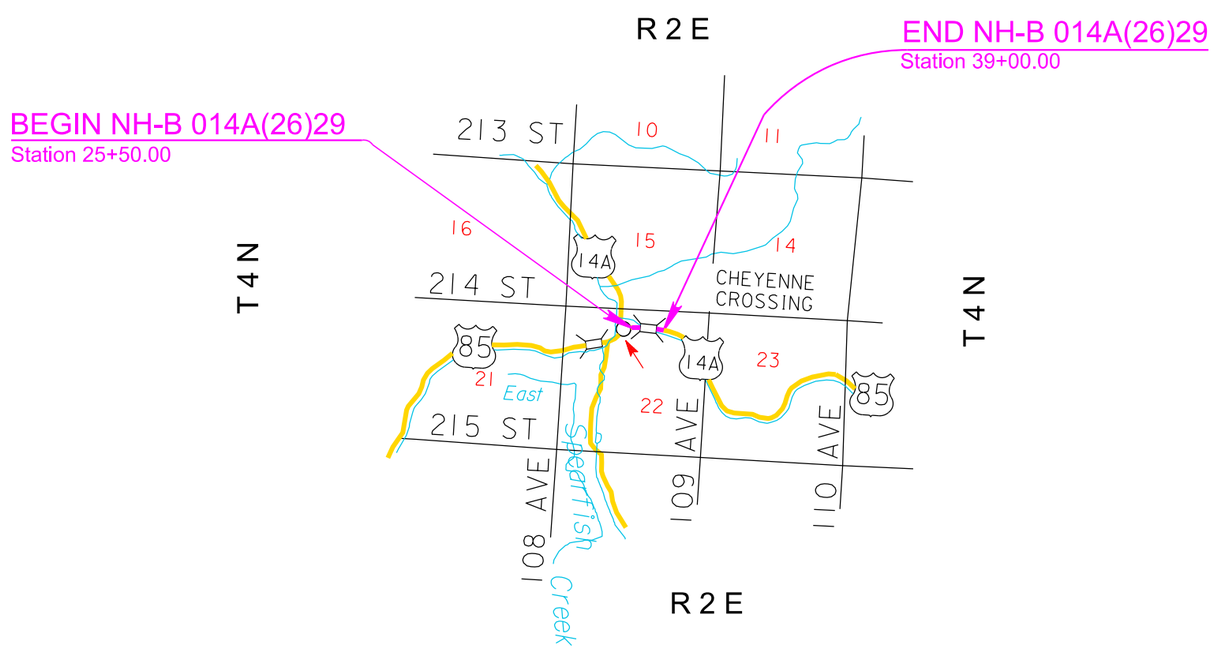
SECTION B: GRADING PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B1	B30

Plotting Date: 05/13/2025

INDEX OF SHEETS



SECTION B ESTIMATE OF QUANTITIES

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
009E3220	Reestablish Right-of-Way and Property Corner	29	Each
009E3230	Grade Staking	0.768	Mile
009E3245	Final Cross Section Survey	0.768	Mile
009E3250	Miscellaneous Staking	0.768	Mile
009E3280	Slope Staking	0.768	Mile
009E3290	Structure Staking	1	Each
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E4200	Construction Schedule, Category II	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	7,425.5	SqYd
110E4290	Salvage Beam Guardrail	202.5	Ft
110E4390	Salvage MGS MASH Tangent End Terminal	2	Each
120E0010	Unclassified Excavation	17,446	CuYd
120E0600	Contractor Furnished Borrow	133	CuYd
120E2000	Undercutting	3,544	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
450E0142	24" RCP Class 2, Furnish	164	Ft
450E0150	24" RCP, Install	164	Ft
450E2200	24" RCP Sloped End, Furnish	3	Each
450E2201	24" RCP Sloped End, Install	3	Each
450E4759	18" CMP 16 Gauge, Furnish	54	Ft
450E4760	18" CMP, Install	54	Ft
450E4769	24" CMP 16 Gauge, Furnish	40	Ft
450E4770	24" CMP, Install	40	Ft
450E5015	24" CMP Elbow, Furnish	2	Each
450E5016	24" CMP Elbow, Install	2	Each
450E5310	24" CMP Sloped End, Furnish	1	Each
450E5311	24" CMP Sloped End, Install	1	Each
450E5406	18" CMP Safety End, Furnish	2	Each
450E5407	18" CMP Safety End, Install	2	Each
450E8014	24" RCP to CMP Transition, Furnish	1	Each
450E8015	24" Pipe Transition, Install	1	Each
600E0200	Type II Field Laboratory	1	Each
630E1006	25'-0" Longspan MGS	1	Each
630E2018	MGS MASH Tangent End Terminal	2	Each
680E0204	4" Perforated PVC Drain Pipe with Sleeve	300	Ft
680E0224	4" PVC Outlet Pipe	60	Ft
680E2000	Concrete Headwall for Underdrain	1	Each
680E2500	Porous Backfill	126.0	Ton
720E1015	Bank and Channel Protection Gabion	9.0	CuYd

SECTION B ESTIMATE OF QUANTITIES (CONTINUED)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
734E0900	Temporary Diversion Channel for Fish Passage	1	Each
831E0110	Type B Drainage Fabric	30	SqYd
900E1080	Orange Plastic Safety Fence	100	Ft
900E1150	Right of Way Marker	24	Each

BID ITEMS FROM ENVIRONMENTAL COMMITMENTS

The following bid items provided in this section of plans come from the Environmental Commitments in Section A: Orange Plastic Safety Fence and Temporary Diversion Channel for Fish Passage (see the table).

MACHINE CONTROL GRADING & MODEL INFORMATION

Electronic design files are made available by the SDDOT Bid Letting Office through the SDDOT's SharePoint Directory for Contractors.

Highway features not included in the roadway subgrade model(s) xml file(s) are the following: entrances, ditch blocks, undercutting, muck excavation, and unstable excavation.

Other subgrade model(s) xml file(s) provided for this project include channel work and temporary widening for traffic diversion purposes.

These files are provided for informational purposes only. The information shown in the plans will govern over the provided electronic information. The Contractor assumes the risk of error if the information is used for any purposes for which the information was not intended. The Contractor assumes all risk of any assumptions or manipulations made of the electronic information.

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

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

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

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

The north slope from 29+50 L to 39+00 L is an unstable hillside that historically is a landslide location. This slope will be off limits to equipment and will not be utilized to stockpile material.

GENERAL GEOLOGY

The project geology predominantly consists of alluvial and colluvial materials associated with the Winnepeg and Deadwood Formations. The South Dakota Geologic Survey describes the formations encountered as:

The Winnepeg Formation consists of tan calcareous siltstone and sandy shale with limestone lenses overlying gray and light green fissile shale.

The Deadwood Formations consists of variegated, yellow to red, brow, gray, and green glauconitic conglomerate, sandstone, shale, dolomitic limestone, and dolomite.

CLASSIFICATION OF EXCAVATION

Large boulders may be encountered sporadically within the project limits. Very large boulders could require more effort to excavate. Most of the material encountered should be able to be excavated using conventional methods associated with normal Unclassified Excavation.

TEMPORARY RETAINING STRUCTURES

Temporary retaining structures will be necessary to maintain traffic and complete phased construction at the box culvert replacement location. Boring and drive test information is plotted on the site plan and subsurface profile included in Section E. See site plan and subsurface profile in Section E for subsurface information.

The design of the temporary retaining structure is the responsibility of the Contractor. If sheet piling is utilized as a temporary retaining structure, some sheets will likely be damaged driving through colluvial cobbles and boulders. Excavation slopes above temporary retaining structures will be 1 ½:1 or flatter as required to achieve a minimum factor of safety of 1.5 for the proposed excavation slope above the temporary structure and the live load surcharge conditions. The Contractor will submit plans and calculations sealed by a Profession Engineer registered in South Dakota. Do not begin construction of the temporary retaining structure until the plans and calculations have been accepted the SDDOT Bridge Construction Engineer. Allow a minimum of 15 days for review.

TEMPORARY SLOPES

Temporary excavation slopes will be 1 ½:1 or flatter. These temporary slopes will become unstable over the long-term. However, the slopes should remain globally stable over the short-term during construction if measures are taken to divert runoff away from the slope and construction activities are sequenced to minimize the amount of time the temporary excavation slopes are left exposed and unsupported. Regular monitoring of the temporary slopes is required during construction. If a temporary slope becomes unstable, excavation will cease, and the sloped will be evaluated by the Engineer.

TYPE II FIELD LABORATORY

The Contractor will provide high-speed broadband internet connection to the field lab. The multiport internet connection may be hardwired, through a cellular method, or other approved service that allows Wi-Fi connection. Prior to obtaining the internet connection, the Contractor will submit the internet connection's technical data to the Area Office to check for compatibility with the state's computer equipment. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. The internet service will be incidental to the contract unit price per each for "Type II Field Laboratory".

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.

CLEARING AND DISPOSAL OF TIMBER

A. U.S. Forest Service Land

The Contractor will dispose of the brush and timber. The brush and timber designated by the USFS for removal will become the property of the Contractor and removed from Forest Service land and ROW.

Temporary decking locations outside the construction limits will be approved by the District Ranger before its use.

All stumps, slash, root wads, and residual waste material generated from the harvest must be removed and disposed of from Forest Service Lands and ROW.

Slash and non-merchantable timber will be disposed of by chipping or hauling off of USFS lands and US Highway 14A ROW. If chipping is used, all residue from chipping must be distributed evenly and no chip depth will exceed 3". Burying or burning of slash, non-merchantable timber or stumps will not be allowed.

TRAFFIC DIVERSION

The traffic diversion for this project consists of temporary shoulder widening from Station 25+00 to 35+00 Left and Right. The traffic diversion will be constructed according to Section 4.5 A of the Specifications.

The traffic diversion will be built in close conformity to the plan gradeline. Unless otherwise shown in the plans, the traffic diversions will be removed such that the original ground surface contours and elevations are restored.

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

Contractor Furnished Borrow, as shown on the plans profile sheets, will be utilized to construct the diversion temporary widening. The Contractor Furnished Borrow quantity is included in the mainline excavation quantity in the Table of Excavation Quantities by Balances.

TABLE OF TEMPORARY DIVERSION CHANNEL FOR FISH PASSAGE

The Contractor will utilize the existing structures West barrel as a temporary diversion channel during construction. If at any time the existing structure cannot be utilized, the Contractor will construct a temporary diversion channel in accordance with standard plate 734.30 at the locations listed in the following table:

Station	Quantity (Each)
28+43	1
Total:	1

SHRINKAGE FACTOR: Embankment +25%

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station	to	Station	Excavation (CuYd)	* Undercut (CuYd)	** Contractor Furnished Borrow Exc. (CuYd)	Total Excavation (CuYd)	** Waste (CuYd)	** Haul (CuYdSta)
25+50		39+00	3,945	3,544	133	7,622	2,180	2,516
		Totals:	3,945	3,544	133	7,622	2,180	2,516

* The quantities for these items are in the Estimate of Quantities under their respective contract items.
** The quantities for these items are for information only.

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	3,945
Undercut	3,544
Topsoil	1,263
Exc. for RCBC Installation	8,694
Total	17,446

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.

The following paragraphs are general earthwork information and information in regard to computing the Unclassified Excavation quantity when final cross sections are taken in the field:

The Unstable Material Excavation quantity is included in the Excavation quantity listed in the Table of Unclassified Excavation. When finaling a project, the Unstable Material Excavation quantity will be added to the Excavation quantity to compute the Unclassified Excavation quantity.

The Topsoil quantity in the Table of Unclassified Excavation is an estimate. When finaling a project, the total quantity of field measured Topsoil will be used in place of the estimated Topsoil quantity. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The Excavation quantities from individual balances and the Table of Unclassified Excavation have been reduced by the volume of in place surfacing that will be removed and/or salvaged.

The volume of in place Asphalt Surfacing removed will NOT be paid for as Unclassified Excavation.

The Excavation quantities from individual balances and the table above have been reduced by the volume of in place asphalt pavement that will be removed.

When finaling a project, the estimated quantity of 937 cubic yards of Asphalt Pavement removed from the cut sections will be subtracted from the Unclassified Excavation quantity for final payment. The quantity of Asphalt Pavement from cut sections subtracted from the Unclassified Excavation quantity will be plans quantity and will not be adjusted according to field measurements.

WASTE EXCAVATION

The quantity of waste in the Table of Excavation Quantities by Balances that is muck excavation or excess excavation material will be disposed of at a Contractor furnished site acceptable to the Engineer.

HAUL

Included in the Table of Excavation Quantities by Balances is Haul. They are not pay items and are for informational purposes only. Haul was not estimated for moving Contractor Furnished Borrow Excavation. The mass haul diagram is available as part of the bid package for use in figuring this haul.

Haul: Estimated quantity (CuYdSta) for moving unclassified excavation material to the locations where it is needed throughout the earthwork balance.

For Purpose of Extra Haul Computations:

Average Haul = (Haul + Out-of-Balance Haul)/Unclassified Excavation = 2,516/17,446 = 0.1 Sta.

Compensation for “Extra Haul” will not be made for haul distances less than 5 stations. When payment for “Extra Haul” is authorized, the distance used for “Extra Haul” calculations will be that in excess of 5 stations.

UNDERCUTTING

In all cut sections the earthen subgrade will be undercut 1 foot below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, will then be replaced and compacted to the density specified for the section being constructed.

Shallow embankment sections, fills less than 1 foot in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 1-foot height of earth embankment for the entire width of roadbed. The upper 6 inches of undercut material that consists of topsoil with a high humus content will be used as topsoil, placed in the fill slopes outside the shoulders of the earthen subgrade, or placed in the lower portion (below 4 foot depth) in fills which are greater than 4 feet in height. The remaining undercut soil and soil obtained from adjacent excavation (excluding the upper 6 inches) will then be replaced and compacted to the density specified for the section being constructed.

An exception to the undercut requirements will be made in sections that encounter in place rock. Cut sections made through in place rock will be excavated to the top of the subgrade surface only. Shallow embankment sections (as described above) placed over in place rock with less than 1 foot of soil cover will be excavated to the surface of the rock prior to placing any fill.

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNDERCUTTING LOCATIONS

Station	to	Station
25+50		39+00

UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth of 2 feet. The estimated quantity of 90 cubic yards of unstable material excavation will be paid for at the contract unit price per cubic yard for “Unclassified Excavation”.

All areas designated as Unstable will be excavated. The unstable material excavated on this project will be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation will not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNSTABLE MATERIAL EXCAVATION

Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
32+50		33+50	R	2	90
				Total:	90

REMOVE ASPHALT CONCRETE PAVEMENT

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was unknown.

An estimated 937 Cubic Yards of the in-place asphalt concrete surfacing will be removed from the existing highway according to the in-place surfacing typical sections and become the property of the Contractor for disposal.

The quantity of removed asphalt material is estimated from the in-place surfacing typical sections. This estimated quantity is not included in the unclassified excavation quantities.

