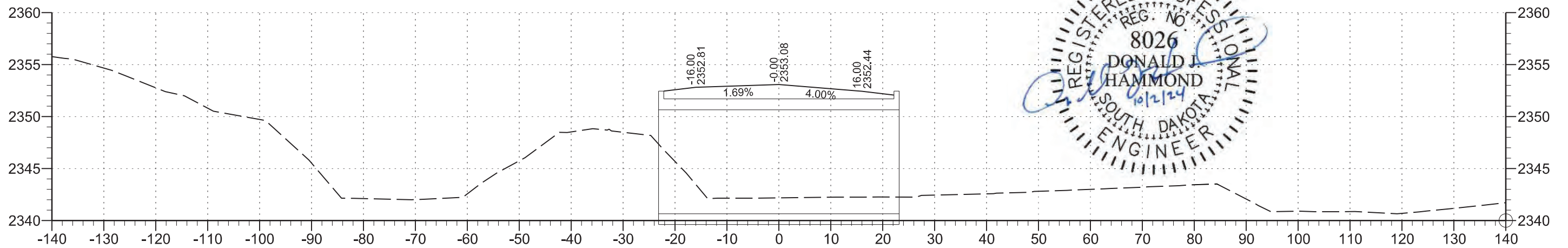
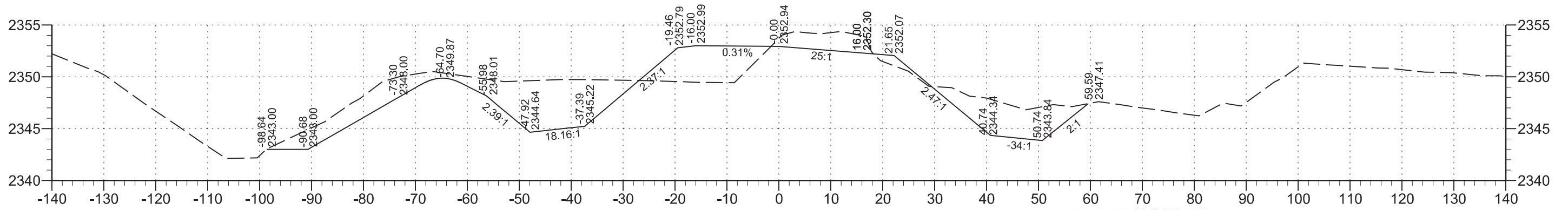


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CROSS SECTIONS - ROADWAY CENTERLINE

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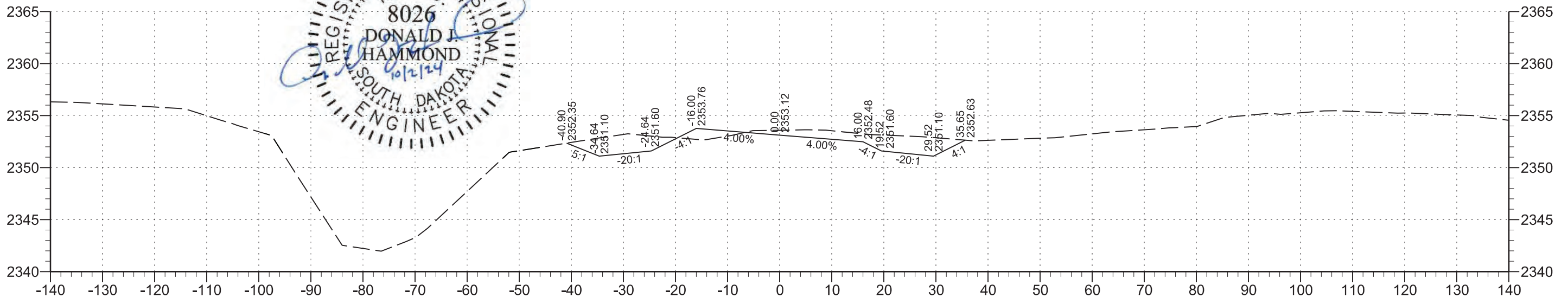
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	37	43



