STATE OF SOUTH DAKOTA	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	1/74

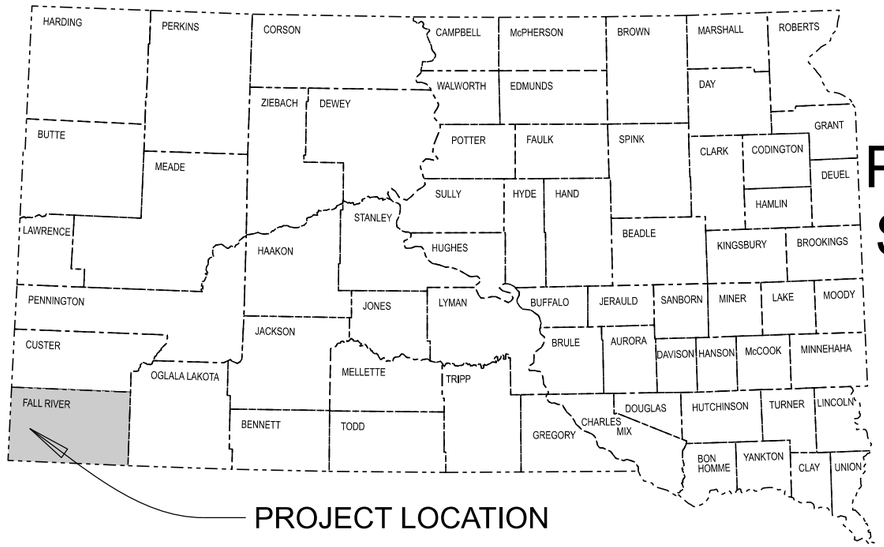
Plotting Date: 2/25/2026

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

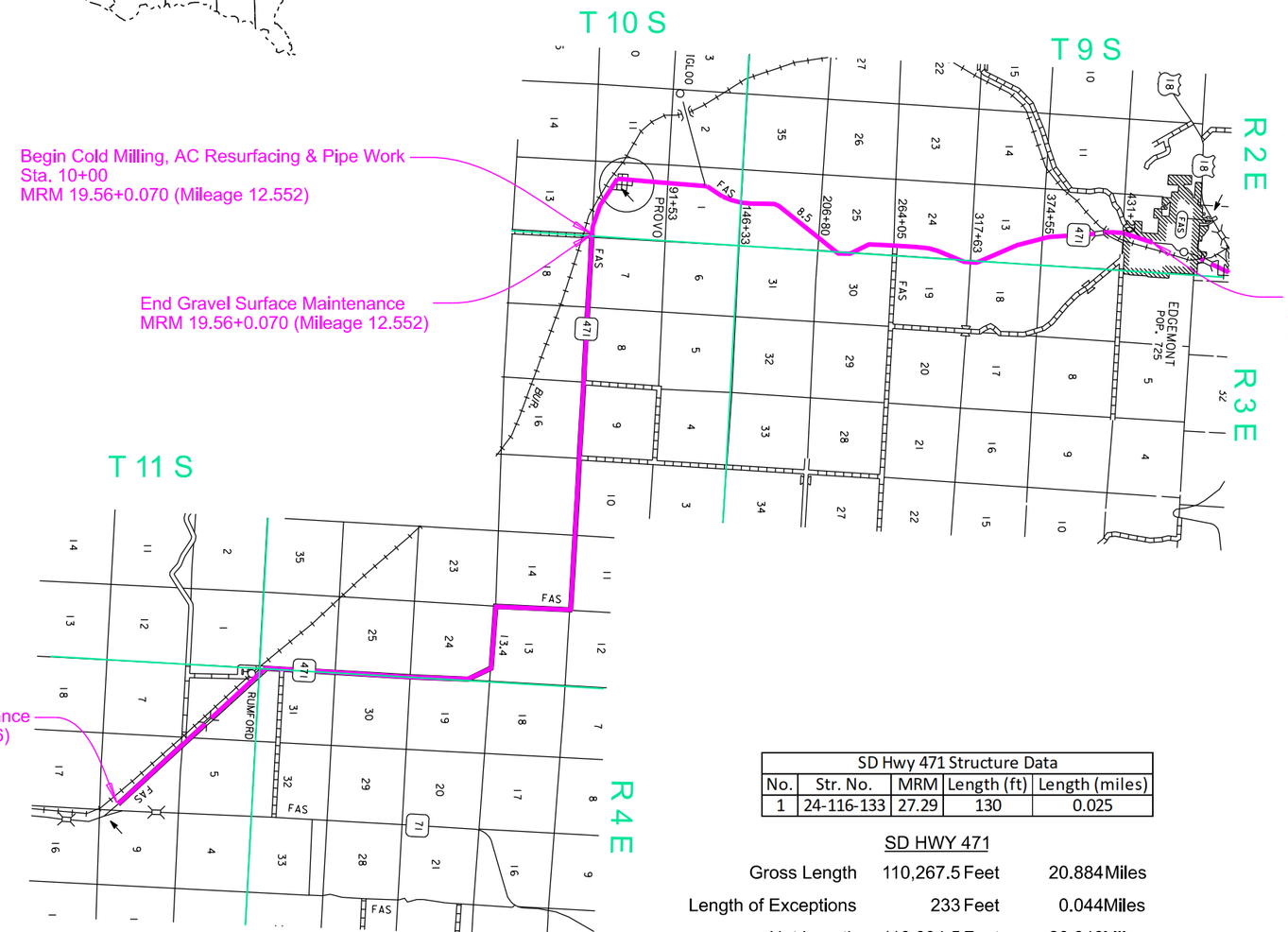
PLANS FOR PROPOSED

PROJECT P 0471(10)19 & P 018P(05)12
SD HIGHWAY 471 & SD HIGHWAY 18P
FALL RIVER COUNTY

COLD MILLING ASPHALT CONCRETE, ASPHALT CONCRETE RESURFACING, PIPE WORK & GRAVEL SURFACE MAINTENANCE
PCN 02R1 & 07A1



INDEX OF SHEETS



DESIGN DESIGNATION (SD HWY 471)

ADT (2021)	216
ADT (2041)	322
DHV	61
D	51%
T DHV	5.4%
T ADT	11.8%
V	55 MPH

STORM WATER PERMIT

Major Receiving
Body of Water: Tributaries of the Cheyenne River
Area Disturbed: 1.4 Acres
Total Project Area: 7.6 Acres
Approx. Begin Lat,Long: 43.22958, -103.82262

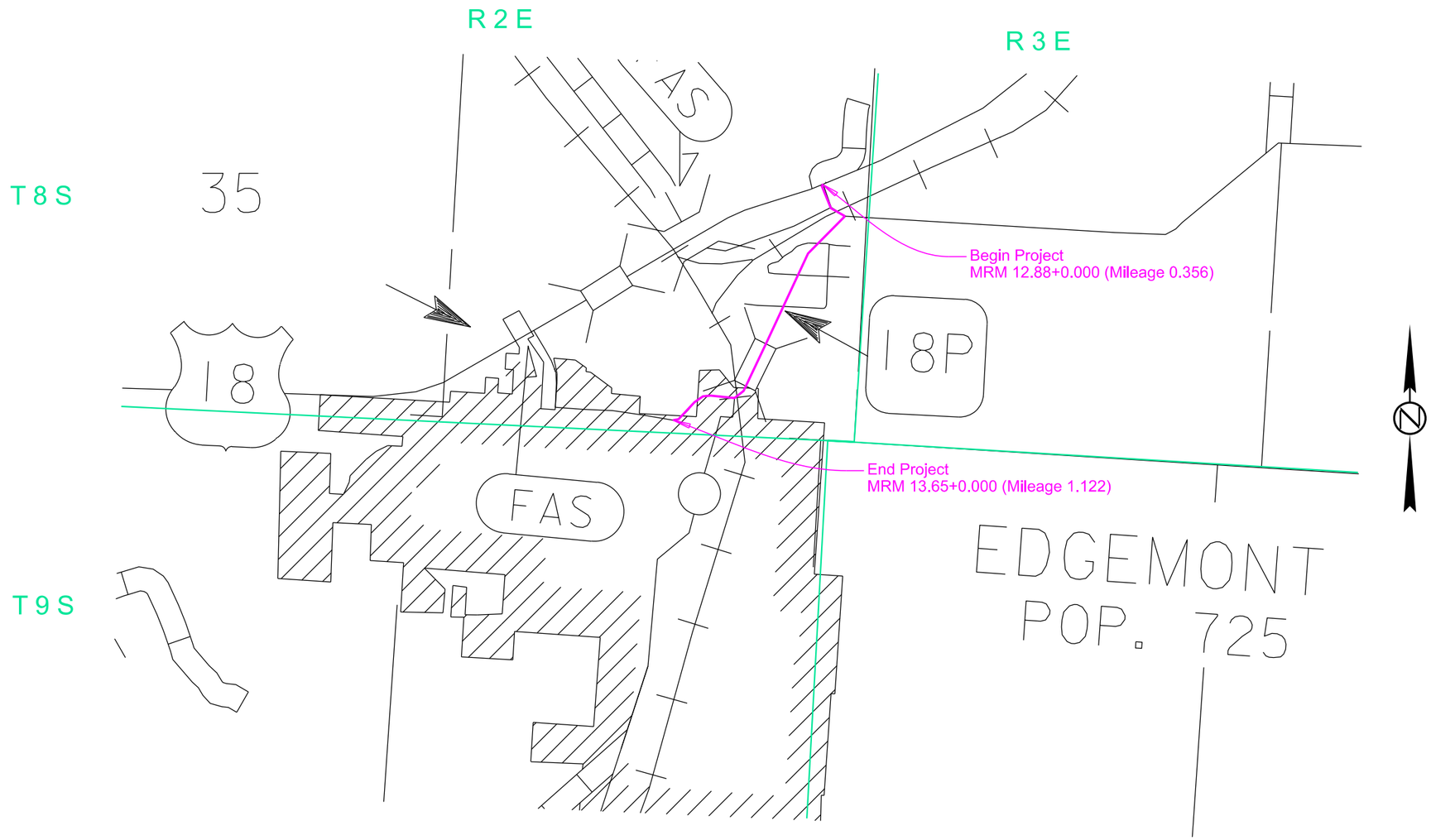
SD Hwy 471 Structure Data				
No.	Str. No.	MRM	Length (ft)	Length (miles)
1	24-116-133	27.29	130	0.025

SD HWY 471

Gross Length	110,267.5 Feet	20.884 Miles
Length of Exceptions	233 Feet	0.044 Miles
Net Length	110,034.5 Feet	20.840 Miles

6

April 15, 2026



DESIGN DESIGNATION (SD HWY 18P)
MRM 12.88-13.65

ADT (2021)	246
ADT (2041)	366
DHV	70
D	51%
T DHV	5.7%
T ADT	12.6%
V	25 MPH

SD HWY 18P

Gross Length	4,044.5 Feet	0.766 Miles
Length of Exceptions	445 Feet	0.084 Miles
Net Length	3,599.5 Feet	0.682 Miles

SD HWY 18P Structure Data				
No.	Str. No.	MRM	Length (ft)	Length (miles)
1	24-118-119	13.4	336	0.064

ESTIMATE OF QUANTITIES

Revised: 2-25-26

PCN 02R1, SD471

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0130	Remove Traffic Sign	2	Each
110E0510	Remove Pipe End Section	4	Each
110E0600	Remove Fence	952	Ft
110E1010	Remove Asphalt Concrete Pavement	850.2	SqYd
110E1690	Remove Sediment	6.0	CuYd
110E1700	Remove Silt Fence	38	Ft
110E7150	Remove Sign for Reset	1	Each
110E7152	Remove Delineator for Reset	4	Each
110E7500	Remove Pipe for Reset	20	Ft
110E7510	Remove Pipe End Section for Reset	13	Each
110E7802	Remove Fence for Reset	35	Ft
120E0010	Unclassified Excavation	705	CuYd
120E0100	Unclassified Excavation, Digouts	420	CuYd
120E0600	Contractor Furnished Borrow Excavation	1,746	CuYd
120E6200	Water for Granular Material	219.5	MGal
210E1005	Surface Preparation	12.192	Mile
230E0010	Placing Topsoil	546	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	1,359.7	Ton
260E1050	Base Course, Salvaged Asphalt Mix	1,828.0	Ton
260E6000	Granular Material, Furnish	8,326.0	Ton
* 260E6000	Granular Material, Furnish	1,500.0	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	3,000.0	Ton
270E0220	Blend and Stockpile Granular Material	16,652.0	Ton
320E0008	PG 64-34 Asphalt Binder	93.3	Ton
320E1200	Asphalt Concrete Composite	245.7	Ton
320E1800	Asphalt Concrete Blade Laid	1,260.5	Ton
320E4000	Hydrated Lime	12.6	Ton
320E7008	Grind 8" Rumble Strip or Stripe in Asphalt Concrete	16.8	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	93.3	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	26.2	Ton
330E2000	Sand for Flush Seal	433.8	Ton
332E0010	Cold Milling Asphalt Concrete	117,464	SqYd
421E0100	Pipe Culvert Undercut	38	CuYd
450E0142	24" RCP Class 2, Furnish	54	Ft
450E0150	24" RCP, Install	54	Ft
450E2200	24" RCP Sloped End, Furnish	4	Each
450E2201	24" RCP Sloped End, Install	4	Each
450E3012	24" RCP Arch Class 2, Furnish	100	Ft

PCN 02R1, SD471 (Continued)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
450E3020	24" RCP Arch, Install	100	Ft
450E4600	24" RCP Arch Sloped End, Furnish	5	Each
450E4601	24" RCP Arch Sloped End, Install	5	Each
450E4759	18" CMP 16 Gauge, Furnish	36	Ft
450E4760	18" CMP, Install	36	Ft
450E5203	12" CMP Flared End, Furnish	2	Each
450E5204	12" CMP Flared End, Install	2	Each
450E5310	24" CMP Sloped End, Furnish	2	Each
450E5311	24" CMP Sloped End, Install	2	Each
450E5314	30" CMP Sloped End, Furnish	4	Each
450E5315	30" CMP Sloped End, Install	4	Each
450E5406	18" CMP Safety End, Furnish	2	Each
450E5407	18" CMP Safety End, Install	2	Each
450E7624	24" Steel Pipe, Furnish	140	Ft
450E7625	24" Steel Pipe, Install	20	Ft
450E7630	30" Steel Pipe, Furnish	322	Ft
450E7631	30" Steel Pipe, Install	28	Ft
450E9000	Reset Pipe	20	Ft
450E9001	Reset Pipe End Section	13	Each
451E5124	Bore and Jack 24" Pipe	120	Ft
451E5130	Bore and Jack 30" Pipe	294	Ft
464E0100	Controlled Density Fill	72.4	CuYd
600E0300	Type III Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	265	Ft
620E0030	Type 3 Right-of-Way Fence	849	Ft
620E0510	Type 1 Temporary Fence	1,440	Ft
620E0520	Type 2 Temporary Fence	2,193	Ft
620E1020	2 Post Panel	18	Each
620E1030	3 Post Panel	12	Each
620E4100	Reset Fence	35	Ft
632E2100	Reset Delineator	4	Each
632E3500	Reset Sign	1	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	378	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	245	Gal
633E3070	Durable Pavement Marking, Railroad Crossing	2	Each
633E5100	Grooving for Durable Pavement Marking, 4"	145,509	Ft
633E5140	Grooving for Durable Pavement Marking, Railroad Crossing	2	Each
634E0010	Flagging	1,000.0	Hour
634E0020	Pilot Car	500.0	Hour
634E0110	Traffic Control Signs	1,883.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	3	Each
634E0320	Temporary Flexible Vertical Markers (Tabs)	8.4	Mile

PCN 02R1, SD471 (Continued)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0630	Temporary Pavement Marking	33.6	Mile
730E0210	Type F Permanent Seed Mixture	36	Lb
731E0100	Fertilizing	2,100	Lb
732E0250	Fiber Mulching	2,302	Lb
734E0103	Type 3 Erosion Control Blanket	142	SqYd
734E0154	12" Diameter Erosion Control Wattle	605	Ft
734E0604	High Flow Silt Fence	150	Ft
734E0610	Mucking Silt Fence	11	CuYd
734E0620	Repair Silt Fence	38	Ft
900E1980	Storage Unit	1	Each
998E0100	Railroad Protective Insurance	Lump Sum	LS

*** - Denotes Non-Participating**

Alternate A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	861.7	Ton
320E1002	Class Q2 Hot Mixed Asphalt Concrete	15,037.7	Ton
320E4000	Hydrated Lime	152.3	Ton

Alternate B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	785.1	Ton
320E1002	Class Q2 Hot Mixed Asphalt Concrete	15,399.3	Ton
320E4000	Hydrated Lime	153.2	Ton

Revised: 10-01-25

PCN 07A1, SD18P

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	55.4	SqYd
120E0100	Unclassified Excavation, Digouts	37	CuYd
260E1010	Base Course	223.5	Ton
260E1050	Base Course, Salvaged Asphalt Mix	147.7	Ton
320E0008	PG 64-34 Asphalt Binder	8.2	Ton
320E1200	Asphalt Concrete Composite	18.5	Ton
320E1800	Asphalt Concrete Blade Laid	110.8	Ton
320E4000	Hydrated Lime	1.1	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	8.3	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	2.3	Ton
330E2000	Sand for Flush Seal	38.1	Ton
332E0010	Cold Milling Asphalt Concrete	12,021	SqYd
633E1200	High Build Waterborne Pavement Marking Paint, White	33	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	33	Gal
633E3070	Durable Pavement Marking, Railroad Crossing	4	Each
633E5100	Grooving for Durable Pavement Marking, 4"	15,600	Ft
633E5140	Grooving for Durable Pavement Marking, Railroad Crossing	4	Each
634E0010	Flagging	200.0	Hour
634E0020	Pilot Car	50.0	Hour
634E0110	Traffic Control Signs	627.6	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0310	Temporary Flexible Vertical Markers (Tabs)	3,900	Ft
634E0630	Temporary Pavement Marking	3.0	Mile
998E0100	Railroad Protective Insurance	Lump Sum	LS

Alternate A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	89.7	Ton
320E1002	Class Q2 Hot Mixed Asphalt Concrete	1,570.2	Ton
320E4000	Hydrated Lime	15.6	Ton

Alternate B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	81.7	Ton
320E1002	Class Q2 Hot Mixed Asphalt Concrete	1,608.1	Ton
320E4000	Hydrated Lime	16.1	Ton

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 10-1-25 Version, Required Provisions, and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges are available for download and viewing at https://dot.sd.gov/doing-business/contractors/standard-specifications.

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 A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.203 acres temporary impacts to wetlands. Refer to the plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
1	328+00 – 337+00 R	0.00	0.00	0.00	0.203	0.203

Action Taken/Required:

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be re-established as designated in the plans. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.21 D of the Specifications.

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

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 >

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 not required to be covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the Contractor will obtain the General Permit for Temporary Discharge Activities from the DANR Surface Water Program, 605-773-3351.
< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_TemporaryDischargeNOI2018Fillable.pdf >

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

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

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

The form can be found at:
< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_CGPAppendixCCA2018Fillable.pdf >

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

Storm Water Pollution Prevention Plan

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

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

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

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

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

DANR:< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/default.aspx >
EPA: < https://www.epa.gov/npdes >

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.
Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

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

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

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

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

COMMITMENT N: SECTION 404 PERMIT

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

Action Taken/Required:

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

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

TYPE III 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 III Field Laboratory".

UTILITIES

The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor will contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

Black Hills Electric Cooperative, Inc.
PO Box 792
Custer, SD, 57730
CONTACT: Mr. Jesse Sorenson TELE: #605-673-1658 EMAIL: jsorenson@bhec.coop

Black Hills Energy
1251 Otter Tail Road
Sturgis, SD, 57785
CONTACT: Mr. Corey Virtue TELE: #605-858-7013 EMAIL: corey.virtue@blackhillscorp.com

Golden West Telecommunications Coop
525 E 4th Street
Dell Rapids, SD, 57022
CONTACT: Mr. Ryan Cuny TELE: #605-428-1125 EMAIL: RyanCuny@GoldenWest.com
NOTE: Fiber facilities paralleling highway may require adjustments due to pipe work. Utility requests minimum two (2) week notice before construction begins to coordinate with contractor location(s) and extent of adjustment. Request to adjust or protect in place facilities during/before construction in coordination with contractor.

ONEOK, Inc.
5300 W 12th Street
Sioux Falls, SD, 57107
CONTACT: Mr. Craig Weber TELE: #605-330-2637 EMAIL: craig.weber@magellanlp.com
NOTE: Pipeline facilities present crossing highway approximately 2.1 miles South of Edgemont (from Railroad Crossing). Aboveground present on East (right) side of project corridor. Request as follows: "Oneok Magellan pipeline is in the area of this work. No work to be done within 25 feet of pipeline without prior approval and a Oneok representative on site. 605-390-7867"

Arvig Enterprises
222 S Clayborn Avenue
Parkers Prairie, MN, 56361
CONTACT: Mr. Steve Hoffman TELE: #218-346-8887 EMAIL: steve.hoffman@arvig.com

GENERAL GEOLOGY

The project geology consists predominantly of upper Cretaceous marine deposits and Quaternary alluvium deposits at lower elevations near Cottonwood Creek. The South Dakota Geologic Survey describes the units as:

Carlile Shale – Dark-gray to black, silty to sandy shale with several zones of septarian, fossiliferous, carbonate concretions. Contains up to three sandstone units near the middle of the formation and sandy calcareous marl at the base. It will be encountered from the beginning of the project to MRM 24.5±.

Greenhorn Formation – Gray shale, mudstone, marl, calcarenite, and shaly limestone grading upward into light-gray to tan, alternating marl and thin-bedded, fossiliferous limestone. It will be encountered from MRM 24.5± to MRM 26.5±.

Belle Fourche Shale – Dark-gray to black bentonitic shale containing minor limestone lenses, bentonite layers, fossiliferous calcarenite, and large, ferruginous, carbonate concretions. It is overlain by varying amounts of alluvium beginning near MRM 26.5±.

Quaternary Alluvium – Clay to boulder-sized clasts with locally abundant organic material.

CLASSIFICATION OF EXCAVATION

Large boulder sized fragments of sandstone, limestone, or concretions that require more effort to excavate may be encountered. Most material should be able to be excavated using conventional methods associated with normal Unclassified Excavation.

INSLOPE TRANSITIONS

Inslope transitions will be required at various drainage structures and pipe locations. Refer to Standard Plate 120.05 for details.

Revised: 10-10-25

TABLE OF INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

Station	L/R	Type
29+24	L & R	2
100+24	L & R	1
289+64	L & R	1
333+18	R	1
351+85	L	1
355+69	L & R	1

SHRINKAGE FACTOR: Embankment 20%

TABLE OF EARTHWORK QUANTITIES

Station (MRM)	Excavation (CuYd)	Contractor Furnished Borrow (CuYd)
29+24	93	50
100+24	48	0
289+64	0	25
333+18	0	758
351+85	0	526
355+69	0	387
Totals:	141	1746

* The quantities for these items are for information only.

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	141
Topsoil	546
Pipe Replacements	18
Total	705

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.

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.

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

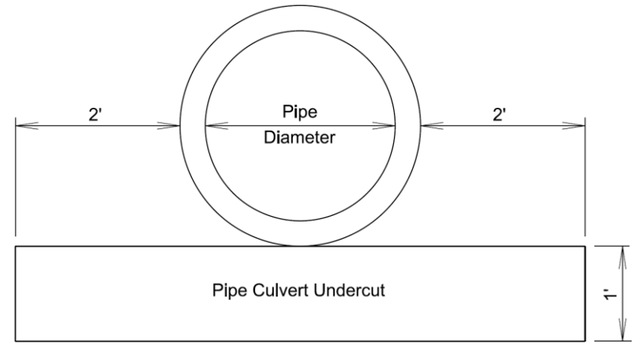
PIPE CULVERT UNDERCUT

Pipe culvert undercut will be required for this project.

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	---



MAINLINE CROSS PIPE REPLACEMENT

Pipe culverts at MRMs 19+0.992, 21+0.301, 24+1 014 will be installed in accordance with the following notes and as shown on the Pipe Installation Detail.

This work will be completed prior to beginning cold milling on the project.

After the existing pipe has been removed, the new pipe culvert will be undercut to a minimum depth of 1 foot. The depth of undercut is an estimate and the actual depth necessary will be determined during construction. The Engineer will determine how much undercut will be done in accordance with Section 421 of the specifications but will not reduce the undercut to less than 1 foot in depth

Select fill material for backfilling the undercut area will conform to the gradation requirements of Base Course in Section 882. If groundwater is encountered during construction, the select fill material for backfilling the undercut area and Class B Bedding will conform to the gradation requirements of Section 421.2 A. until backfill placement is above the groundwater level. The Engineer will process a CCO to provide for compensation to the Contractor for the added cost of the changed material. All other requirements of Section 421 will apply.

Pipe culverts will be bedded in accordance with Section 450.3 F.2, Class B Bedding with the following exceptions. The excavated area will extend 2 feet from the outermost diameter on both sides of the pipe with the back of the excavated area being sloped 2:1 upward to the top of the roadway surface. Select fill material for Class B Bedding will conform to the gradation requirements of Base Course in Section 882.

After the minimum testing requirements of M.S.T.R Section 4.1.F.3.a.1 (SDDOT Materials Manual) have been met, the minimum density testing requirements will be one test per zone. Each zone from the top of the pipe to the top of the subgrade will be 2 feet in depth. Moisture testing will remain as per M.S.T.R.

The remainder of the pipe culvert excavation will be backfilled with soils taken from the pipe removal excavation or other suitable material as approved by the Engineer. The backfill will be benched into 2:1 excavation slope. Compaction of the backfill material will be governed by the Specified Density Method.

Revised: 10-10-25

MAINLINE CROSS PIPE REPLACEMENT, CONTINUED

After the new pipe has been backfilled to the top of the subgrade, a 12" depth of Base Course and 3" depth of asphalt concrete composite will be placed as a patch matching the existing asphalt concrete.

All costs to remove and dispose of asphalt concrete pavement, including full depth saw cutting of the asphalt concrete pavement, will be incidental to the contract unit price per square yard to Remove Asphalt Concrete Pavement. All excavation necessary for Class B Bedding and the pipe installation will be incidental to the contract unit price per foot for the corresponding pipe installation contract items. The excavation of material for pipe culvert undercut will be paid for at the contract unit price per cubic yard for Pipe Culvert Undercut.

The select fill material used for backfilling the pipe culvert undercut and Class B Bedding will be paid for at the contract unit price per ton for Base Course. The 3“ layer of bedding material to form the cradle in the pipe foundation will be incidental to the corresponding pipe installation contract items. The cost for asphalt concrete composite installed over the pipe replacement will be paid for at the contract unit price per ton for Asphalt Concrete Composite.

High sulfate levels will be encountered on this project. The type of cement will be either a type V or a type II with 20% to 25% Class F Modified Fly Ash substituted for cement in accordance with section 605. The Water/Cementitious material ratio will not exceed 0.45 as defined in section 460.3 C. The mix will be as per fabricator’s design; however, minimum compressive strength will not be less than 4500 psi at 28 days. The pipe must be marked in an acceptable way to designate meeting the requirements for sulfate resistance.

INCIDENTAL WORK, GRADING

Station	L/R	*Remarks*
29+24		Takeout 24" - 38' CMP & 2 Pipe End Sections
48+97	R	Inlet Channel Grading
100+24		Take Out 18" - 44' RCP & 1 Flared End
289+64		Take Out 24" - 54' RCP
335+81	L	Place Fill and Shape Ditch to Bypass Culvert
416+53	R	Outlet Channel Grading
455+77	L	Take Out 24" - 4' Poly Inlet Section

CONTROLLED DENSITY FILL FOR PIPE

Controlled density fill will be in conformance with Section 464 of the Specifications.

The controlled density fill will used to plug existing culverts.

TABLE OF CONTROLLED DENSITY FILL FOR PIPE

Station	Quantity (CuYd)
333+25	33.5
335+81	4.9
351+92	20.7
355+59	13.3
Total:	72.4

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.

BORE AND JACK STEEL PIPE

The Contractor will install steel pipe at stations 140+47, 157+68, 333+18, 351+85, and 355+69 by boring and jacking the pipe through the existing highway embankment. The pipe will be installed by boring and jacking methods as specified herein unless an alternate plan is submitted in writing and approved by the Engineer.

As shown on the appropriate pipe cross section, some excavation of the existing roadway embankment is anticipated in order to reduce the length of the bore and jack pipe installation.

Steel pipe for boring and jacking will meet or exceed the requirements of ASTM A53 Grade B, ASTM A139 Grade B or ASTM A252 Grade 2. Hydrostatic testing will not be required for this application. The pipe will be required to have the minimum wall thickness as shown in the following table:

Pipe Diameter	Wall Thickness
48" & below	1/2"
54"	5/8"
60"	5/8"
66"	3/4"
72"	3/4"

The exterior of the steel pipe will be coated with a fusion bonded epoxy coating and an abrasion resistant overcoat or a two-component coal tar epoxy. The coal tar will meet the requirements of Sherwin-Williams Targuard, Tnemec Hi-Build Tneme-Tar, or an approved equal. Applications of the coatings will be in conformance with the manufacturer’s recommendations.

The pipe joints will be welded by a certified welder in accordance with Section 410.3 D of the Specifications. After the welding has been completed, the exposed area will be coated with 3M Scotchkote Liquid Epoxy 328 or a two-component coal tar epoxy meeting the requirements of Sherwin-Williams Targuard, Tnemec Hi-Build Tneme-Tar, or an approved equal.