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor will provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material will be approved by the Engineer. The plans quantity for “Contractor Furnished Borrow Excavation” as shown in the Estimate of Quantities will be the basis of payment for this item.

Restoration of the Contractor furnished borrow excavation site will be the responsibility of the Contractor.

EXCAVATION FOR REINFORCED CONCRETE BOX CULVERT INSTALLATION

Included in the quantity of “Unclassified Excavation” are 8,694 cubic yards of excavation for installation of reinforced concrete box culverts.

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

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

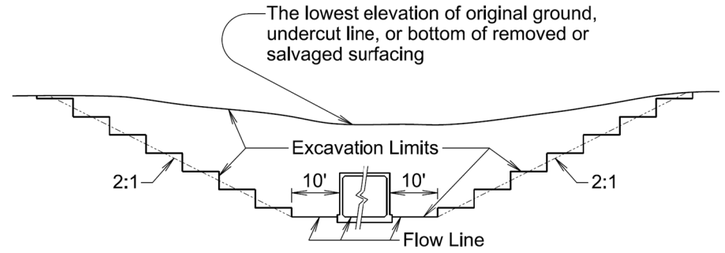


TABLE OF EXCAVATION FOR REINFORCED CONCRETE BOX CULVERT INSTALLATION

Station	Quantity (CuYd)
29+55	8,694
Total:	8,694

PIPE CULVERT UNDERCUT

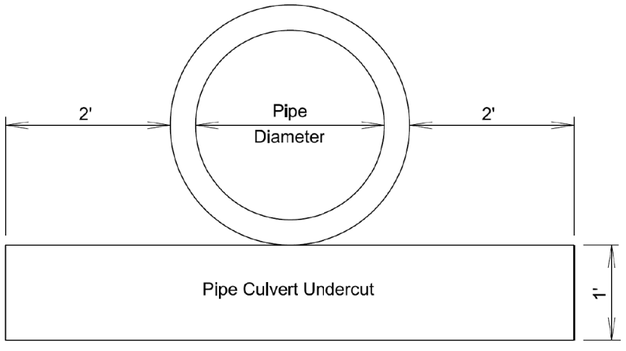
Pipe culvert undercut may be required for this project. The Engineer will determine which pipe will be undercut in accordance with Section 421 of the Specifications.

If pipe culvert undercut is required, the table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

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

Storm sewer and approach pipes do not require undercutting unless specified otherwise in these plans.

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



INCIDENTAL WORK, GRADING

Station	L/R	Remarks
29+00 to 31+50	L	Take Out Existing Drain System
33+17		Take Out 18"-80' CMP
36+67		Take Out 24"-89' CMP

EXISTING DRAIN SYSTEM

An existing drain system will be encountered during construction activities. Underlying plans indicate that an underdrain exists near edgeline of the existing grade from Station 29+00± to Station 31+50±, 25' Lt. The drain system consists of a 6" perforated CMP placed in a 3 ½' deep trench backfilled with porous backfill. The underlying plans indicate that the drain outlets at a headwall approximately 100' east of the existing box culvert outlet. The underdrain outlet is not identified on the proposed plans, nor was it identified in the field. The exact location and condition of these existing drain systems are not known. Remove the drain system in its entirety, all costs associated with removing the drain system will be incidental to the contract lump sum for "Incidental Work, Grading".

UNDERDRAIN

An underdrain is required to capture water from local springs and improve subgrade and embankment foundation conditions.

Station 29+00±, 45' Lt. to Station 32+50±, 25' Lt.

Complete mainline grading prior to underdrain installation. Prior to placing surfacing, install an underdrain at the left shoulder from Station 29+00±, 45' Lt. to Station 32+50, 25' Lt. The underdrain will consist of 4-inch Perforated PVC Drain Pipe with a Filter Fabric Drain Sleeve placed in a 2-foot-wide by 3-foot-deep trench backfilled with 3 feet of Porous Backfill. The underdrain will outlet via 60 feet of 4-inch PVC Outlet Pipe placed in a 2-foot-wide trench of variable depth backfilled with compacted soil. Connect the PVC outlet pipe to the perforated PVC drain pipe at Station 29+50±, 25' Lt. Daylight the drain at an Outlet Headwall at approximately Station 29+00±, 45' Lt. as directed by the Engineer.

Estimate of Quantities:

4-inch Perforated PVC Drain Pipe with Filter Fabric Sleeve	300 feet
4-inch PVC Outlet Pipe	60 feet
Porous Backfill	126 tons
Headwalls (See Standard Plate No. 430.50)	1 each

UNDERDRAIN CONSTRUCTION

Underdrain trenches will be graded to maintain a minimum of .01ft/ft. or 1% drop from beginning to outlet. The Contractor will ensure all segments of outlet pipe are positively connected and remain soil tight during installation of the drain system. The outlet headwall shall be placed to blend in with the surrounding topography with the outlet pipe placed above the bottom of the drainage to permit proper flow from the outlet.

Perforated PVC Drainpipe will be PS 46 Solvent Weld PVC pipe conforming to ASTM F758 or SDR 35 Solvent Weld PVC Pipe conforming to ASTM D3034 with perforations in accordance with ASTM F758. The PVC Outlet Pipe will be Schedule 40 PVC Pipe conforming to ASTM D1785 designated as PVC 1120, PVC 1220, or PVC 2120. Pipe sections will be connected using a PVC Solvent Cement conforming to ASTM D2564 The drain Sleeve will conform to ASTM D6707. All labor, tools, equipment, and incidentals necessary for the installation of the PVC Pipe will be incidental to the contract unit price per foot for each pipe type.

Care will be taken to ensure that the underdrain and outlet pipe are not damaged during construction. Sufficient cover material is to be placed over the pipe before compaction equipment is allowed over the drain system. Damaged pipe will be replaced by the Contractor at no additional cost to the Department.

The underdrain locations given are based on the best information available to the Geotechnical Engineering Activity. Actual field conditions may require that adjustments be made by the Engineer during construction to provide for sufficient drainage. The Geotechnical Engineering Activity will be available for onsite assistance if necessary.

Outlet headwalls will be cleared of topsoil, straw, or other debris after seeding operations have been completed. The as built headwall location will be recorded and submitted to the Engineer. Each headwall location will be identified by GPS coordinates and station and offset. The headwall locations will be cataloged in the Rapid City Area office for reference in post construction maintenance.

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 ⅔-inch x ½-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.

The gauge of the corrugated metal elbows and ends will match the thickest gauge of corrugated metal pipe it is connected to.

PIPE FOR APPROACHES

Class 2 reinforced concrete pipe, high density polyethylene pipe, polypropylene pipe (will be in conformance with AASHTO M330), or steel reinforced polyethylene pipe may be substituted for corrugated metal pipe at approaches at no additional cost to the State.

If corrugated metal pipes are provided, the pipes will be as specified in the CORRUGATED METAL PIPE note.

If high density polyethylene pipe, polypropylene pipe (will be in conformance with AASHTO M330), or steel reinforced polyethylene pipe are provided, then the end sections will be metal, be compatible, and conform to the type of end section as shown in the plans.

PIPE FOR DOWNSPOUTS

The substitution of Class 2 reinforced concrete pipe, high density polyethylene pipe, polypropylene pipe, or steel reinforced polyethylene pipe for corrugated metal downspout pipes is not allowed.

TABLE OF BANK AND CHANNEL PROTECTION GABIONS AND DRAINAGE FABRIC

Station	L/R	Bank and Channel Protection Gabion (CuYd)	Type B Drainage Fabric (SqYd)
33+17	R	4.5	15
36+67	R	4.5	15
	Totals:	9.0	30

TABLE OF SUPERELEVATION

Station	to	Station		
25+50.00		27+31.23	-	Normal Crown Section
27+31.23		30+24.23	-	Superelevation Transition
30+24.23		36+09.12	-	1910’ Radius Curve Right 0.0560’/’ Superelevation Rate Point of Rotation at Centerline
36+09.12		39+12.12	-	Superelevation Transition
39+12.12		39+52.62	-	Normal Crown Section

PUBLIC LANDS SURVEY SYSTEM, RIGHT OF WAY, AND PROPERTY CORNERS

The Contractor will have a Land Surveyor, licensed in the State of South Dakota, to set, reestablish or verify right of way (ROW) corners and property corners as directed by the appropriate SDDOT Region Land Surveyor. It is estimated that 29 ROW and property corners will be set, reestablished, or verified for this project. The Contractor’s Land Surveyor, under the direction of the Region Land Surveyor, will set, reestablish, or verify all corner monuments after surfacing and fencing operations are completed in accordance with the PUBLIC LANDS SURVEY SYSTEM CORNERS section and the RIGHT OF WAY AND PROPERTY CORNERS section in Chapter 8 of the SDDOT Survey Manual.

CONCRETE RIGHT OF WAY MARKER

The Concrete Right of Way Marker and installation locations will conform to the details on standard plate 900.15. The exact location of the Right of Way. corners to be marked by Concrete Right of Way Markers can be found in the Set Corner Report and Set Corner Plans provided in the SharePoint Directory for Contractors. The Location Descriptions in the table below reference the Set Corner Report and Set Corner Plans. Install Concrete Right of Way Markers 10 feet from both sides of entrances that are centered on property lines without fence, so that a marker is not placed in the entrance.

TABLE OF CONCRETE RIGHT OF WAY MARKER

Location Description	Quantity (Each)
Set R.O.W. Corner 101	1
Set R.O.W. Corner 129	1
Set R.O.W. Corner 132	1
Found R.O.W. Corner 1017	1
Set R.O.W. Corner 130	1
Set R.O.W. Corner 131	1
Set R.O.W. Corner 133	1
Set R.O.W. Corner 153	1
Set R.O.W. Corner 140	1
Set R.O.W. Corner 102	1
Found R.O.W. Corner 1016	1
Set R.O.W. Corner 134	1
Set R.O.W. Corner 136	1
Found R.O.W. Corner 1015	1
Set R.OW. Corner 5004	1
Set R.O.W. Corner 5007	1
Set R.O.W. Corner 124	1
Set R.O.W. Corner 143	1
Set R.O.W. Corner 145	1
Set R.O.W. Corner 146	1
Set R.O.W. Corner 147	1
Set R.O.W. Corner 148	1
Set R.O.W. Corner 154	1
Set R.O.W. Corner 141	1
Total:	24

SALVAGE BEAM GUARDRAIL

Steel beam rail, end terminals, and hardware items will become the property of the State and will be removed, hauled, and neatly stacked at the Deadwood DOT Maintenance Yard at 42 Crescent Drive in Deadwood. as approved by the Engineer. The contact for the maintenance yard is Zac Heller at 605-347-1978. Posts and blocks will become the property of the Contractor and will be removed from the project limits.

Payment for removing, hauling, and stacking the guardrail items will be incidental to the contract unit price per foot for “Salvage Beam Guardrail”.

TABLE OF GUARDRAIL

Location	Salvage Beam Guardrail (Ft)	25’-0” Longspan MGS (Each)	MGS MASH Tangent End Terminal (Each)	Salvage MGS MASH Tangent End Terminal (Each)
Sta. 28+37.83 to Sta. 29+68.10 Rt.	140.0			
Sta. 27+13.75 to Sta. 29+04.74 Lt.	62.5	1	2	2
Totals:	202.5	1	2	2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B7	B30

Plotting Date: 06/10/2025

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

					Grade Staking								
Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Length (Mile)	Lane Factor	*Sets of Stakes	**Grade Staking Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Final Cross Section Survey Quantity (Mile)	Structure Staking Quantity (Each)
US 14A/85 (3 Lanes AC Pavement)	25+50	39+00	3	1350	0.256	1.5	2	0.768	0.768	0.768	0.768	
US 14A/85 (New RCBC)	29+55											1
							Totals:	0.768	0.768	0.768	0.768	1

* 2 = Blue Top and Paving Hub Stakes (Asphalt Concrete Pavement)

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

PIPE QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B8	B30

Plotting Date: 05/14/2025

	Reinforced Concrete				Corrugated Metal								Pipe Transition	
	Circular		Circular Sloped End		Circular		Circular Safety End		Circular Sloped End		Circular Elbow		Round RCP to CMP Transition	
Station Offset (L/R)	24" Cl. 2 Ft		24" Each		18" 16 Ga Ft	24" 16 Ga Ft	18" Each		24" Each		24" 12.5° Each	24" 15.0° Each	24" Outlet Each	
28+30 - 46' R					54		2							
33+17	72		1			40			1		1	1	1	
36+67	92		2											
Subtotal:	164		3		54	40	2		1		1	1	1	

Plot Scale - 1:200

Plotted From - TRPR17192

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TYPICAL GRADING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B9	B30

Plotting Date: 05/13/2025

Plot Scale - 1:200

Transitions:

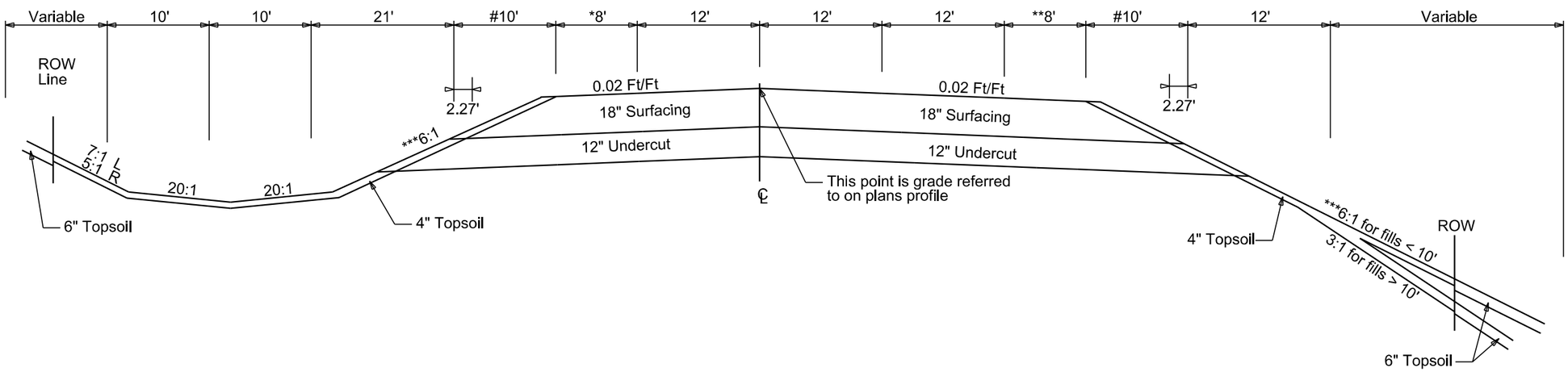
* 34+50 to 35+50 - 8' to 14'
35+50 to 38+50 - 14'
38+50 to 39+00 - 14' to 13.40'