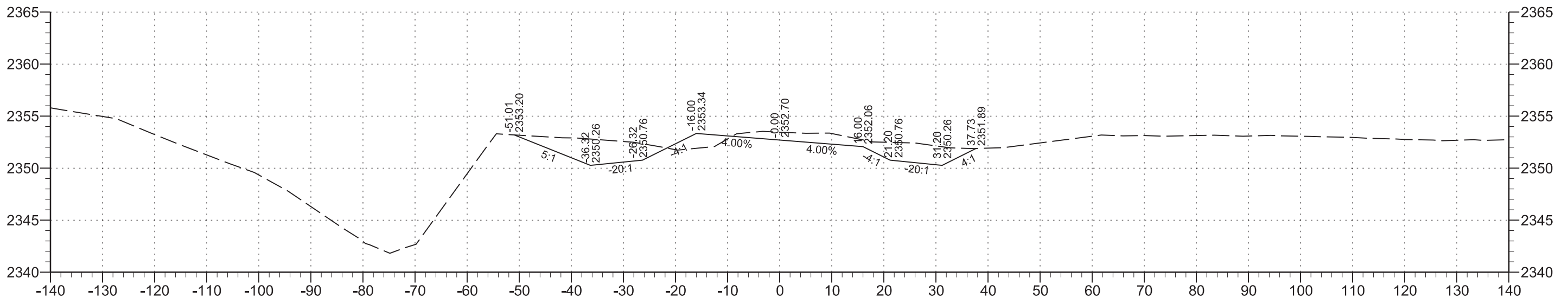
CROSS SECTIONS - ROADWAY CENTERLINE

FOR BIDDING PURPOSES ONLY

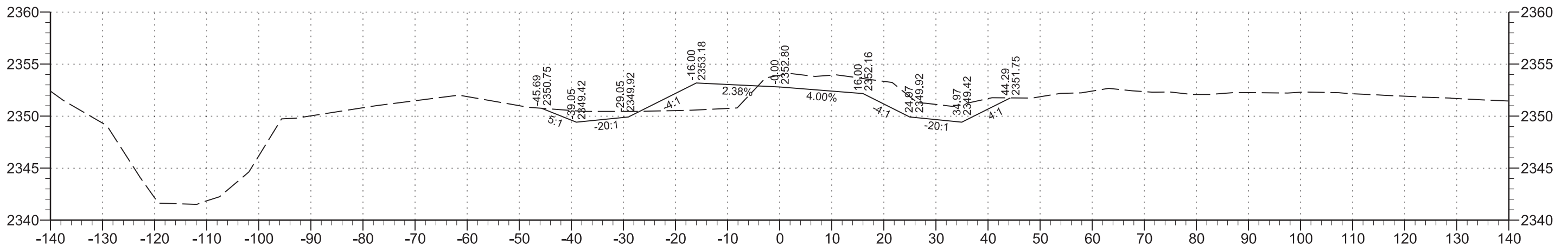
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	38	43



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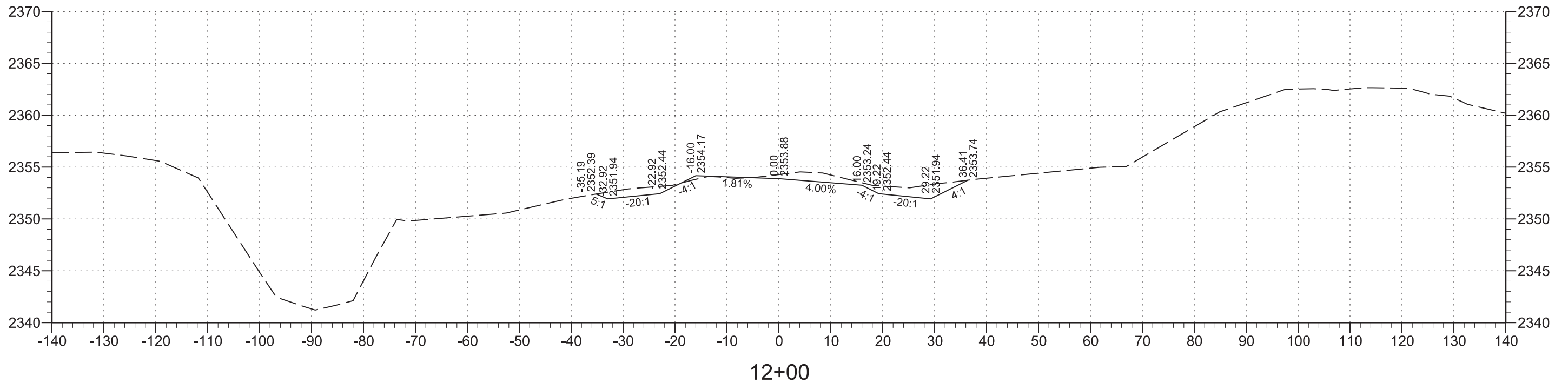
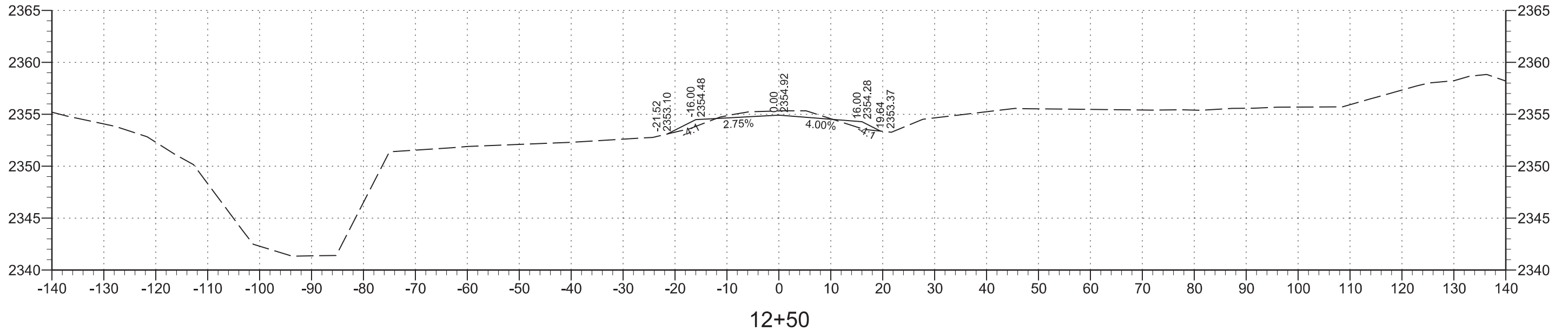