The jacking pit will be constructed of sufficient size to accommodate equipment and workmen. The pit walls will be sloped or shored to comply with all applicable State and Federal regulations. The Contractor will be responsible for the design of the pit floor and jacking thrust restraint wall to carry the cyclic loads and thrust applied by the Contractor's operation. Water will not be allowed to accumulate in the jacking pit. All components of the jacking pit will be removed after installation of the pipe unless otherwise allowed by the Engineer.

The pipe will be pushed into position from a jacking pit with hydraulic jacks while simultaneously excavating at the forward end of the pipe. Each pipe section will be jacked from the jacking pit as the excavation at the boring head progresses so that the excavation is supported by the boring head or the pipe at all points.

Jacking thrust will be applied to the pipe by means of a yoke or frame designed to distribute the thrust uniformly around the pipe joint. The thrust will be applied to the pipe joint only in the location and only to the maximum force recommended by the pipe manufacturer. The pipe will be jacked into place without visible damage to the pipe or joint.

The boring head excavation will be circular with a maximum diameter equal to the outside diameter of the jacking pipe plus 1 inch. The Contractor will take whatever corrective action is necessary to prevent running, flowing, or squeezing ground conditions at the cutting face from causing large voids or significant loss of soil that may cause surface settlement.

The Contractor will control the alignment and grade of the pipe installation to meet the following tolerances:

1. Maximum horizontal deviation from plan shown alignment will be less than 0.15% of pipe length from the downstream end of pipe to the point of measurement.

2. Maximum vertical deviation from plan shown alignment will be less than 0.075% of pipe length from the downstream end of pipe to the point of measurement.

All material excavated by the boring head for the pipe installation will be disposed of by the Contractor. The excavated material from the boring pit will be used as backfill for the pit and compacted into place to the satisfaction of the Engineer.

Steel casing will be installed horizontally through 90’± to 190’± of embankment. The pipes will be placed through an approximate 10’-30’ vertical depth of embankment. The parent formations from which the embankment materials were excavated include clay to boulder sized clasts of shale, sandstone, mudstone, limestone, and marl. Embankments may contain fragments of sandstone and limestone with diameters greater than 1’ that may require additional effort to remove or penetrate. In place ledge rock is not anticipated to be encountered within bore and jack envelopes. Based on visual observations it is not anticipated that dewatering will be required to construct and maintain jacking pits.

Revised: 2-25-26

BORE AND JACK STEEL PIPE, CONTINUED

Installation of CMP ends on the steel pipe will require the placement of a minimum of 2 welded stops at each pipe end to prevent the end from slipping off the steel pipe. The location and size will be determined in the field by the Engineer and installed by a certified welder. Stops will be coated with a coal tar epoxy. All costs, including labor and materials for the installation of the stops will be incidental to the contract unit price per foot for the corresponding steel pipe furnish contract item. Alternative methods of attachment may be allowed with the approval of the Engineer.

Payment for furnishing the pipe will be incidental to the contract unit price per foot for the corresponding steel pipe furnish contract item.

All costs involved with boring and jacking the pipe including labor, equipment, welding, materials, disposal of waste material, constructing and backfilling the jacking pit, and excavating and backfilling the roadway embankment will be incidental to the contract unit price per foot for the corresponding bore and jack pipe contract item.

STEEL PIPE

Steel pipe will meet the same requirements, including pipe specifications, welding and coal tar epoxy coating as the steel pipe used in the bore and jack installation.

CORRUGATED METAL PIPE FLARED ENDS

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

PIPE END SECTIONS

The Contractor will tie each section to the adjacent sections with tie bolts conforming to Standard Plate 450.18. All cost for furnishing and installing the tie bolt assembly will be incidental to the contract unit price per each for various pipe end sections.

For pipe extensions that are outside the new surfaced shoulder as shown in the pipe sections, acceptance tests in the lower one-half of pipe 48” or less in diameter may be performed by visual inspection to the satisfaction of the Engineer. All other MSTR pipe density testing requirements will apply.

Remove and reset type 2 object markers at the end of the pipe end sections. All cost for removing and resetting the type 2 object markers will be incidental to the contract unit price per each for the various pipe end sections.

TEMPORARY FENCE

The Contractor will verify the location of the temporary fence with the landowner prior to installation of the fence.

BRACE PANELS FOR ROW FENCE

The E-Z Brace or an approved equal may be utilized as an alternate horizontal brace in the brace panels if approved by the Engineer. The E-Z Brace will be attached to each wood post utilizing two 5/16” x 3” lag screws. Holes of appropriate diameter, based on wood post condition, will be drilled before placement of lag screws. The following is the contact regarding the E-Z Brace:

Charlie Mack
Macksteel E-Z Braces
415 20th Ave. SE.
Watertown, SD 57201
605-882-2177

TABLE OF FENCE QUANTITIES

SD 471 (PCN 02R1) Station to Station		Side (L/R)	Remove for Reset (Ft)	Reset Fence (Ft)	Type 2 Right-of-Way Fence (Ft)	Type 3 Right-of-Way Fence (Ft)	Type 1 Temporary Fence (Ft)	Type 2 Temporary Fence (Ft)	2 Post Panel (Each)	3 Post Panel (Each)	(Informational puposes only) 24' Barbed Wire Gate (Each)	Remove Fence (Ft)
332+82	333+26	L				44		493	2		1	44
332+16	334+27	R				211		520	2	2	1	211
340+32	342+19	L				187		550	2	2	1	187
340+25	341+05	R				80		84	2	2	1	80
344+95	346+82	L				162		86	2	2	1	162
350+99	352+75	L			176		432		2	2	1	176
351+70	352+14	R			44		416		2		1	44
354+85	356+50	L				165		460	2	2	1	165
355+50	355+95	R			45		412		2		1	45
416+34	416+70	R	35	35			180					
		Totals:	35	35	265	849	1440	2193	18	12	9	1114

Revised: 2-25-26

PIPE QUANTITIES

							Corrugated Metal					Steel Pipe				Reinforced Concrete					
							Flared End	Safety End	Sloped End		Circular Pipe	Bore & Jack Circular Pipe		Circular Pipe		Sloped End	Arch Sloped End	Circular Pipe	Arch Pipe		
		Remove Pipe End Section	Remove Pipe End Section for Reset	Reset Pipe End Section	Remove Pipe for Reset	Reset Pipe	12"	18"	24"	30"	18"	24"	30"	24"	30"	24"	24"	24"	24"	Controlled Density Fill	Pipe Culvert Undercut
Station (MRM)	Offset (L/R)	Each	Each	Each	Ft	Ft	Each	Each	Each	Each	Ft	Ft	Ft	Ft	Ft	Each	Each	Ft	Ft	CuYd	CuYd
29+24 (19+0.992)																	2		48		12
51+57 (20+0.375)		2					2														
57+90(20+0.530)	R							2			36										
64+30 (20+0.652)			1	1																	
100+24 (21+0.301)																	2		48		12
161+00 (22+0.502)			1	1																	
198+00 (23+0.226)			2	2																	
216+65 (23+0.624)			1	1																	
232+72(23+0.931)			1	1																	
289+64 (24+1.014)																2		54			13
328+85 (25+0.694)			1	1																	
333+18 (25+0.781)										2			178		28						
333+25 (25+0.781)																				33.5	
335+81 (25+0.824)																				4.9	
341+60 (25+0.917)																					
345+62 (26+0.013)			2	2																	
351+85 (26+0.123)										2			116								
351+92 (26+0.123)																				20.7	
355+59 (26+0.190)																				13.3	
355+69 (26+0.190)									2			120		20							
360+35 (26+0.287)		2			20	20										2					
384+70 (26+0.740)			2	2																	
416+53 (27.29+0.068)																					
434+40 (27.29+0.406)			2	2																	
455+77 (28+0.044)																	1		4		
Totals:		4	13	13	20	20	2	2	2	4	36	120	294	20	28	4	5	54	100	72.4	38

Revised: 08-13-25

INTERSECTING ROADS AND ENTRANCES

In areas where granular material has been placed adjacent to the existing asphalt concrete, the Contractor will be required to remove the granular material to a depth below the existing asphalt concrete to allow for the placement of the new asphalt concrete. New asphalt concrete will be placed flush with the existing asphalt concrete. The existing granular material removed will be placed on the entrances, intersecting roads or other locations as directed by the Engineer.

All costs to remove and place the granular material including labor, equipment and incidentals will be incidental to the various related contract items.

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Asphalt Concrete Surfacing, Base Course, and Gravel Surfacing spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor will compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts. The station to station spread will be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor will verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each day's ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item will be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor will correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor will be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/2 inch of the plan shown depth, the Contractor will correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer. All costs for providing the Contractor furnished checker and performing all related duties will be incidental to the contract lump sum price for the "Checker". No allowances will be made to the contract lump sum price for Checker due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25 percent. Payment for the Checker will then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

SURFACING THICKNESS DIMENSIONS

The plans shown spread rates will be applied even though the thickness may vary from that shown in the plans.

At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation.

STORAGE UNIT

The Contractor will provide a storage unit such as a portable storage container or a semi-trailer meeting the minimum size requirements from the table below:

Project Total Asphalt Concrete Tonnage	Minimum Internal Size (Cu Ft)	Minimum External Size (L x W x H)
Less than 50,000 ton	1,166	20' x 8' x 8.6' std
More than 50,000 ton	2,360	40' x 8' x 8.6' std
All Gyratory Controlled QC/QA Projects	2,360	40' x 8' x 8.6' std

The storage unit is intended for use only by the Engineer for the duration of the project. The QC lab personnel or the Contractor will not be allowed to use the storage container while it is on the project, without permission of the Engineer.

The storage unit will be on site and operational prior to asphalt concrete production. Upon completion of asphalt concrete production, the Engineer will notify the Contractor when the storage unit can be removed from the project. The storage unit use will not exceed 30 calendar days from the completion of asphalt concrete production. The storage unit will remain the property of the Contractor.

The storage unit will be weather proof and will be set in a level position. The storage unit will be able to be locked with a padlock.

The storage unit will be placed adjacent to the QA lab, as approved by the Engineer.

The following will apply when the storage unit provided on the project is a portable storage container:

1. The portable storage container will be constructed of steel.
2. The portable storage container will be set such that it is raised above the surrounding ground level to keep water from ponding under or around the storage container.

The following will apply when the storage unit provided on the project is a semi-trailer:

1. A set of steps and hand railings will be provided at the exterior door.
2. If the floor of the semi-trailer is 18 inches or more above the ground, a landing will be constructed at the exterior door. The minimum dimensions for the landing will be 4 feet by 5 feet. The top of the landing will be level with the threshold or opening of the doorway.
3. The semi-trailer may be connected to the QA lab by a stable elevated walkway. The walkway will be a minimum of 48 inches wide and contain handrails installed at 32 inches above the deck of the walkway. The walkway will be constructed such that it is stable and the deck does not deform during use and allows for proper door operation. Walkway construction will be approved by the Engineer.

All cost for furnishing, maintaining, and removing the storage unit including labor, equipment, and materials including any necessary walkways, landings, stairways, and handrails will be included in the contract unit price per each for "Storage Unit".

COLD MILLING ASPHALT CONCRETE

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

Cold milling asphalt concrete will be done according to the typical section(s). In areas where maintenance patches have raised and/or widened the road, additional asphalt concrete will be milled to provide a uniform typical section from centerline to the edge of the finished shoulder. These areas also include farm, residential, field entrances and intersecting roads. Milling will be daylighted to the outside edge of the roadway. Any additional costs associated with this additional cold milling will be incidental to the contract unit price per square yard for "Cold Milling Asphalt Concrete".

Cold milling asphalt is estimated to produce 11,654 tons of cold milled asphalt concrete material.

An estimated 1,828 tons of cold milled asphalt concrete material will be used on this project as Base Course, Salvaged Asphalt Mix outside the asphalt sluff to prevent a drop off at the shoulder.

1500 tons of cold milled asphalt concrete material will be blended with Granular Material, Furnish and stockpiled according to the Blend, Haul, and Stockpile Granular Material plan note.

The remaining estimated 8,326 tons of salvaged asphalt concrete material will be blended with Granular Material, Furnish and stockpiled according to the Blend and Stockpile Granular Material plan note.

Revised: 08-14-25

CLASS Q2 HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:

Mineral aggregate for Class Q2 Hot Mixed Asphalt Concrete - Alternate A will conform to the requirements of Class Q2.

Mineral aggregate for Class Q2 Hot Mixed Asphalt Concrete - Alternate B will consist of a minimum of 80 percent crushed limestone ledgerock and will conform to the requirements of Class Q2.

Mix Design Criteria:

Gyratory Controlled QC/QA Mix Design requirements for the Class Q2 Hot Mixed Asphalt Concrete – Alternate B will conform to the requirements of Class Q2 except as modified by the following:

Voids in Mineral Aggregate (VMA):

	Minimum VMA (%):
Class Q2	13.0

Pay Factor Attributes – Alternate B:

Air Voids:

	Air Voids (%):
Class Q2	3.5 ±1.0

All remaining requirements for Class Q2 will apply.

ASPHALT CONCRETE BLADE LAID

Included in the Estimate of Surfacing Quantities are 150 tons of Asphalt Concrete Blade Laid, 1.5 tons of Hydrated Lime, and 11.1 tons of PG 64-34 Asphalt Binder per mile and will be tight bladed on the existing surface 22 feet wide for Sections 1, 2, and 5, and 24 ft wide for Sections 3 and 4 prior to the overlay.

Mineral Aggregate for tight bladed material will use only the fine aggregate components combined in the same proportions as the Class Q2 Hot Mixed Asphalt Concrete mix. Quality testing is not required on the coarse aggregate (+No. 4 sieve) in this mixture.

The Asphalt Concrete Blade Laid Lift will be designed using an N_{design} Gyratory Compactive Effort of 65. The asphalt binder content will be determined so that the air voids of Asphalt Concrete Blade Laid Lift are between 3.0% and 5.0%.

Included in the Estimate of Surfacing Quantities are 48.0 tons of SS-1h or CSS-1h Asphalt for Tack for use prior to the application of the Blade Laid lift. (Rate = 0.09 Gal./SqYd)

UNCLASSIFIED EXCAVATION, DIGOUTS

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts will be Asphalt Concrete Composite and Base Course. The depth of asphalt will match the in-place thickness.

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts and 75 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt and unstable material throughout the project.

Included in the Estimate of Quantities are 100 tons of Base Course and 25 tons of Asphalt Concrete Composite per mile for backfill of Unclassified Excavation, Digouts.

The digouts will be extended through the shoulder and backfilled with granular material that will daylight to the inslope to allow water to escape the subsurface.

A copy of the surfacing/subgrade investigation for these projects is available from the Rapid City Region and Custer Area Offices.

BASE COURSE, SALVAGED ASPHALT MIX

Base Course, Salvaged Asphalt Mix estimated at a rate of 100 tons per mile per shoulder will be obtained from the cold milled material produced on this project and placed at locations identified by the Engineer to prevent a shoulder drop off following the placement of the asphalt concrete pavement.

The Base Course, Salvaged Asphalt Mix will be crushed to meet the requirements of Section 884.2 D.3 prior to placement.

Base Course, Salvaged Asphalt Mix placed on the roadway shoulders will be compacted to the satisfaction of the Engineer.

GRANULAR MATERIAL, FURNISH

Granular Material will be furnished by the Contractor for use in blending with the salvaged asphalt mix material from this project.

The Granular Material will be Base Course meeting the requirements of Section 882.

BLEND, HAUL, AND STOCKPILE GRANULAR MATERIAL

1500 tons of salvaged asphalt concrete produced by cold milling will be blended with 1500 tons of Granular Material, Furnish and will be hauled, blended and stockpiled in the Southwest ¼ of Section 31, Township 8 South, Range 3 East of the 5th P.M., Fall River County, South Dakota at the Edgemont SDDOT stockpile site. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

A computerized scale, portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale along with a scale operator will be provided by the Contractor at the stockpile site to weigh the salvaged material prior to blending.

The salvaged asphalt concrete material will be crushed to meet the requirements of Section 884.2 D.2 prior to blending into the stockpile.

Salvaged asphalt concrete material will be blended with Granular Material, Furnish at a rate of 50% salvaged asphalt mix material and 50% Granular Material, Furnish to obtain stockpile material. Material will be uniformly blended to the satisfaction of the Engineer.

No further gradation testing of the blended material will be required.

All other costs for crushing, hauling, stockpiling, and blending salvaged asphalt concrete material and Granular Material, Furnish will be incidental to the contract unit price per ton for “Blend, Haul and Stockpile Granular Material”

BLEND AND STOCKPILE GRANULAR MATERIAL

An estimated 8,326 tons of salvaged asphalt produced from cold milling will be blended with 8,326 tons of Granular Material, Furnish at a rate of 50% salvaged asphalt concrete material and 50% Granular Material, Furnish and stockpiled at a Contractor furnished stockpile site. Material will be uniformly blended to the satisfaction of the Engineer.

The blended stockpiled material will be used as Base Course, Salvaged and blended into SD471 (MRM 7.04+0.160 to 19.56+0.070) according to the Surface Preparation plan note.

A computerized scale, portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale along with a scale operator will be provided by the Contractor at the stockpile site to weigh the salvaged material and to control the blending prior to stockpiling.

The salvaged asphalt mix material will be crushed to meet the requirements of Section 884.2 D.2 prior to blending into the stockpile.

All costs for crushing the salvaged asphalt concrete material, stockpiling, and blending the materials will be incidental to the contract unit price per ton for “BLEND AND STOCKPILE GRANULAR MATERIAL”.

BASE COURSE, SALVAGED

Base Course, Salvaged will be obtained from the stockpile site(s) provided by the Contractor and may be used without further gradation testing. The Contractor will ensure the Base Course, Salvaged material contains no more than 50% salvaged asphalt mix material and at least 50% granular material. Blended material will be to the satisfaction of the Engineer. All other requirements for Base Course, Salvaged will apply.

The Contractor’s operation each day will be such that all material hauled onto the roadway will be bladed and in-place prior to darkness and a granular material transition will be constructed between the existing and new surface at that time to the satisfaction of the Engineer.

Hauling and delivery of the Base Course, Salvaged material from the Contractor furnished stockpile to SD471 will be incidental to the contract unit price per ton of Base Course, Salvaged.

Blending the Base Course, Salvaged material with the in-place gravel surfacing, shaping, and compaction to obtain a finished surface to match the typical section will be incidental to the contract unit price per mile for Surface Preparation.

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SURFACE PREPARATION

The upper 2 inches of granular material on SD471 (MRM 7.04+0.160 to 19.56+0.070) will be scarified, placed in a windrow and blended with Base Course, Salvaged. The material will then be shaped and recompacted to the typical section in accordance with Section 260.3 D.

Base Course, Salvaged will be placed at a rate of 1366 Tons/mile at an approximate thickness of 2 inch.

Also included is 18 MGal per mile of Water for Granular Material for Compaction.

ASPHALT CONCRETE COMPOSITE

Section 324 will apply except that Class Q2 Hot Mixed Asphalt Concrete as specified elsewhere in the plans may be used as Asphalt Concrete Composite.

Plans specified locations for Asphalt Concrete Composite will be paid for at the contract unit price per ton for "Asphalt Concrete Composite" regardless of the class of asphalt concrete used at such locations.

RATES OF MATERIAL

SECTION 1
SD 471: Sta. 415+76 to Sta. 456+01

CLASS Q2 HOT MIXED ASPHALT CONCRETE - 2" Mainline Lift

	Alt A	Alt B	
Aggregate	28.10	29.10	Tons/Sta.
PG 64-34 Asphalt Binder (Alt A: 5.8% & Alt B: 5.0% of Total Mix)	1.73	1.53	Tons/Sta.
Total Mix (Alt A-148 lb/ft^3 & Alt B-152 lb/ft^3)	29.83	30.63	Tons/Sta.
Hydrated Lime (1.0%)	0.30	0.31	Tons/Sta.
Total Mix with Hydrated Lime	30.13	30.94	Tons/Sta.

Laid 2" compacted depth; 25' bottom, 23' top

SECTION 2
SD 471: Sta. 10+00 to Sta. 108+00
SD 471: Sta. 134+00 to Sta. 405+37

CLASS Q2 HOT MIXED ASPHALT CONCRETE - 2" Mainline Lift

	Alt A	Alt B	
Aggregate	1389	1439	Tons/Mile
PG 64-34 Asphalt Binder (Alt A: 5.8% & Alt B: 5.0% of Total Mix)	86	76	Tons/Mile
Total Mix (Alt A-148 lb/ft^3 & Alt B-152 lb/ft^3)	1475	1515	Tons/Mile
Hydrated Lime (1.0%)	15	15	Tons/Mile
Total Mix with Hydrated Lime	1490	1530	Tons/Mile

Laid 2" compacted depth; 24' bottom, 22' top

SECTION 3
SD 471: Sta. 405+37 to Sta. 415+76
SD 18P: Sta. 20+61 to 30+60

CLASS Q2 HOT MIXED ASPHALT CONCRETE - 2" Mainline Lift

	Alt A	Alt B	
Aggregate	36.61	37.91	Tons/Sta.
PG 64-34 Asphalt Binder (Alt A: 5.8% & Alt B: 5.0% of Total Mix)	2.25	2.00	Tons/Sta.
Total Mix (Alt A-148 lb/ft^3 & Alt B-152 lb/ft^3)	38.86	39.91	Tons/Sta.
Hydrated Lime (1.0%)	0.39	0.40	Tons/Sta.
Total Mix with Hydrated Lime	39.25	40.31	Tons/Sta.

Laid 2" compacted depth; 33' bottom, 30' top

SECTION 4
SD 471: Sta. 108+00 to Sta. 134+00

CLASS Q2 HOT MIXED ASPHALT CONCRETE - 2" Mainline Lift

	Alt A	Alt B	
Aggregate	40.98	42.45	Tons/Sta.
PG 64-34 Asphalt Binder (Alt A: 5.8% & Alt B: 5.0% of Total Mix)	2.52	2.23	Tons/Sta.
Total Mix (Alt A-148 lb/ft^3 & Alt B-152 lb/ft^3)	43.50	44.68	Tons/Sta.
Hydrated Lime (1.0%)	0.44	0.45	Tons/Sta.
Total Mix with Hydrated Lime	43.94	45.13	Tons/Sta.

Laid 2" compacted depth; 36.5' bottom, 34' top

SECTION 5
SD 18P: Sta. 10+00 to Sta. 30+61
SD18P: Sta. 40+60 to Sta.50+48

CLASS Q2 HOT MIXED ASPHALT CONCRETE - 2" Mainline Lift

	Alt A	Alt B	
Aggregate	26.65	27.60	Tons/Sta.
PG 64-34 Asphalt Binder (Alt A: 5.8% & Alt B: 5.0% of Total Mix)	1.64	1.45	Tons/Sta.
Total Mix (Alt A-148 lb/ft^3 & Alt B-152 lb/ft^3)	28.29	29.05	Tons/Sta.
Hydrated Lime (1.0%)	0.28	0.29	Tons/Sta.
Total Mix with Hydrated Lime	28.57	29.34	Tons/Sta.

Laid 2" compacted depth; 24' bottom, 22' top

TACK
Alternative A
Type: SS-1h or CSS-1h
Rate: 0.09 gal./sq.yd.
Application Width: Section 1, 2, 5: 23 feet prior to Blade Laid
Section 3, 4: 25 feet prior to Blade Laid

Alternative B
Type: SS-1h or CSS-1h
Rate: 0.06 gal./sq.yd.
Application Width: Section 1: 26 feet prior to mainline lift
Section 2, 5: 25 feet prior to mainline lift
Section 3: 34 feet prior to mainline lift
Section 4: 38 feet prior to mainline lift

Flush Seal
Asphalt for Flush Seal
Type: SS-1h or CSS-1h
Rate: 0.05 gal./sq.yd
Application Width: Section 1: 25 feet
Section 2, 5: 24 feet
Section 3: 33 feet
Section 4: 37 feet

Sand for Flush Seal at the rate of 8 lbs/sq.yd. applied 22 feet wide on Sections 1, 2, 3, 4, and 5.

ADDITIONAL QUANTITIES

Included in the Table of Quantities are:

200 tons of Class Q2 Hot Mixed Asphalt Concrete, 2.0 tons of Hydrated Lime, and 10.0 tons of PG 64-34 Asphalt Binder per mile for Alt A, and 200 tons of Class Q2 Hot Mixed Asphalt Concrete, 2.0 tons of Hydrated Lime, and 11.6 tons of PG 64-34 Asphalt Binder per mile for Alt. B for spot leveling, strengthening, and repair of the existing surface for the entire project.

18.4 tons of SS-1h or CSS-1h Emulsified Asphalt for Tack for repair and leveling areas throughout the project.

An additional 465 tons of Base Course and 616.3 tons of Class Q2 Hot Mixed Asphalt Concrete for entrances and intersecting roads.

An additional 133 tons of Base Course and 59.4 tons of Asphalt Concrete Composite at pipe replacement locations. Pipe replacement locations will be 12" of Base Course and 3" of Asphalt Concrete Composite placed level with the milled surface.

An additional 18 cubic yards of unclassified excavation at pipe replacement locations for material displaced from additional Base Course and Asphalt Concrete Composite.

An additional 220 square yards of Remove Asphalt Concrete Pavement at pipe replacement locations.

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GRIND RUMBLE STRIPES IN ASPHALT CONCRETE

Asphalt concrete rumble stripes will be constructed on the shoulders of SD471. Rumble stripes will be paid for at the contract unit price per mile for Grind 8" Rumble Strip or Stripe in Asphalt Concrete. It is estimated that 16.8 miles of asphalt concrete rumble stripes will be required.

Rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. In the event the flush seal is eliminated from the contract, the Contractor will still be required to apply a flush seal to the newly installed 8" rumble stripes at a width of 18" and at the same rate as specified in this plan set. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

COMPACTION

Summary of Asphalt Concrete Compaction

SD 471 (PCN 02R1)				Alt A		Alt B	
Section	Station to	Station	Length (ft)	Class Q2 Hot Mixed Asphalt Concrete with Specified Compaction Ton	Class Q2 Hot Mixed Asphalt Concrete without Specified Compaction Ton	Class Q2 Hot Mixed Asphalt Concrete with Specified Compaction Ton	Class Q2 Hot Mixed Asphalt Concrete without Specified Compaction Ton
2	10+00	108+00	9800	2737.7	0.0	2811.9	0.0
4	108+00	134+00	2600	731.8	399.2	751.7	410.0
2	134+00	405+37	27137	7580.9	0.0	7786.5	0.0
3	405+37	411+43	606	172.7	62.8	177.4	64.5
Exception	411+43	413+16					
3	413+16	415+76	260	74.1	26.9	76.1	27.7
1	415+76	418+70	294	87.7	0.0	90.1	0.0
Exception	418+70	419+30					
1	419+30	456+01	3671	1095.1	0.0	1124.4	0.0
Additional Quantities:					2068.9		2079.1
			Totals	12479.9	2557.8	12818.0	2581.3

Summary of Asphalt Concrete Compaction

SD 18P1 (PCN 07A1)				Alt A		Alt B	
Section	Station to	Station	Length (ft)	Class Q2 Hot Mixed Asphalt Concrete with Specified Compaction Ton	Class Q2 Hot Mixed Asphalt Concrete without Specified Compaction Ton	Class Q2 Hot Mixed Asphalt Concrete with Specified Compaction Ton	Class Q2 Hot Mixed Asphalt Concrete without Specified Compaction Ton
5	10+00	12+77	277	78.4	0.0	80.5	0.0
Exception	12+77	12+97	20				
5	10+00	30+61	2061	583.1	0.0	598.7	0.0
3	30+61	33+34	273	77.8	28.3	79.9	29.1
Exception	33+34	37+13	379				
3	37+13	40+60	347	98.9	36.0	101.6	36.9
Exception	40+60	41+06	46				
5	41+06	50+48	942	266.5	0.0	273.7	0.0
Additional Quantities:					401.4		407.8
			Totals	1104.6	465.6	1134.3	473.8

TABLE OF SURFACING QUANTITIES, PCN 02R1

Table of Material Quantites

SD 471 (PCN 02R1)														Alt A			Alt B				
Section	Station to	Station	Length (ft)	Cold Milling SqYd	Unclassified Excavation CuYd	Base Course, Salvaged Asphalt Mix Ton	Unclassified Excavation, Digouts CuYd	Remove Asphalt Concrete Pavement SqYd	Base Course Ton	Asphalt Concrete Composite Ton	PG 64-34 Asphalt Binder Ton	Asphalt Concrete Blade Laid Ton	Hydrated Lime Ton	SS-1h or CSS-1h Asphalt for Tack Ton	PG 64-34 Asphalt Binder Ton	Class Q2 Hot Mixed Asphalt Concrete Ton	Hydrated Lime Ton	PG 64-34 Asphalt Binder Ton	Class Q2 Hot Mixed Asphalt Concrete Ton	Hydrated Lime Ton	SS-1h or CSS-1h Asphalt for Flush Seal Ton	Sand for Flush Seal Ton
2	10+00	108+00	9800	24500	0	371.2	93	139.2	185.6	46.4	20.6	278.4	2.8	16.5	159.6	2737.7	27.8	141.1	2811.9	27.8	5.6	95.8
4	108+00	134+00	2600	10544	0	98.5	25	36.9	49.2	12.3	5.5	73.9	0.7	5.6	65.5	1131.0	11.4	58.0	1161.7	11.7	2.3	25.4
2	134+00	405+37	27137	67843	0	1027.9	257	385.5	514.0	128.5	57.0	770.9	7.7	45.7	442.0	7580.9	77.1	390.6	7786.5	77.1	15.4	265.3
3	405+37	411+43	606	2222	0	23.0	6	8.6	11.5	2.9	1.3	17.2	0.2	1.2	13.6	235.5	2.4	12.1	241.9	2.4	0.5	5.9
Exception	411+43	413+16	173																			
3	413+16	415+76	260	953	0	9.8	2	3.7	4.9	1.2	0.5	7.4	0.1	0.5	5.9	101.0	1.0	5.2	103.8	1.0	0.2	2.5
1	415+76	418+70	294	825	0	11.1	3	4.2	5.6	1.4	0.6	8.4	0.1	0.5	5.1	87.7	0.9	4.5	90.1	0.9	0.2	2.9
Exception	418+70	419+30	60																			
1	419+30	456+01	3671	10299	0	139.1	35	52.1	69.5	17.4	7.7	104.3	1.0	6.3	63.5	1095.1	11.0	56.2	1124.4	11.4	2.2	35.9
Additional Quantities:				278	18			220.0	519.4	35.6				16.9	106.5	2068.9	20.7	117.5	2079.1	20.8		
			Totals:	**117464**	**18**	**1680.6**	**420**	**850.2**	**1359.7**	**245.7**	**93.3**	**1260.5**	**12.6**	**93.3**	**861.7**	**15037.7**	**152.3**	**785.1**	**15399.3**	**153.2**	**26.2**	**433.8**

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TABLE OF ADDITIONAL QUANTITIES, PCN 02R1

Table of Additional Quantities												
							Alt A			Alt B		
SD 471 (PCN 02R1)	Cold Milling SqYd	Unclassified Excavation CuYd	Remove Asphalt Concrete Pavement SqYd	Base Course Ton	Asphalt Concrete Composite Ton	SS-1h or CSS-1h Asphalt for Tack Ton	PG 64-34 Asphalt Binder Ton	Class Q2 Hot Mixed Asphalt Concrete Ton	Hydrated Lime Ton	PG 64-34 Asphalt Binder Ton	Class Q2 Hot Mixed Asphalt Concrete Ton	Hydrated Lime Ton
Spot Leveling, Strengthing, and Repair of Existing Surface						16.9	84.5	1689.4	16.9	98.0	1689.4	16.9
Gravel Entrance (31)				86.8			5.3	91.8	0.9	4.7	94.2	0.9
Intersecting Gravel Road (12)				228.4			14.0	241.4	2.4	12.4	248.0	2.5
Intersecting Asphalt Road (1)	278						2.7	46.3	0.5	2.4	47.5	0.5
Pipe Replacements		18	220.0	204.3	35.6							
Total:	278	18	220.0	519.4	35.6	16.9	106.5	2068.9	20.7	117.5	2079.1	20.8

TABLE OF SURFACING QUANTITIES, PCN 07A1

Table of Material Quantites																					
														Alt A			Alt B				
SD 18P (PCN 07A1)			Length	Cold Milling	Base Course, Salvaged Asphalt Mix	Unclassified Excavation, Digouts	Remove Asphalt Concrete Pavement	Base Course	Asphalt Concrete Composite	PG 64-34 Asphalt Binder	Asphalt Concrete Blade Laid	Hydrated Lime	SS-1h or CSS-1h Asphalt for Tack	PG 64-34 Asphalt Binder	Class Q2 Hot Mixed Asphalt Concrete	Hydrated Lime	PG 64-34 Asphalt Binder	Class Q2 Hot Mixed Asphalt Concrete	Hydrated Lime	SS-1h or CSS-1h Asphalt for Flush Seal	Sand for Flush Seal
Section	Station to	Station	(ft)	SqYd	Ton	CuYd	SqYd	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton
5	10+00	12+77	277	723	10.5	3	3.9	5.2	1.3	0.6	7.9	0.1	0.5	4.5	78.4	0.8	4.0	80.5	0.8	0.2	2.7
Exception	12+77	12+97	20																		
5	10+00	30+61	2061	5382	78.1	20	29.3	39.0	9.8	4.3	58.6	0.6	3.5	33.8	583.1	5.8	29.9	598.7	6.0	1.2	20.2
3	30+61	33+34	273	1001	10.3	3	3.9	5.2	1.3	0.6	7.8	0.1	0.6	6.1	106.1	1.1	5.5	109.0	1.1	0.2	2.7
Exception	33+34	37+13	379																		
3	37+13	40+60	347	1272	13.1	3	4.9	6.6	1.6	0.7	9.9	0.1	0.7	7.8	134.8	1.4	6.9	138.5	1.4	0.3	3.4
Exception	40+60	41+06	46																		
5	41+06	50+48	942	2460	35.7	9	13.4	17.8	4.5	2.0	26.8	0.3	1.6	15.4	266.5	2.6	13.7	273.7	2.7	0.5	9.2
		Additional Quantities:		1183				149.6					1.5	22.0	401.4	4.0	21.7	407.8	4.1		
		Totals:	**12021**	**147.7**	**37**	**55.4**	**223.5**	**18.5**	**8.2**	**110.8**	**1.1**	**8.3**	**89.7**	**1570.2**	**15.6**	**81.7**	**1608.1**	**16.1**	**2.3**	**38.1**

TABLE OF ADDITIONAL QUANTITIES, PCN 07A1

Table of Additional Quantities									
				Alt A			Alt B		
SD 18P (PCN 07A1)	Cold Milling SqYd	Base Course Ton	SS-1h or CSS-1h Asphalt for Tack Ton	PG 64-34 Asphalt Binder Ton	Class Q2 Hot Mixed Asphalt Concrete Ton	Hydrated Lime Ton	PG 64-34 Asphalt Binder Ton	Class Q2 Hot Mixed Asphalt Concrete Ton	Hydrated Lime Ton
Spot Leveling, Strengthing, and Repair of Existing Surface			1.5	8.2	164.6	1.6	9.5	164.6	1.6
Gravel Entrances		14.0		0.6	9.9	0.1	0.5	10.1	0.1
Asphalt Concrete Entrance (1)	111			0.7	12.3	0.1	0.6	12.7	0.1
Intersecting Gravel Road		135.6		5.5	95.6	1.0	4.9	98.2	1.0
Intersecting Asphalt Concrete Road	1072			6.9	119.0	1.2	6.1	122.2	1.2
Totals:	1183	149.6	1.5	22.0	401.4	4.0	21.7	407.8	4.1

Revised: 10-10-25

GENERAL PERMANENT SIGNING

New sign installations will be staked in the field by the Contractor and checked by the Engineer. The Contractor will give the Engineer a minimum of one week to check staked locations prior to signpost installation. Lateral offset of signs will be as shown in the plans or as directed by the Engineer.

The Contractor will be responsible for contacting South Dakota One Call to locate the utilities at the staked sign installation locations.

When signs are mounted in an assembly, they will be 1-2 inches apart vertically and horizontally.

The height of the post must not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign will be cut off. No separate payment will be made for cutting the post or for that length cut off.

Aluminum U-Channel stiffeners will be used on all signs 36 inches or greater in width and will conform to ASTM B221 Alloy 6063-T6 or 6061-T6. The U-Channel will be 2 inches in width and free of holes. The U-Channel stiffeners will also be used to connect various signs together so that an entire sign assembly can be erected on a single installation. Stiffeners may be fastened to signs by use of 1/4-inch diameter drive rivets.

The Contractor will use 3/8-inch diameter rust proof machine sign bolts, flat metal washers, neoprene washers (against the sign sheeting), lock washers, and nuts to fasten the sign to the channel aluminum and posts. A minimum of two bolts will extend through each post.

Prior to ordering signs, the Contractor will verify dimensions, background, border, and legend of the signs.

Prior to use, the Contractor will provide documentation for the sign support devices showing they meet the applicable NCHRP 350 or MASH requirements.

REMOVE TRAFFIC SIGN

Existing signs that are shown as being removed in the Permanent Signing Table 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 Traffic Sign”. Quantities will be per assembly at the contract unit price per each.

REMOVE SIGN FOR RESET AND RESET SIGN

Signs that are scheduled for reset will be dismantled and reassembled to the extent needed by the Contractor to properly reset the sign. Signs will be handled with care so that the existing signs, posts, and bases are not damaged during the relocation process. The Contractor will replace and pay for any reset signs damaged in their care. The Contractor will remove and dispose of any existing posts for all reset signs that require use of new posts as shown in the Table of Permanent Signing.

All costs for removing, dismantling, and disposing of any existing posts will be incidental to the contract unit price per each for “Remove Sign for Reset”. All costs for resetting the existing signs will be incidental to the contract unit price per each for “Reset Sign”. All quantities for Remove Sign for Reset and Reset Sign will be per assembly at the contract unit price per each.

TABLE FOR PERMANENT SIGNING

MRM	Stationing	L/R	Remove Sign for Reset (Each)	Reset Sign (Each)	Remove Traffic Sign (Each)	Description	Remarks
26+0.180	355+20	L	1	1		W14-3: No Passing Zone	Remove Existing Sign & Reset
26+0.180	355+20	L			1	W1-4: Reverse Curve	Remove Existing Sign
26+0.180	355+20	R			1	W1-2: Curve	Remove Existing Sign
		Totals	1	1	2		

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements.

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

Station	L/R	Topsoil (CuYd)
29+24	L & R	172
100+24	L & R	28
289+64	L & R	30
333+18	R	97
351+85	L	112
355+69	L & R	107
		546

REMOVE AND REPLACE TOPSOIL

Prior to beginning resurfacing operations, a 4” depth of topsoil will be bladed down the respective inslope and left in a windrow 16’+/- from the subgrade shoulder. Following completion of resurfacing operations, topsoil will be bladed back up the inslope to the point indicated on the typical section.

The estimated amount of topsoil to be removed and replaced is 17,520 CuYd.

All costs associated with removing and replacing the topsoil along areas to be resurfaced will be incidental to the contract lump sum price for “Remove and Replace Topsoil”.

Revised: 10-10-25

MYCORRHIZAL INOCULUM

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

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

The Mycorrhizal Inoculum provided will be from the approved product list. The approved product list may be viewed at the following internet site:

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

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% (P_2O_5) available phosphate, a minimum of 4% (K_2O) 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 Fertilizer provided will be from the approved product list. The approved product list may be viewed at the following internet site:

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

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

FIBER MULCHING

Fiber mulch will be applied in a separate operation following permanent seeding.

The Contractor will allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.
All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials will be incidental to the contract unit price price per pound for "Fiber Mulching".

The fiber mulch provided will be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

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

TABLE OF FIBER MULCHING

Station	Location	Quantity (Lb)
26+95 to 31+55 L&R	Inslope	670
99+95 to 100+55 L&R	Inslope	130
333+00 to 333+75 R	Inslope	282
350+85 to 352+85 L	Inslope	362
355+19 to 356+19 L&R	Inslope	358
	Additional Quantity:	500
	Total:	2302

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	Location	Diameter (Inch)	Quantity (Ft)
99+95 to 100+55 L	Perimeter Control	12	65
333+00 to 333+75 R	Perimeter Control	12	120
350+85 to 352+85 L	Perimeter Control	12	120
355+19 to 356+19 L	Perimeter Control	12	100
	Additional Quantity:	12	200
		Total:	605

HIGH FLOW SILT FENCE

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

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

High 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 734.05 for details.

TABLE OF HIGH FLOW SILT FENCE

Station	Location	Quantity (Ft)
29+24 R	Pipe Inlet	30
100+24 R	Pipe Inlet	30
289+64 L	Pipe Inlet	30
355+69 R	Pipe Inlet	30
	Additional Quantity:	30
	Total:	150

EROSION CONTROL BLANKET

Erosion control blanket will be installed 8 feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

The erosion control blanket provided will be from the approved product list. The approved product list for erosion control blanket may be viewed at the following internet site:
http://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF EROSION CONTROL BLANKET

Station	Location	Type	Quantity (SqYd)
99+95 to 100+55 R	Ditch Bottom	3	54
28+80 to 29+80 R	Ditch Bottom	3	88
	Total Type 3 Erosion Control Blanket:		142

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** 7.6 ac
- **5.3 (3b): Total Area to be Disturbed** 1.4 ac
- **5.3 (3c): Maximum Area Disturbed at One Time 0**.4 ac
- **5.3 (3d): Existing Vegetative Cover (%)**
- **5.3 (3d): Description of Vegetative Cover**

- **5.3 (3e): Soil Properties:** A-2-4, A-3, A-4, A-6 or A-7-6
- **5.3 (3f): Name of Receiving Water Body/Bodies** Tributaries of the Cheyenne River
- **5.3 (3g): Location of Construction Support Activity Areas**

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install stabilized construction entrance(s).	
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.	
Install inlet and culvert protection after completing storm drainage and other utility installations.	
Final grading.	
Final paving.	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

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

Perimeter Controls (See Detail Plan Sheets)

Description	Estimated Start Date
☐ Natural Buffers (within 50 ft of Waters of State)	
☐ Silt Fence	
☒ Erosion Control Wattles	
☐ Temporary Berm / Windrow	
☐ Floating Silt Curtain	
☐ Stabilized Construction Entrances	
☐ Entrance/Exit Equipment Tire Wash	
☐ Other:	

Structural Erosion and Sediment Controls

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

Dust Controls

Description	Estimated Start Date
☐ Tarps & Wind impervious fabrics	
☐ Watering	
☐ Stockpile location/orientation	
☐ Dust Control Chlorides	
☐ Other	

Dewatering BMPs

Description	Estimated Start Date
☐ Sediment Basins	
☐ Dewatering bags	
☐ Weir tanks	
☐ Temporary Diversion Channel	
☐ 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
☐ Vegetation Buffer Strips	
☐ Temporary Seeding (Cover Crop Seeding)	
☒ Permanent Seeding	
☐ Sodding	
☐ Planting (Woody Vegetation for Soil Stabilization)	
☐ Mulching (Grass Hay or Straw)	
☒ Fiber Mulching (Wood Fiber Mulch)	
☐ Soil Stabilizer	
☐ Bonded Fiber Matrix	
☐ Fiber Reinforced Matrix	
☒ Erosion Control Blankets	
☐ Surface Roughening (e.g. tracking)	
☐ 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 ½ the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and Contractor's 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.

SEQUENCE OF OPERATIONS

Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence will be submitted for review a minimum of one week prior to potential implementation.

PCN 02R1 – SD 471
The following requirements/restrictions will apply for work along SD471 (PCN 02R1):

- The pipe culvert replacements will be completed prior to the Class Q2 asphalt concrete placement.
  - Pipe replacements will be phased half width at a time to maintain an open lane of traffic according to Standard Plate 634.25.
- All other pipe and channel cleanouts, pipe repair, end section work, and gabion work can be completed at any time.

Work will proceed according to the following sequence:

- Set up Traffic Control.
- Complete pipe work.
- Remove and stockpile topsoil from inslopes.
- Perform Cold Milling.
- Complete digouts where necessary.
- Complete spot leveling.
- Complete Asphalt Concrete Surfacing.
- Place borrow material on inslopes.
- Reseed disturbed areas.
- Complete flush seal operation.
- Complete Pavement Marking.
- Remove Traffic Control.

PCN 07A1 – SD 18P

Work will proceed according to the following sequence:

- Set up Traffic Control.
- Perform Cold Milling.
- Complete digouts where necessary.
- Complete spot leveling.
- Complete Asphalt Concrete Surfacing.
- Complete flush seal operation.
- Complete Pavement Marking.
- Remove Traffic Control.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All construction operations will be conducted in the general direction of traffic movement.

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.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment will be repaired at no expense to the Department.

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for "Traffic Control Signs".

GROOVED PAVEMENT (W8-15) signs with MOTORCYCLE (W8-15P) plaques are required in advance of areas that have been cold milled and are not resurfaced the same day. The GROOVED PAVEMENT sign assemblies will be installed a minimum of 1000 feet in advance of cold milled sections and remain in place until the sections have been resurfaced.

The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.

A mobile work operation will be allowed provided the rumble strip or rumble stripe grooving, flush sealing, and pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.

PCN 02R1, SD471, Participating

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	6	30"	5.2	31.2
W1-3	REVERSE TURN (L or R)	3	48" x 48"	16.0	48.0
W3-1	STOP AHEAD (symbol)	6	48" x 48"	16.0	96.0
W3-4	BE PREPARED TO STOP	2	48" x 48"	16.0	32.0
W8-1	BUMP	8	48" x 48"	16.0	128.0
W8-6	TRUCK CROSSING	12	48" x 48"	16.0	192.0
W8-11	UNEVEN LANES	8	48" x 48"	16.0	128.0
W8-15	GROOVED PAVEMENT	8	48" x 48"	16.0	128.0
W8-15P	MOTORCYCLE (plaque)	8	24" x 18"	3.0	24.0
W16-2P	___ FEET (supplemental distance plaque)	2	30" x 24"	5.0	10.0
W20-1	ROAD WORK AHEAD	30	48" x 48"	16.0	480.0
W20-4	ONE LANE ROAD AHEAD	10	48" x 48"	16.0	160.0
W20-7	FLAGGER (symbol)	8	48" x 48"	16.0	128.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	4	48" x 48"	16.0	64.0
SPECIAL	WAIT FOLLOW PILOT CAR	8	30" x 18"	3.8	30.4
G20-1	ROAD WORK NEXT __ MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	32	36" x 18"	4.5	144.0
-	TYPE 1 YELLOW OBJECT MARKER	8	18" x 18"	2.3	18.4
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			1883.0

PCN 07A1, SD18P

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

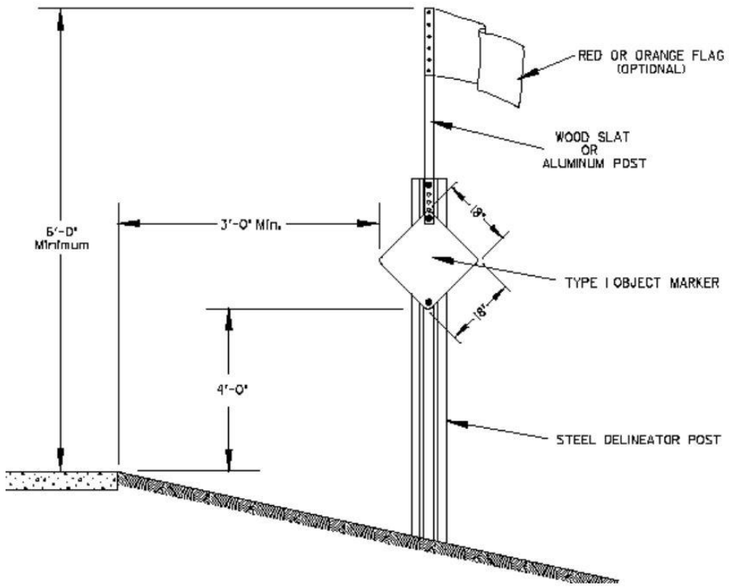
SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	2	48" x 48"	16.0	32.0
W8-1	BUMP	2	48" x 48"	16.0	32.0
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-11	UNEVEN LANES	2	48" x 48"	16.0	32.0
W8-15	GROOVED PAVEMENT	2	48" x 48"	16.0	32.0
W8-15P	MOTORCYCLE (plaque)	2	24" x 18"	3.0	6.0
W16-2P	___ FEET (supplemental distance plaque)	2	30" x 24"	5.0	10.0
W20-1	ROAD WORK AHEAD	14	48" x 48"	16.0	224.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	14	36" x 18"	4.5	63.0
-	TYPE 1 YELLOW OBJECT MARKER	2	18" x 18"	2.3	4.6
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			627.6

BUMP MARKERS

Orange bump markers will be placed adjacent to the bump location. The bump marker details are shown in the following drawing. The steel delineator post will be a 1.12 lb/ft flanged channel steel post for ground mounted installation. If the duration is less than 3 days, the Type 1 Object Marker can be installed on temporary supports.

BUMP (W8-1) signs with appropriate ADVISORY SPEED (W13-1P) plaques will be placed 500 feet in advance of the bump or as approved by the Engineer for adequate sight distance.

All costs for bump markers, bump signs, and advisory speed plaques will be incidental to the contract unit price per square foot for “Traffic Control Signs”.



FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours. Also included in the Estimate of Quantities are WAIT FOLLOW PILOT CAR signs for use on low volume intersecting roads as determined by the Engineer. WAIT FOLLOW PILOT CAR signs will not block the view of the stop sign.

It is required that the flaggers and pilot car operators be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for “Flagging”.

TEMPORARY PAVEMENT MARKING

The total length of no passing zone on this project is estimated to be 6.4 miles.

It is estimated that 22 DO NOT PASS (R4-1) and 20 PASS WITH CARE (R4-2) signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

Temporary flexible vertical markers (tabs) will be used to mark dashed centerline, No Passing Zones, and applicable lane lines. Paint will not be allowed for temporary pavement marking on the asphalt concrete wear course or after application of the flush seal.

Temporary pavement marking paint will not be allowed on the final lift of asphalt surfacing. Temporary pavement marking paint will not be allowed on the chip seal, fog seal, or flush seal. Temporary flexible vertical markers (tabs) must be used on the final lift of asphalt surfacing. The Contractor may use tabs with covers, uncovering them for the chip seal, fog seal, or flush seal. As an alternative, the Contractor may install new tabs for the fog seal or flush seal.

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs after each installation as detailed below at no additional cost to the State.

Quantities of Temporary Pavement Markings consist of:

One pass on top of the milled surface
One pass on top of the asphalt blade laid lift
One pass on top of the final lift of asphalt concrete
One pass of tabs (with covers) prior to the flush seal

If the Engineer determines that an additional pass prior to the flush seal is not required, this application of the temporary pavement marking will be eliminated. If the flush seal is eliminated for the project, the application of the temporary pavement marking on top of the flush seal as well as the additional pass prior to the flush seal will be eliminated.

No adjustment in the contract unit price for “Temporary Pavement Marking” will be made because of a variation in quantities.

In the absence of a signed lane closure or pilot car operation, FLAGGER (W20-7) symbol signs and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of the temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1) sign, a WORKER (W21-1) symbol sign or a BE PREPARED TO STOP (W3-4) sign will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work must be approved by the Engineer.

Prior to nightfall, tabs will be required to mark centerline on segments of roadway where existing centerline markings have been removed and new markings have not been installed.

PRESS RELEASE ANNOUNCEMENTS

The SDDOT will prepare a press release to be released 5 days prior to any phase change or any other major change that affects traffic flow. The SDDOT will be responsible to keep law enforcement, emergency services, and the traveling public notified of changes in project access. The Contractor will provide the Engineer with pertinent information 7 days prior to any phase change or any other major change that affects traffic flow.

PAVEMENT MARKING PAINT

The Contractor will advise the Engineer a minimum of 3 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones.

The application of permanent pavement marking will begin no sooner than 7 calendar days following completion of the fog or flush seal. Application of permanent pavement marking will be completed within 14 calendar days following completion of the final surfacing.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer’s recommendations. High build waterborne pavement marking paint will conform to the supplemental specifications for Section 980.1 B.

Reflective media will consist of glass beads. Reflective media will require a Certificate of Compliance for Certification for each source and lot. Acceptance sampling will not be required.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4” line = 22.5 Gals/Mile
Dashed 4” line = 6.2 Gal/Mile
Glass Beads = 8 Lbs/Gal.

All cost for materials, labor, and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

The Department may take retroreflectivity readings on the pavement marking lines after 2 days and within 30 days of the line application using either a portable or mobile retroreflectometer that conforms to 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

If the Department chooses to take retroreflectivity readings, three readings will be taken on the edge lines and lane lines in the direction of application. For combination solid yellow and skip yellow lines for turn lanes and for centerline markings on two-way roadways, three readings will be taken in one direction, the reflectometer will be turned 180 degrees and three more readings will be taken. The six readings for the centerline markings will be averaged and become the test reading for that test location.

If the Department chooses to take readings, the minimum retroreflectivity values will be 275 mc/m^2/lux for white and 170 mc/m^2/lux for yellow.

GROOVING FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

The Contractor will establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving will be vacuumed. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners. Residue from wet grooving will not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. All costs for removal of grinding and/or grooving residue will be included in the contract unit price per foot for “Grooving for Durable Pavement Marking” contract items.

Unless otherwise specified in the plans, the Contractor will groove the surface for High Build Waterborne Pavement Marking Paint as specified in these plans and as per the manufacturer’s instructions.

The grooving will be completed within the following tolerances:

Description	Specification	Tolerance
Depth of Groove	Marking Thickness[1] + 15 mils	+ 5 mils
Width of Groove	5 to 6 inches	
Length of Skip Lines[2]	10 foot 6 inches	± 3 inch
Tapers at ends of lines	6 to 9 inches	
Between Double Lines	4 inches	± 1/2 inch

[1] Marking thickness will include the thickness of marking material and reflective media.
[2] Additional length may be required as specified in the plans.

The equipment will be capable of the following:

- Grooving the total width of the groove in one pass or uniform depths with multiple passes.
- Grooving without causing damage to the pavement joints or joint sealant material.
- Provide uniform alignment and depth.
- Moving continuously to permit a mobile traffic work operation.

If damage occurs, including, but not limited to, joints, joint sealant material, and backer rod, the grooving operation will be stopped and modifications will be made to the grooving operation to prevent further damage. The Contractor will be required to use specially prepared circular diamond blade cutting heads to prevent damage at the joints. Damage caused will be repaired or replaced by the Contractor, as directed by the Engineer. No additional payment will be made for the repair work or any reapplication of the pavement marking in the area of the repair.

Grooving on bridge decks will start and stop a sufficient distance from the expansion joints so no damage occurs in these areas. Markings on bridge decks will be surface applied.

TABLE OF PERMANENT PAVEMENT MARKING

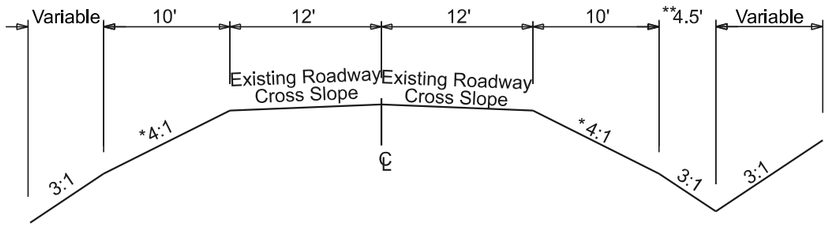
	Total Route Length	Total Route Length	Grooving for Durable Pavement Marking, 4"	Grooving for Durable Pavement Marking, Railroad Crossing	Durable Pavement Marking, Railroad Crossing	High Build Waterborne Pavement Marking Paint, Yellow	High Build Waterborne Pavement Marking Paint, White
PCN	(Miles)	(Ft)	(Ft)	(Each)	(Each)	(Gal)	(Gal)
02R1	8.4	44368	145509	2	2	245	378
07A1	0.7	3900	15600	4	4	33	33
Totals:	9.1	48268	161109	6	6	279	411

TYPICAL GRADING SECTION

SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	26/74

Plotting Date: 11/6/2025

26+95 to 31+55
99+95 to 100+55



Transitions:

26+95 to 29+25
* 10:1 to 12:1
** 0' to 4.5'

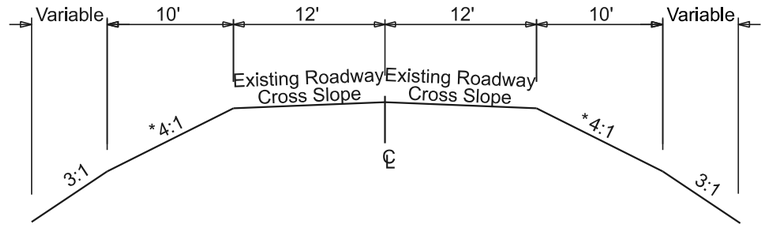
29+25 to 29+55
* 12:1

29+55 to 31+55
* 10:1 to 12:1
** 4.5' to 0'

99+95 to 100+20
** 0' to 4.5'

100+30 to 100+55
** 4.5' to 0'

289+21 to 290+14
355+19 to 356+19

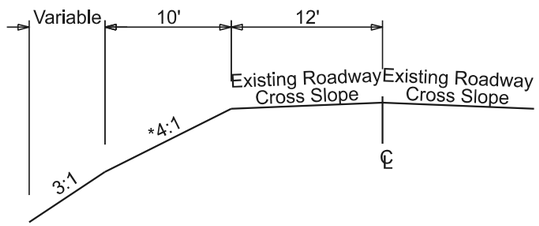


Transitions:
289+64 to 290+14
* 4:1 to 3.5:1

355+19 to 356+69
* 3.5:1 to 4:1

355+69 to 356+19
* 4:1 to 3.5:1

350+85 to 352+85

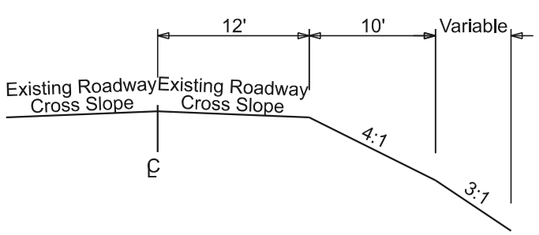


Transitions:

350+85 to 351+85
* 3:1 to 4:1

351+85 to 352+85
* 4:1 to 3:1

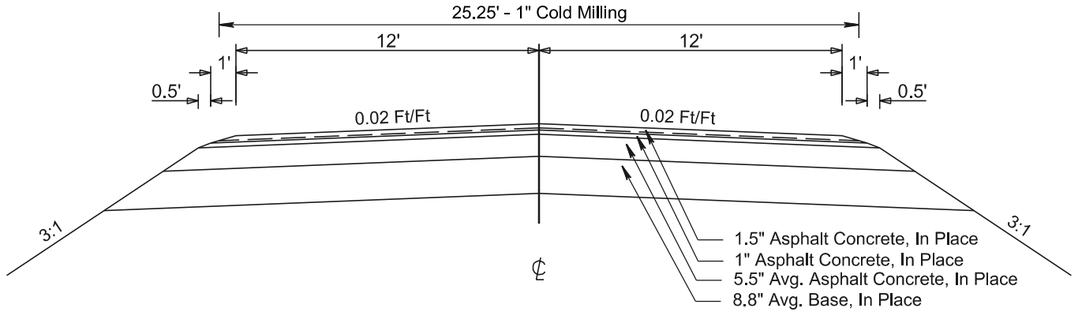
333+00 to 333+75



TYPICAL SURFACING SECTIONS

SD DOT	PROJECT	SECTION	SHEET
Plotting Date: 2/24/2025	P 0471(10)19 & P 018P(05)12	Non	27/74