** 25+50 to 26+00 - 4' to 8'
36+00 to 39+00 - 8' to 2'

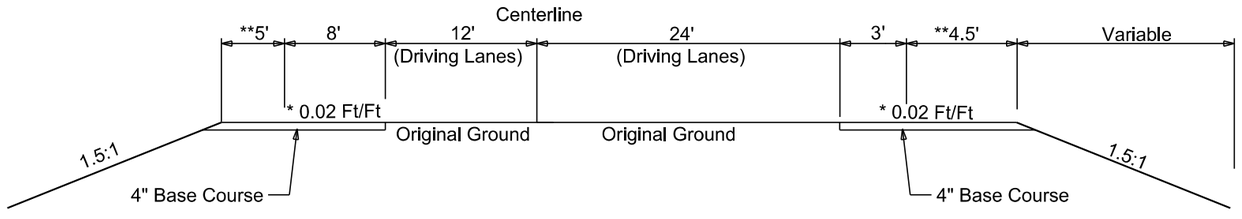
*** 31+50 to 33+50 - 6:1 to 4:1
33+50 to 38+50 - 4:1
38+50 to 39+00 - 4:1 to 3:1

\# 31+50 to 33+50 - 10' to 8'
33+50 to 39+00 - 8'

Mainline
25+50 to 39+00



Diversion - Shoulder Widening
25+00 to 35+00 ML - 25+00 to 35+00 Diversion



* Widening slope should match original ground slope
** Width Varies (See Section X)

Plotted From - TRPR17192

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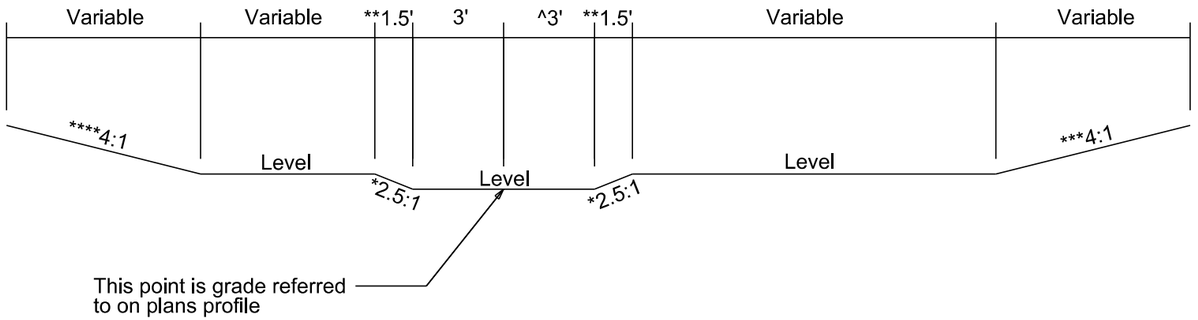
TYPICAL GRADING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B10	B30

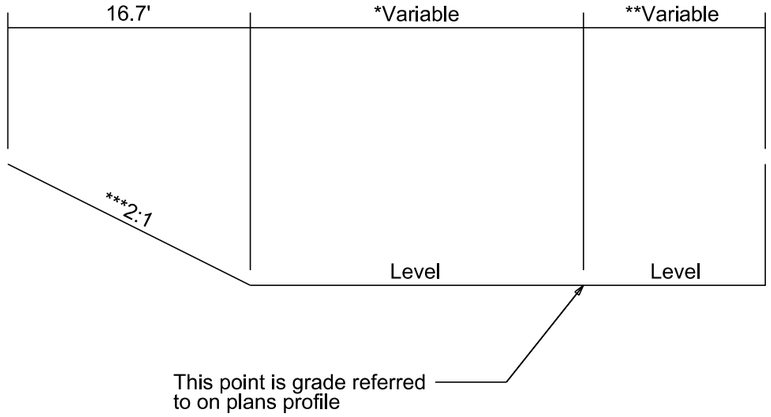
Plotting Date: 05/13/2025

Dr 32 - Channel Grading
31+90 to 30+94 ML - 0+00 to 1+00 Dr32



* 0+00 to 0+30 - Transition from 3:1 to 2.5:1
** 0+00 to 0+30 - Variable (Tie into existing ground)
*** 0+30 to 0+60 - Transition from 5:1 to 3:1
0+70 to 1+00 - 0:1
**** 0+40 to 1+00 - Transition from 10:1 to 4:1
^ 1+00 - 6.25'

Dr 32 - Channel Grading
30+94 to 30+74 ML - 1+00 to 1+10 Dr32



* 1+00 to 1+10 - 7' to 10'
** 1+00 to 1+10 - 6' to 0'
*** 1+10 - 2.5:1

Plot Scale - 1:200
Plotted From - TRPR17192
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HORIZONTAL ALIGNMENT DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B11	B30

Plotting Date: 05/13/2025

Plot Scale - 1:200

MAINLINE

Type	Station			Northing	Easting
POB	24+00.00			193621.217	956965.786
		TL= 573.63	S 86°10'51" E		
PC	29+73.63			193583.009	957538.138
PI	33+25.58	R = 1910.00	Delta = 20°52'52" R	193559.566	957889.306
PT	36+69.72			193412.496	958209.054
		TL= 282.90	S 65°17'59" E		
POE	39+52.62			193294.279	958466.071

dr32

Type	Station			Northing	Easting
POB	0+00.00			193452.491	957734.719
		TL= 3.94	N 81°05'09" W		
PC	0+03.94			193453.100	957730.831
PI	0+06.72	R = 13.00	Delta = 24°08'28" R	193453.531	957728.084
PT	0+09.41			193455.048	957725.754
		TL= 112.65	N 56°56'41" W		
POE	1+22.06			193516.493	957631.336

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (NAD 83/96); epoch 2002; Geoid 03; SF = 0.9969379

Plotted From - TRPR17192

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CONTROL DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B12	B30

Plotting Date: 05/13/2025

Plot Scale - 1:200

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
CP100	486’ West	133’ R	F.S. PIPE/CAP BEHIND GUARD RAIL NW CORNER INTERSECTION MRM 29.13	193520.274	956420.535	5328.68
CP101	Off project		REBAR S. EDGE APPROACH MRM 30.15 RT	190552.750	960069.843	5672.80
CP102	Off project		REBAR W. EDGE APPROACH MRM 31.45 RT	191116.249	965947.175	6123.15

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (NAD 83/96); epoch 2002.00
Geoid 03; SF = 0.9969379
The elevations shown on this sheet are based on NAVD 88.

Plotted From - TRPR17192

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LEGEND

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B13	B30

Plotting Date: 05/13/2025

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush/Hedge
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Concrete Symbol
- Control Point
- Creek Edge
- Curb/Gutter
- Curb
- Dam Grade/Dike/Levee
- Deck Edge
- Ditch Block
- Doorway Threshold
- Drainage Profile
- Drop Inlet
- Edge Of Asphalt
- Edge Of Concrete
- Edge Of Gravel
- Edge Of Other
- Edge Of Shoulder
- Electric Transformer/Power Junction Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Miscellaneous
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Gutter
- Guy Pole
- Haystack
- Highway ROW Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Miscellaneous
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Miscellaneous Line
- Miscellaneous Property Corner
- Miscellaneous Post
- Overhang Or Encroachment
- Overhead Utility Line — OH —
- Parking Meter
- Pedestrian Push Button Pole
- Pipe With End Section
- Pipe With Headwall
- Pipe Without End Section
- Playground Slide
- Playground Swing
- Power And Light Pole
- Power And Telephone Pole
- Power Meter
- Power Pole
- Power Pole And Transformer
- Power Tower Structure
- Propane Tank
- Property Pipe
- Property Pipe With Cap
- Property Stone
- Public Telephone
- Railroad Crossing Signal
- Railroad Milepost Marker
- Railroad Profile
- Railroad ROW Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Retaining Wall
- Riprap
- River Edge
- Rock And Wire Baskets
- Rockpiles
- Satellite Dish
- Septic Tank
- Shrub Tree
- Sidewalk
- Sign Face
- Sign Post
- Slough Or Marsh
- Spring
- Stream Gauge
- Street Marker
- Subsurface Utility Exploration Test Hole
- Telephone Fiber Optics — T/F —
- Telephone Junction Box
- Telephone Pole
- Television Cable Jct Box
- Television Tower
- Test Wells/Bore Holes
- Traffic Sign Double Face
- Traffic Sign One Post
- Traffic Sign Two Post
- Traffic Signal
- Trash Barrel
- Tree Belt
- Tree Coniferous
- Tree Deciduous
- Tree Stumps
- Triangulation Station
- Underground Electric Line — P —
- Underground Gas Line — G —
- Underground High Pressure Gas Line — HG —
- Underground Sanitary Sewer — S —
- Underground Storm Sewer — S —
- Underground Tank
- Underground Telephone Line — T —
- Underground Television Cable — TV —
- Underground Water Line — W —
- Water Fountain
- Water Hydrant
- Water Meter
- Water Tower
- Water Valve
- Water Well
- Weir Rock
- Windmill
- Wingwall
- Witness Corner
- State and National Line
- County Line
- Section Line
- Quarter Line
- Sixteenth Line
- Property Line
- Construction Line
- ROW Line
- New ROW Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)
- Drainage Arrow
- Remove Concrete Pavement
- Remove Concrete Driveway Pavement
- Remove Asphalt Concrete Pavement
- Remove Concrete Sidewalk
- Remove Concrete Median Pavement
- Remove Concrete Curb and/or Gutter
- Detectable Warning Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

Plot Scale - 1:200

Plotted From - TRPR17192

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B14	B30

Plotting Date: 06/10/2025

28+43
Take Out Twin 10x4'-99' RCBC
(Incidental Work, Structure)

Salvage Beam Guardrail
at the following locations:
28+37.83 to 29+68.10 - R
27+13.75 to 29+04.74 - L

33+17
Take Out 18"-80' CMP
(Incidental Work, Grading)

36+67
Take Out 24" - 89' CMP
(Incidental Work, Grading)

28+30 - 46' R (3 ac)
Install 18" - 54' CMP
& 2 Safety Ends

29+50 L to 39+00 L
Unstable hillside will be avoided
(See Section B Notes)

29+00-25' L to 32+50-29' L
Install Underdrain
(See Section B Notes)

29+55 (2.0 sq mi)
Install Double 11'x9'-293'-3 7/16" RCBC (C.I.P)
65° RHF Skew
(See Section E)

29+08.60 to 30+03.23 - 5.50' R
Install Temporary Retaining Structure
See Section B Notes and Section X

33+17 (7 ac)
Install 24"-72' RCP
Install 24"-40' CMP (12' & 28')
And 1-12.5° Elbow
And 1-15.0° Elbow
& 1-24"RCP to CMP Outlet Transition
& 1 RCP Sloped End
& 1 CMP Sloped End

33+17 R
Install Bank and Channel
Protection Gabions (4.5 CuYd)
And Type B Drainage Fabric
(15 SqYd)

36+67 (20 ac)
Install 24"-90' RCP
& 2 Sloped Ends

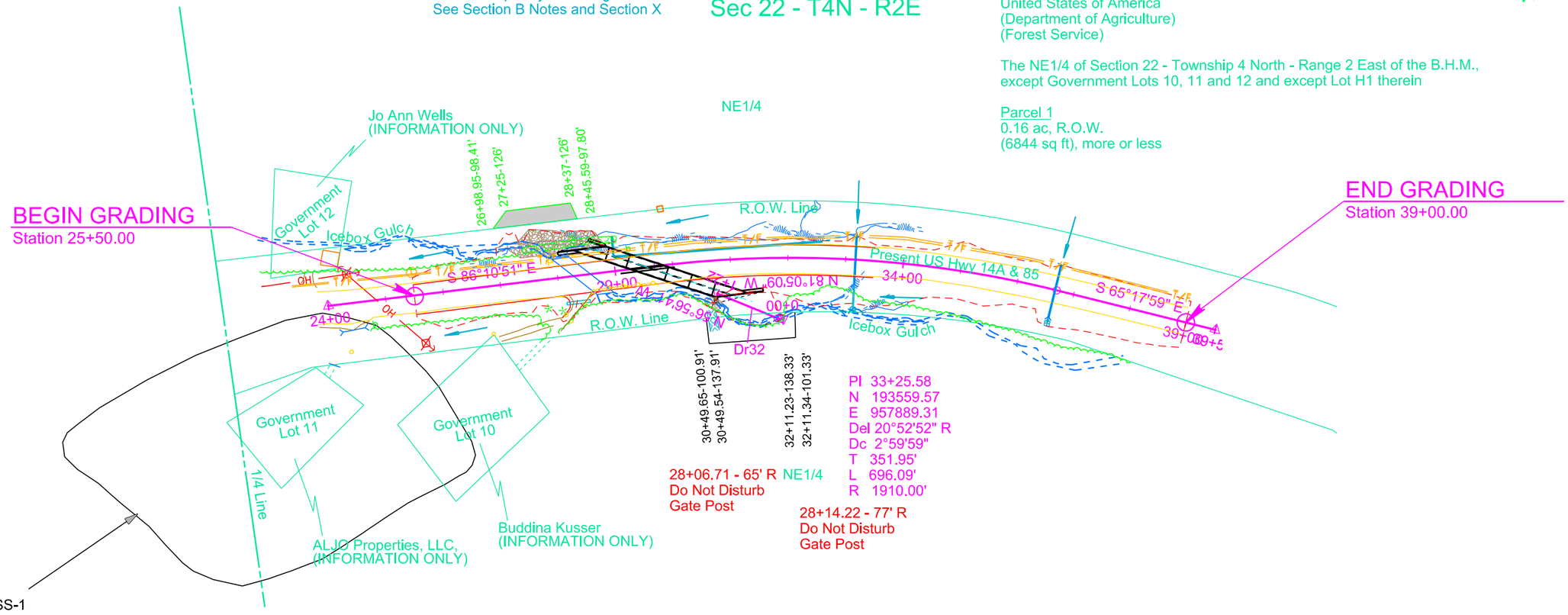
36+67 R
Install Bank and Channel
Protection Gabions (4.5 CuYd)
and Type B Drainage Fabric
(15 SqYd)

Sec 22 - T4N - R2E

United States of America
(Department of Agriculture)
(Forest Service)

The NE1/4 of Section 22 - Township 4 North - Range 2 East of the B.H.M.,
except Government Lots 10, 11 and 12 and except Lot H1 therein

Parcel 1
0.16 ac, R.O.W.
(6844 sq ft), more or less



Parcel 1
26+98.95 to 28+45.59 L
Temporary Easement containing
0.1 ac, more or less

Plot Scale - 1:200
Plotted From - TRPR17102
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B15	B30

Plotting Date: 05/14/2025

Plot Scale - 1:200

25+50
Begin Work

39+00
End Work

Mainline

Excavation	3,945	Embankment	651	
Undercut	3,544	+25%	228	879
	7,489	Undercut	3,544	
		+25%	886	4,430
		Waste		2,180
				7,489

Haul = 2,516 CuYdSta

Waste is excess excavation to be disposed of at a site approved by the engineer.