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CROSS SECTIONS - ROADWAY CENTERLINE

FOR BIDDING PURPOSES ONLY

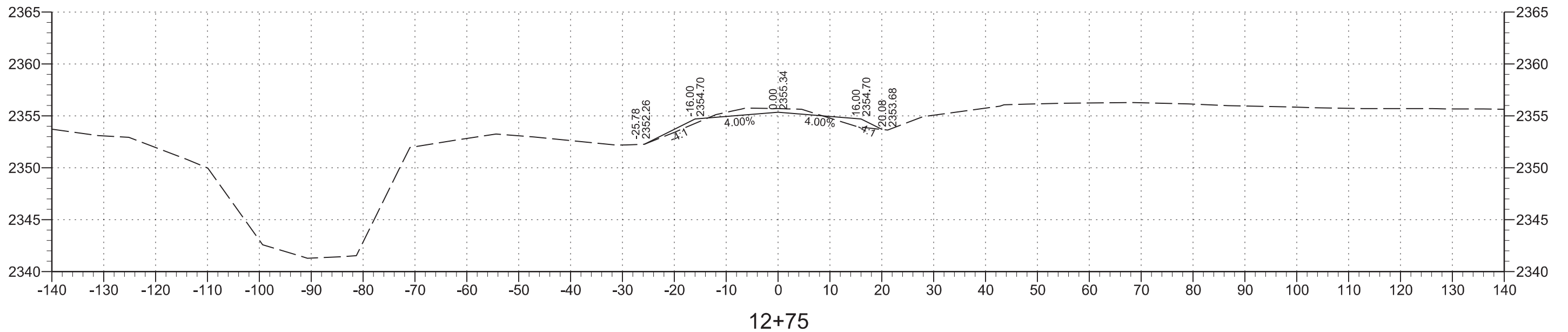
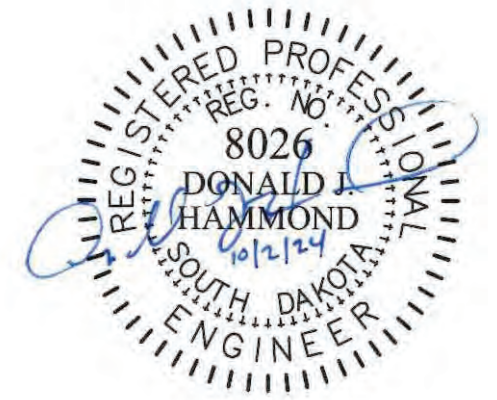
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	39	43



CROSS SECTIONS - ROADWAY CENTERLINE

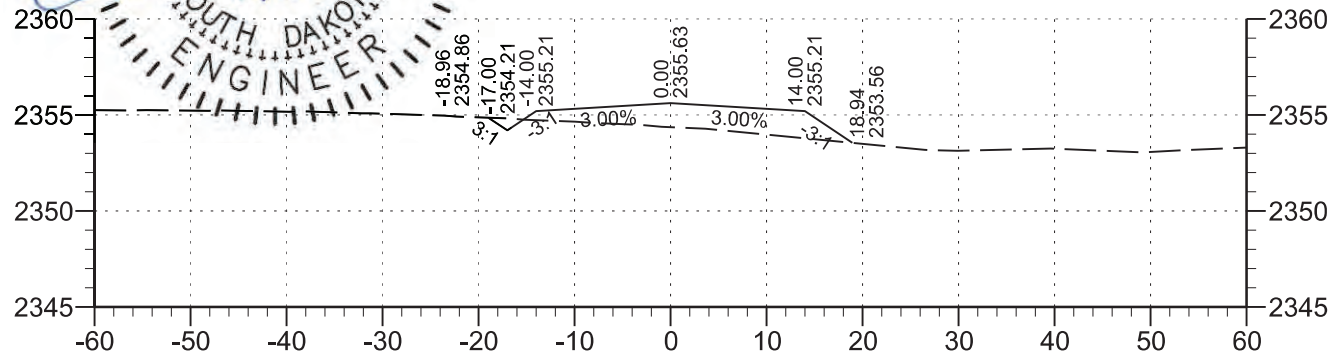
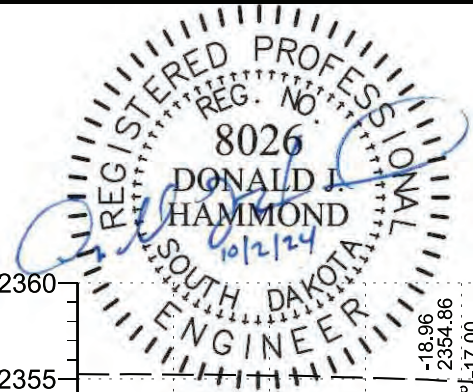
FOR BIDDING PURPOSES ONLY