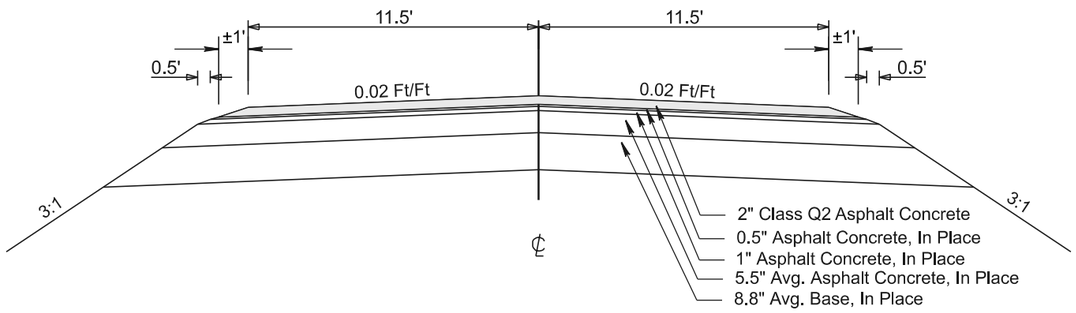
Section 1
SD471
415+76 to 456+01



Surfacing Exceptions:

418+70 to 419+30 (Railroad Crossing)

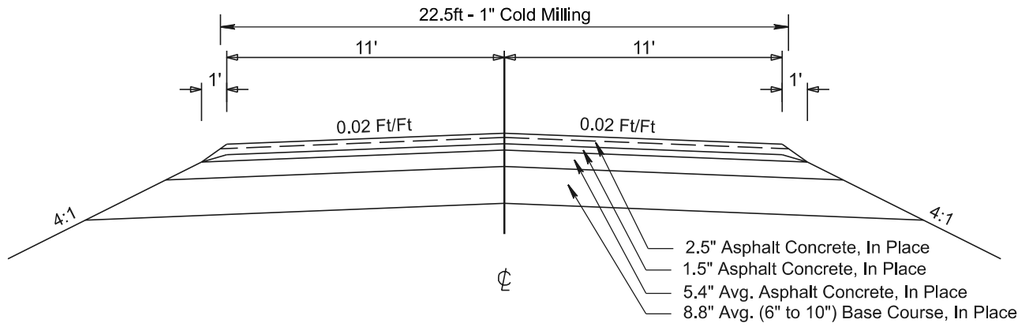
Section 1
SD471
415+76 to 456+01



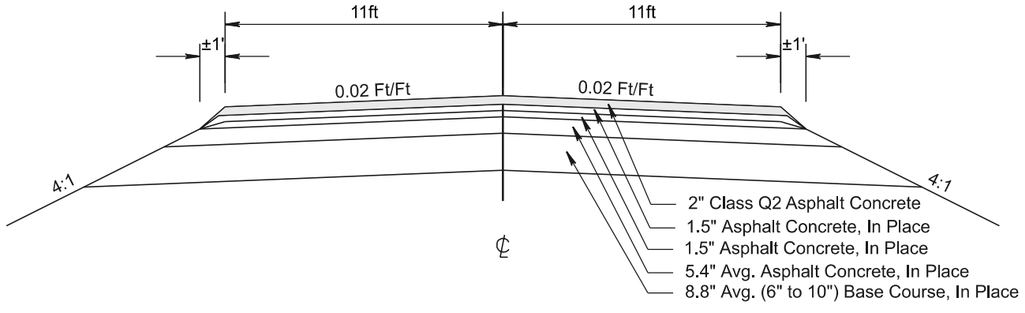
TYPICAL SURFACING SECTIONS

SD DOT	PROJECT	SECTION	SHEET
Plotting Date: 2/24/2025	P 0471(10)19 & P 018P(05)12	Non	28/74

Section 2
SD471
10+00 to 108+00
134+00 to 405+37



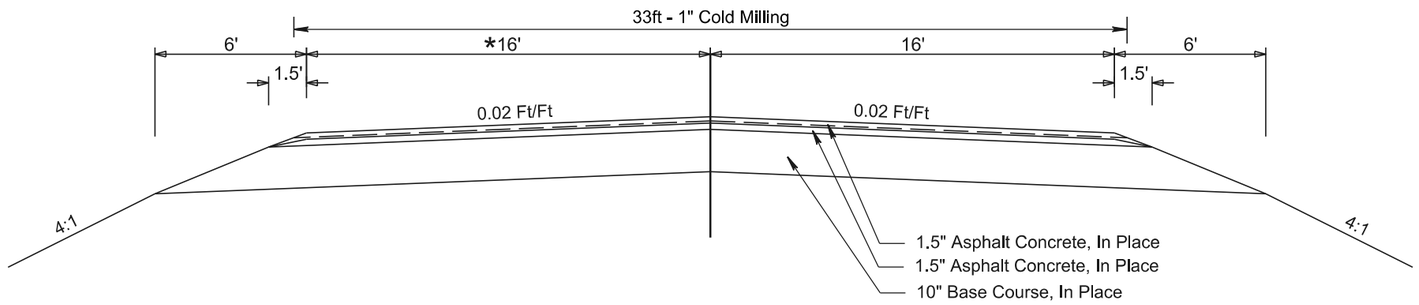
Section 2
SD471
10+00 to 108+00
134+00 to 405+37



TYPICAL SURFACING SECTIONS

SD DOT	PROJECT	SECTION	SHEET
Plotting Date: 2/24/2025	P 0471(10)19 & P 018P(05)12	Non	29/74

Section 3
SD 471: 405+37 to 415+76
SD18P: 20+61 to 30+60



Transitions:

405+37 to 405+66 (SD 471)
*11' to 16'

415+36 to 415+76 (SD 471)
*16' to 11'

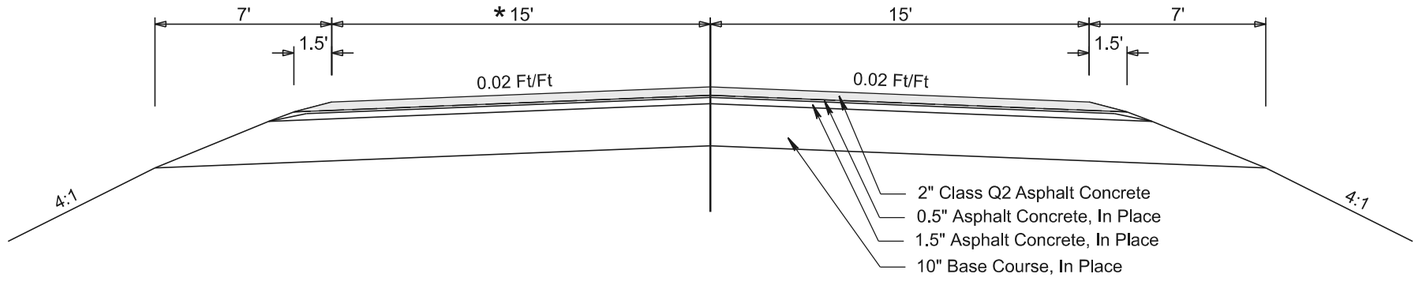
37+64 to 38+14 (SD 18P)
* 26' to 16'

31+40 to 31+65 (SD 18P)
* 16' to 26'

Surfacing Exceptions:

411+43 to 413+16 (Bridge) (SD 471)
33+34 to 37+13 (Bridge) (SD 18P)

Section 3
SD 471: 405+37 to 415+76
SD 18P: 20+61 to 30+60



Transitions:

405+37 to 405+66 (SD 471)
*11' to 15'

415+36 to 415+76 (SD 471)
*15' to 11'

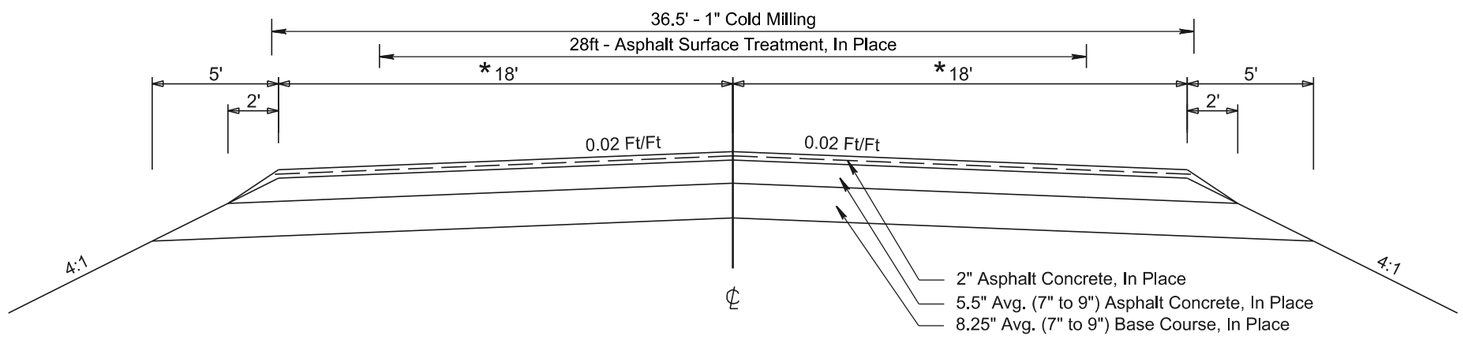
37+64 to 38+14 (SD 18P)
* 25' to 15'

31+40 to 31+65 (SD 18P)
* 15' to 25'

TYPICAL SURFACING SECTIONS

SD DOT	PROJECT	SECTION	SHEET
Plotting Date: 2/24/2025	P 0471(10)19 & P 018P(05)12	Non	30/74

Section 4
SD471
108+00 to 134+00

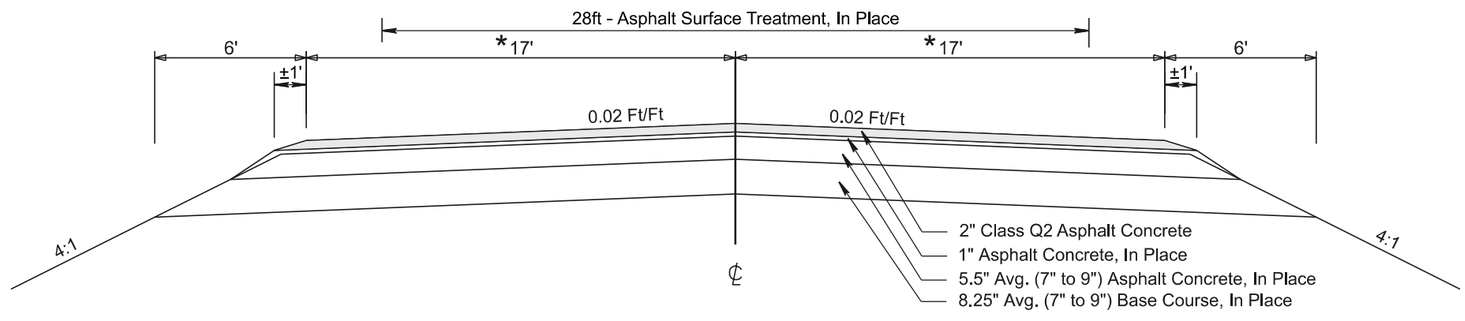


Transitions:

Sta. 108+00 to Sta. 110+00
* 0' to 4'

Sta. 132+00 to 134+00
* 4' to 0'

Section 4
SD471
108+00 to 134+00



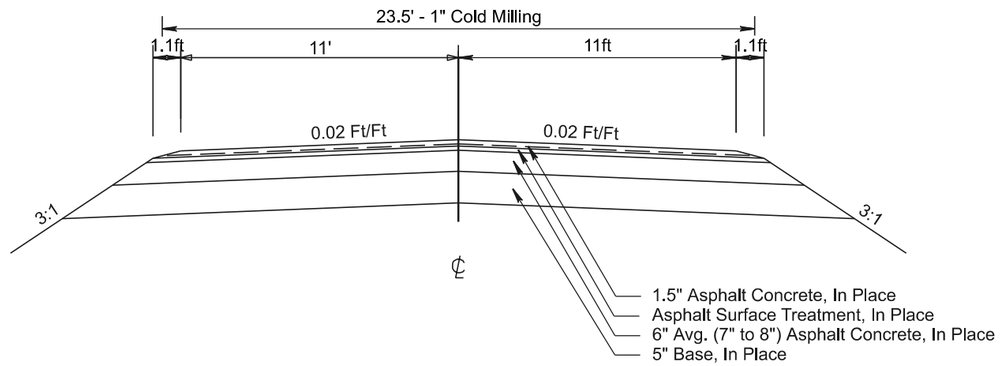
Transitions:

Sta. 108+00 to Sta. 110+00
* 0' to 3'

Sta. 132+00 to 134+00
* 3' to 0'

TYPICAL SURFACING SECTIONS

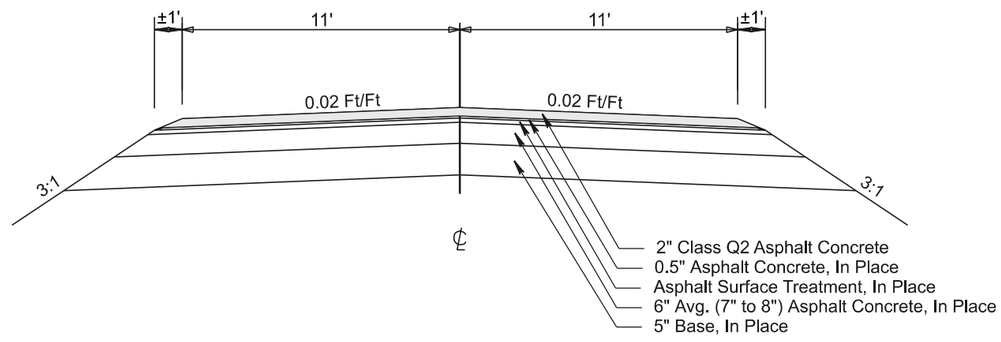
Section 5
SD 18P
10+00 to 30+61
40+60 to 50+48



Surfacing Exceptions:

12+77 to 12+97 (Railroad Crossing)
40+60 to 41+06 (Railroad Crossing)

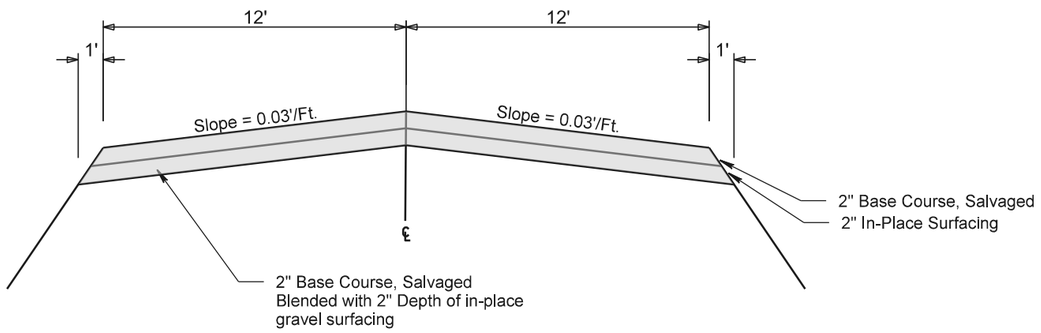
Section 5
SD 18P
10+00 to 30+61
40+60 to 50+48



TYPICAL SURFACING SECTIONS

SD DOT	PROJECT	SECTION	SHEET
Plotting Date: 8/14/2025	P 0471(10)19 & P 018P(05)12	Non	32/74

SD 471
MRM 7.04+0.160 to MRM 19.56+0.070



HORIZONTAL ALIGNMENT AND CONTROL DATA

PCN 02R1, SD471

Type	Station			Northing	Easting
POB	10+00.000			331047.776	1039268.687
		TL= 560.978	271°50'21"		
PC	15+60.978			331065.780	1038707.998
PI	17+73.353	R = 1331.037	Delta = 18.131 R	331072.553	1038495.731
PT	19+82.179			331145.044	1038296.110
		TL= 961.491	289°57'19"		
PC	29+43.670			331473.186	1037392.347
PI	31+94.601	R = 3144.767	Delta = 9.124 R	331559.406	1037156.693
PT	34+44.471			331681.904	1036937.694
		TL= 38.930	299°13'14"		
PC	34+83.401			331700.909	1036903.718
PI	35+18.029	R = 2562.682	Delta = 1.548 R	331717.813	1036873.497
PT	35+52.653			331735.528	1036843.743
		TL= 1667.179	300°46'04"		
PC	52+19.831			332588.393	1035411.225
PI	53+61.052	R = 229.696	Delta = 63.168 R	332660.513	1035289.809
PT	54+73.068			332801.411	1035299.359
		TL= 191.030	03°52'54"		
PC	56+64.098			332992.003	1035312.291
PI	57+48.785	R = 9768.045	Delta = 0.993 R	333076.495	1035318.037
PT	58+33.468			333160.874	1035325.247
		TL= 1017.829	04°55'28"		
PC	68+51.297			334174.946	1035412.619
PI	68+99.615	R = 7106.407	Delta = 0.779 L	334223.083	1035416.801
PT	69+47.931			334271.271	1035420.329
		TL= 1424.263	04°03'24"		
PI	83+72.194			335691.966	1035521.083
		TL= 1392.568	03°49'35"		
PI	97+64.762			337081.430	1035614.011
		TL= 348.081	03°34'50"		
PI	101+12.843			337428.833	1035635.749
		TL= 778.703	03°20'25"		
PI	108+91.546			338206.213	1035681.120
		TL= 203.156	03°06'36"		
PC	110+94.702			338409.070	1035692.142
PI	115+26.034	R = 1622.198	Delta = 29.780 R	338839.765	1035715.567
PT	119+37.856			339201.947	1035949.813
		TL= 591.953	32°53'33"		
PC	125+29.809			339699.004	1036271.282
PI	129+27.461	R = 4049.598	Delta = 11.216 L	340032.884	1036487.271
PT	133+22.572			340402.400	1036634.189
		TL= 12.199	21°40'57"		
PC	133+34.771			340413.736	1036638.696
PI	141+11.779	R = 3740.338	Delta = 23.471 L	341135.767	1036925.773
PT	148+66.994			341912.397	1036901.522
		TL= 1238.968	358°12'41"		
PC	161+05.963			343150.762	1036862.853
PI	168+57.088	R = 1975.039	Delta = 41.645 R	343901.521	1036839.410
PT	175+41.488			344478.128	1037320.776
		TL= 170.472	39°51'05"		
PI	177+11.960			344609.007	1037430.005
		TL= 752.717	39°47'44"		
PI	184+64.677			345187.345	1037911.781
		TL= 1487.679	39°52'31"		
PI	199+52.356			346329.053	1038865.559
		TL= 1696.183	39°52'42"		
PC	216+48.538			347630.717	1039953.082
PI	226+59.541	R = 1452.983	Delta = 69.661 L	348406.491	1040601.389
PT	234+15.103			349284.013	1040099.312
		TL= 541.907	330°13'16"		
PC	239+57.010			349754.361	1039830.172
PI	245+36.504	R = 1986.799	Delta = 32.521 R	350257.878	1039543.321
PT	250+84.714			350836.655	1039572.145
		TL= 58.964	02°51'04"		
PC	251+43.678			350895.546	1039575.078
PI	252+12.146	R = 12222.715	Delta = 0.642 R	350963.930	1039578.483
PT	252+80.613			351032.271	1039582.655
		TL= 2714.162	03°29'34"		
PC	279+94.775			353741.390	1039748.018
PI	287+94.809	R = 5694.779	Delta = 15.994 R	354539.938	1039796.761
PT	295+84.439			355294.145	1040063.643
		TL= 959.061	19°29'12"		
PI	305+43.501			356198.270	1040383.576
		TL= 679.479	19°34'33"		
PC	312+22.980			356838.475	1040611.238
PI	321+17.390	R = 1939.720	Delta = 49.509 L	357681.187	1040910.914
PT	328+99.086			358456.289	1040464.611
		TL= 422.070	330°04'00"		
PC	333+21.155			358822.057	1040254.002
PI	336+41.632	R = 4518.121	Delta = 8.115 R	359099.784	1040094.088
PT	339+61.036			359397.303	1039974.976
		TL= 1915.511	338°10'53"		
PC	358+76.547			361175.596	1039263.036
PI	367+26.121	R = 5672.669	Delta = 17.035 R	361964.310	1038947.274
PT	375+63.159			362810.924	1038876.429

HORIZONTAL ALIGNMENT AND CONTROL DATA

Type	Station			Northing	Easting
		TL= 2231.418	355°13'00"		
PI	397+94.576			365034.570	1038690.353
		TL= 771.987	355°21'58"		
PI	405+66.564			365804.034	1038627.986
		TL= 1043.675	355°16'03"		
PI	416+10.239			366844.151	1038541.878
		TL= 675.982	355°08'17"		
PC	422+86.222			367517.701	1038484.585
PI	427+18.744	R = 2083.853	Delta = 23.452 R	367948.667	1038447.926
PT	431+39.155			368358.623	1038585.809
		TL= 606.382	18°35'24"		
PI	437+45.537			368933.366	1038779.120
		TL= 766.767	18°48'07"		
PC	445+12.304			369659.216	1039026.248
PI	449+34.936	R = 3135.726	Delta = 15.352 L	370059.292	1039162.477
PT	453+52.506			370481.158	1039187.924
		TL= 248.827	03°07'59"		
POE	456+01.333			370728.627	1039201.444

PCN 07A1, SD18P

Type	Station			Northing	Easting
POB	10+00.000			376184.484	1041192.517
		TL= 114.273	164°00'30"		
PC	11+14.273			376074.633	1041223.999
PI	11+56.027	R = 471.781	Delta = 10.115 L	376034.582	1041235.803
PCC	11+97.564			375997.227	1041254.458
PI	12+49.583	R = 179.868	Delta = 32.260 L	375949.929	1041276.111
PT	12+98.838			375921.490	1041319.667
		TL= 27.869	119°04'36"		
PC	13+26.708			375907.946	1041344.024
PI	13+51.438	R = 60.144	Delta = 44.703 R	375896.185	1041365.779
PCC	13+73.634			375872.523	1041372.968
PI	14+08.274	R = 131.286	Delta = 29.562 R	375838.981	1041381.623
PCC	14+41.371			375805.536	1041372.604
PI	14+84.745	R = 413.153	Delta = 11.986 R	375763.520	1041361.832
PT	15+27.804			375724.657	1041342.569
		TL= 500.728	208°16'05"		
PC	20+28.531			375283.645	1041105.426
PI	22+17.796	R = 13627.646	Delta = 1.591 R	375116.948	1041015.797
PT	24+07.037			374952.804	1040921.574
		TL= 138.492	209°59'27"		
PC	25+45.529			374832.855	1040852.347

Type	Station			Northing	Easting
PI	26+03.255	R = 4391.473	Delta = 1.506 R	374782.859	1040823.493
PT	26+60.974			374733.638	1040793.334
		TL= 280.591	211°29'49"		
PC	29+41.565			374494.387	1040646.738
PI	30+75.892	R = 745.413	Delta = 20.431 L	374379.850	1040576.558
PT	32+07.367			374248.020	1040550.775
		TL= 502.358	191°03'58"		
PC	37+09.724			373755.004	1040454.351
PI	39+26.766	R = 241.773	Delta = 83.829 R	373541.997	1040412.691
PT	40+63.462			373560.519	1040196.441
		TL= 360.179	274°53'44"		
PC	44+23.640			373591.256	1039837.576
PI	45+76.861	R = 284.026	Delta = 56.690 L	373604.332	1039684.914
PT	47+04.665			373483.931	1039590.150
		TL= 146.958	218°12'19"		
PC	48+51.623			373368.452	1039499.260
PI	49+55.302	R = 244.817	Delta = 45.905 R	373286.980	1039435.136
PT	50+47.769			373276.341	1039332.004

Control Data

POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP1	REFMRK – Rebar with red plastic cap marked CONTROL POINT	334932.659	1035441.886	3768.312
G427	REFMRK - NGS HARN point. PID OT0612. Stainless steel rod in a sleeve under an aluminum cover.	345469.885	1038071.626	3826.905
H427	REFMARK - NGS benchmark. PID OT0613. Stainless steel rod in a sleeve under an aluminum cover.	350554.559	1039618.336	3850.799
J427	REFMRK - NGS benchmark. PID OT0614. Stainless steel rod in a sleeve under an aluminum cover.	357386.182	1040667.412	3733.677
K427	REFMRK - NGS benchmark. PID OT0615. Stainless steel rod in a sleeve under an aluminum cover.	362955.312	1038912.849	3557.342
W334 RESET	REFMRK - NGS benchmark. PID OT0492. Brass disk on a concrete monument.	373422.329	1036097.615	3463.287

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/2011); epoch 2010.00; Geoid 18; SF = 0.99974673. The elevations shown on this sheet are based on NAVD 88.

LEGEND

SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	35/74

Plotting Date: 2/24/2025

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Control Point
- Commercial Sign Double Face
- Commercial Sign One Post
- Commercial Sign Overhead
- Commercial Sign Two Post
- Concrete Symbol
- 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
- Elec. Trans./Power Jct. Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Misc.
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Guide Sign One Post
- Guide Sign Two Post
- Gutter
- Guy Pole
- Haystack
- Hedge
- Highway ROW Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Misc
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Misc. Line
- Misc. Property Corner
- Misc. 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 R.O.W. Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Regulatory Sign One Post
- Regulatory Sign Two Post
- 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 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 —
- Warning Sign One Post
- Warning Sign Two Post
- 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

SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	36/74

Plotting Date: 11/6/2025

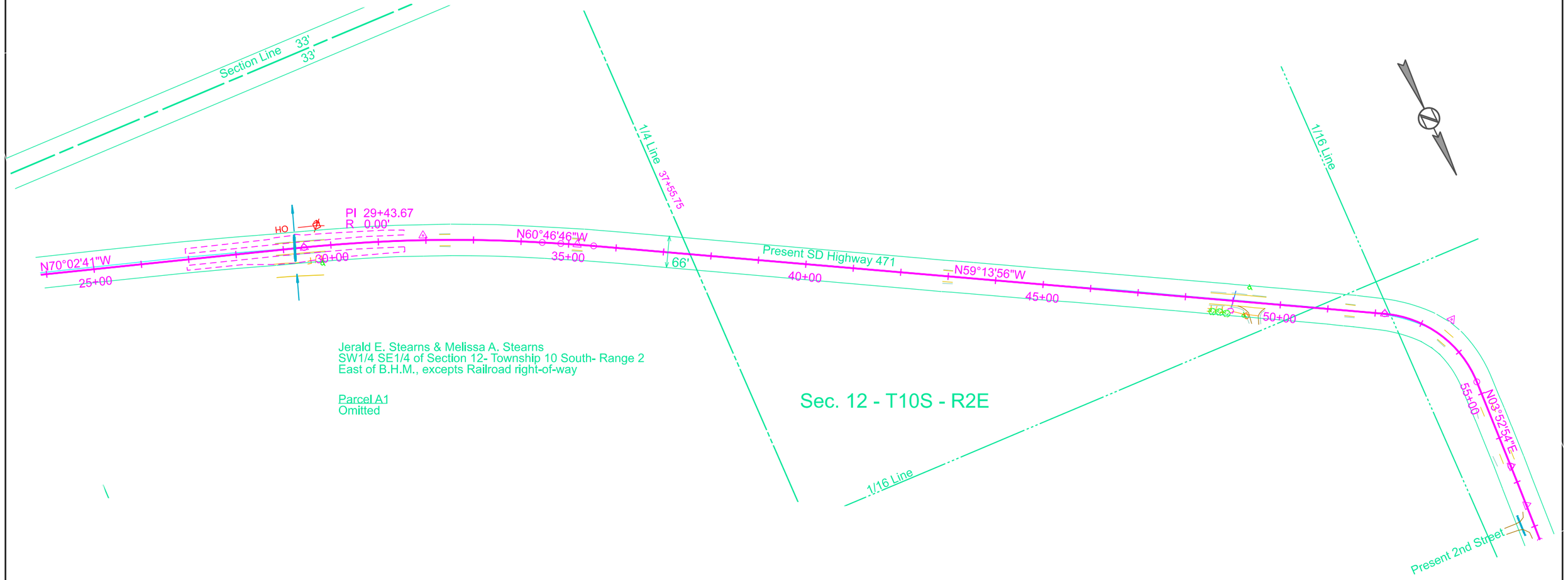
Revised: 11-06-25 Initials: TS

29+24 (MRM 19+0.992)
Takeout 24" - 38' CMP
& 2 Pipe End Sections
(Incidental Work, Grading)

29+24 (MRM 19+0.992)
Install 24" - 48' RCP Arch
& 2 - 24" RCP Arch Sloped Ends

48+97 (MRM 20+0.326)
Inlet Channel Grading
(Incidental Work, Grading)

57+90 - 26' R (MRM 20+0.530)
Install 18" - 36' CMP
& 2 Safety Ends



Jerald E. Stearns & Melissa A. Stearns
SW1/4 SE1/4 of Section 12- Township 10 South- Range 2
East of B.H.M., excepts Railroad right-of-way

Parcel A1
Omitted

SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	37/74

Plotting Date: 11/6/2025

Revised: 11-06-25 Initials: TS

100+24 (MRM 21+0.301)
Take Out 18" - 44' RCP
& 1 Flared End
(Incidental Work, Grading)

100+24 (MRM 21+0.301)
Install 24" - 48' RCP Arch
& 2 - 24" RCP Arch Sloped Ends

Brunson Ranch, LLC
SW1/4 SW1/4 of Section 1- Township 10
South- Range 2 East of B.H.M.