L 300.00ft
G1 5.0147%
G2 6.2503%
K 243

6.2503%

5.0147%

PVI 37+01
Elev 5444.17

FL 5433.50
FL 5439.78

30+50 R
Ditch Block
Elev 5404.50

PVI 31+00
Elev 5414.04

28+30 R
13' Ent
15' Rad Bk
35' Rad Ah

FL 5409.9
FL 5422.2

7.0719%

PVI 25+50
Elev 5375.14

L 400.00ft
G1 7.0719%
G2 5.0147%
K 194

FL 5382.66
FL 5397.08

Q100 = 959 cfs
El 5405.4
Qd = Q25 = 350 cfs
El 5401.2
QOT > Q100
El 5411.0

PVI 39+53
Elev 5457.90

dr32

(Earthwork for Information Only)

Data Included in Mainline Quantities		480
Drainage Channel Waste	480	480

1+22
End Work

0+00
Begin Work

PVI 0+00
Elev 5404.77

PVI 1+00
Elev 5399.37

-5.5000%

-5.4000%

-5.3289%

PVI 1+20
Elev 5398.27

PVI 1+22
Elev 5398.16

5378.68 5385.75 5392.82 5399.89 5406.71 5413.01 5418.79 5424.07 5429.08 5434.10 5439.16 5444.58 5450.42 5456.61 5404.77 5399.37 5398.16

24+00 29+00 34+00 39+00 40+00 0+00 1+22

Plotted From - TRPP17190

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B16	B30

Plotting Date: 05/13/2025

DIV

25+50
Begin Work

39+00
End Work

Traffic Diversion Embankment 106
Contractor Furnished Borrow 133/133 +25% 27/133

5.9563%

5500 5490 5480 5470 5460 5450 5440 5430 5420 5410 5400 5390 5380 5370 5360 5350 5340 5330 5320

5363.92 5371.20 5378.06 5385.22 5392.35 5399.34 5406.03 5412.00 5417.48 5422.57 5427.78 5433.17 5438.34 5444.20

24+00 29+00 34+00 38+40

Plot Scale - 1:200

Plotted From - TRPP17192

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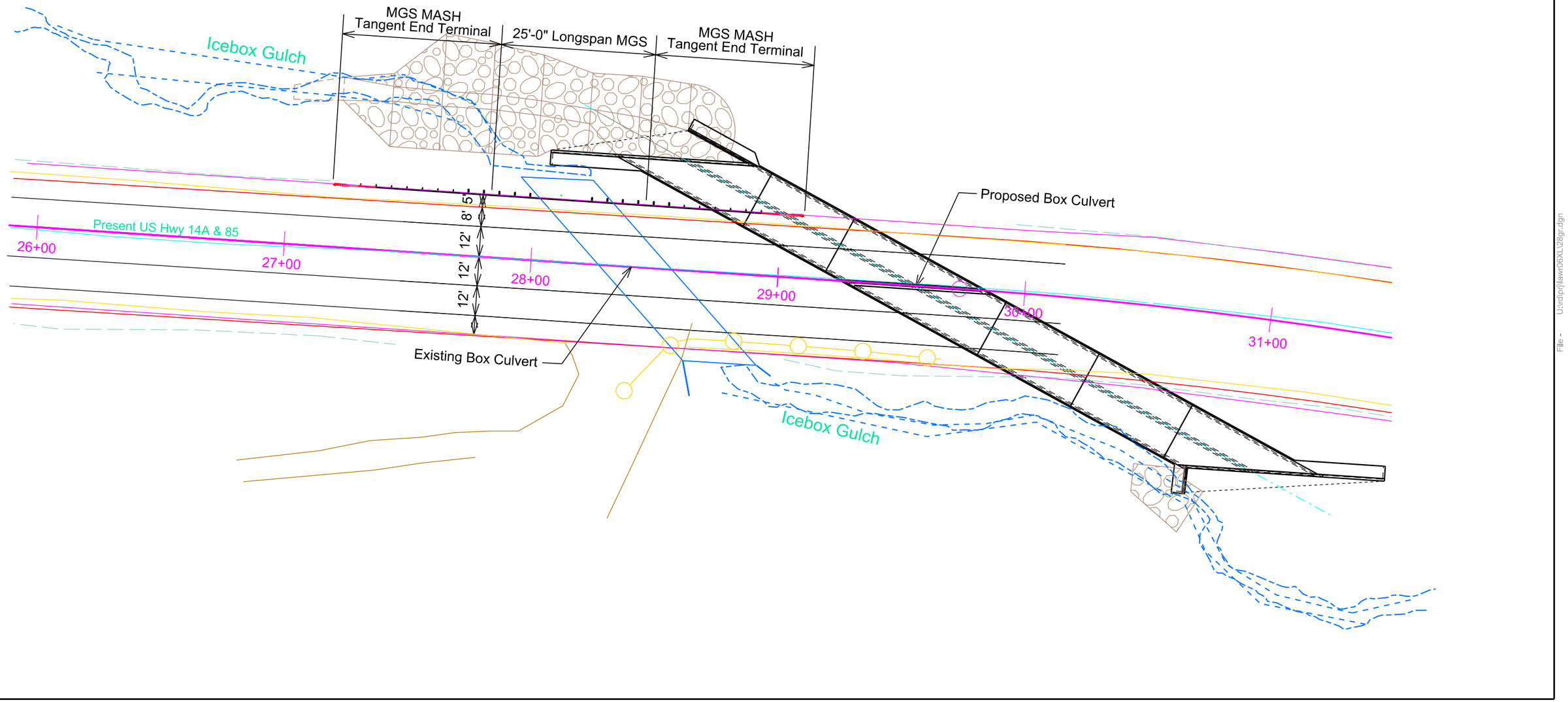
TEMPORARY GUARDRAIL LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B17	B30

Plotting Date: 05/14/2025



Plot Scale - 1:40

Plotted From - TRPR17190

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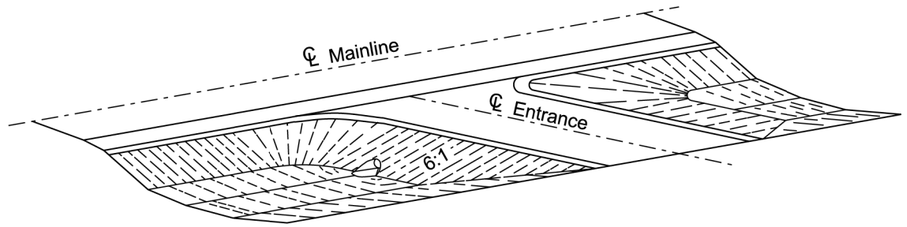
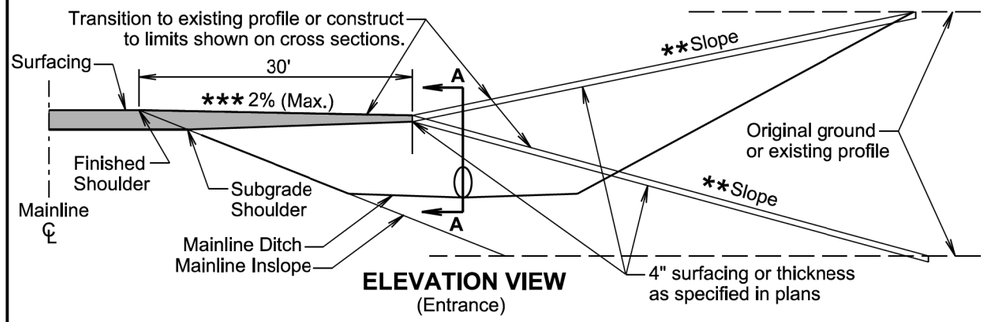


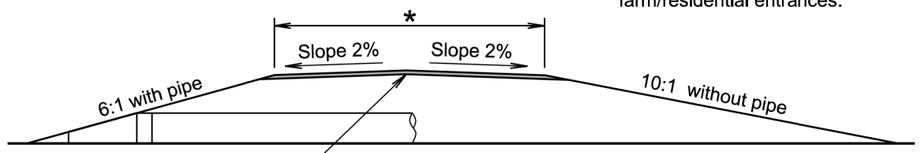
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW
(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.



SECTION A-A
(Entrance and Intersecting Road)

* 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.

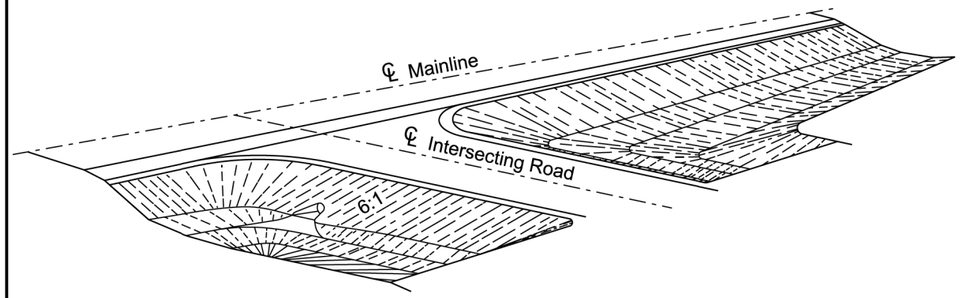
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

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

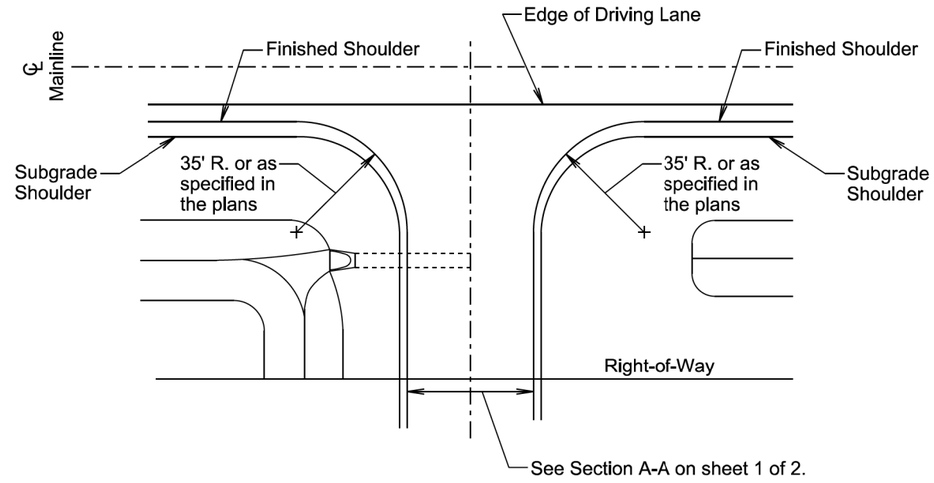
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

Published Date: 2026	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



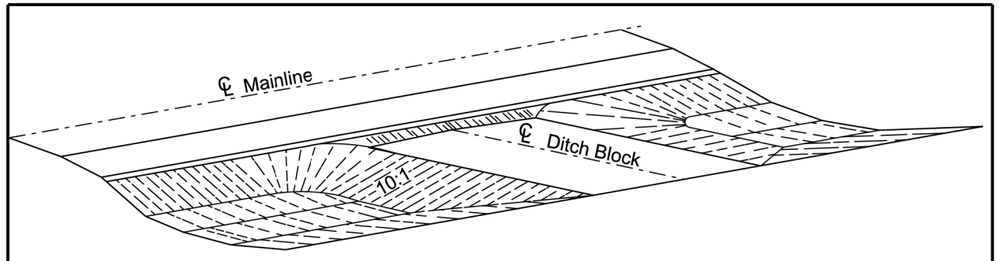
PLAN VIEW

GENERAL NOTES:

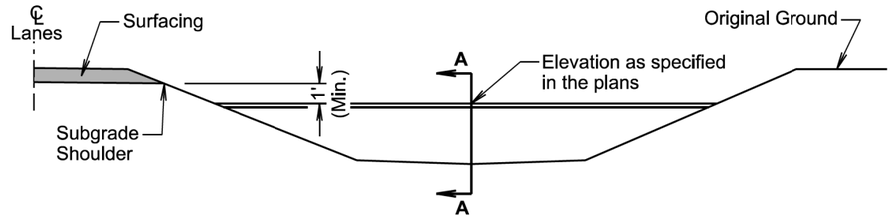
The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

November 19, 2021

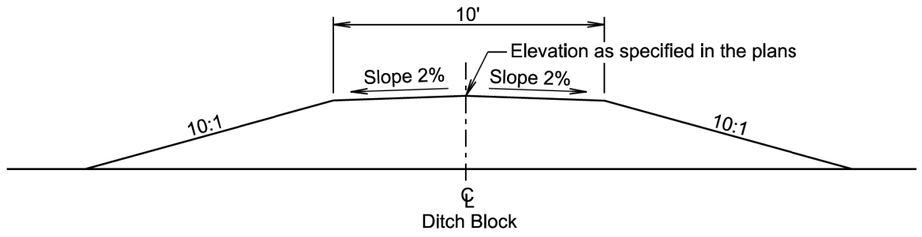
Published Date: 2026	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2



PERSPECTIVE OF DITCH BLOCK



ELEVATION VIEW



SECTION A-A

GENERAL NOTES:

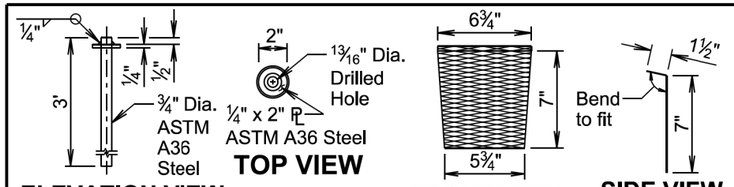
The ditch section shown above in the perspective and elevation view is only for illustrative purpose.

The inslopes of the ditch block will be 10:1 or as specified in the plans.

The transition area between the mainline inslope and the ditch block inslope will be rounded to eliminate an abrupt transition.

September 14, 2018

Published Date: 2026	SDDOT	***DITCH BLOCK***	*PLATE NUMBER* 120.02
			Sheet 1 of 1



ELEVATION VIEW RETAINING ROD

TOP VIEW

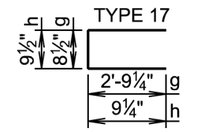
FRONT VIEW RODENT SCREEN

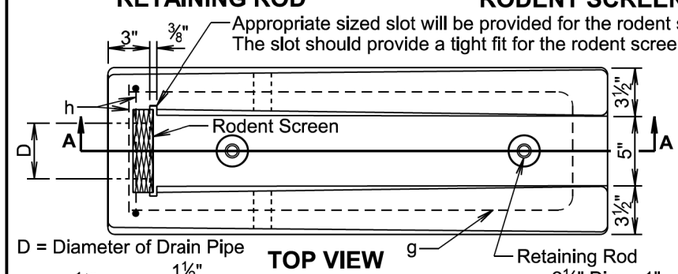
SIDE VIEW

REINFORCING SCHEDULE				
MK.	No.	Size	Length	Type
g	1	4	6'-3"	17
h	2	4	2'-4"	17

NOTE: All dimensions are out to out of bars.