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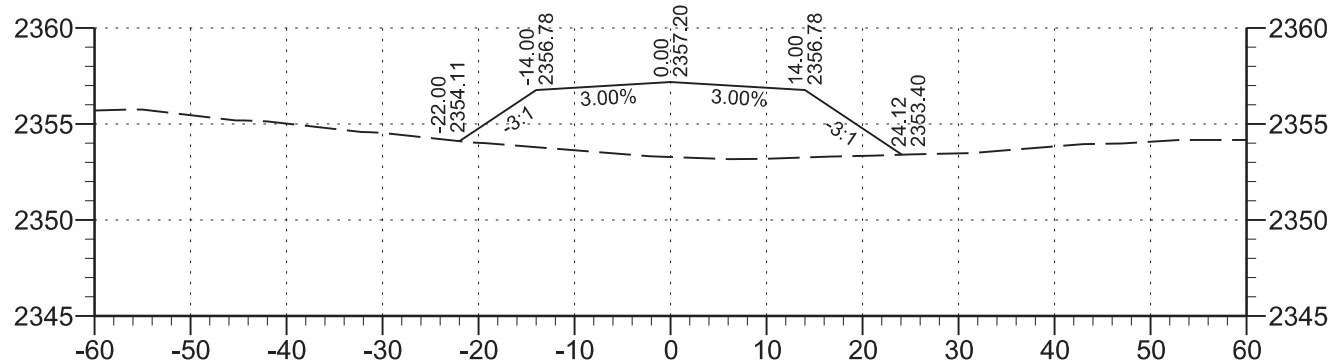