Parcel A2
Omitted

91+53.38

N03°49'35"E

90+00

Present SD Highway 471

95+00

66'

N03°34'50"E

100+00 T/F

PI 101+12.87
R 0.00'

N03°20'25"E

105+00

N03°06'36"E

110+00

115+00

1/16 Line

119+37.86

1/4 Line

33' Section Line

33'

Sec. 12 - T10S - R2E

Sec. 01 - T10S - R2E

Jerald E. Stearns & Melissa A. Stearns
SE1/4 SW1/4 of Section 1- Township 10
South- Range 2 East of B.H.M.

Parcel A3
Omitted

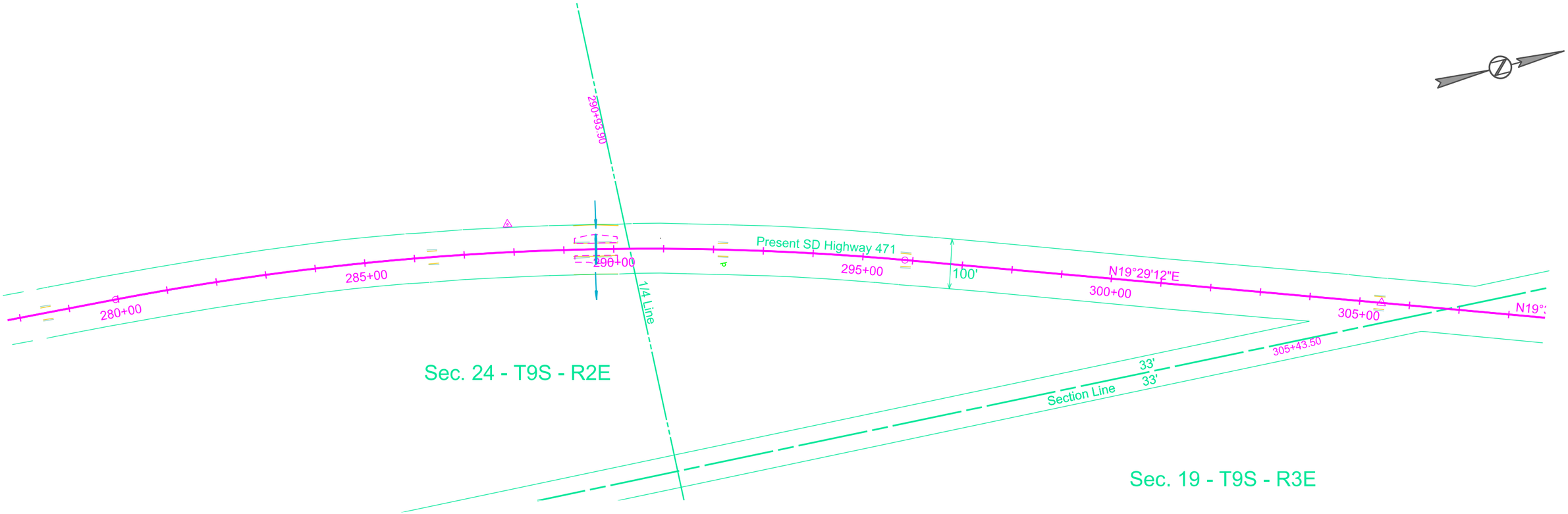
1/16 Line

SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	38/74

Plotting Date: 2/24/2025

289+64 (MRM 24+1.014)
Take Out 24" - 54' RCP
(Incidental Work, Grading)

289+64 (MRM 24+1.014)
Install 24" - 54' RCP
& 2 Sloped Ends



STATE OF SOUTH DAKOTA	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	39/74

Plotting Date: 2/25/2026

Revised: 2-25-26 Initials: TS

333+18 (MRM 25+0.781) 13° RHF
Bore and Jack 30" - 178' Steel Pipe
Install 30" - 28' Steel Pipe R
& 2 Sloped Ends

333+25 (MRM 25+0.781)
Plug Existing 30" RCP
(Control Density Fill)

335+81 (MRM 25+0.824)
Plug Existing 18" RCP
(Control Desnity Fill)

335+81 (MRM 25+0.824)
Place Fill and Shape Ditch
to Bypass Culvert
(Incidental Work, Grading)

341+60 (MRM 25+0.917)
Outlet Channel Grading
(Inidental Work, Grading)

345+62 (MRM 26+0.013)
Remove and Reset
End Sections (2) - 18" RCP

351+85 (MRM 26+0.123)
Bore and Jack 30" - 116' Steel Pipe
Install 2 Sloped Ends

351+92 (MRM 26+0.123)
Plug Existing 30" RCP
(Control Density Fill)

355+59 (MRM 26+0.190)
Plug Existing 24" RCP
(Control Density Fill)

355+69 (MRM 26+0.190)
Bore and Jack 24" - 120' Steel Pipe
Install 24" - 20" Steel Pipe L
& 2 Sloped Ends

Barker Ranch, LLP
E1/2 SE1/4 of Section 13- Township 9
South- Range 2 East of B.H.M.

Parcel 5
0.02 ac, Permanent Easement 1
(909 sq ft), more or less

0.08 ac, Permanent Easement 2
(3378 sq ft), more or less

0.1 ac, Permanent Easement 3
(4162 sq ft), more or less

0.06 ac, Permanent Easement 4
(2651 sq ft), more or less

0.08 ac, Permanent Easement 5
(3648 sq ft), more or less

Barker Ranch, LLP
SW1/4 NE1/4 of Section 13- Township 9
South- Range 2 East of B.H.M.

Parcel 7
0.06 ac, Permanent Easement
(2454 sq ft), more or less

1/16 Line

1/4 Line

Present SD Highway 471

PI 336+41.63
R 4518.12'

N29°56'00"W

N21°49'07"W

100'

332+82 L
Begin Type 3 fence

333+26 L
End Type 3 fence

333+18 L
1-24' barbed
wire gate

340+32 L
Begin Type 3 fence

342+19 L
End Type 3 fence

341+20 L
1-24' barbed
wire gate

344+95 L
Begin Type 3 fence

346+82 L
End Type 3 fence

345+62 L
1-24' barbed
wire gate

350+99 L
Begin Type 2 fence

352+75 L
End Type 2 fence

351+85 L
1-24' barbed
wire gate

354+85 L
Begin Type 3 fence

356+50 L
End Type 3 fence

355+69 L
1-24' barbed
wire gate

2-2 PP

2-3 PP
2-2 PP

330+00

335+00

340+00

345+00

350+00

355+00

331+75-183'

333+74-204'

332+03-50'

334+07-50'

331+57-50'

334+88-50'

340+57-50'

341+44-125'

342+30-161'

342+31-50'

350+86-170'

352+86-166'

350+85-50'

352+85-50'

354+52-101'

354+69-176'

355+49-50'

355+49-57'

356+71-175'

357+02-50'

354+40-50'

332+16 R
Begin Type 3 fence

334+27 R
End Type 3 fence

333+18 R
1-24' barbed
wire gate

340+25 R
1-24' barbed
wire gate

339+30 R
Begin Type 3 fence

341+05 R
End Type 3 fence

351+85 R
1-24' barbed
wire gate

351+70 R
Begin Type 2 fence

352+14 R
End Type 2 fence

355+69 R
1-24' barbed
wire gate

355+50 R
Begin Type 2 fence

355+95 R
End Type 2 fence

332+34-183'

334+73-183'

350+84-159'

352+84-159'

354+66-154'

356+66-160'

356+69-50'

Section Line

33'

33'

Sec. 18 - T9S - R3E

Sec. 13 - T9S - R2E

Lawrence Land and Cattle I, LLC
SE1/4 NE1/4 of Section 13- Township 9
South- Range 2 East of B.H.M.

Parcel 6
0.01 ac, Permanent Easement 1
(50 sq ft), more or less

0.03 ac, Permanent Easement 2
(1065 sq ft), more or less

0.04 ac, Permanent Easement 3
(1689 sq ft), more or less

0.03 ac, Permanent Easement 4
(1123 sq ft), more or less

Parcel 5
332+03 to 334+07 L
Temporary Easement Containing
0.6 ac, more or less

331+57 to 334+88 R
Temporary Easement Containing
0.8 ac, more or less

340+57 to 342+31 L
Temporary Easement Containing
0.2 ac, more or less

345+58 to 346+08 L
Temporary Easement Containing
0.1 ac, more or less

Parcel 6
350+85 to 352+85 L
Temporary Easement Containing
0.5 ac, more or less

350+85 to 352+85 R
Temporary Easement Containing
0.5 ac, more or less

354+40 to 355+49 L
Temporary Easement Containing
0.1 ac, more or less

354+69 to 356+69 R
Temporary Easement Containing
0.5 ac, more or less

Parcel 7
354+69 to 357+02 L
Temporary Easement Containing
0.5 ac, more or less

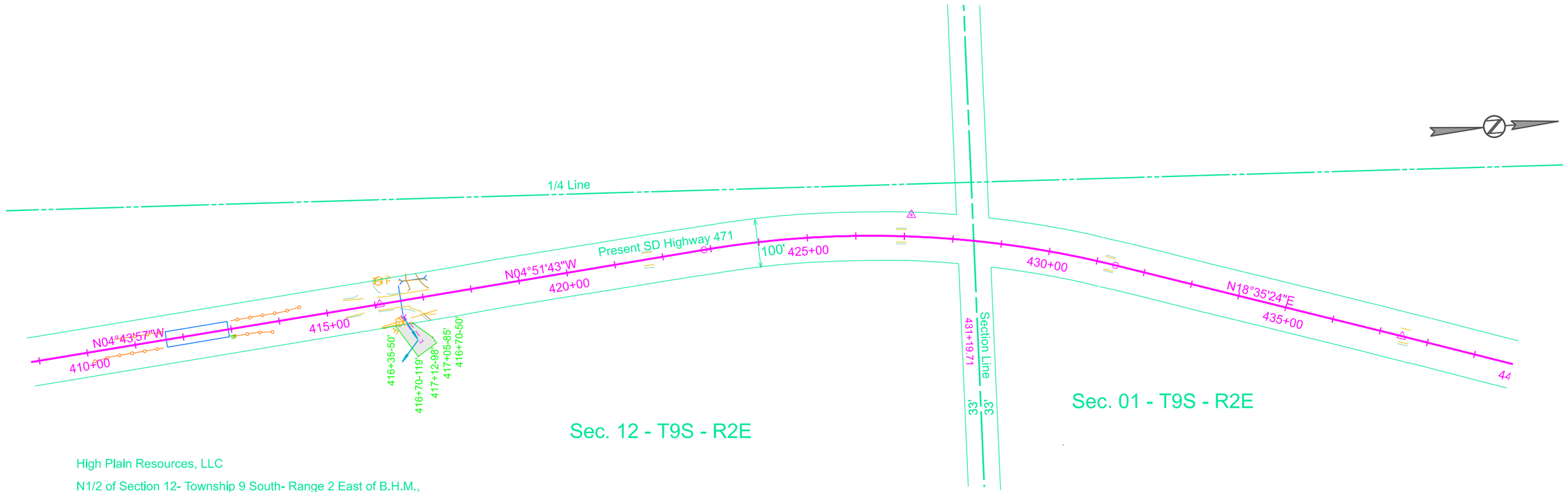
SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	40/74

Plotting Date: 2/24/2025

416+34 R to 416+70 R
Remove Fence for Reset

416+34 R to 416+70 R
Reset Fence

416+53 (MRM 27.29+0.068) R
Outlet Channel Grading
(Incidental Work, Grading)



High Plain Resources, LLC

N1/2 of Section 12- Township 9 South- Range 2 East of B.H.M.,
less Tract E.G & R, Tract D.W., BNSF Railroad Right-of-Way,
that part lying between BNSF Railroad Right-of-Way and Hwy 471 Right-of-Way
and that part of the NE1/4 NE/14 lying North and East of tract E.G & R.

Parcel A4

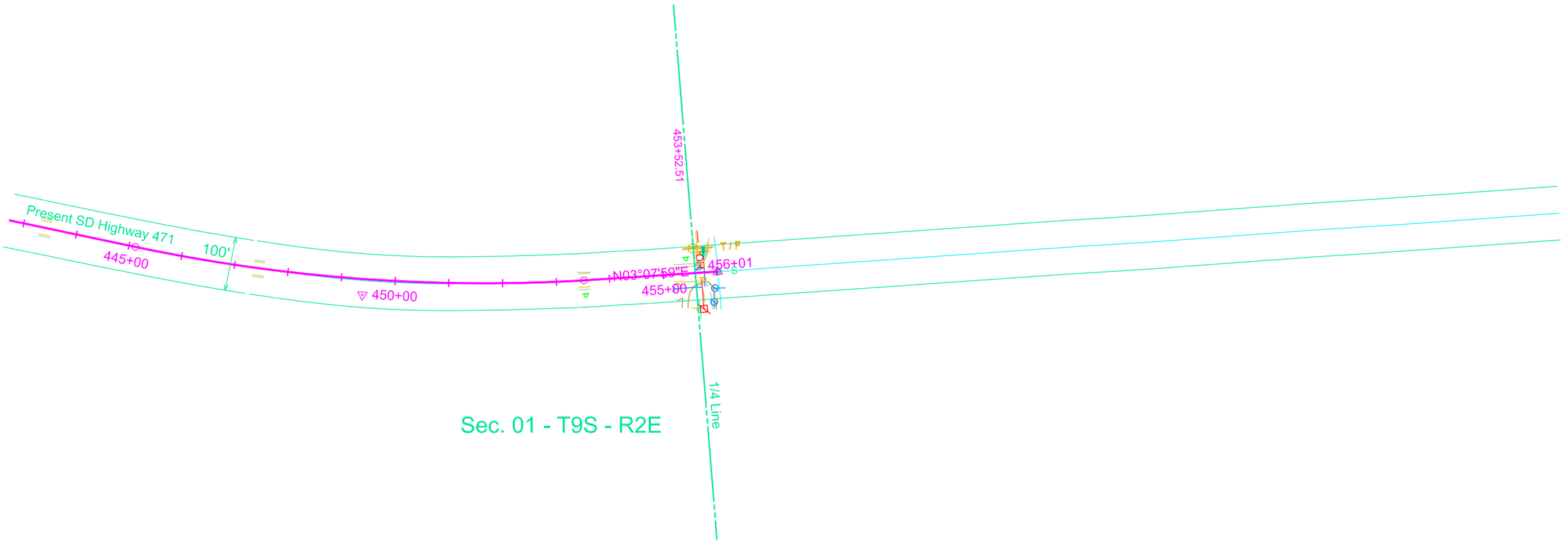
Parcel A4
416+36 to 417+12 R
Temporary Easement Containing
0.1 ac, more or less

SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	41/74

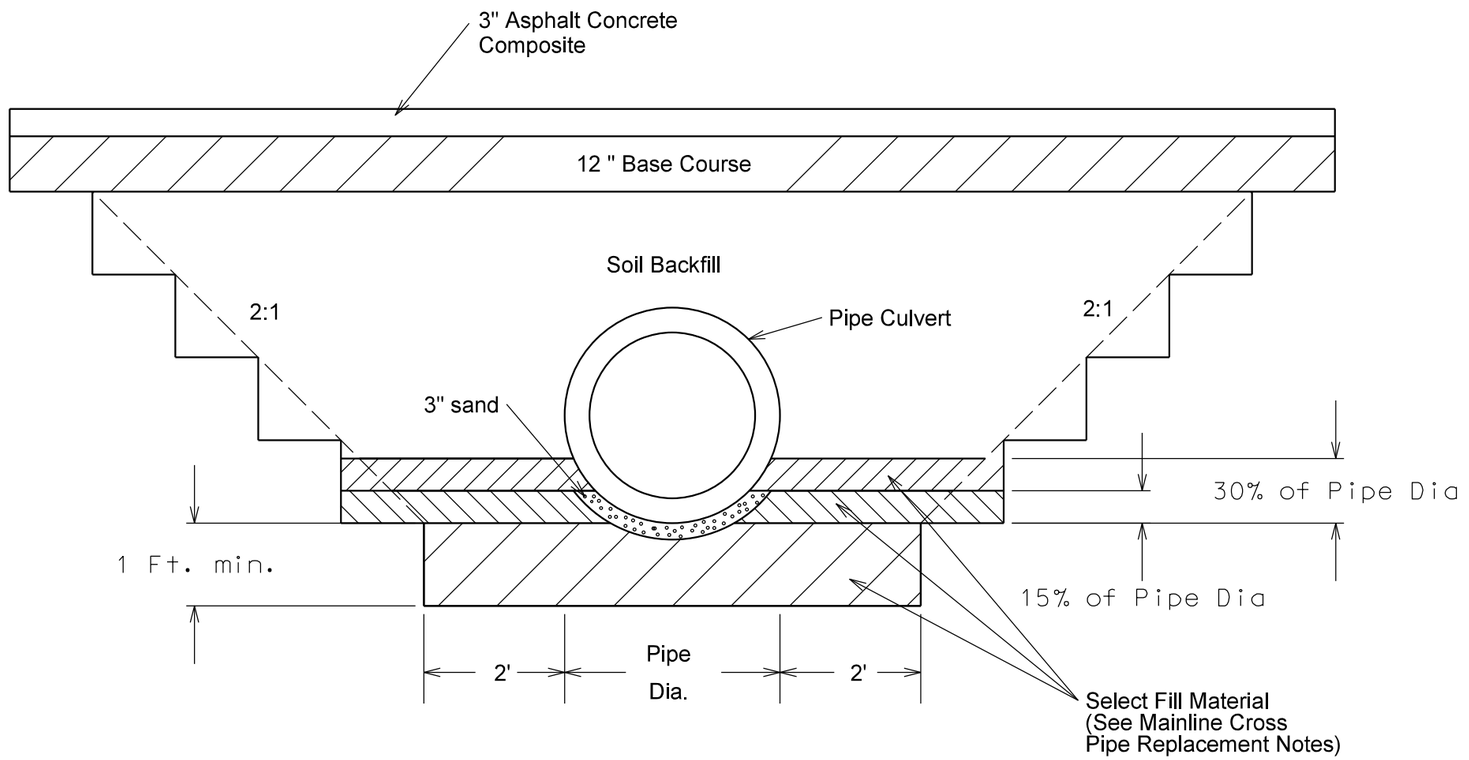
Plotting Date: 2/24/2025

455+77 (MRM 28+0.044)
Take Out 24" - 4' Poly Inlet Section
(Incidental Work, Grading)

455+77 (MRM 28+0.044)
Install 24" - 4' RCP Arch
& 1 Sloped End

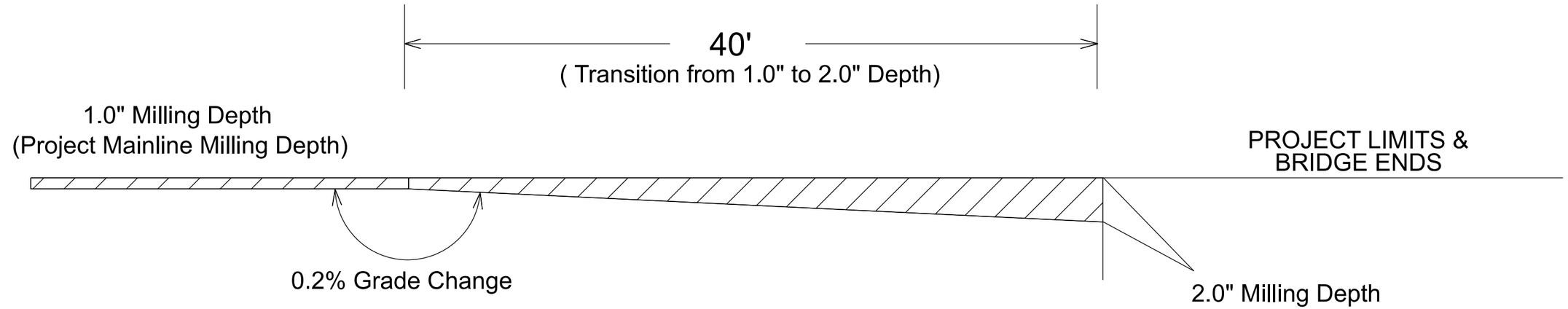


PIPE REPLACEMENT DETAIL



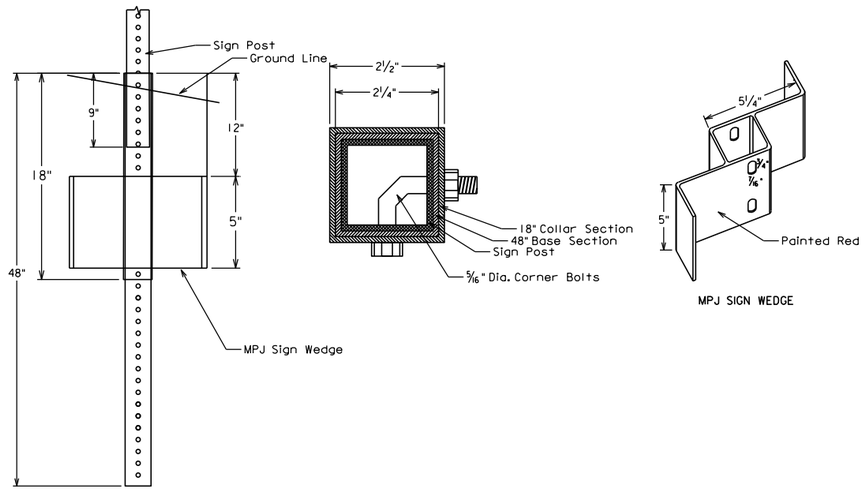
COLD MILLING ASPHALT CONCRETE AT BRIDGE ENDS & PROJECT LIMITS

COLD MILLING DEPTH TRANSITION LENGTH
(40' per 1" milling depth change)



Cold Milling

SIGN BASE DETAILS FOR A 2" SIGN POST



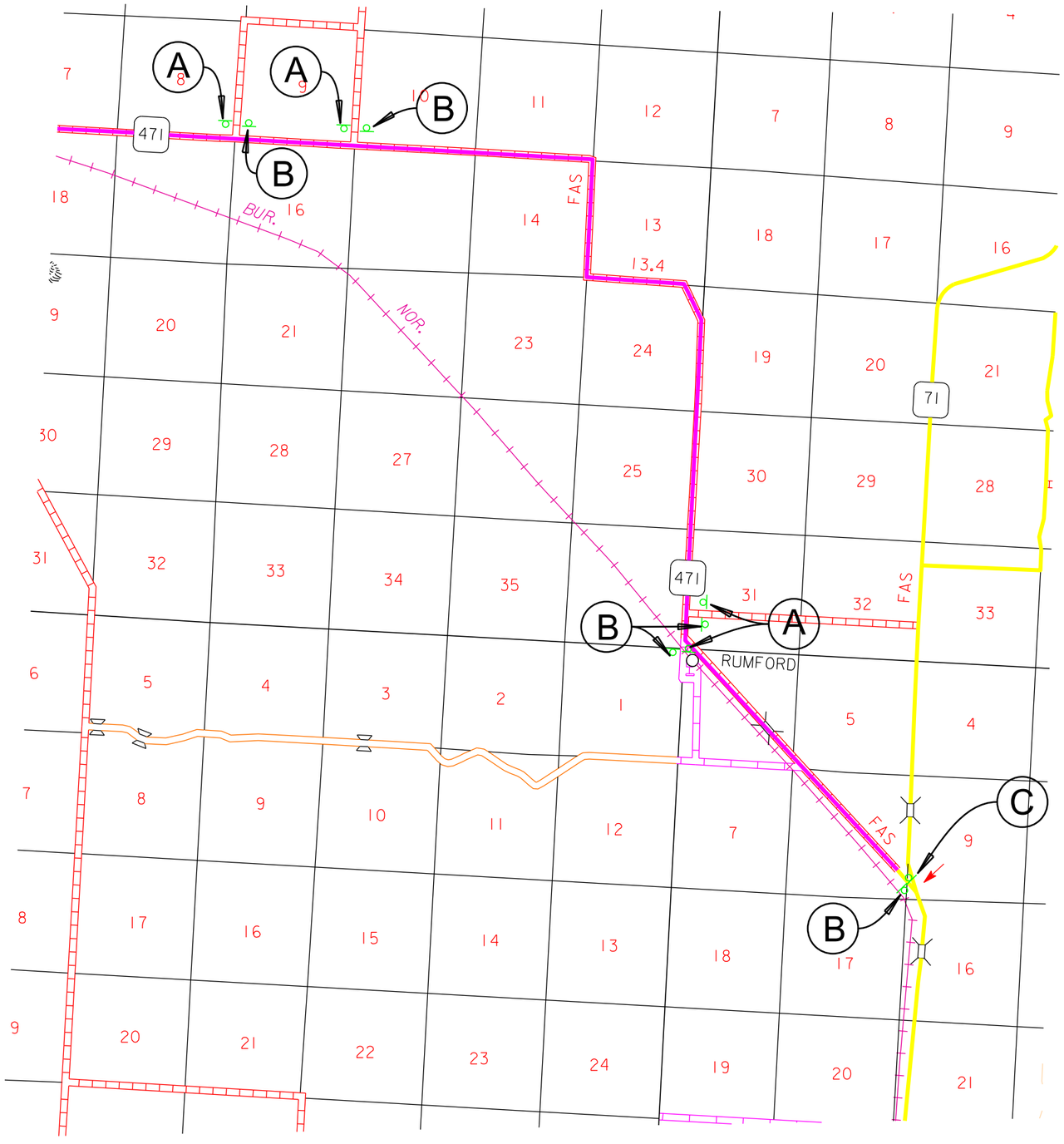
SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	45/74

Plotting Date: 2/24/2025

A

B

C



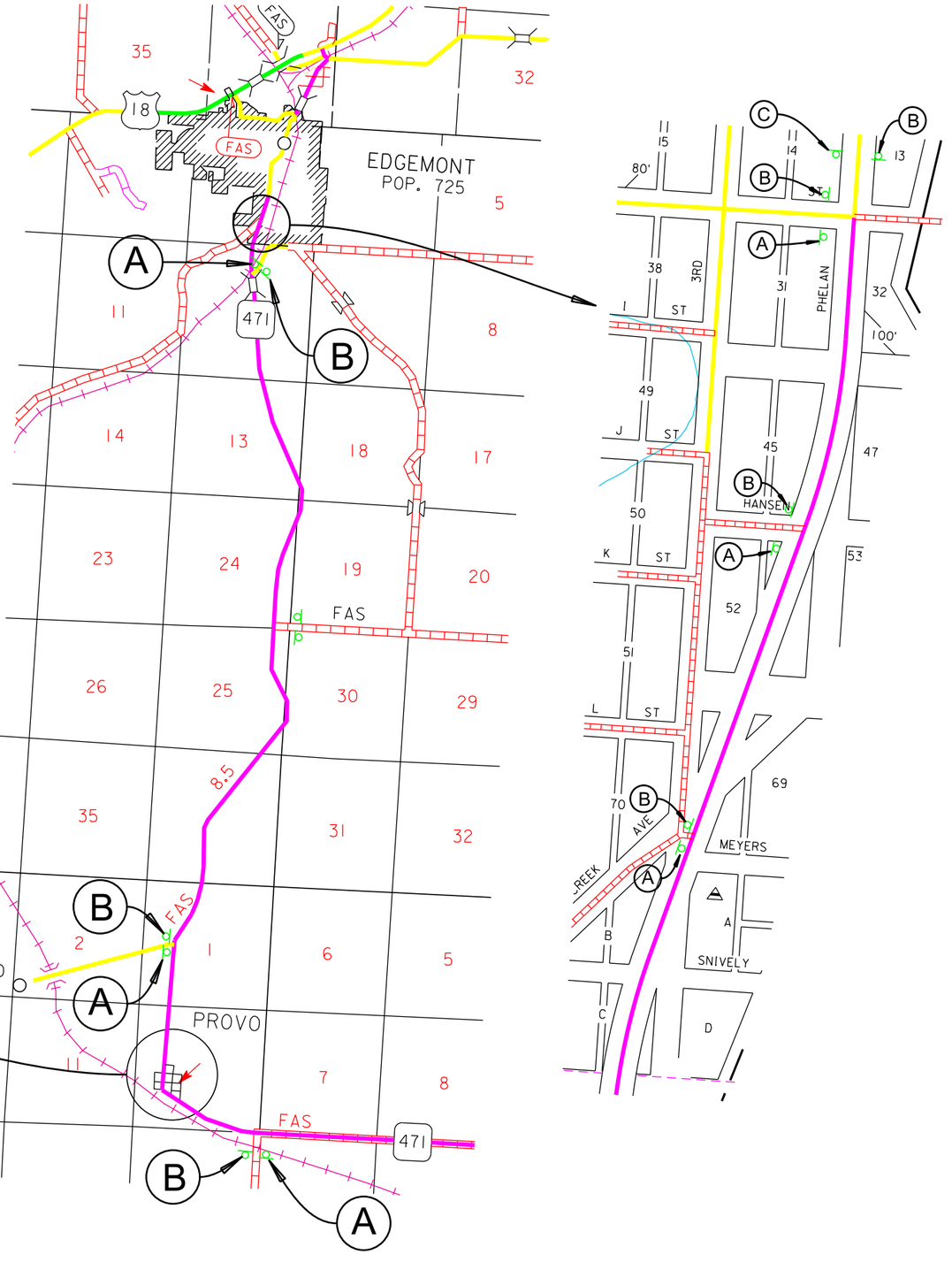
SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	46/74