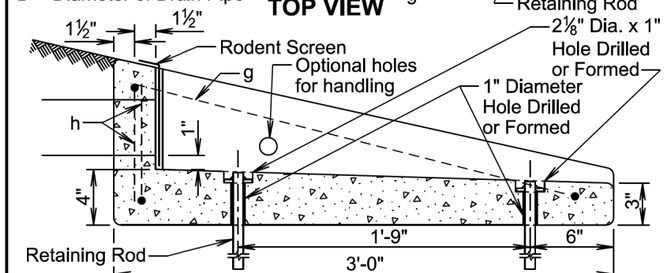
Bending Details



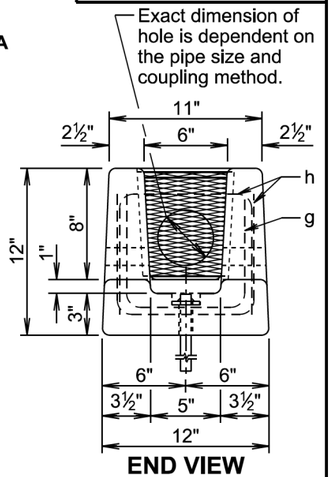


D = Diameter of Drain Pipe

TOP VIEW



SECTION A-A



END VIEW

GENERAL NOTES:

The concrete will be Class M6. The concrete will conform to the requirements of Section 462 of the Specifications. It is estimated that each unit weighs approximately 210 pounds.

All reinforcing steel will conform to ASTM A615, Grade 60 and will be epoxy coated. The reinforcing steel will be securely retained to prevent displacement during placement of concrete. It is estimated that 7.3 pounds of reinforcing steel is required for each unit.

The pipe will be placed in the concrete headwall with the pipe end flush with the concrete surface adjacent to the rodent screen.

The rodent screen will be galvanized 13 Ga. steel with a diamond shaped flattened mesh pattern. The size will be ½". The size refers to the measurement across the smallest diamond shaped opening measured from the centers of the wires.

The retaining rod will be galvanized in accordance with ASTM A123 after all shop welding has been completed.

The drawing indicates using ½" fillets; however, ¾" chamfers may be substituted for the ½" fillets.

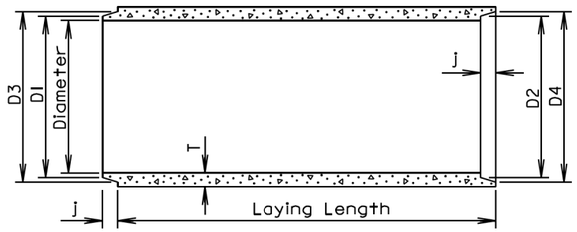
All costs for furnishing and installing the concrete headwall including equipment, labor, and materials including concrete, reinforcing steel, retaining rods, and rodent screen will be incidental to the contract unit price per each for "Precast Concrete Headwall for Drain".

November 19, 2021

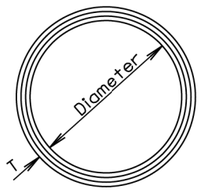
Published Date: 2026	SDDOT	***PRECAST CONCRETE HEADWALL FOR DRAIN***	*PLATE NUMBER* 430.50
			Sheet 1 of 1

TOLERANCES IN DIMENSIONS

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



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

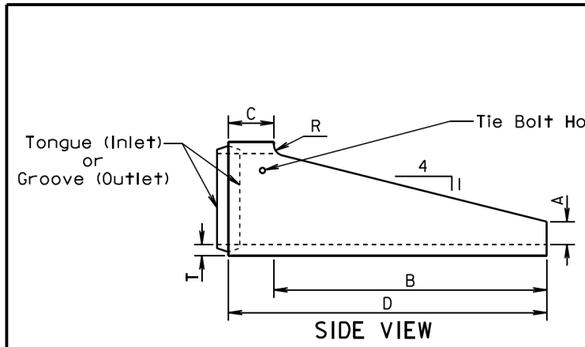
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

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

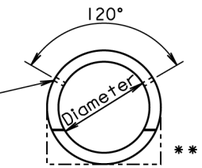
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322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

June 26, 2015

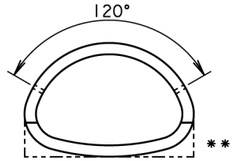
Published Date: 2026	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1



SIDE VIEW



END VIEW
"CIRCULAR"



END VIEW
"ARCH"

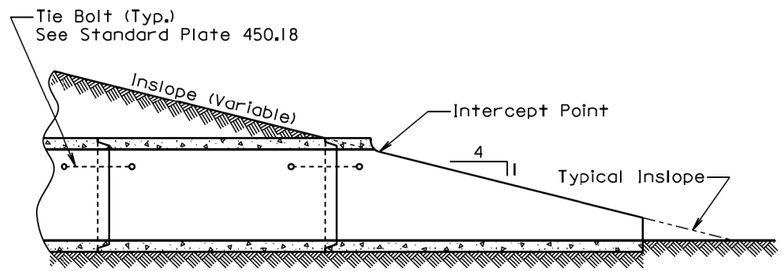
Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	6	72	12	84	3
30	3 1/2	7 1/2	90	12	102	3 1/2
FOR ARCH PIPE						
* 24	3	6	48	12	60	3
* 30	3 1/2	7 1/2	60	12	72	3 1/2
* 36	4 1/2	8 5/8	66	30	96	0
* 42	4 1/2	10	77 1/4	18 3/4	96	0

ALTERNATE

Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	9	72	12	84	0
30	3 1/2	11	90	12	102	0
FOR ARCH PIPE						
* 24	3	9	48	12	60	0
* 30	3 1/2	11	60	12	72	0

* Equivalent Diameter of Circular R.C.P.

** Acceptable Flat Bottom Alternate.



SECTION
(Along Centerline of Pipe)

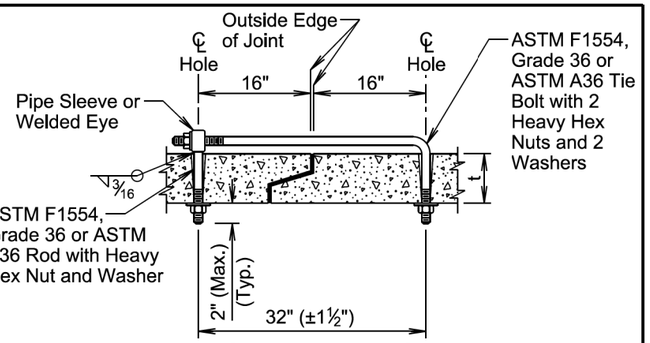
GENERAL NOTE:

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

September 22, 2006

Published Date: 2026	SDDOT	R. C. P. SLOPED ENDS	PLATE NUMBER 450.13
			Sheet 1 of 1

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



ADJUSTABLE EYE BOLT TIE

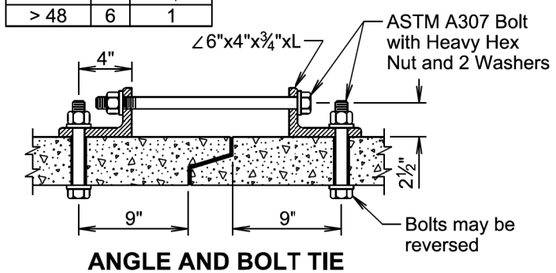
GENERAL NOTES:

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

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

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

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



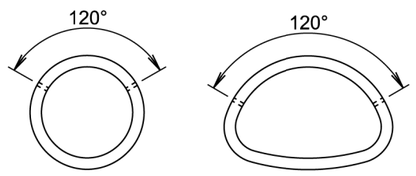
ANGLE AND BOLT TIE

GENERAL NOTES:

Angles will conform to ASTM A36.

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

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



END VIEW (Circular)

END VIEW (Arch)

GENERAL NOTES:

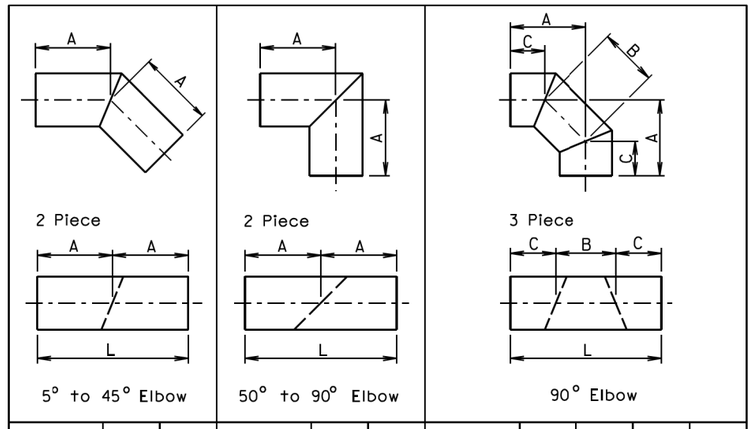
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

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

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

April 8, 2025

Published Date: 2026	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1



Diameter	A	L	Diameter	A	L	Diameter	A	B	C	L
Inches	Feet	Feet	Inches	Feet	Feet	Inches	Inches			Feet
12	1	2	12	2	4	12	25½	11	18½	4
15	1	2	15	2	4	15	26½	12	18	4
18	1	2	18	2	4	18	27	14	17	4
21	2	4	21	2	4	21	27	15	16½	4
24	2	4	24	2	4	24	27½	16	16	4
27	2	4	27	2	4	27	27½	17	15½	4
30	2	4	30	3	6	30	40	19	26½	6
33	2	4	33	3	6	33	40	20	26	6
36	2	4	36	3	6	36	40½	21	25½	6
42	2	4	42	3	6	42	41	23	24½	6
48	2	4	48	4	8	48	53½	26	35	8
54	3	6	54	4	8	54	54	28	34	8
60	3	6	60	4	8	60	54½	31	32½	8
66	3	6	66	4	8	66	54	33	31½	8
72	3	6	72	5	10	72	67½	36	42	10
78	3	6	78	5	10	78	68	39	40½	10
84	3	6	84	5	10	84	68½	41	39½	10
90	3	6	90	6	12	90	70	46	37	10
96	3	6	96	6	12	96	82	46	49	12

FABRICATED ELBOW LENGTHS FOR ALL CORRUGATIONS

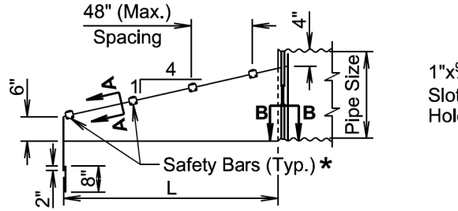
GENERAL NOTES:

All dimensions shown are nominal.

L = Linear Feet of C.M.P. required to fabricate fitting.

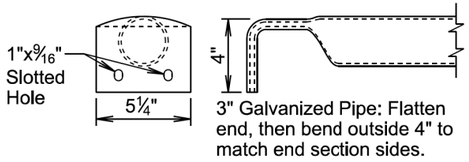
June 26, 2001

Published Date: 2026	SDDOT	C.M.P. FABRICATED LENGTHS FOR ELBOWS	PLATE NUMBER 450.32
			Sheet 1 of 1

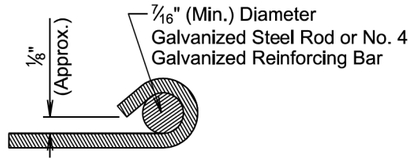


* Number of bars required will vary depending on the length of the end section.

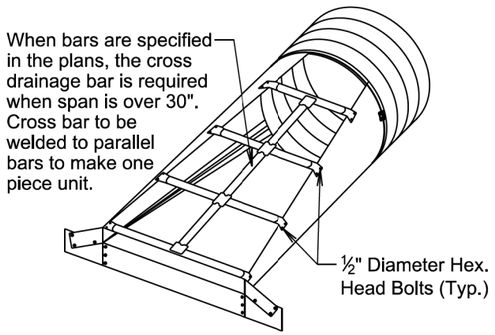
ELEVATION VIEW



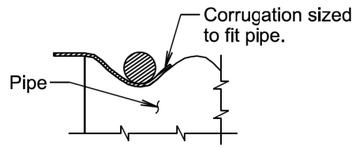
DETAIL OF SAFETY BARS



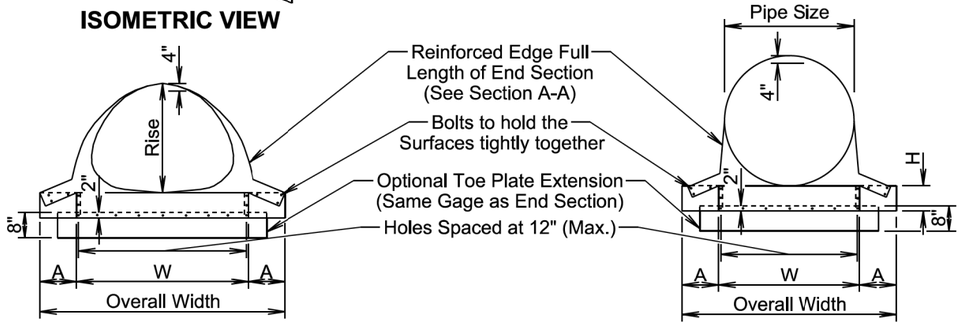
SECTION A-A



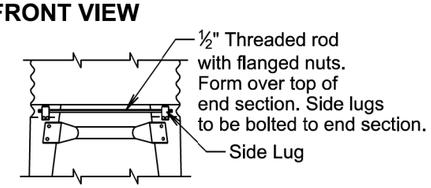
ISOMETRIC VIEW



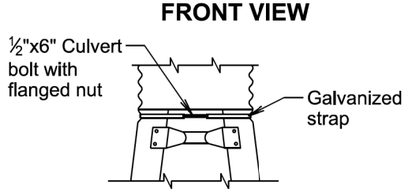
SECTION B-B



FRONT VIEW **FRONT VIEW**



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21"x15" and Larger)



TYPE #1 CONNECTOR DETAIL
(For 15" Through 24")

April 8, 2025

Published Date: 2026	SDDOT	C.M.P. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 1 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 or C.

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.

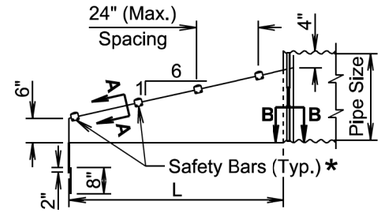
When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with ⅜" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

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.

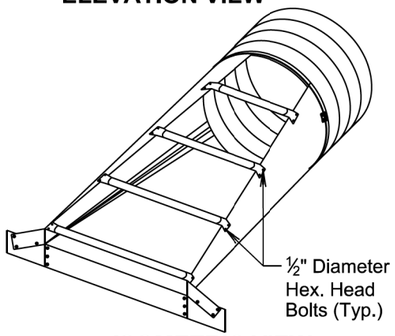
April 8, 2025

Published Date: 2026	SDDOT	C.M.P. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 2 of 2

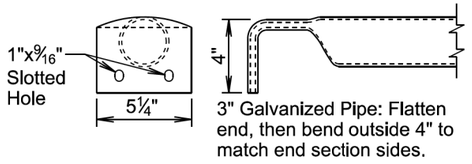


* Number of bars required will vary depending on the length of the end section.