CROSS SECTIONS - TRAFFIC DIVERSION FOR BIDDING PURPOSES ONLY

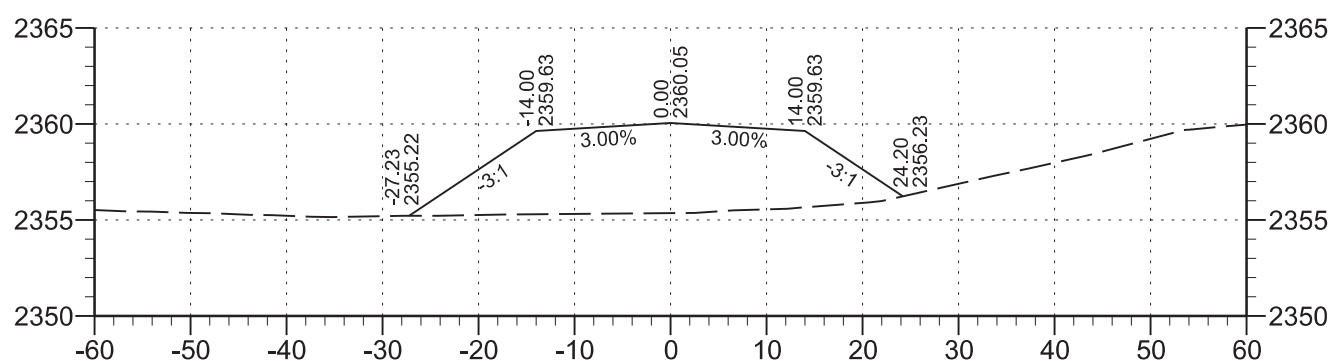
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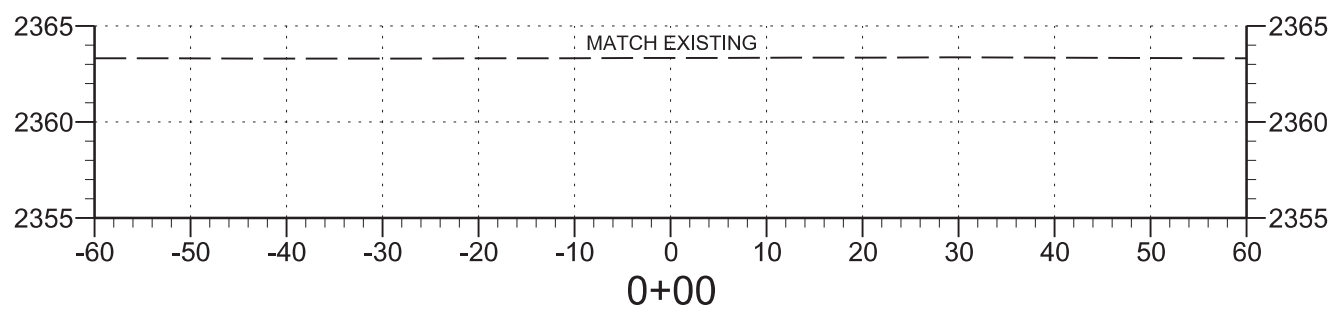
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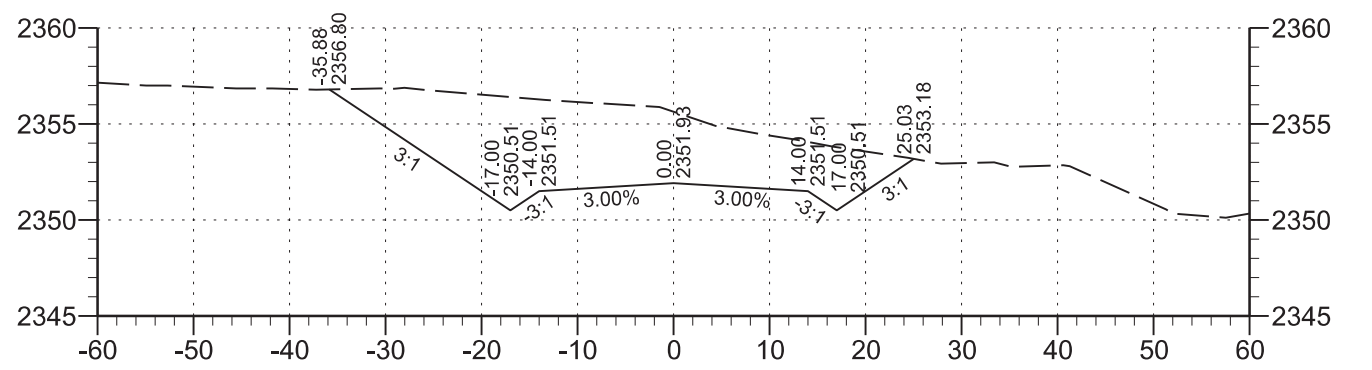