Plotting Date: 2/24/2025

A — ROAD WORK AHEAD

B — END ROAD WORK

C — ROAD WORK NEXT 21 MILES

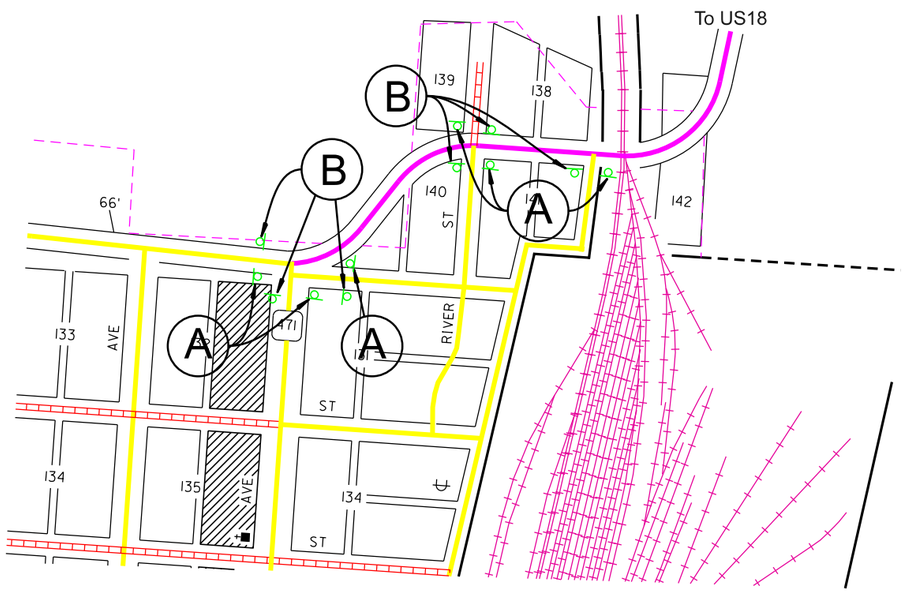


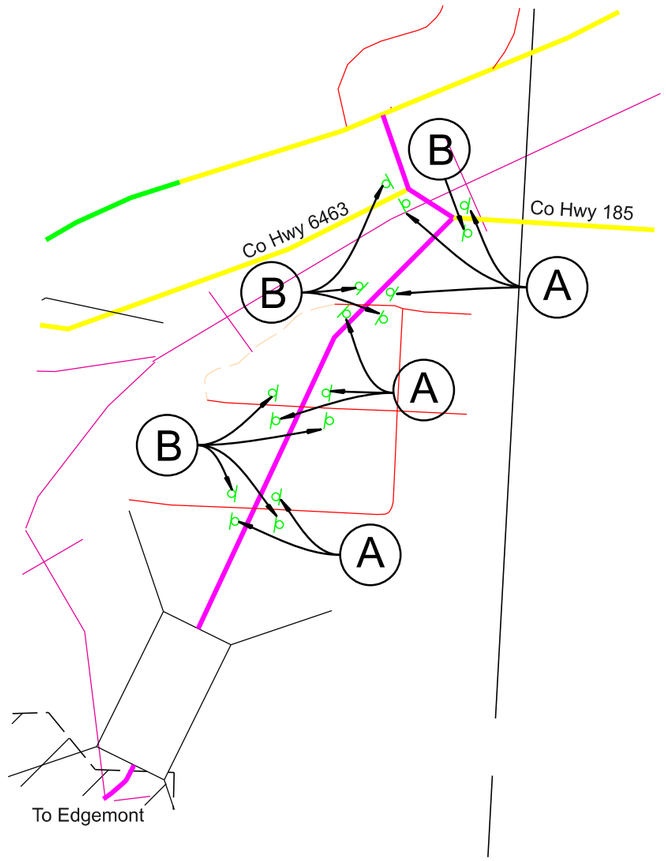
SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	47/74

Plotting Date: 2/24/2025

A

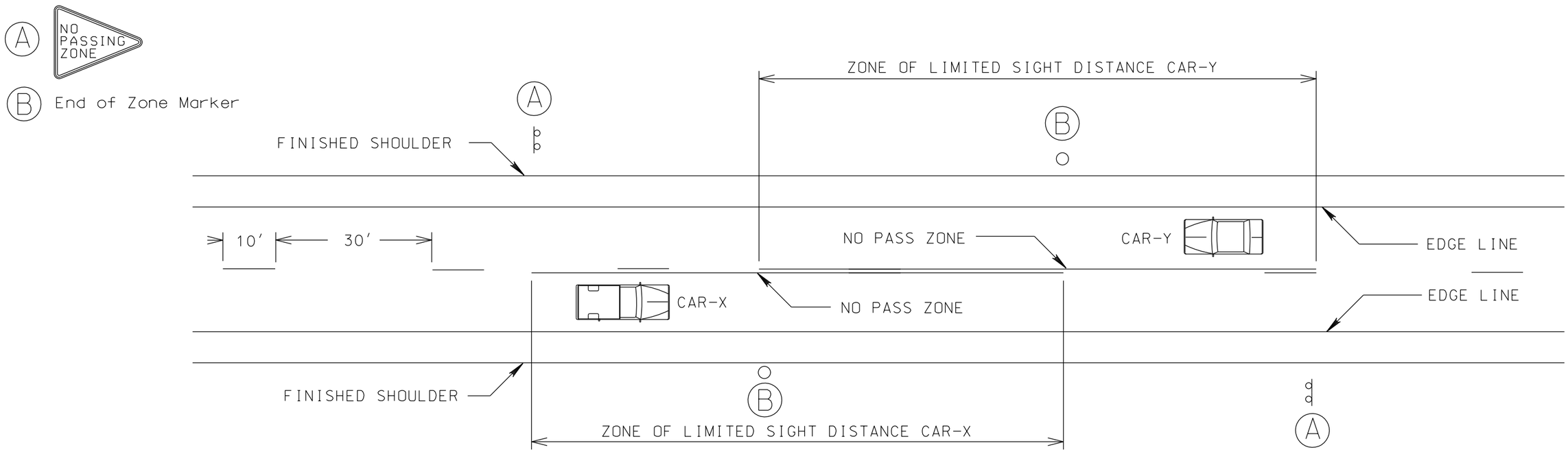
B

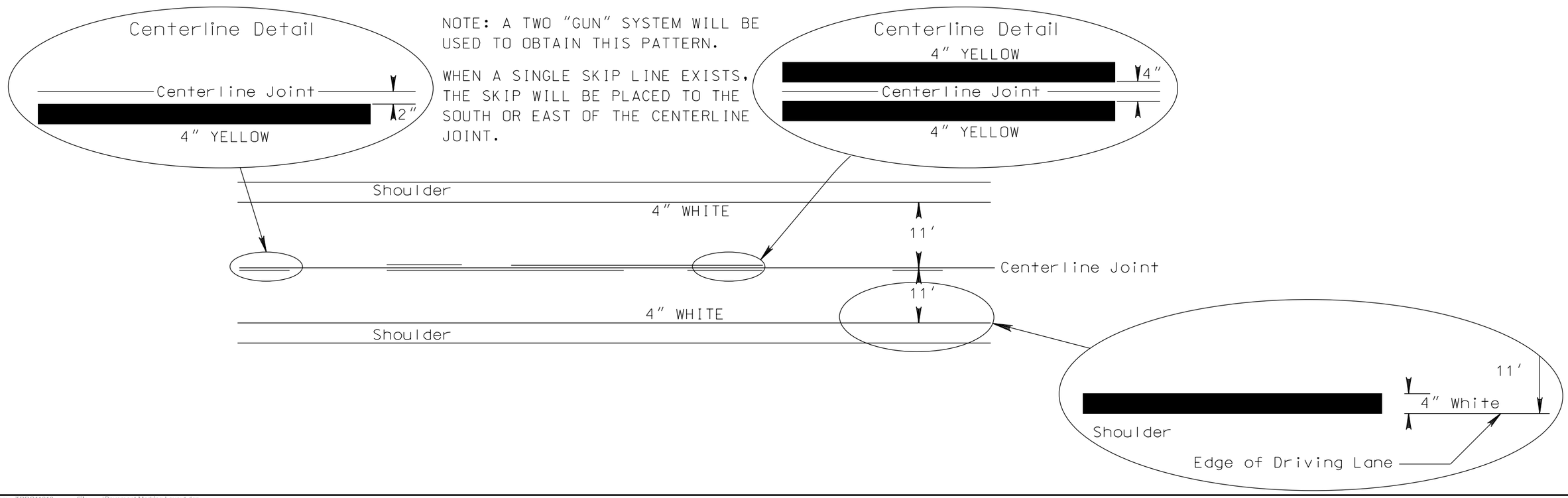


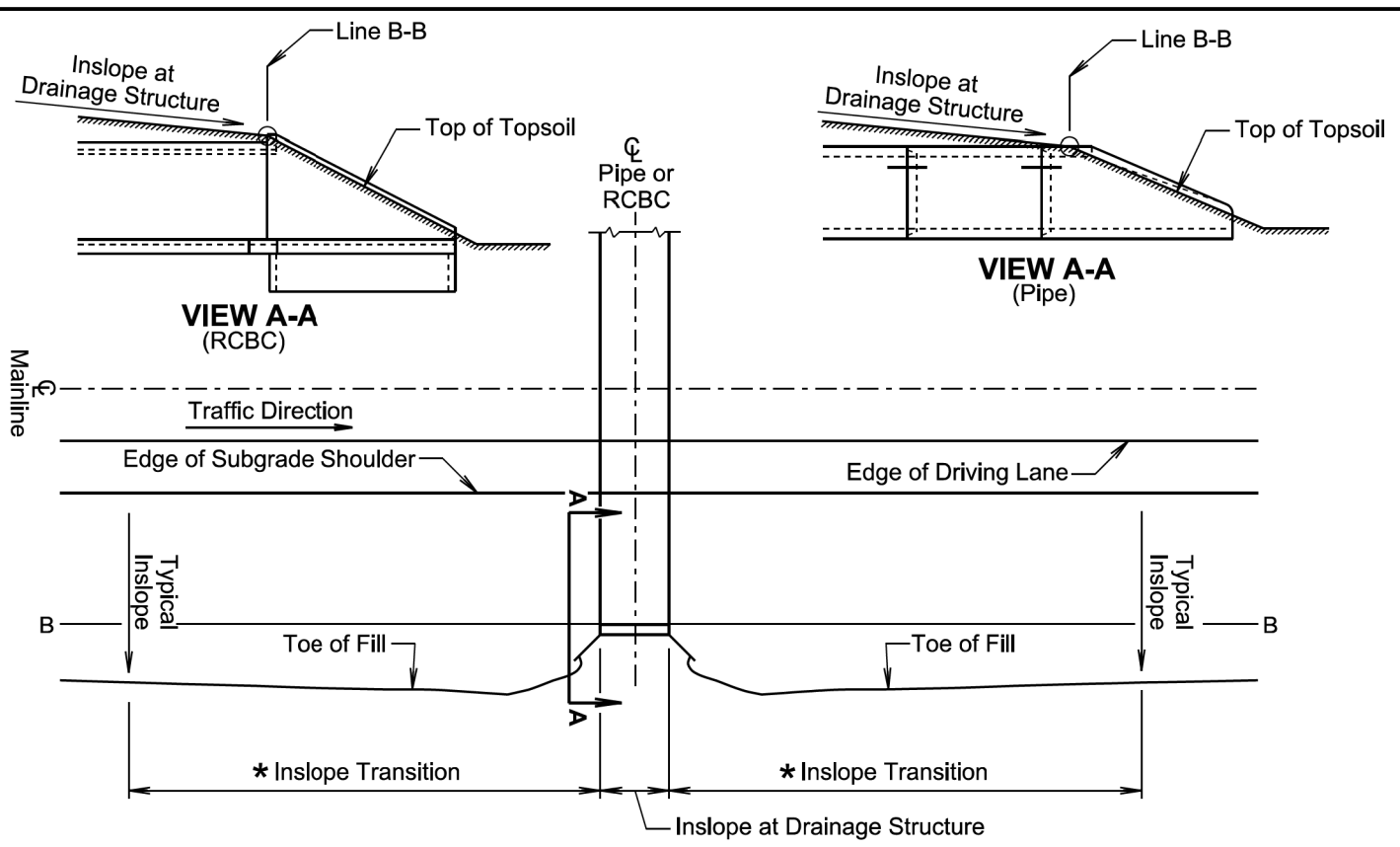


TYPICAL PAVEMENT MARKING LAYOUT

SD DOT	PROJECT	SECTION	SHEET
Plotting Date: 2/24/2025	P 0471(10)19 & P 018P(05)12	Non	48/74







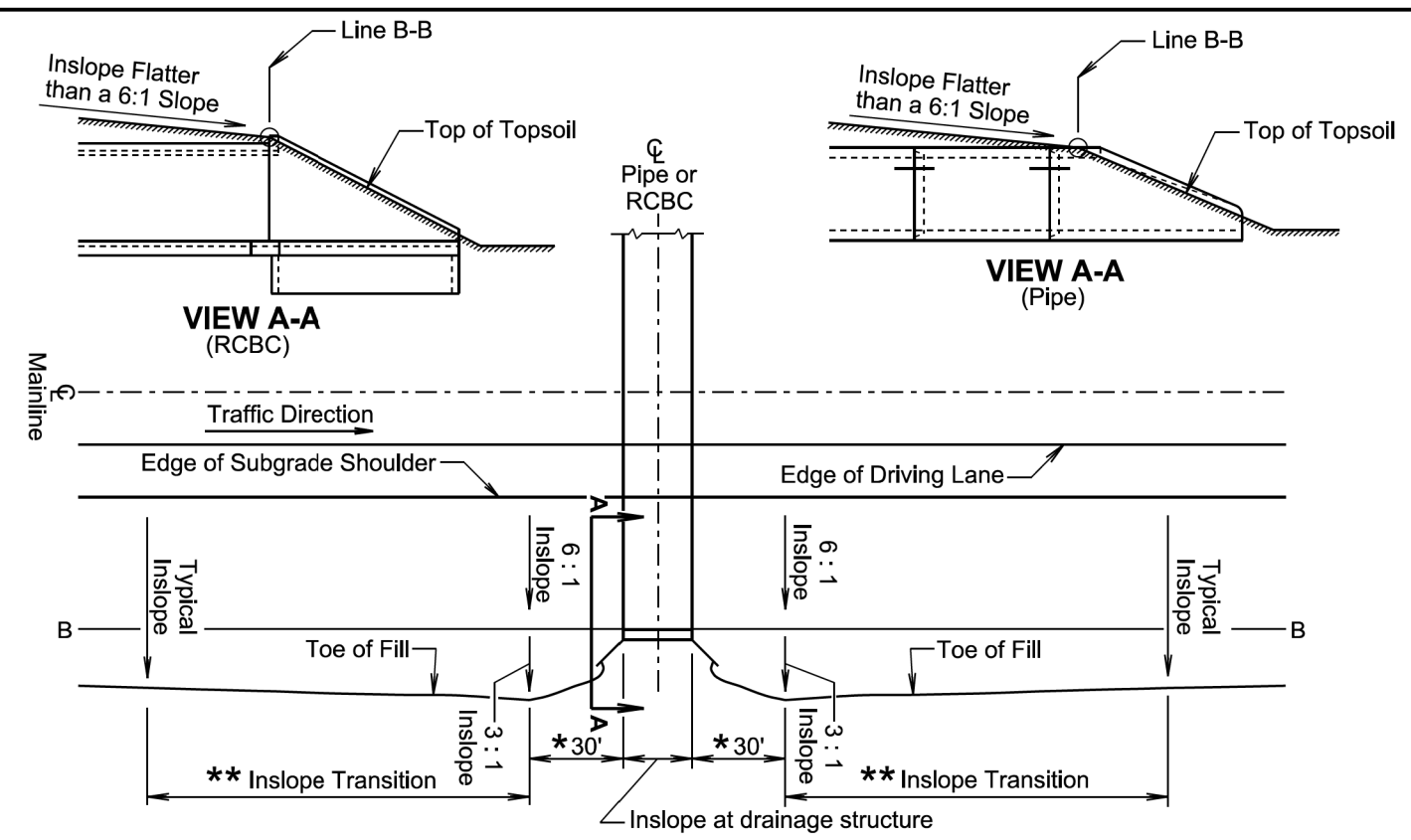
TYPE 1 INSLOPE TRANSITION

GENERAL NOTES:

This Type 1 Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from the typical inslope to the inslope at the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone will be transitioned gradually to the slope necessary adjacent to the RCBC wing wall or pipe culvert end section within the transition length necessary for the transition within the clear zone.



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from Inslope at drainage structure to a 6 : 1 inslope and 3:1 inslope.

** Transition from typical inslope to the inslopes adjacent to the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone will be transitioned to a 3:1 inslope within the transition length necessary for the transition within the clear zone.

INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

SDDOT

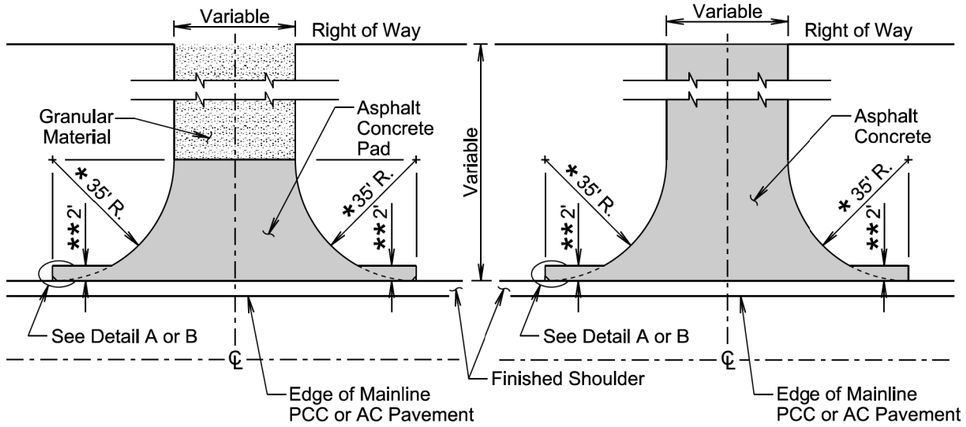
Published Date: 2026

PLATE NUMBER 120.05

September 14, 2018

Sheet 1 of 2

Sheet 2 of 2



PLAN VIEW
(Intersecting Road)
(No Asphalt Concrete Surfacing Beyond Right of Way)

PLAN VIEW
(Intersecting Road)
(Asphalt Concrete Surfacing Beyond Right of Way)

GENERAL NOTES:

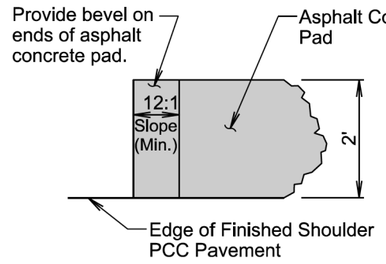
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

* For new construction, 35' radius typical or as specified in the plans. For resurfacing projects, radius is variable depending on existing conditions.

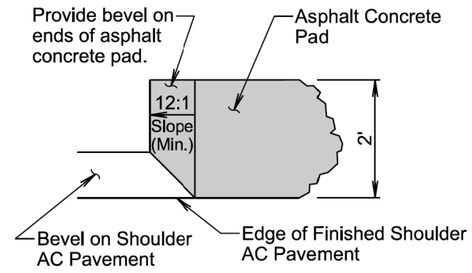
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete pads if the Engineer, in the Engineer's sole discretion, determines the pads are infeasible to construct due to site specific reasons including, but not limited to; existing inslope configuration, borrow and material availability, and right-of-way constraints.

August 27, 2020

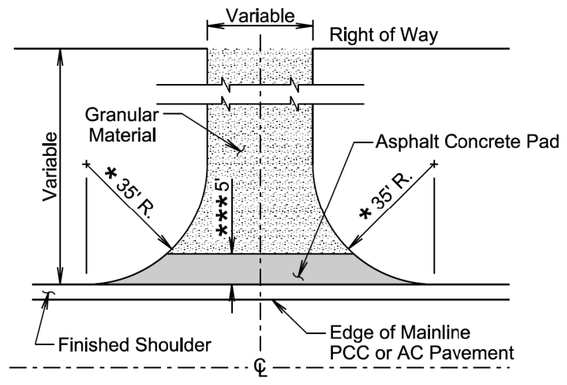
Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 1 of 2



DETAIL A
(Typ. for Projects with PCC Pavement on Shoulder)



DETAIL B
(Typ. for Projects with AC Pavement on Shoulder)

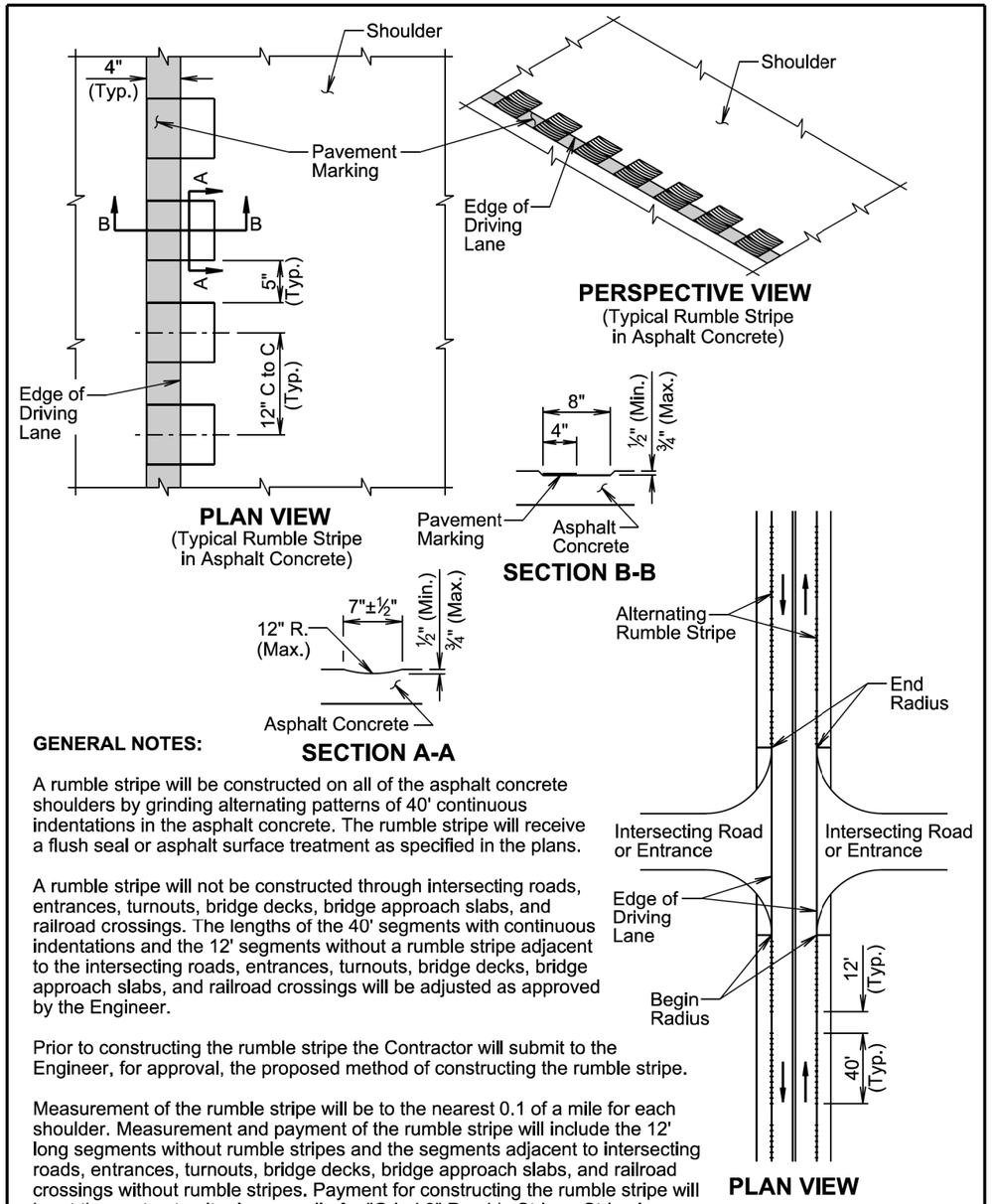


PLAN VIEW
(Entrance)

*** Not required if finished shoulder width is 4' or greater.

August 27, 2020

Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 2 of 2



GENERAL NOTES:

A rumble stripe will be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

A rumble stripe will not be constructed through intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble stripe adjacent to the intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the Engineer.

Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

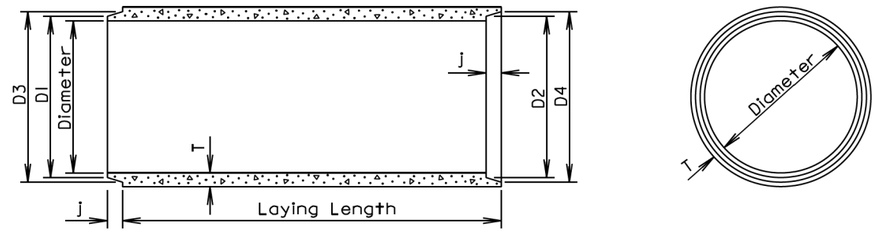
Measurement of the rumble stripe will be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble stripe will include the 12' long segments without rumble stripes and the segments adjacent to intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings without rumble stripes. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind 8" Rumble Strip or Stripe in Asphalt Concrete".

September 14, 2019

Published Date: 2026	SDDOT	8" RUMBLE STRIPE IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.20
			Sheet 1 of 1

TOLERANCES IN DIMENSIONS

Diameter: ±1.5% for 24" Dia. or less and ±1% or ⅜" whichever is more for 27" Dia. or greater.
Diameters at joints: ± 3/16" for 30" Dia. or less and ± ¼" for 36" or greater.
Length of joint (j): ± ¼".
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 ½".



GENERAL NOTES:

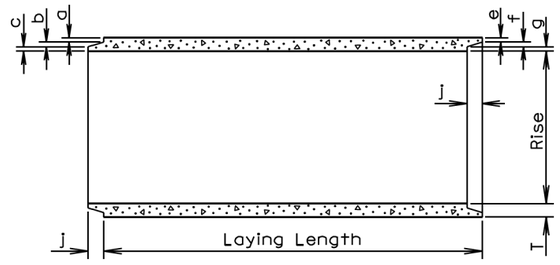
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

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.

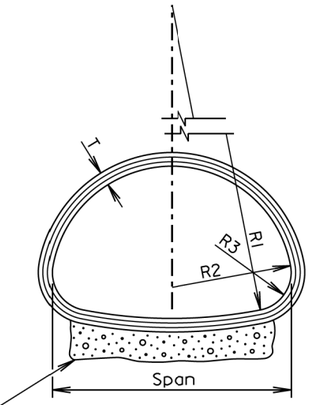
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1¾	13¼	13⅝	13⅞	14¼
15	127	2¼	2	16½	16⅞	17¼	17⅝
18	168	2½	2¼	19⅝	20	20⅜	20¾
21	214	2¾	2½	22⅞	23¼	23¾	24⅛
24	265	3	2¾	26	26⅜	27	27⅜
27	322	3¼	3	29¼	29⅝	30¼	30⅝
30	384	3½	3¼	32⅜	32¾	33½	33⅞
36	524	4	3¾	38¾	39¼	40	40½
42	685	4½	4	45⅛	45⅝	46½	47
48	867	5	4½	51½	52	53	53½
54	1070	5½	4½	57⅞	58⅜	59⅜	59⅞
60	1296	6	5	64¼	64¾	66	66½
66	1542	6½	5½	70⅝	71⅛	72½	73
72	1810	7	6	77	77½	79	79½
78	2098	7½	6½	83⅜	83⅞	85⅝	86⅛
84	2410	8	7	89¾	90¼	92⅛	92⅝
90	2740	8½	7	95¾	96¼	98⅛	98⅝
96	2950	9	7	102⅛	102⅝	104½	105
102	3075	9½	7½	109	109½	111½	112
108	3870	10	7½	115½	116	118	118½

June 26, 2015

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



LONGITUDINAL SECTION



END VIEW

TOLERANCES IN DIMENSIONS

Radial dimensions at joints: ± 1/8" for 65" span or less and ± 1/4" for longer spans.
Rise and Span: ±2% of tabular values.
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".

Gravel Bedding Material shall be supplied for 102" to 169" spans. It shall be placed to a thickness of 6" (Min.) x 85% of the Span x Length of culvert and shall conform to the gradation requirements for gravel surfacing except material may be screened or may be plan provided material.

* Size (in.)	Approx. Wt./Ft. (lb.)	Rise (in.)	Span (in.)	T (in.)	a (in.)	b (in.)	c (in.)	j (in.)	e (in.)	f (in.)	g (in.)	R1 (in.)	R2 (in.)	R3 (in.)
18	170	13 1/2	22	2 1/2	1 3/8	3/8	3/4	2	1 1/8	3/8	1	27 1/2	13 3/4	5 1/4
24	320	18	28 1/2	3 1/2	1 5/8	1/2	1 3/8	3	1 3/8	1/2	1 5/8	40 11/16	14 3/4	4 5/8
30	450	22 1/2	36 1/4	4	1 13/16	5/8	1 9/16	3 1/2	1 9/16	5/8	1 13/16	51	18 3/4	6 1/8
36	600	26 5/8	43 3/4	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	62	22 1/2	6 1/2
42	740	31 5/16	51 1/8	4 1/2	2	3/4	1 3/4	4	1 3/4	3/4	2	73	26 1/4	7 3/4
48	890	36	58 1/2	5	2 1/4	3/4	2	5	2	3/4	2 1/4	84	30	8 7/8
54	1100	40	65	5 1/2	2 1/2	3/4	2 1/4	5	2 1/4	3/4	2 1/2	92 1/2	33 3/8	10
60	1400	45	73 1/2	6	3 5/16	3/4	1 15/16	5	2 3/4	3/4	2 1/2	105	37 1/2	11
72	1900	54	88	7	3 13/16	1	2 3/16	6	3 1/4	1	2 3/4	126	45	13 5/16
84	2500	62	102	8	4 1/8	1	2 7/8	6	3 1/2	1	3 1/2	162 1/2	52	14 1/2
96	3300	78	122 3/8	9	4 1/2	1	3 1/2	7	4	1	4	218	62	20
108	4200	88	138 1/2	10	5	1	4	7	4 1/2	1	4 1/2	269	70	22
120	5100	96 7/8	154	11	5 1/2	1	4 1/2	7	5	1	5	301 3/8	78	24
132	5100	106 1/2	168 3/4	10		1	4	7	4 1/2	1	4 1/2	329	85 5/8	26 7/8

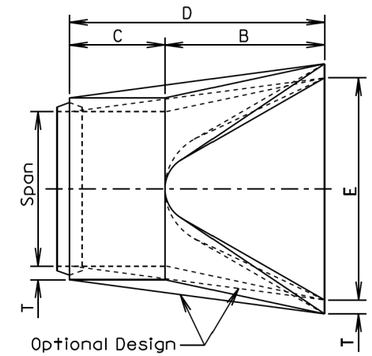
* Equivalent Diameter of Circular R. C. P.