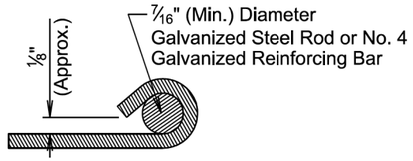
ELEVATION VIEW



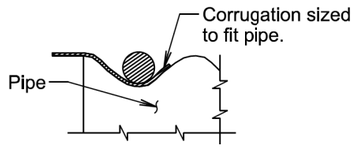
ISOMETRIC VIEW



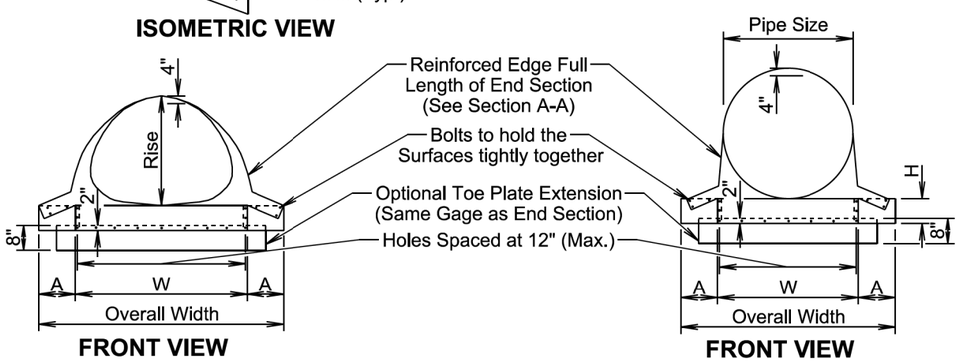
DETAIL OF SAFETY BARS



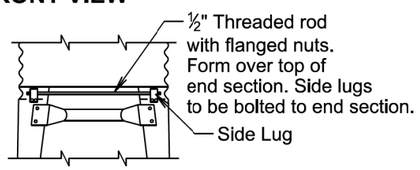
SECTION A-A



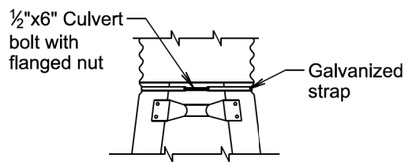
SECTION B-B



FRONT VIEW **FRONT VIEW**



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21"x15" and Larger)



TYPE #1 CONNECTOR DETAIL
(For 15" Through 24")

April 8, 2025

Published Date: 2026	SDDOT	C.M.P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2

ARCH C.M.P. SAFETY ENDS

Equlv. Dia. (Inch)	(Inches) Span	Rise	(Min.) Thick. Inch	Gage	Dimensions (Inches) A	H	W	L Dimensions Overall Width	Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	6:1	30
21	24	18	.064	16	8	6	30	46	6:1	48
24	28	20	.064	16	8	6	34	50	6:1	60
30	35	24	.079	14	12	9	41	65	6:1	84
36	42	29	.109	12	12	9	48	72	6:1	114
42	49	33	.109	12	16	12	55	87	6:1	138
48	57	38	.109	12	16	12	63	95	6:1	168
54	64	43	.109	12	16	12	70	102	6:1	198
60	71	47	.109	12	16	12	77	109	6:1	222
72	83	57	.109	12	16	12	89	121	6:1	282

CIRCULAR C.M.P. SAFETY ENDS

Pipe Dia. (Inch)	(Min.) Thick. Inch	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions Slope	Length (Inch)
15	.064	16	8	6	21	37	6:1	30
18	.064	16	8	6	24	40	6:1	48
21	.064	16	8	6	27	43	6:1	66
24	.064	16	8	6	30	46	6:1	84
30	.109	12	12	9	36	60	6:1	120
36	.109	12	12	9	42	66	6:1	156
42	.109	12	16	12	48	80	6:1	192
48	.109	12	16	12	54	86	6:1	228
54	.109	12	16	12	60	92	6:1	264
60	.109	12	16	12	66	98	6:1	300

GENERAL NOTES:

Safety bars will be provided when specified in the plans.

Safety ends will be fabricated from galvanized steel conforming 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 or C.

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.

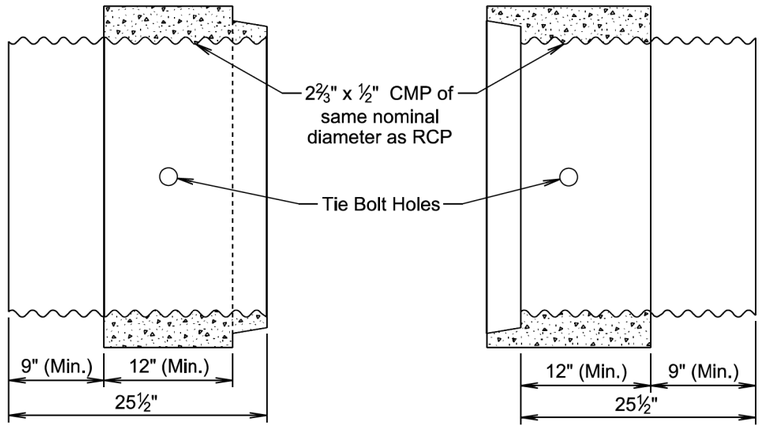
When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with ⅜" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

Installation will be performed in accordance with the Specifications.

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

April 8, 2025

Published Date: 2026	SDDOT	C.M.P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 of 2



INLET
(CMP to RCP Transition)

OUTLET
(RCP to CMP Transition)

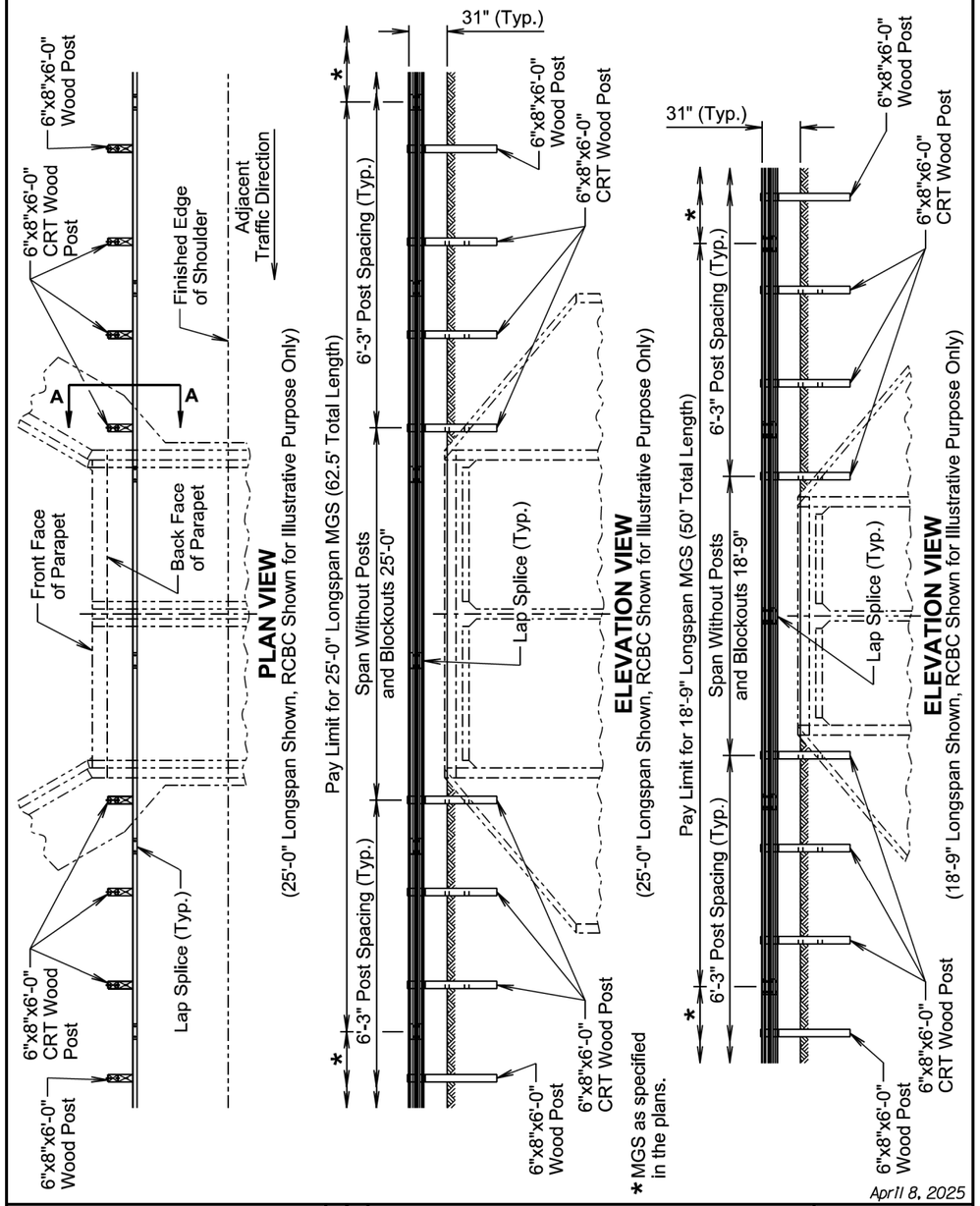
GENERAL NOTE:

Arch pipe transitions will be fabricated similar to the round transition shown above.

All pipe transitions will be precast as shown. Alternate designs other than shown will need to be approved by the Engineer.

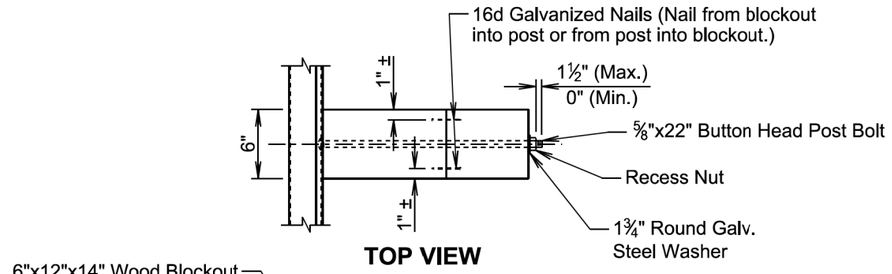
November 19, 2022

Published Date: 2026	SDDOT	C.M.P. TO R.C.P. TRANSITION AND R.C.P. TO C.M.P. TRANSITION	PLATE NUMBER 450.50
			Sheet 1 of 1

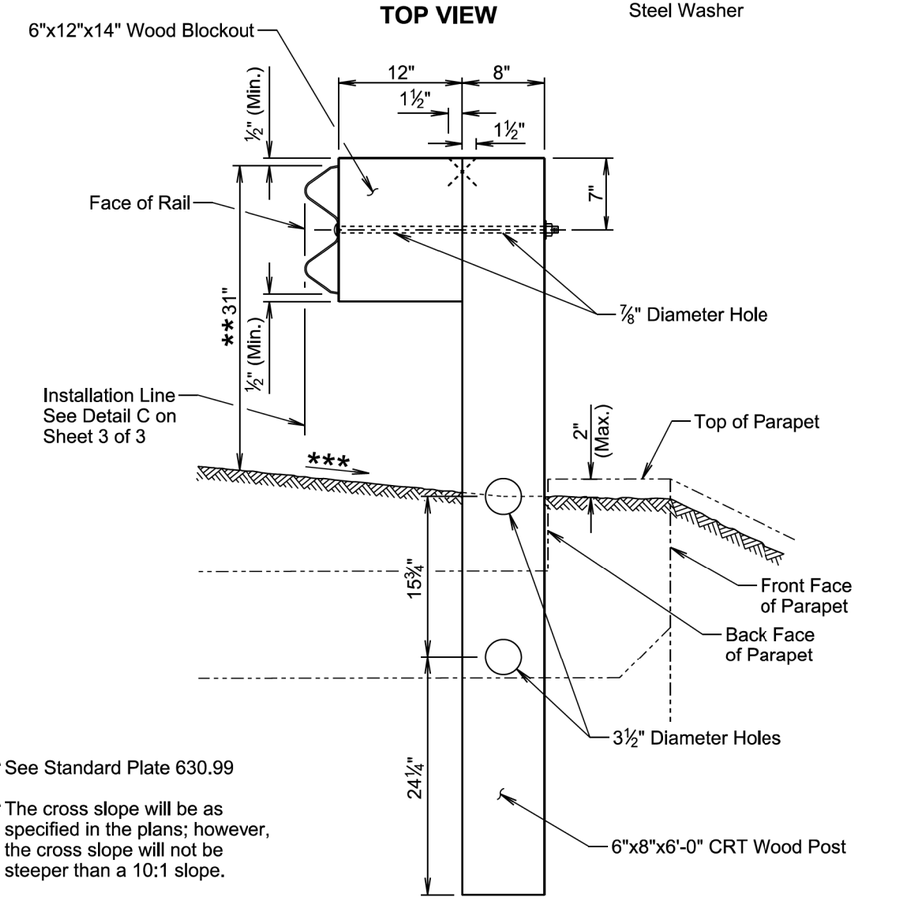


April 8, 2025

Published Date: 2026	SDDOT	LONGSPAN MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.27
			Sheet 1 of 3



TOP VIEW



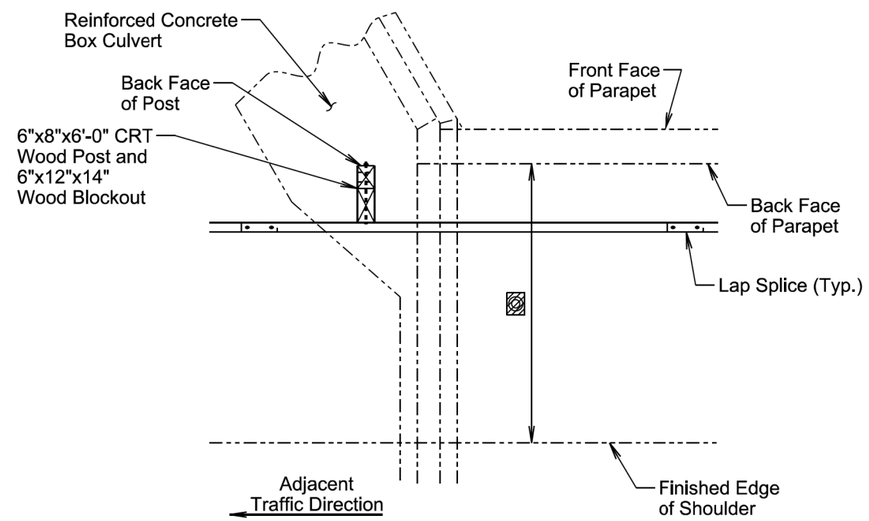
** See Standard Plate 630.99

*** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

VIEW A-A
(Longspan alignment is shown with the back of post aligned with the back face of parapet.)