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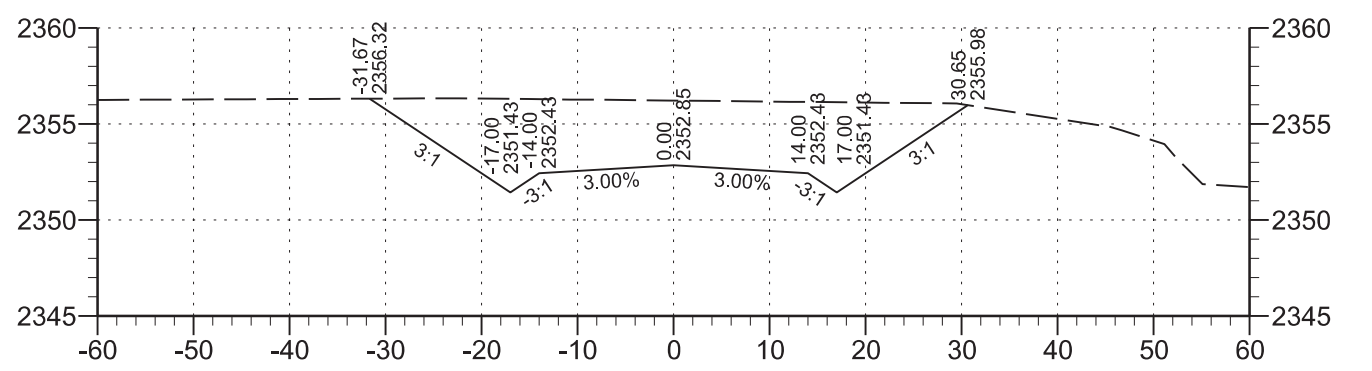
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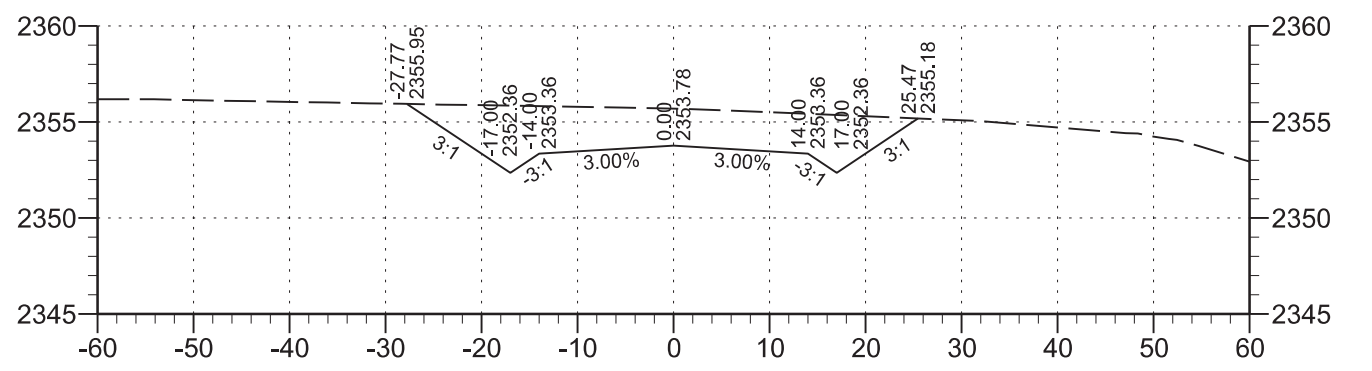
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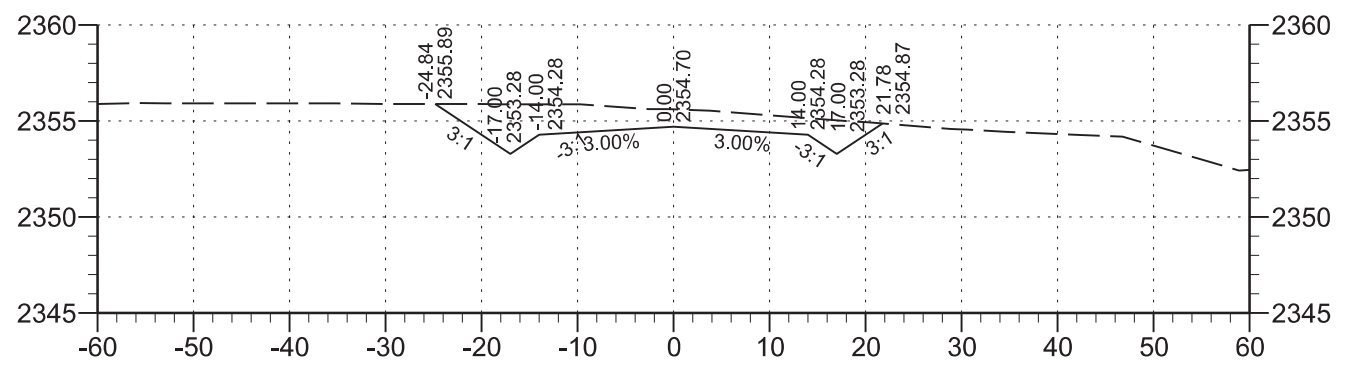