GENERAL NOTES:

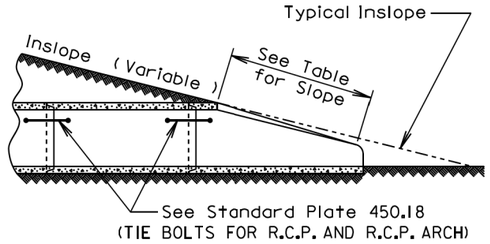
Construction of R.C.P. Arch shall conform to the requirements of Section 990 of the Specifications. Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

June 26, 2015

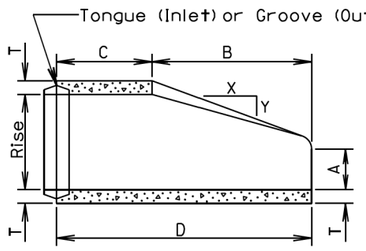
Published Date: 2026	SDDOT	REINFORCED CONCRETE PIPE ARCH	PLATE NUMBER 450.02
			Sheet 1 of 1



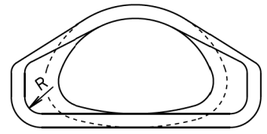
TOP VIEW



SLOPE DETAIL



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

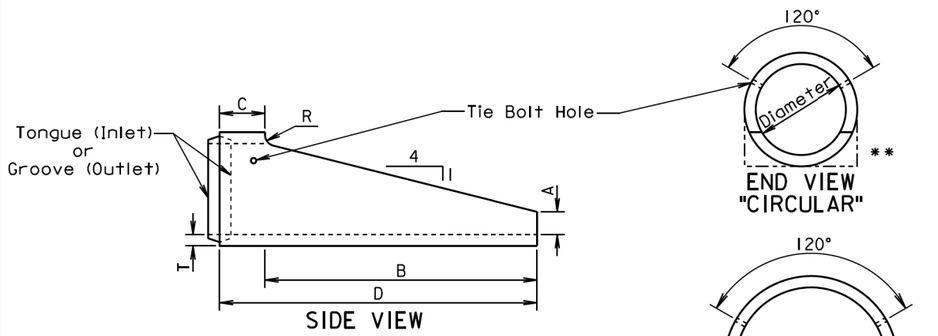
Construction of R. C. P. Arch Flared End shall conform to the requirements of Section 990 of the Specifications.

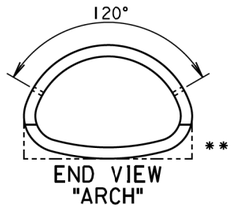
* Size (in.)	Approximate Weight of Section (lbs.)	Rise (in.)	Span (in.)	Slope (X:Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	R (in.)
18	1100	13 1/2	22	3:1	2 1/2	7	27	45	72	36	2
24	1750	18	28 1/2	3:1	3 1/2	8 1/2	39	33	72	48	3
30	3300	22 1/2	36 1/4	3:1	4	9 1/2	50	46	96	60	3
36	4350	26 5/8	43 3/4	3:1	4 1/2	1 1 1/8	60	36	96	72	6
42	5250	31 5/16	51 1/8	3:1	4 1/2	15 13/16	60	36	96	78	6
48	6400	36	58 1/2	3:1	5	21	60	36	96	84	6
54	7850	40	65	3:1	5 1/2	25 1/2	60	36	96	90	6
60	9500	45	73 1/2	3:1	6	31	60	36	96	96	6
72	13550	54	88	2:1	7	31	60	39	99	120	6
84	17950	62	102	2:1	8	28 1/2	83	19	102	144	6

* Equivalent Diameter of Circular R. C. P.

June 26, 2015

Published Date: 2026	SDDOT	R. C. P. ARCH FLARED ENDS	PLATE NUMBER 450.11
			Sheet 1 of 1





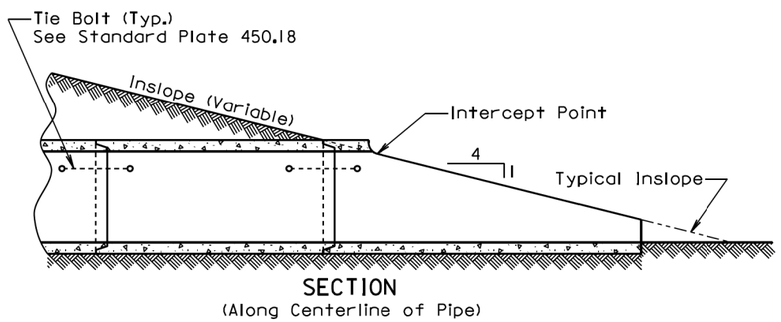
Dia. (in.)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	R (in.)
FOR CIRCULAR PIPE						
24	3	6	72	12	84	3
30	3½	7½	90	12	102	3½
FOR ARCH PIPE						
* 24	3	6	48	12	60	3
* 30	3½	7½	60	12	72	3½
* 36	4½	8⅝	66	30	96	0
* 42	4½	10	77¼	18¾	96	0

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	3½	11	90	12	102	0
FOR ARCH PIPE						
* 24	3	9	48	12	60	0
* 30	3½	11	60	12	72	0

* Equivalent Diameter of Circular R.C.P.

** Acceptable Flat Bottom Alternate.



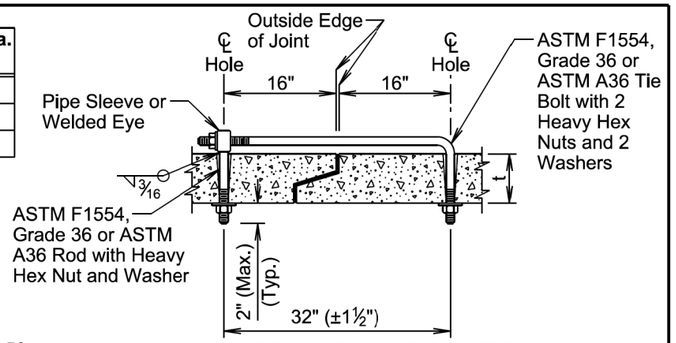
GENERAL NOTE:

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

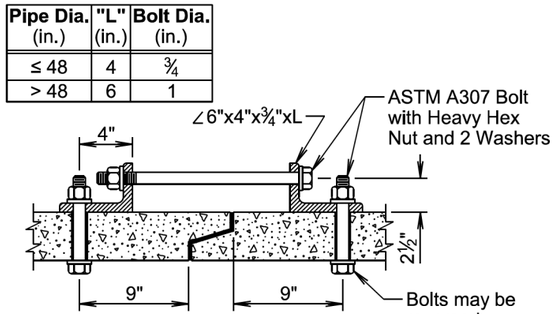
GENERAL NOTES:

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



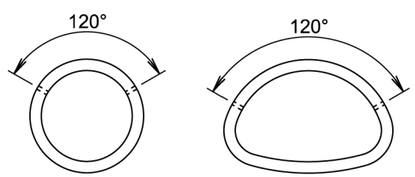
ANGLE AND BOLT TIE

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.

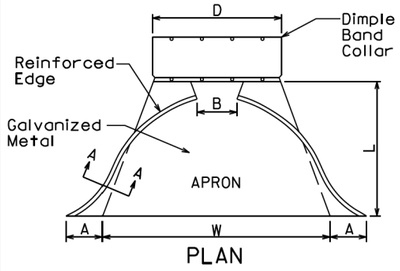
All pipe sections of R.C.P. and R.C.P. Arch will be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manholes, and junction boxes will be tied with tie bolts.

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.

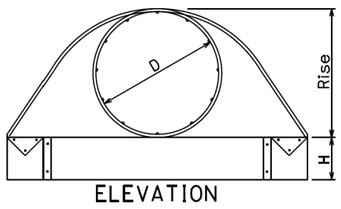
April 8, 2025

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

Alternate Type Connector Sections may be used with approval of the Engineer.



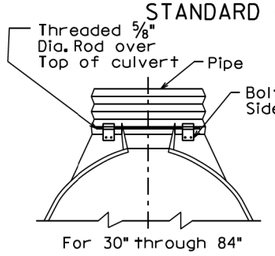
PLAN



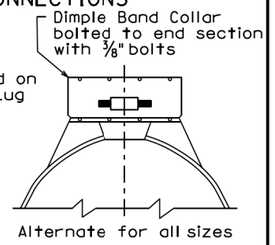
ELEVATION

Dia. D (in.)	Ga.	DIMENSIONS (in.) A	B	H	L	W	Approx. Slope	Body
12	16	6	6	6	21	24	2½:1	1 Pc.
15	16	7	8	6	26	30	2½:1	1 Pc.
18	16	8	10	6	31	36	2½:1	1 Pc.
21	16	9	12	6	36	42	2½:1	1 Pc.
24	16	10	13	6	41	48	2½:1	1 Pc.
30	14	12	16	8	46	60	2½:1	1 Pc.
36	14	14	19	9	51	72	2½:1	2 Pc.
42	12	16	22	11	60	84	2½:1	2 Pc.
48	12	18	27	12	69	90	2¼:1	2 Pc.
54	12	18	30	12	78	102	2:1	3 Pc.
60	12	18	33	12	84	114	1¾:1	3 Pc.
66	12	18	36	12	87	120	1½:1	3 Pc.
72	12	18	39	12	87	126	1⅓:1	3 Pc.
78	12	18	42	12	87	132	1¼:1	3 Pc.
84	12	18	45	12	87	138	1⅙:1	3 Pc.

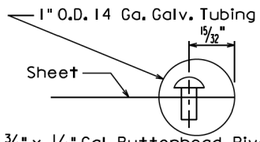
STANDARD CONNECTIONS



For 30" through 84"



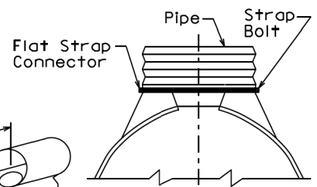
Alternate for all sizes



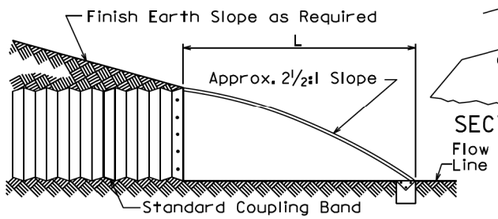
⅜" x ½" Gal. Buttonhead Rivets spaced 6" C. to C. Overall length of rivets=0.78"

TUBING ATTACHMENT DETAILS
SECTION A-A

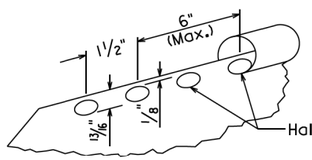
NOTE:
Tubing is slipped over the sheet and rivets or lugs prior to forming operations of the apron.



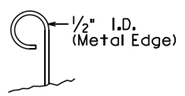
For 12" through 24" only



TYPICAL CROSS-SECTION



SECTION A-A (alternate)



SECTION A-A (alternate)

GENERAL NOTES:

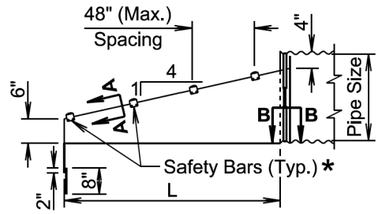
All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be gregter than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by ⅞" Dia. galvanized rivets or bolts.

For 60" through 84" sizes, reinforced edges shall be supplemented with galvanized stiffener angles. The angles will be 2" x 2" x ¼" for 60" through 72" diameters and 2½" x 2½" x¼" for 78" and 84" diameters. The angles shall be attached by ⅜" diameter galvanized nuts and bolts.

Rivets and Bolts shall be ⅜" Dia. Min. for 10 Ga. and 12 Ga. sheet, and ⅝" Dia. Min. for 14 Ga. and 16 Ga. sheets. Tighten nuts with torque wrench to 25 lbs. torque.

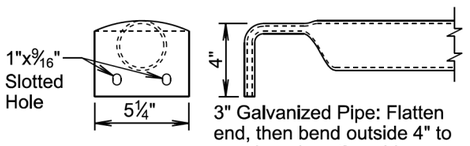
March 31, 2000

Published Date: 2026	SDDOT	C.M.P. FLARED ENDS	PLATE NUMBER 450.35
			Sheet 1 of 1



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

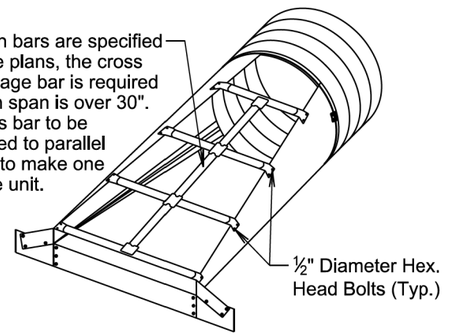
ELEVATION VIEW



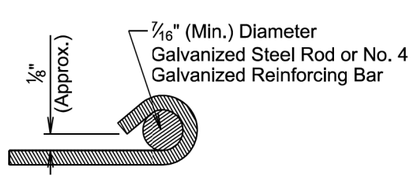
3" Galvanized Pipe: Flatten end, then bend outside 4" to match end section sides.

DETAIL OF SAFETY BARS

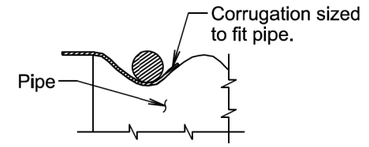
When bars are specified in the plans, the cross drainage bar is required when span is over 30". Cross bar to be welded to parallel bars to make one piece unit.



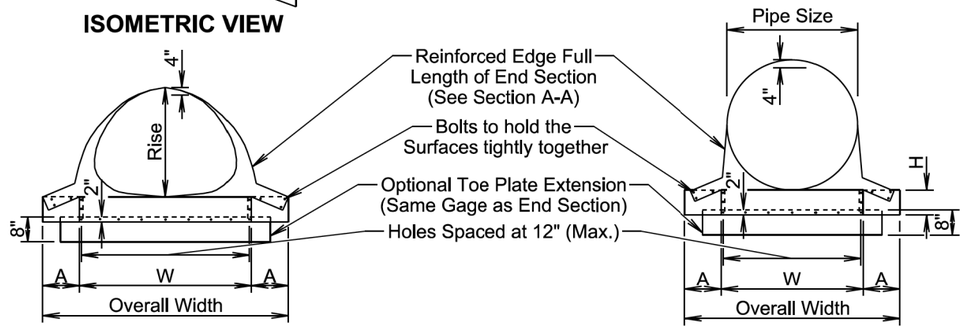
ISOMETRIC VIEW



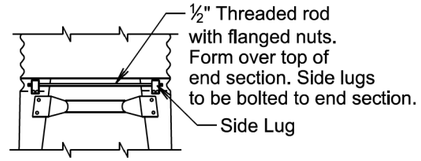
SECTION A-A



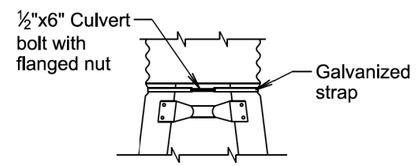
SECTION B-B



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. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 1 of 2

ARCH C.M.P. SLOPED ENDS										
Equiv. Dia. (Inch)	(Inches) Span	Rise	(Min.) Thick. Inch	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions 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. Inch	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions 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.

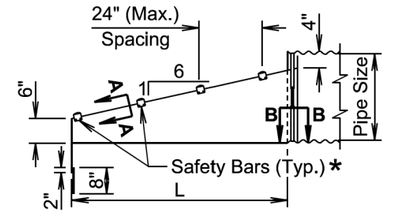
When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with ⅜" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

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.

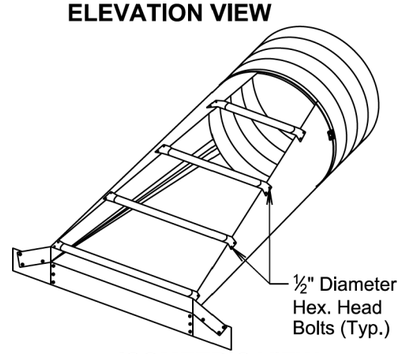
April 8, 2025

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

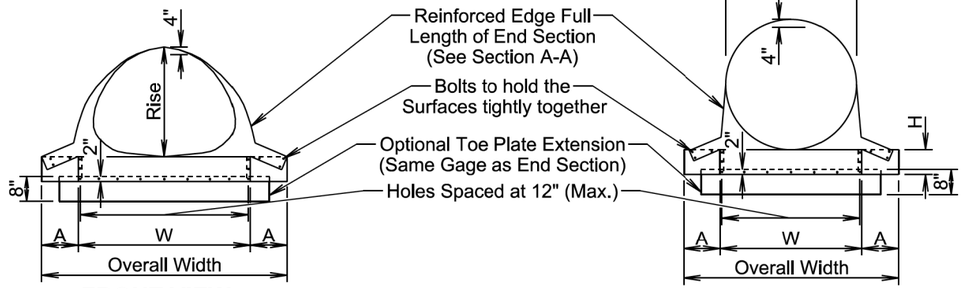


* Number of bars required will vary depending on the length of the end section.

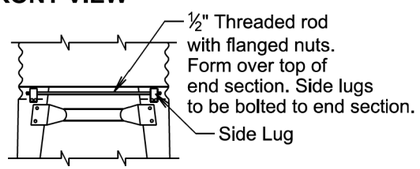
ELEVATION VIEW



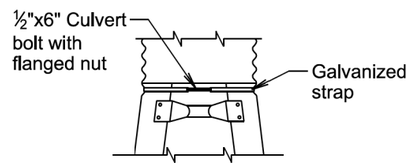
ISOMETRIC VIEW



FRONT VIEW **FRONT VIEW**



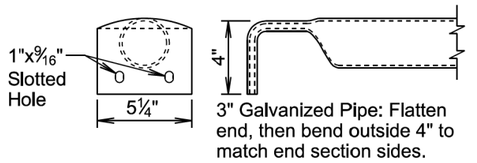
TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21"x15" and Larger)



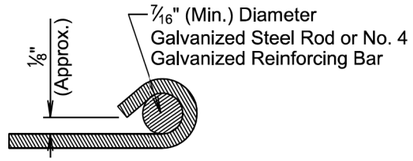
TYPE #1 CONNECTOR DETAIL
(For 15" Through 24")

April 8, 2025

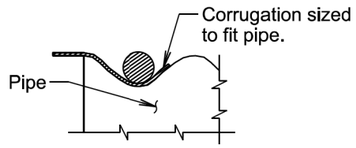
Published Date: 2026	SDDOT	C.M.P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2



DETAIL OF SAFETY BARS



SECTION A-A



SECTION B-B

ARCH C.M.P. SAFETY ENDS										
Equlv. 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	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.		Dimensions (Inches)				L Dimensions	
	Inch	Gage	A	H	W	Overall Width	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.

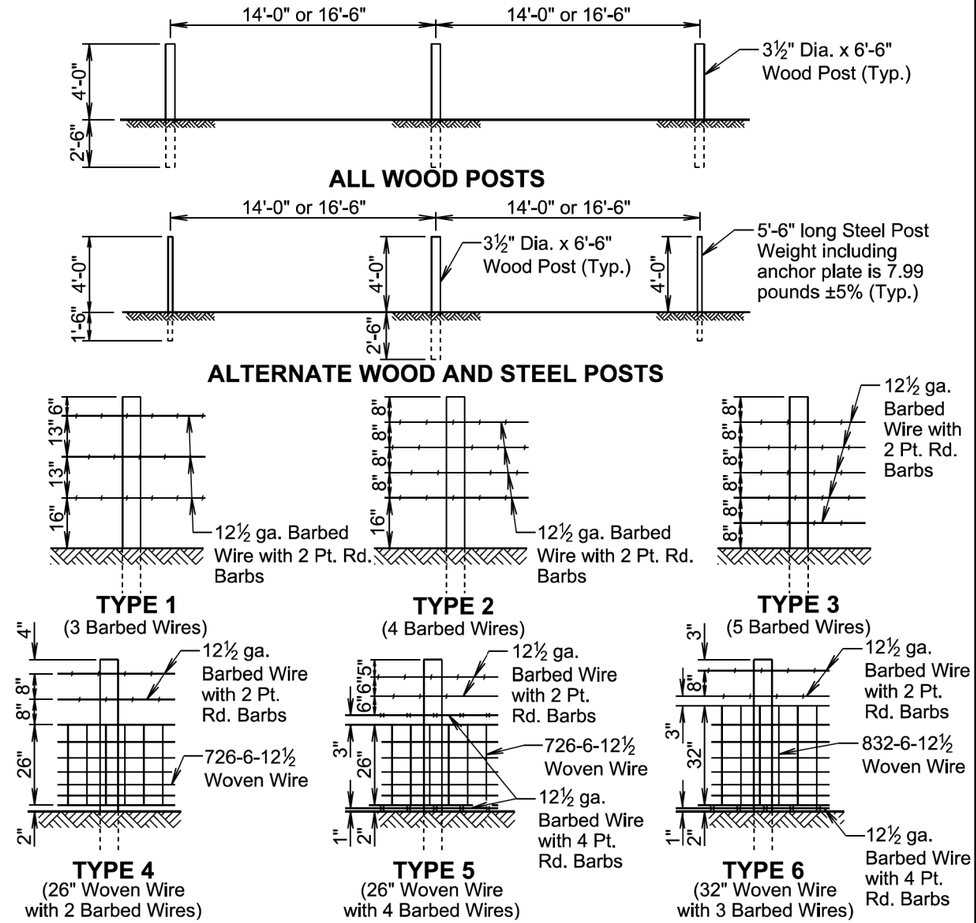
When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with ⅜" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

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



TYPE OF FENCE		LINE POST SPACING	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION		WIRE GAGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12½	2 Point Round	—
2	4 Barbed Wires	16'-6"	12½	2 Point Round	—
3	5 Barbed Wires	16'-6"	12½	2 Point Round	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12½	2 Point Round	726-6-12½
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12½
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	832-6-12½

GENERAL NOTES:

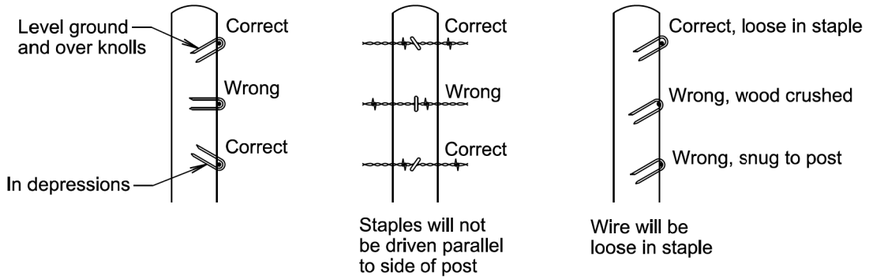
Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All radius of curvature stated for fence are at centerline of roadway.

April 8, 2025

Published Date: 2026	SDDOT	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01
			Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence will consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire will be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts will be used for brace panels. Gates will be of the type designated in the plans or as otherwise directed by the Engineer. Fence will be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects will be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

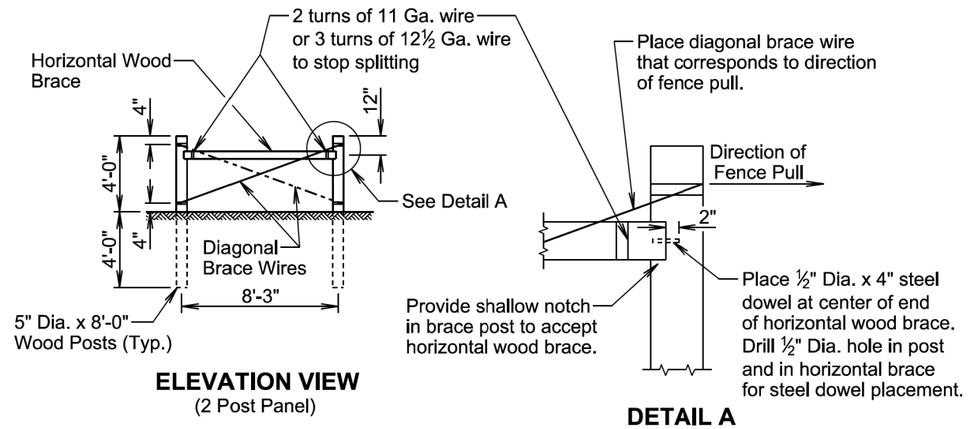
Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs will be fabricated from zinc coated 14 ga. wire. Two point barbs will be wrapped twice around one main strand at four-inch spacings and the four point barbs will be interlocked and wrapped around both main strands at five-inch spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

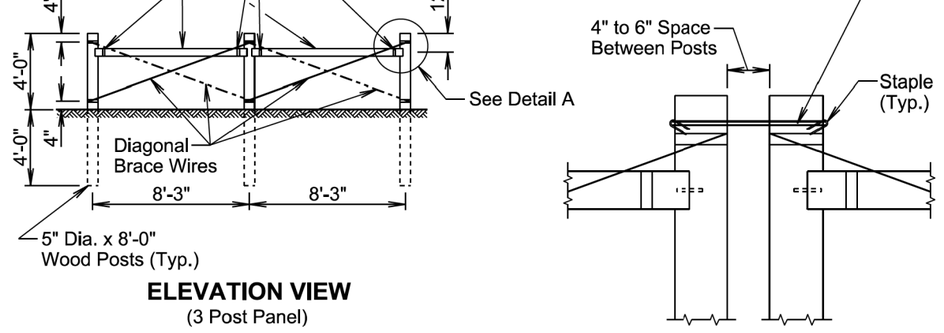
June 26, 2019

Published Date: 2026	SDDOT	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02
			Sheet 1 of 1



ELEVATION VIEW
(2 Post Panel)

DETAIL A



ELEVATION VIEW
(3 Post Panel)

DETAIL B

GENERAL NOTES:

Two Post Panels will be installed at least every 1320' between corners.

Two Post Panels will be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces will consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires will be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires will be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
RADIUS OF CURVE	SPACING OF 2 POST PANEL
Greater than 1800 Ft.	** 1320'
Less than 1800 Ft.	** At P.C., P.T., and at every 1320' between P.C. and P.T.

** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

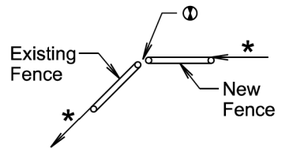
① See Detail B on Sheet 1 of 3.

GENERAL NOTE:

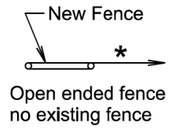
All radius of curvature stated for fence are at centerline of roadway.

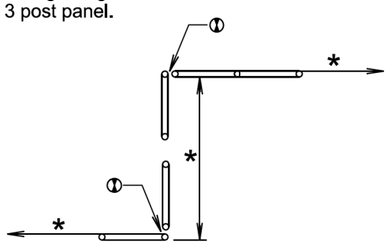
If fence length is less than 600' to next corner use a 2 post panel.

* If fence length is greater than 600' to next corner use a 3 post panel.

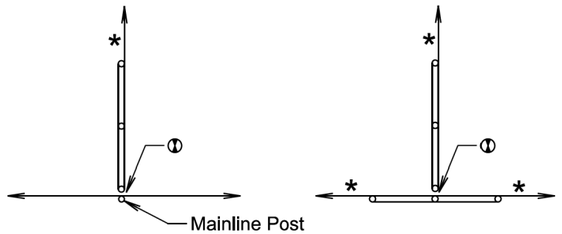


BEGIN OR END FENCE
(Where new fence ties into existing fence)

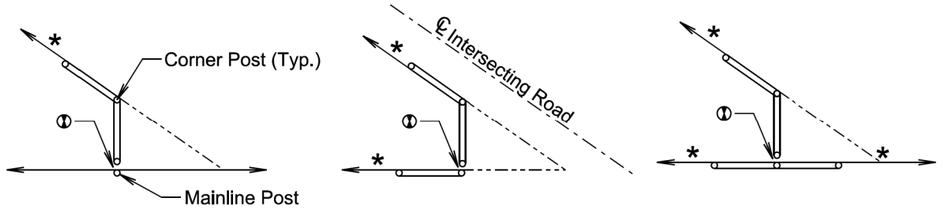




SHORT JOGS IN FENCE



CROSS FENCE



SHARP ANGLES IN CROSS FENCE

Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.