April 8, 2025

Published Date: 2026	SDDOT	LONGSPAN MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.27 Sheet 2 of 3



DETAIL C
(Longspan alignment is shown with the back of post aligned with the back face of parapet)

The MGS Longspan alignment will be as specified in the plans; however, the allowable limits of lateral alignment will be such that the back of post will not encroach beyond the back face of the parapet and the front face of the guardrail will not encroach onto the finished shoulder. For other types of culverts that do not have a parapet, the back of post lateral alignment will be a minimum of 1 foot from the opening.

GENERAL NOTES:

See standard plate 630.20 for hardware details and specifications.

The span without posts will be 25' or 18'-9" only, as shown on sheet 1 of 3.

All W beam rail will be Type 1 and Class A (12 Ga.) unless specified otherwise in the plans.

W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

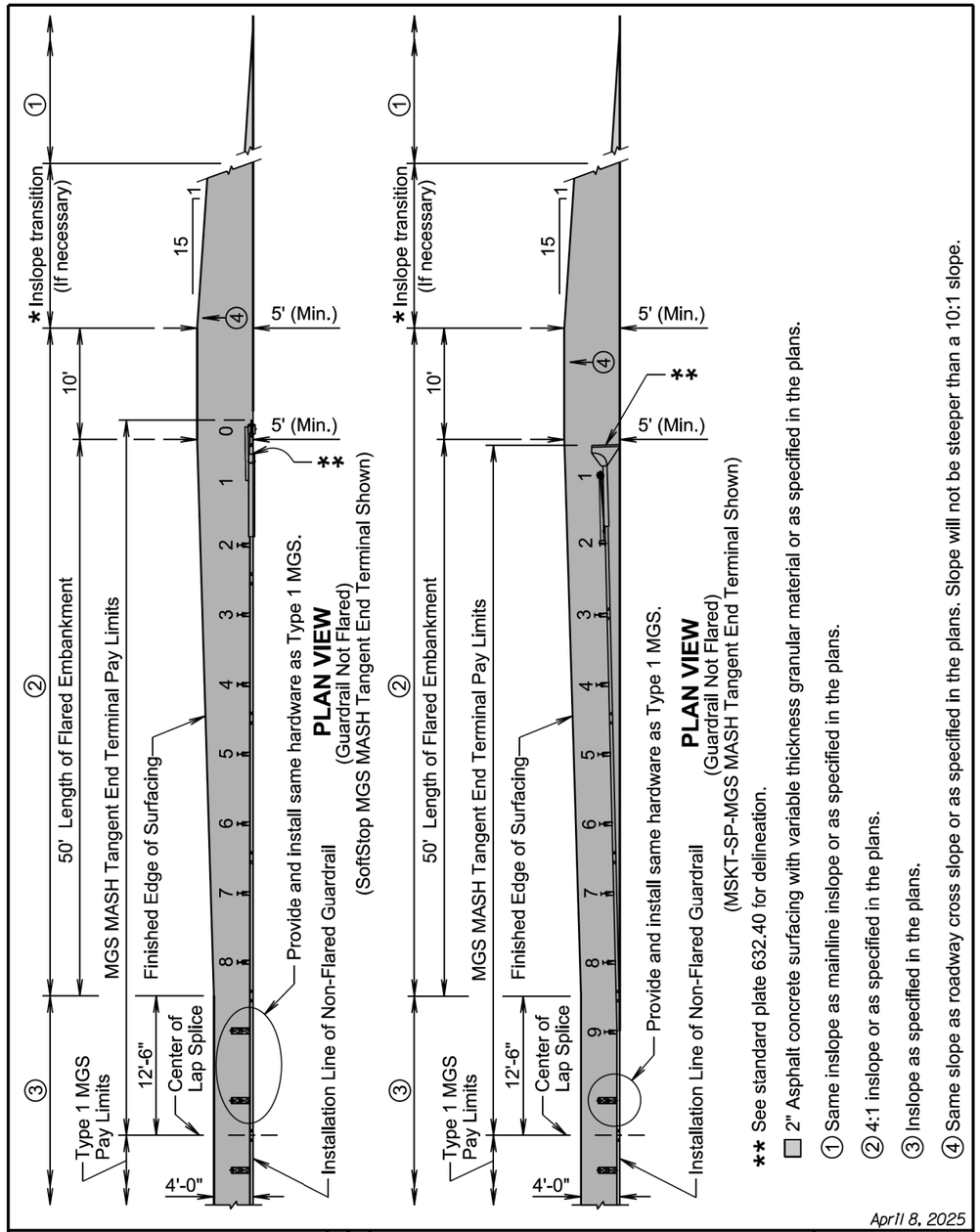
When PCC pavement or asphalt concrete pavement is adjacent to the post, see standard plate 630.96 for leave-out and backfill requirements.

Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

All costs for constructing the Longspan MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per each for the corresponding Longspan MGS contract item.

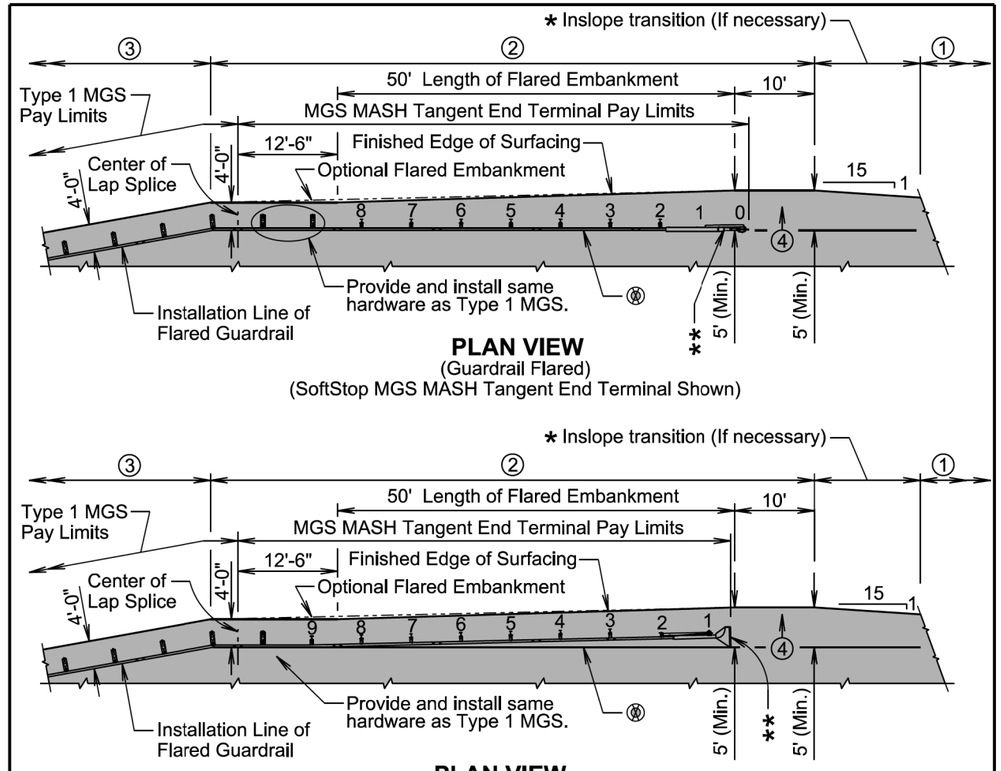
April 8, 2025

Published Date: 2026	SDDOT	LONGSPAN MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.27 Sheet 3 of 3



April 8, 2025

Published Date: 2026	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89
			Sheet 1 of 3



GENERAL NOTES:

The MGS MASH tangent end terminals above are for illustrative purpose only. Pay limit length of the MGS MASH tangent end terminal is 62'-6".

* The length of inslope transition varies with the amount of change between inslopes. The length of the transition will change 100' for every whole number change in the inslope. For Example: If the inslope changes from a 5:1 to a 4:1 the length of the inslope transition would be 100'. If the inslope changes from a 6:1 to a 4:1 the length of the inslope transition would be 200'.

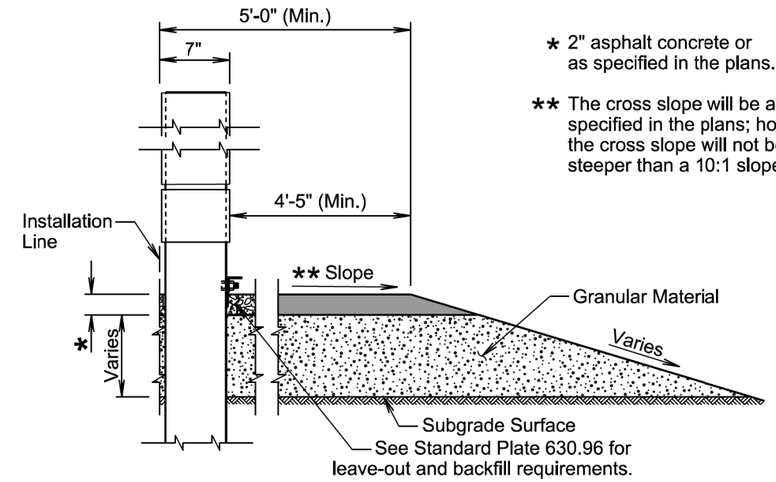
Ⓚ The installation reference line for MGS MASH tangent end terminals will always be parallel to the roadway.

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite."

Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline surfacing or as specified in the plans.

April 8, 2025

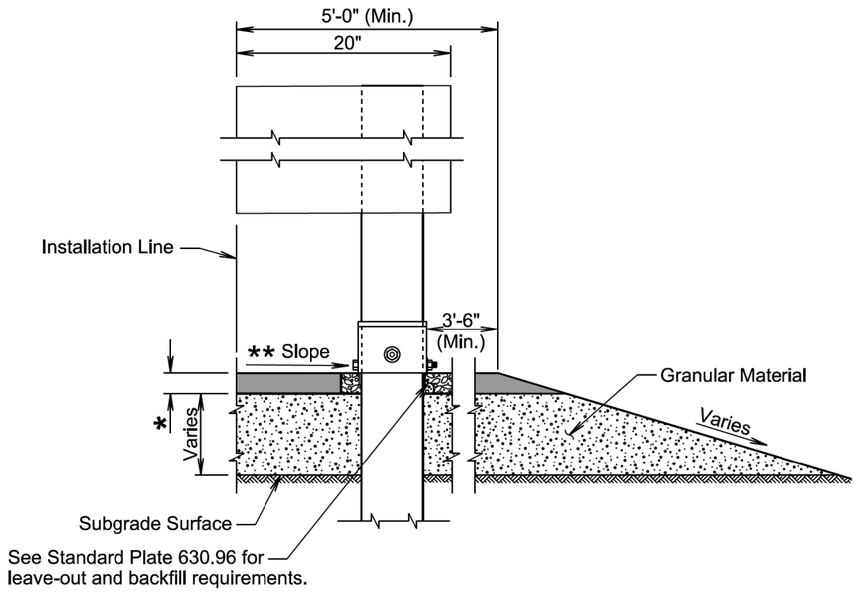
Published Date: 2026	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89
			Sheet 2 of 3



* 2" asphalt concrete or as specified in the plans.

** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

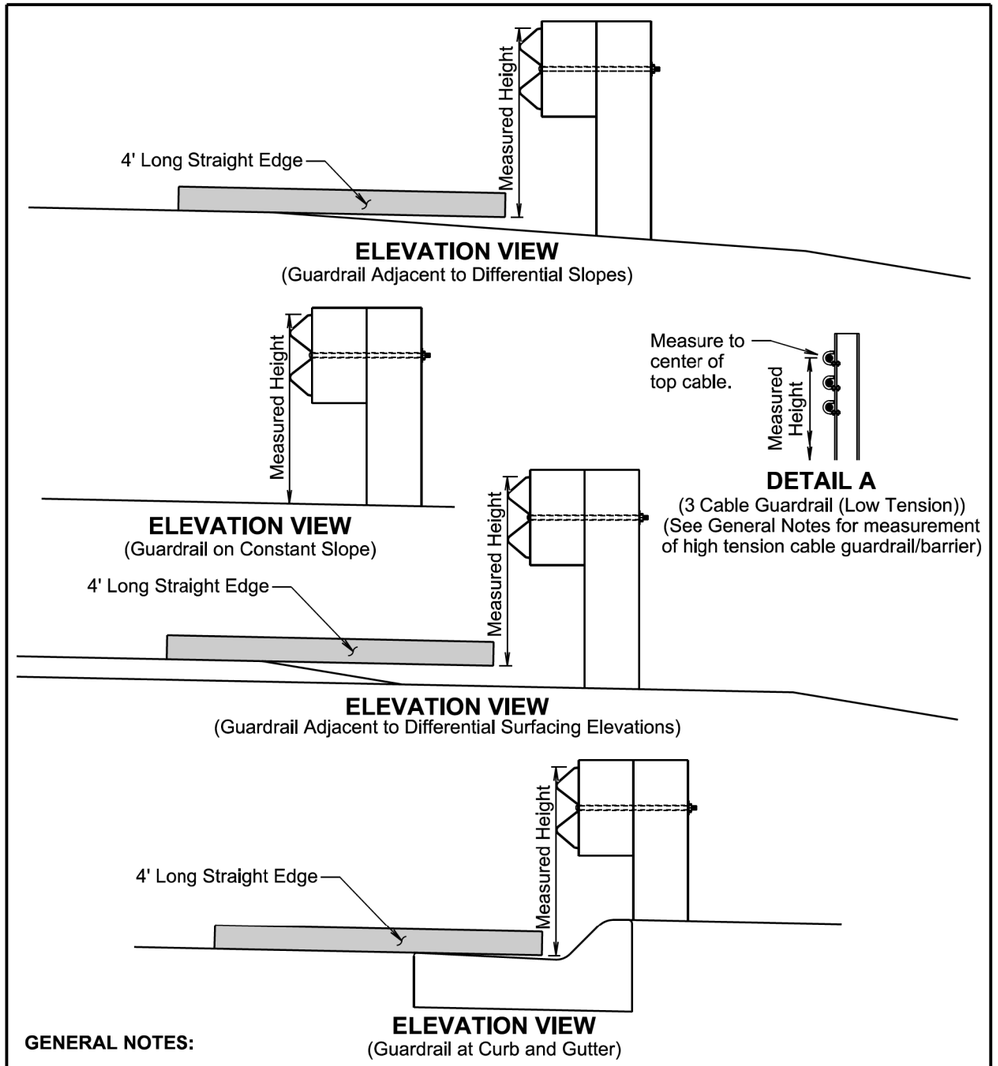
TRANSVERSE SECTION
(SoftStop MGS MASH Tangent End Terminal Shown)



TRANSVERSE SECTION
(MSKT-SP-MGS MASH Tangent End Terminal Shown)

April 8, 2025

Published Date: 2026	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89
			Sheet 3 of 3



GENERAL NOTES:

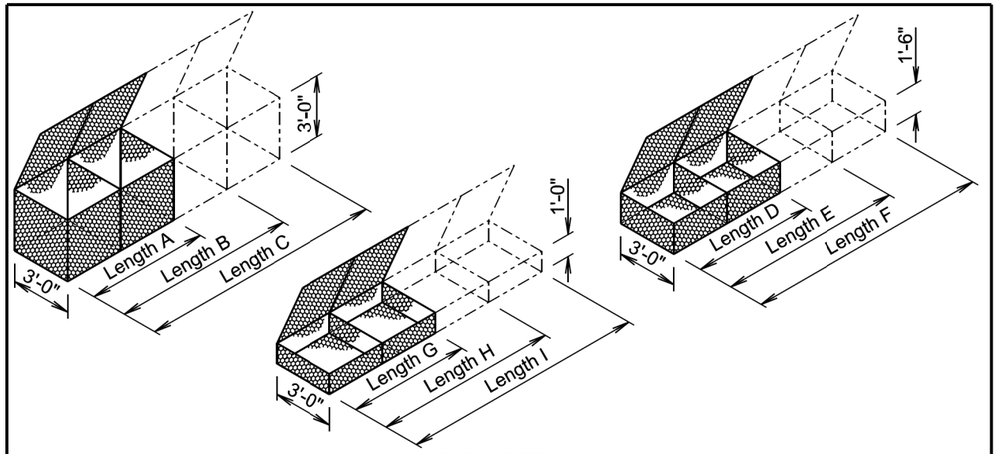
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

When measuring height of 3 cable guardrail (low tension) the height will be measured to the center of the top cable. See Detail A.