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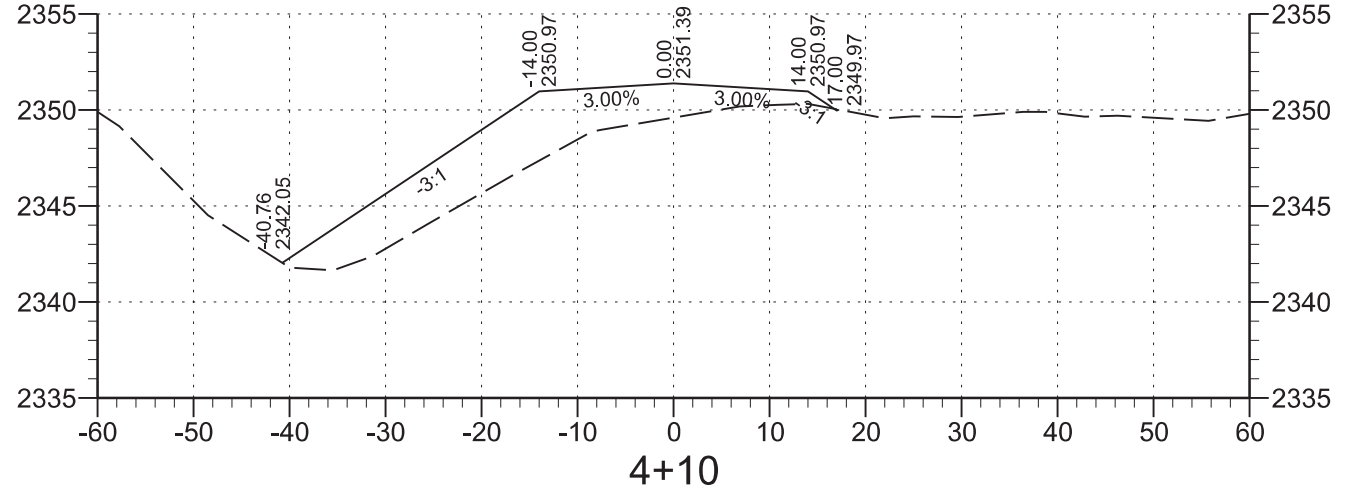
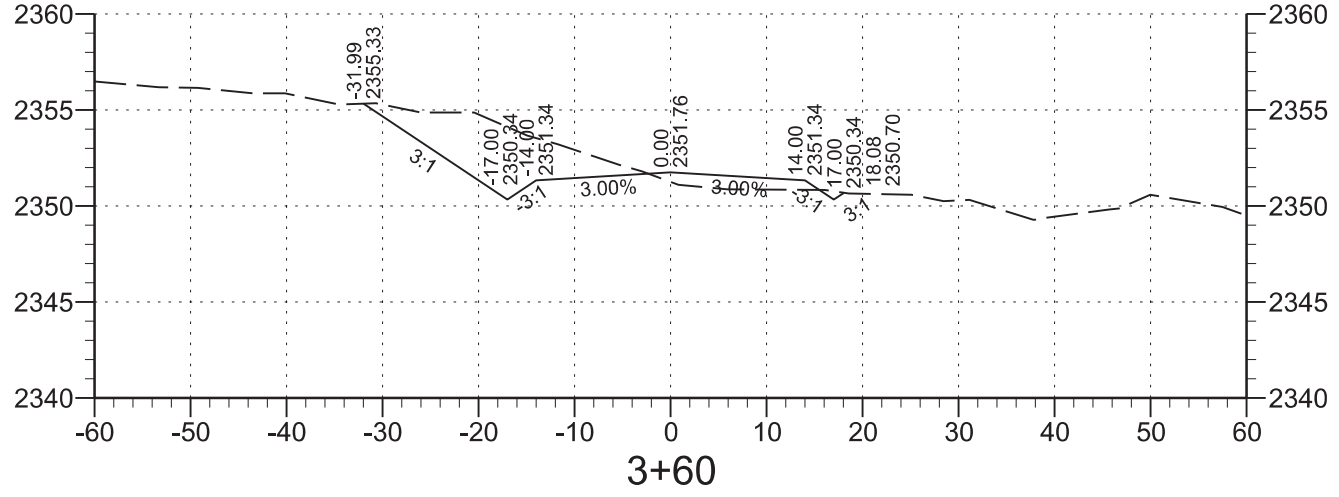
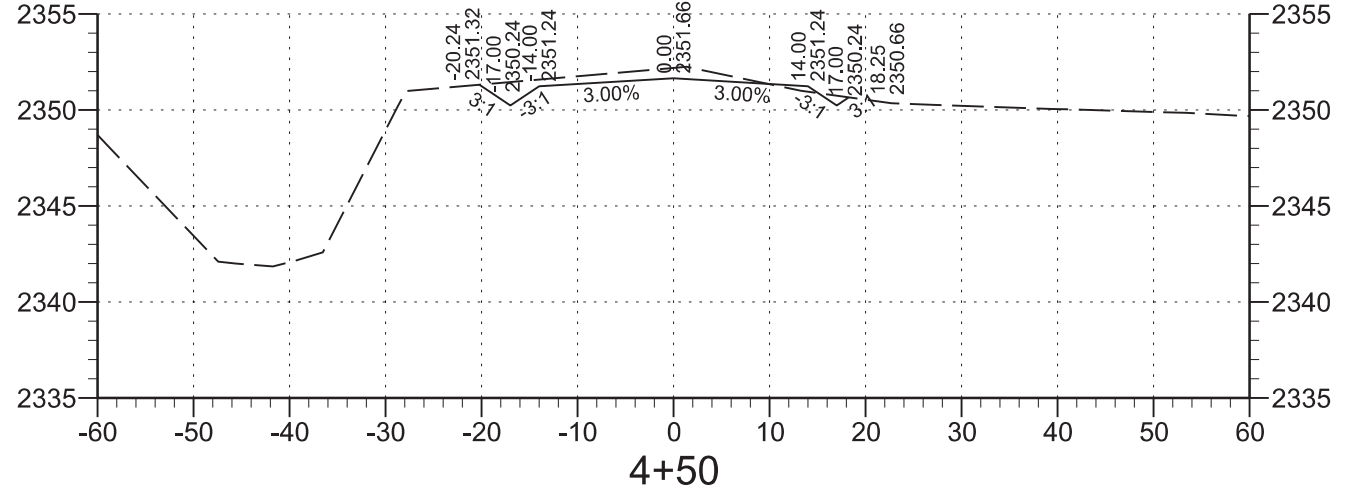
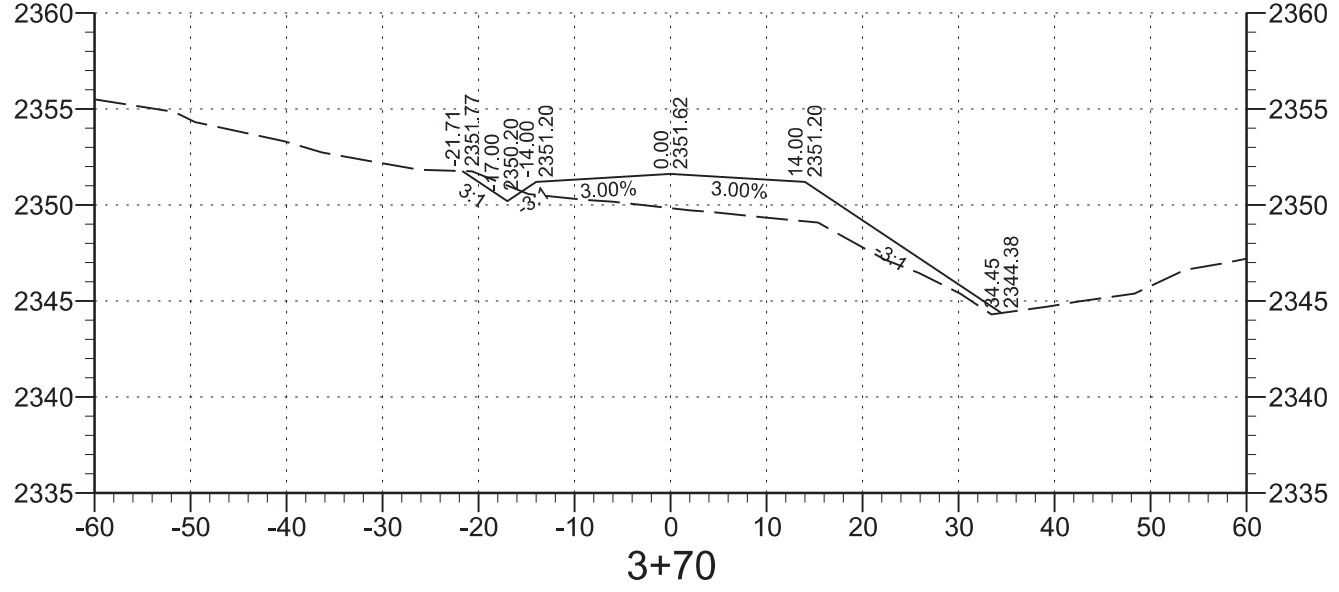
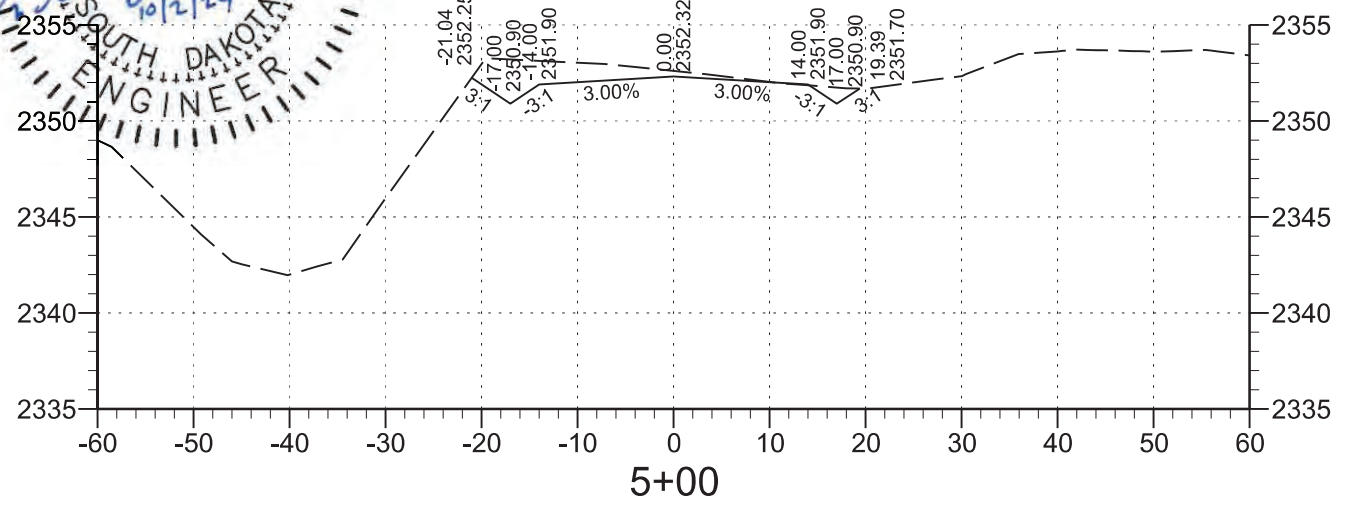
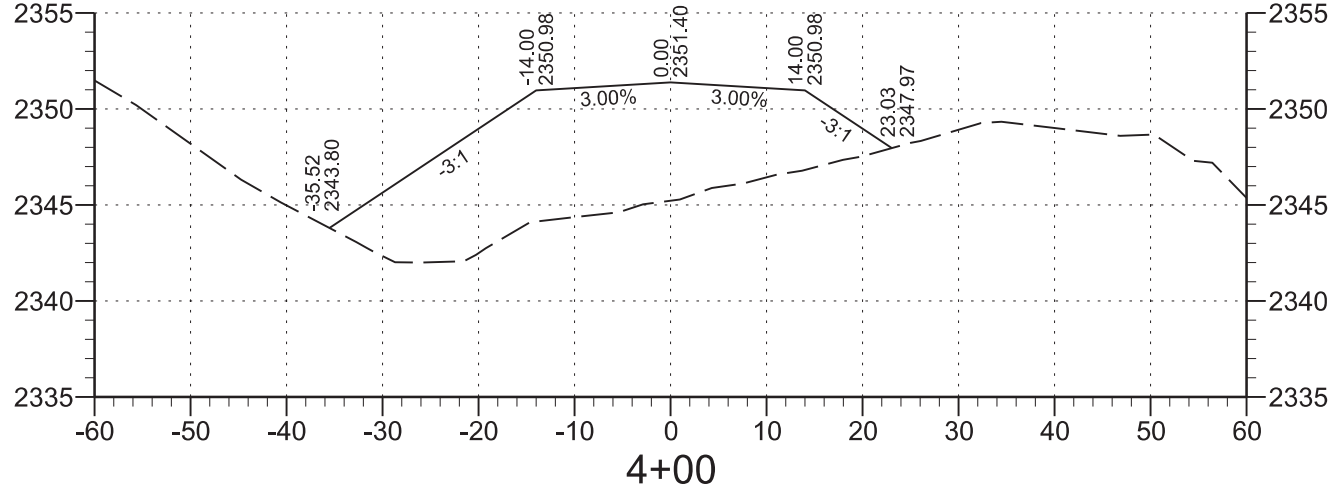
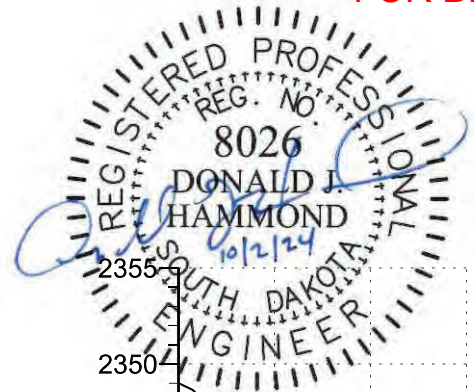
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CROSS SECTIONS - TRAFFIC DIVERSION FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	42	43



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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8069(04)	43	43