The height of high tension cable guardrail/barrier will be measured in accordance with the Manufacturer's installation instructions.

September 14, 2019

Published Date: 2026	SDDOT	MEASURING GUARDRAIL HEIGHT	PLATE NUMBER 630.99
			Sheet 1 of 1



GABION DETAILS

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

Above dimensions subject to mill tolerances.

GENERAL NOTES:

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

The lacing procedure is as follows:

1. Cut a length of lacing wire approximately 1½ times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

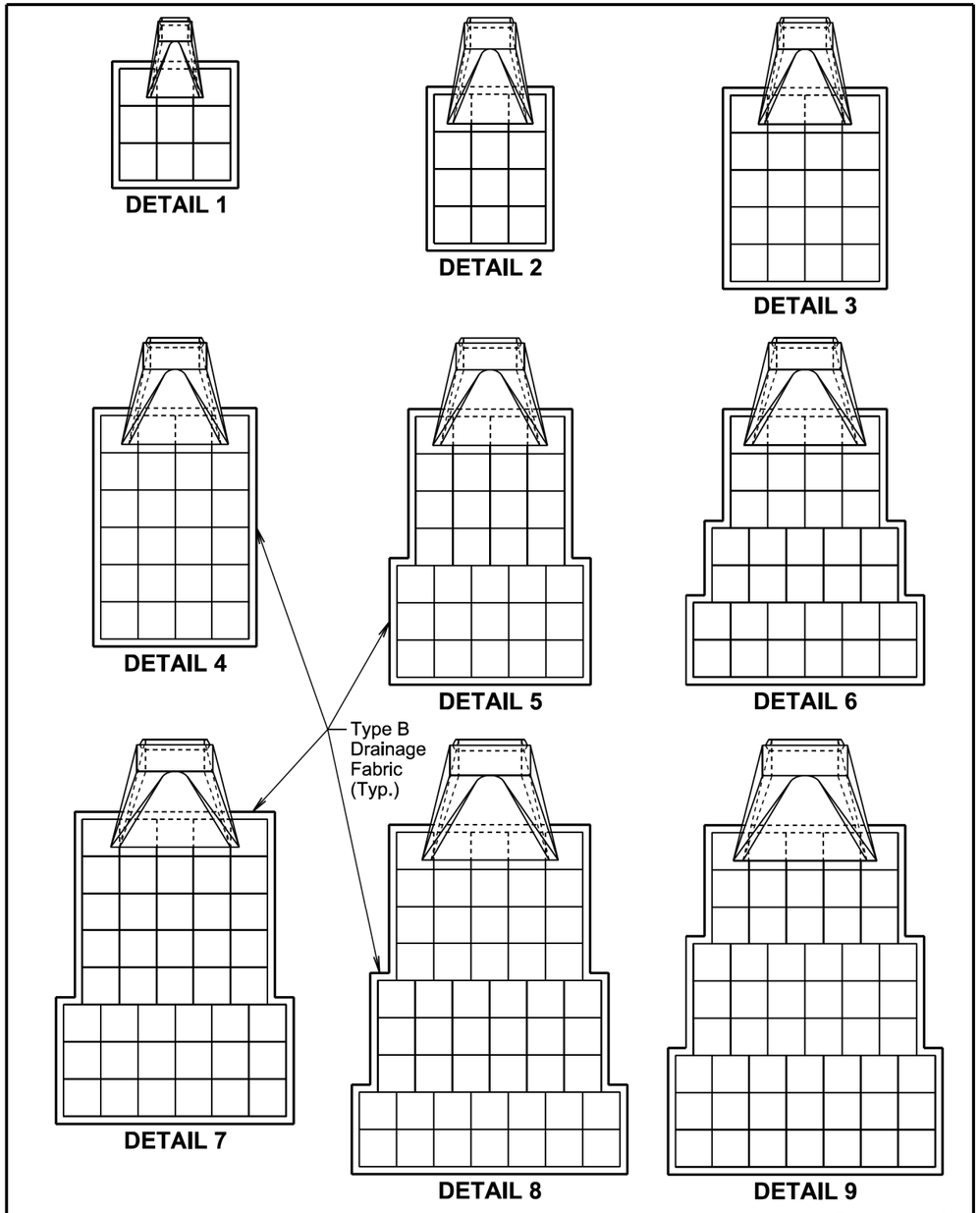
Wire lacing or interlocking type fasteners will be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions will be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing will conform to ASTM A641-92,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

Interlocking fasteners for PVC coated gabions will be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class 1. The spacing of the interlocking fasteners during all phases of assembly and construction will not exceed 6 inches.

All fasteners will be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

February 14, 2020

Published Date: 2026	SDDOT	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
			Sheet 1 of 1



February 14, 2020

Published Date: 2026	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
			Sheet 1 of 2

	* ESTIMATED QUANTITIES			
	Detail	Pipe Diameter (Inches)	Gabion (Cu. Yd.)	Type B Drainage Fabric (Sq. Yd.)
RCP, RCP Arch, CMP, and CMP Arch	1	12, 18, and 24	4.5	15
	2	30 and 36	6.0	19
	3	42	10.0	29
	4	48 and 54	12.0	34
	5	60	15.5	43
	6	66	17.0	47
	7	72	21.5	57
	8	78	26.0	68
	9	84	27.0	70

GENERAL NOTES:

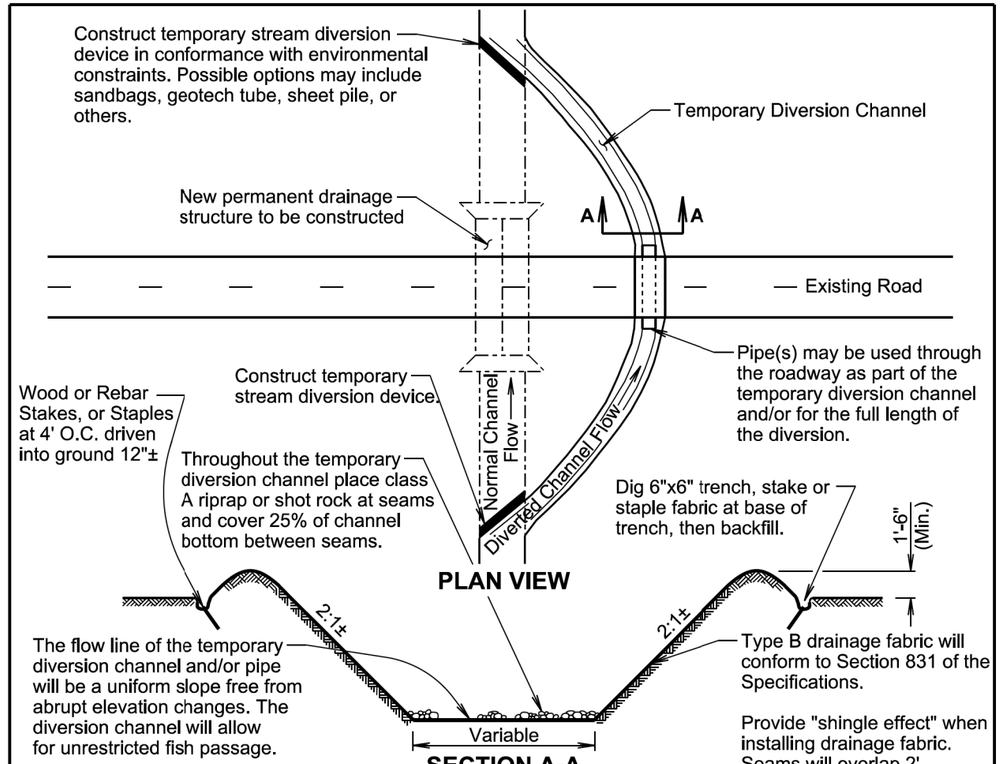
Gabions at outlets of CMP and RCP will be placed under the end section a distance of 2 feet from the outlet end. For CMP end section installations, the upper fabric of the gabions will be modified to accommodate the metal end section as approved by the Engineer.

* Gabion and type B drainage fabric quantities on this standard plate are based on standard gabion sizes D, E, and F as depicted on standard plate 720.01.

Type B drainage fabric will be placed under the gabions and around the exterior sides (perimeter) of the gabions as approved by the Engineer. The type B drainage fabric will be in conformance with Section 831 of the Specifications. Measurement and payment of the type B drainage fabric will be in conformance with Section 720 of the Specifications.

February 14, 2020

Published Date: 2026	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03 Sheet 2 of 2



GENERAL NOTES:

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

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

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

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

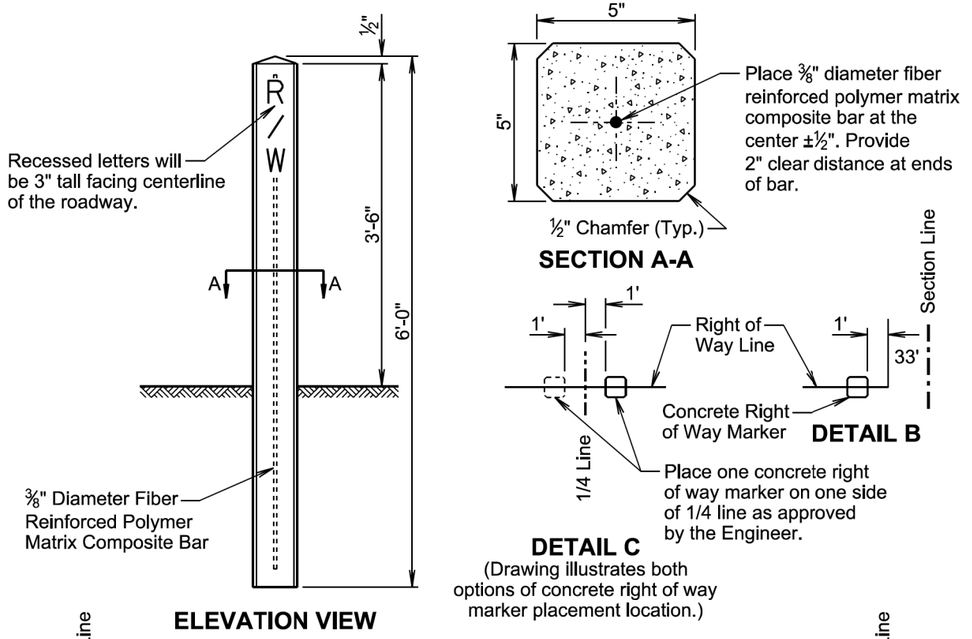
All costs for labor, equipment, materials, and incidentals as indicated on this sheet to complete a satisfactory temporary diversion channel and/or pipe(s) will be incidental to the contract unit price per each for "Temporary Diversion Channel For Fish Passage". "Temporary Diversion Channel For Fish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

February 14, 2020

Published Date: 2026	SDDOT	TEMPORARY DIVERSION CHANNEL FOR FISH PASSAGE	PLATE NUMBER 734.30 Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-B 014A(26)29	B30	B30

Plotting Date: 05/13/2025

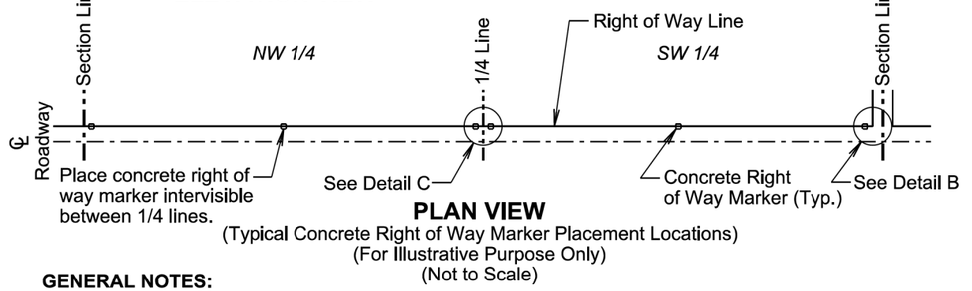


ELEVATION VIEW

SECTION A-A

DETAIL C

(Drawing illustrates both options of concrete right of way marker placement location.)



PLAN VIEW

(Typical Concrete Right of Way Marker Placement Locations)
(For Illustrative Purpose Only)
(Not to Scale)

GENERAL NOTES:

The concrete right of way markers will be set plumb and backfilled as approved by the Engineer.

Additional concrete right of way markers may need to be installed due to the terrain. Placement of additional concrete right of way markers must be approved by the Engineer prior to installation.

The concrete will be Class M6 in accordance with specifications Section 462.

The fiber reinforced polymer matrix composite bar will have a minimum of 130 ksi tensile strength, a minimum ultimate tensile load of 19,675 lbs, and a minimum tensile modulus of elasticity of 6.7×10^6 psi in accordance with ASTM D7205. Bond strength will be a minimum of 2,047 psi in accordance with ACI 440.3R Part 2 B3. Minimum shear capacity will be 25.1 ksi in accordance with ASTM D7617.

All costs for furnishing and installing the concrete right of way marker including materials, labor, and equipment will be incidental to the contract unit price per each for "Concrete Right of Way Marker".

April 8, 2025

Published Date: 2026	SDDOT	CONCRETE RIGHT OF WAY MARKER	PLATE NUMBER 900.15
			Sheet 1 of 1

Plot Scale - 1:200

Plotted From - TRPR17192

File - ...\lawr06XL\StdPlateSectionB.dgn