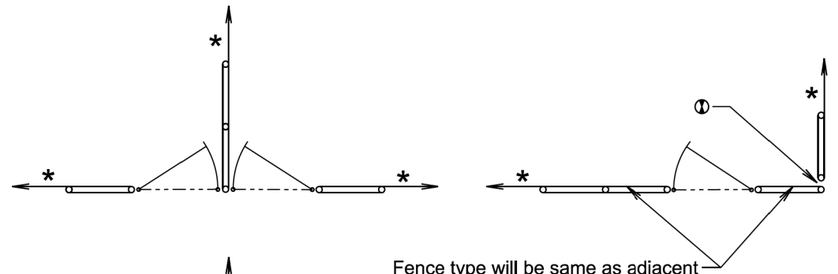
Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

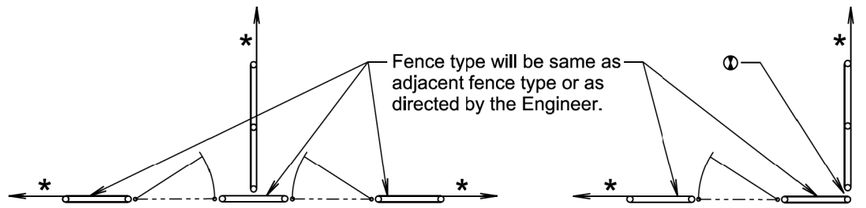
March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 2 of 3

ENTRANCE
(Not on corner)



Fence type will be same as adjacent fence type or as directed by the Engineer.



DOUBLE ENTRANCES

ENTRANCES AT CORNERS

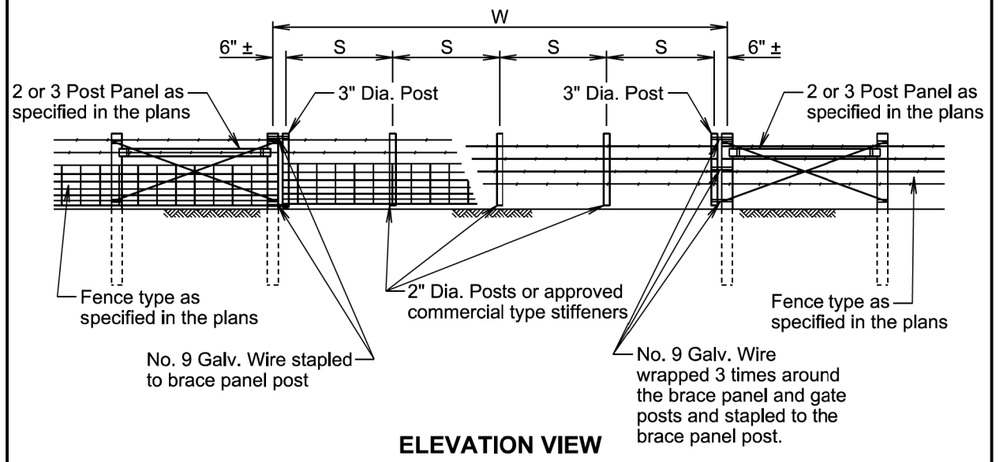
GATES

* If fence length is less than 600' to next corner use a 2 post panel.
If fence length is greater than 600' to next corner use a 3 post panel.

① See Detail B on Sheet 1 of 3.

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 3 of 3



ELEVATION VIEW

W Gate Width (Ft.)	S Post Spacing
16	3 @ 5'-0" ±
20	4 @ 4'-9" ±
24	4 @ 5'-9" ±
30	5 @ 5'-10" ±
40	6 @ 6'-6" ±

GENERAL NOTES:

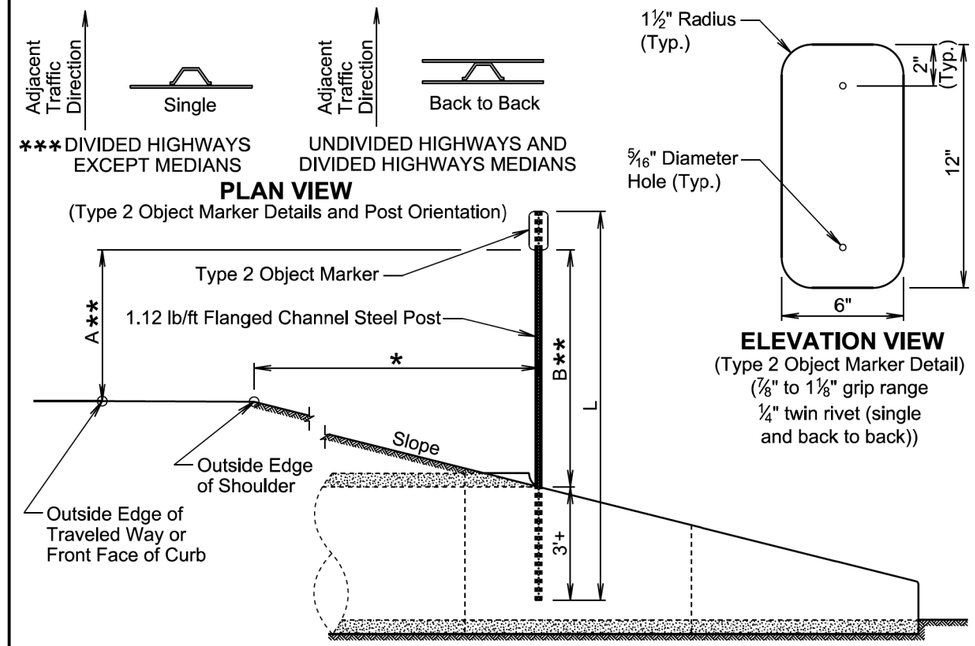
Creosote treatment of the gate posts will not be accepted.

The type of fencing in the gate will be of the same type as specified for the adjacent Right-of-Way fence.

All costs for furnishing and constructing the wire gate(s) will be incidental to the contract unit price per foot for the respective Right-of-Way fence contract item.

June 26, 2019

Published Date: 2026	SDDOT	WIRE GATES	PLATE NUMBER 620.20 Sheet 1 of 1



ELEVATION VIEW
(Pipe culvert shown for illustrative purpose.)

TYPE 2 OBJECT MARKER POST LENGTHS									
OFFSET (*)		1'	2'	3'	4'	5'	6'	7'	8'	Greater Than 8'
		POST LENGTH (L)								
SLOPE	3:1	8'-6"	8'-9"	9'-3"	9'-6"	9'-9"	10'-3"	10'-6"	10'-9"	8'-0"
	4:1	8'-6"	8'-9"	9'-0"	9'-3"	9'-9"	9'-9"	10'-0"	10'-3"	8'-0"
	5:1	8'-3"	8'-6"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	9'-9"	8'-0"
	6:1	8'-3"	8'-6"	8'-9"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	8'-0"

GENERAL NOTES:

*** The type 2 object marker may be installed back to back when specified in the plans.

Post Length L was calculated based on a shoulder width of 6 feet at a crosslope of 4 percent and L was rounded up to the nearest 3 inches.

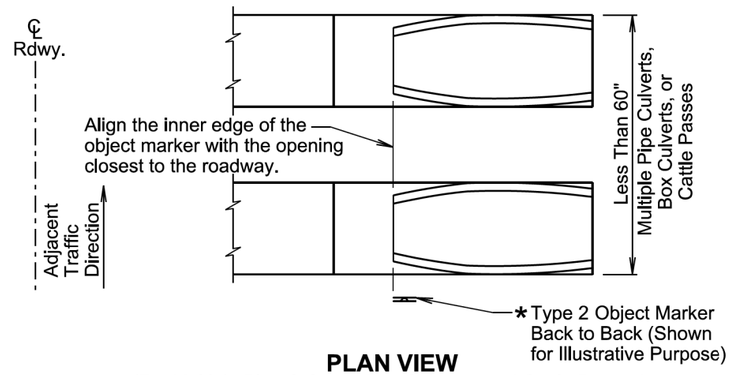
** Dimension A is 4 feet when the Offset * is 8 feet and less. Dimension B is 4 feet when Offset * is greater than 8 feet.

The type 2 object marker and the 1.12 lb/ft flanged channel steel post will be in conformance with Specifications Section 982.2 J.

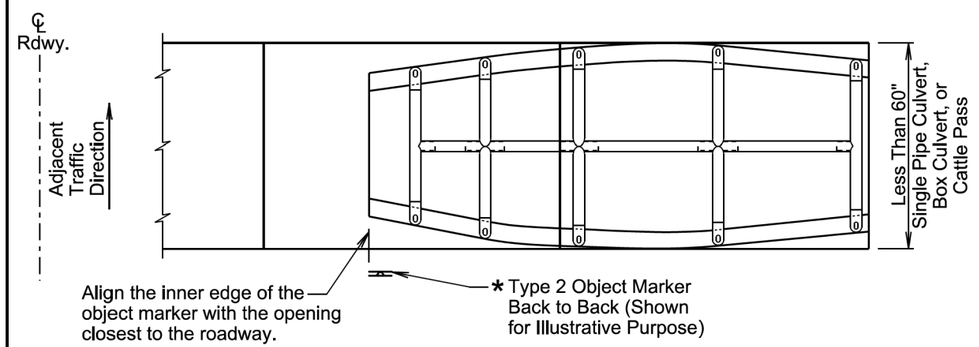
Payment for the type 2 object marker will be in conformance with Specification Section 632.5 B.

December 23, 2019

Published Date: 2026	SDDOT	TYPE 2 OBJECT MARKER (DIRECT DRIVE)	PLATE NUMBER 632.01 Sheet 1 of 1



PLAN VIEW
(For Multiple Pipe Culverts, Box Culverts, and Cattle Passes)
(Pipe culverts shown for illustrative purpose.)
(Embankment is not shown.)



PLAN VIEW
(For Single Pipe Culvert, Box Culvert, and Cattle Pass)
(Pipe culvert shown for illustrative purpose.)
(Embankment is not shown.)

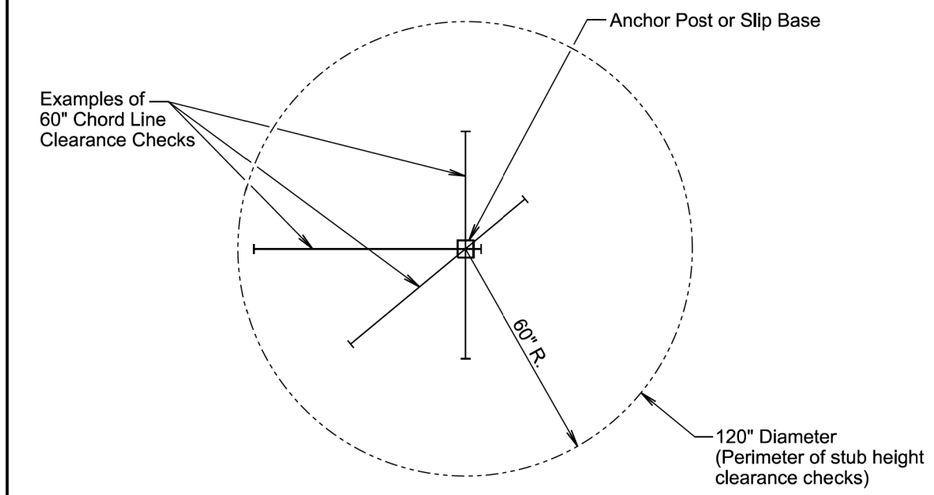
GENERAL NOTES:

This standard plate will be used in conjunction with standard plate 632.01.

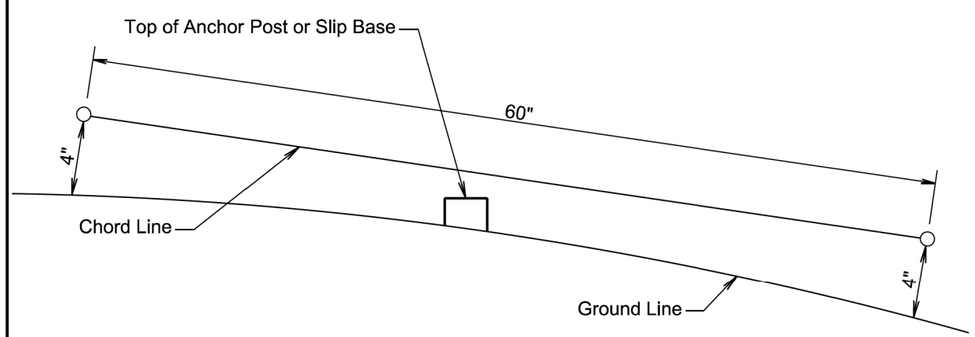
* The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

Published Date: 2026	SDDOT	TYPE 2 OBJECT MARKER AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES (Less than 60" Overall Width)	PLATE NUMBER 632.03 Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

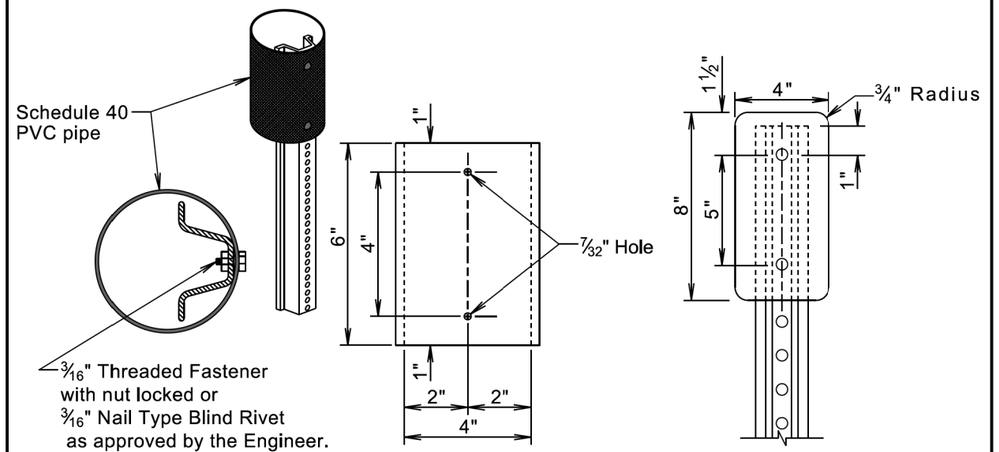
GENERAL NOTES:

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.

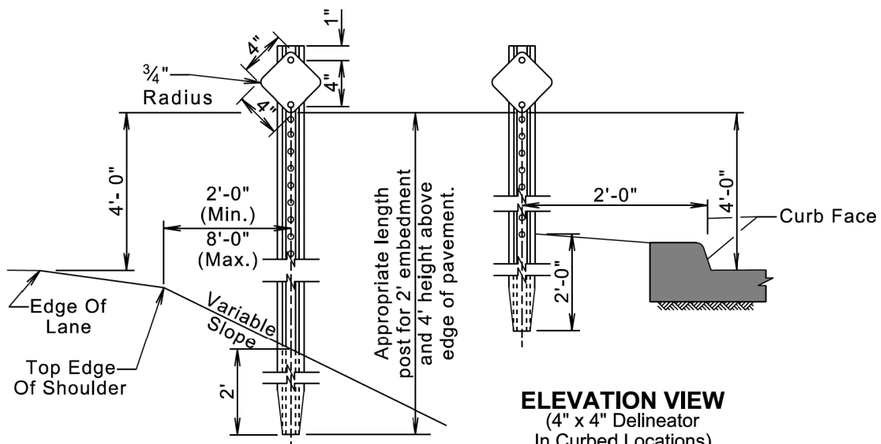
January 22, 2021

Published Date: 2026	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 632.18 Sheet 1 of 1



ELEVATION VIEW
(4" Tubular delineator
mounted on post)

ELEVATION VIEW
(4" x 8" Delineator)



ELEVATION VIEW
(4" x 4" Delineator
In Curbed Locations)

¼" Diameter Mounting Holes in all Delineators

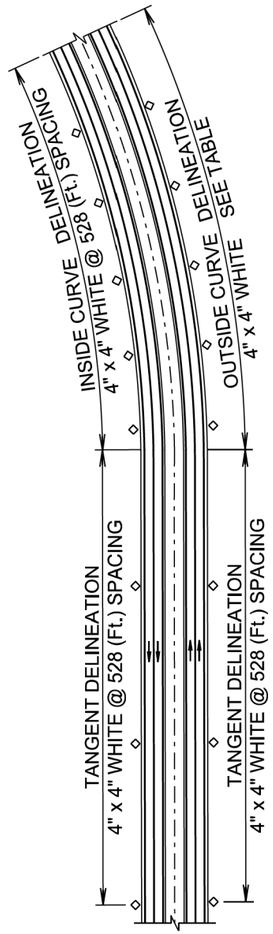
ELEVATION VIEW
(4" x 4" Delineators)

GENERAL NOTES:

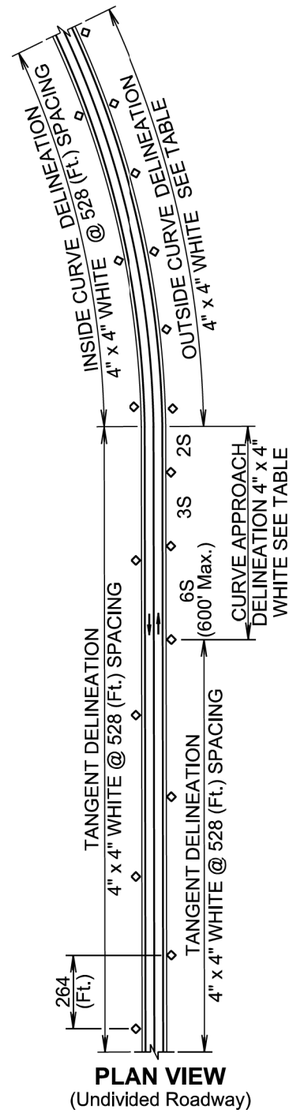
Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

March 31, 2024

Published Date: 2026	SDDOT	DELINEATOR INSTALLATION DETAIL	PLATE NUMBER 632.42
			Sheet 1 of 1



PLAN VIEW
(Divided Roadway)



PLAN VIEW
(Undivided Roadway)

March 31, 2024

Published Date: 2026	SDDOT	DELINEATOR INSTALLATION SPACING	PLATE NUMBER 632.46
			Sheet 1 of 2

GENERAL NOTES:

Delineators will be located from 2 to 8 feet outside of the outer edge of shoulder. When a roadside barrier or other obstruction intrudes into the space between the pavement edge and the extension of the line of delineators, the delineators should be in line with the barrier or in line with the innermost edge of the obstruction.

When normal spacing is interrupted by driveways, crossroads, or approaches, delineators falling within such areas may be moved in either direction a distance not exceeding one-quarter of the standard spacing. Delineators still falling within such areas should be eliminated.

The spacing for specific radii may be interpolated from the table. The minimum spacing should be 20 feet. The spacing on curves should not exceed 300 feet. In advance of or beyond a curve, and proceeding away form the end of the curve, the spacing of the first delineator is 2S, the second 3S, and the third 6S, but not to exceed 300 feet. S refers to the delineator spacing for specific radii computed from the formula $S = 3\sqrt{R - 50}$. The distances for S shown in the table were rounded to the nearest 5 feet.

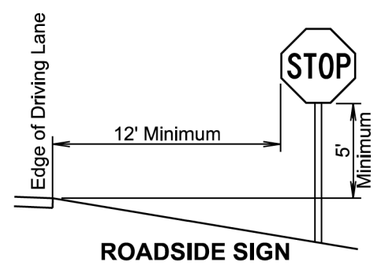
Curve approach delineation is not required if curve delineation spacing exceeds 100 ft.

Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

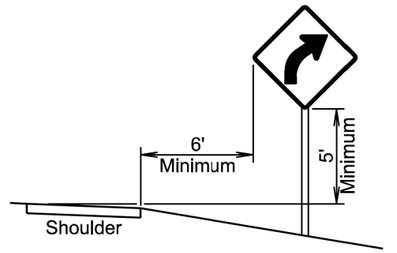
DELINEATOR SPACING OUTSIDE CURVE				
Radius of Curve (Ft.)	Curve Delineator Spacing (Ft.)	Curve Approach Spacing (Ft.)		
		A	B	C
50	20	40	65	125
115	25	50	75	150
150	30	60	90	180
180	35	70	110	215
250	40	85	125	250
300	45	95	140	285
400	55	110	170	300
500	65	125	190	300
600	70	140	210	300
700	75	150	230	300
800	80	165	245	300
900	85	175	260	300
1000	90	185	275	300

March 31, 2024

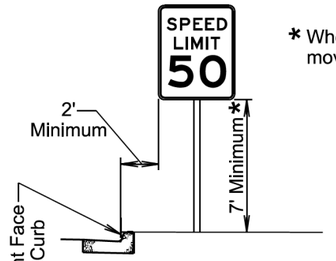
Published Date: 2026	SDDOT	DELINEATOR INSTALLATION SPACING	PLATE NUMBER 632.46
			Sheet 2 of 2



ROADSIDE SIGN IN RURAL AREA

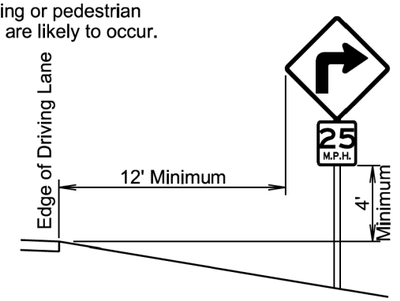


ROADSIDE SIGN IN RURAL AREA
(If shoulder width is greater than 6 foot)

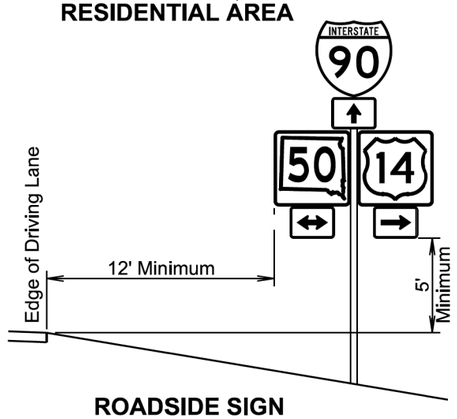


ROADSIDE SIGN IN BUSINESS, COMMERCIAL, OR RESIDENTIAL AREA

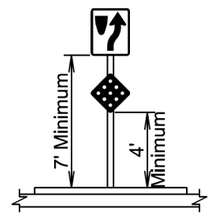
* Where parking or pedestrian movements are likely to occur.



WARNING SIGN ADVISORY SPEED PLAQUE IN RURAL AREA



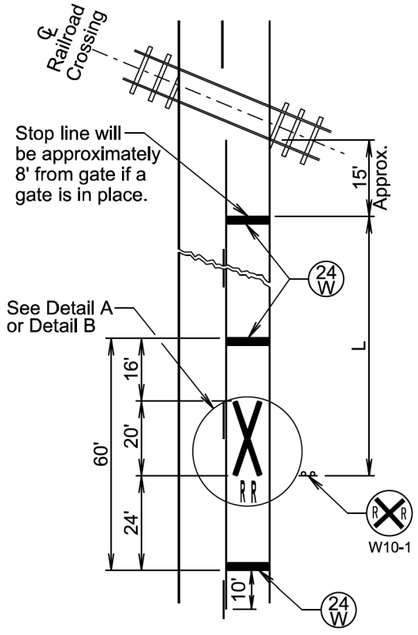
ROADSIDE SIGN IN RURAL AREA



SIGN ON NOSE OF MEDIAN

April 8, 2025

Published Date: 2026	SDDOT	OFFSETS FOR SIGN INSTALLATION	PLATE NUMBER 632.90
			Sheet 1 of 1



PLAN VIEW

KEY	ITEM
24 W	24" White
R R	White

Posted Speed Limit (M.P.H.)	L (Ft.)
≤ 30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550

GENERAL NOTES:

The railroad crossing pavement markings will be placed symmetrically about the centerline of the railroad crossing. DETAIL A should be used unless the railroad crossing pavement markings are installed in existing grooves that match DETAIL B.

When pavement markings are used, a portion of the RXR symbol will be placed directly opposite of the advance warning sign W10-1.

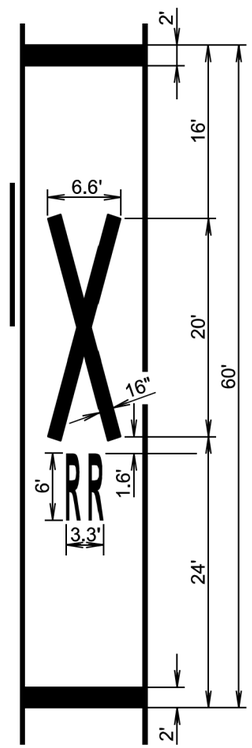
On multi-lane roads the transverse bands will extend across all approach lanes and individual RXR symbols will be placed in each approach lane.

The railroad crossing pavement markings will consist of all the transverse bands, stop lines, and RXR symbols.

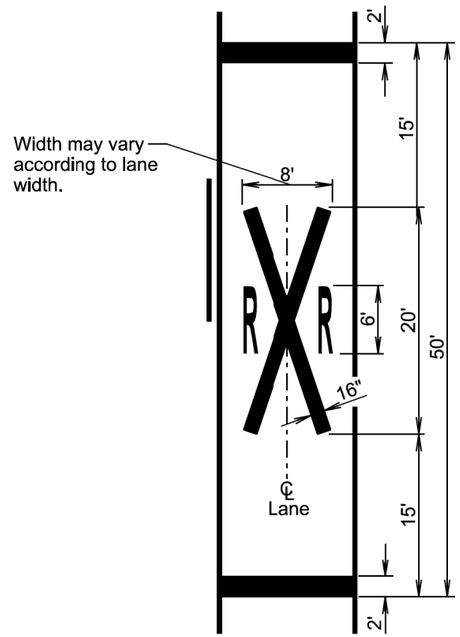
All costs for furnishing and installing the markings, materials, labor, and necessary equipment for the railroad crossing makings will be paid for at the contract unit price per gallon or per each for the type of marking material specified in the plans.

November 19, 2020

Published Date: 2026	SDDOT	PAVEMENT MARKINGS AT RAILROAD CROSSING	PLATE NUMBER 633.10 Sheet 1 of 2



DETAIL A



DETAIL B

November 19, 2020

Published Date: 2026	SDDOT	PAVEMENT MARKINGS AT RAILROAD CROSSING	PLATE NUMBER 633.10 Sheet 2 of 2

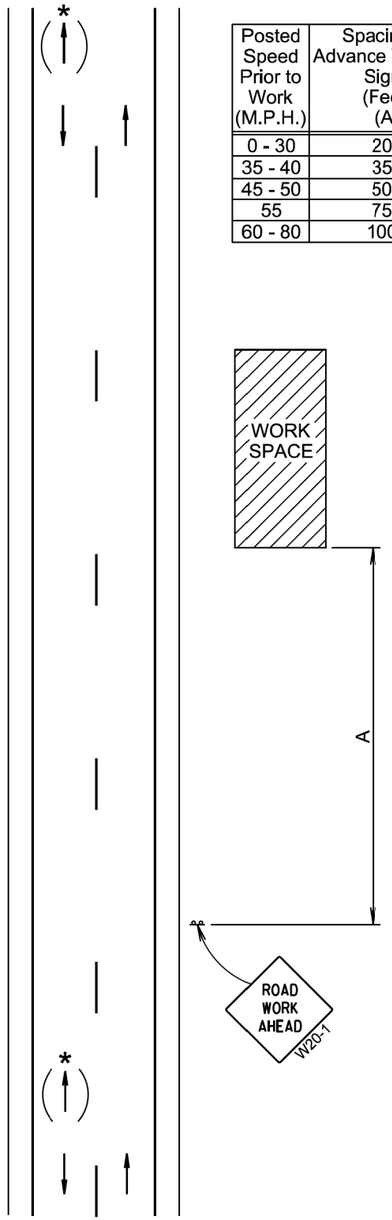
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated will be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

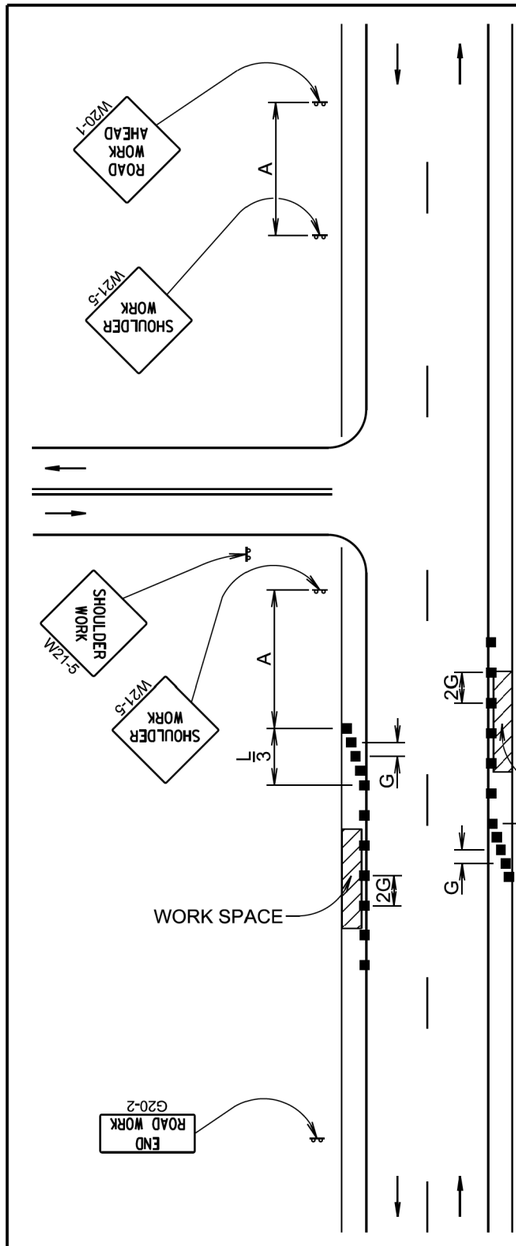
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000

January 22, 2021

Published Date: 2026	SDDOT	WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01 Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

The channelizing devices will be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

January 22, 2021

Published Date: 2026	SDDOT	WORK ON SHOULDERS	PLATE NUMBER 634.03 Sheet 1 of 1

* Messages on signs will vary depending on the operation being conducted.

Vehicle-mounted signs will be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs will be covered or turned from view when work is not in progress.

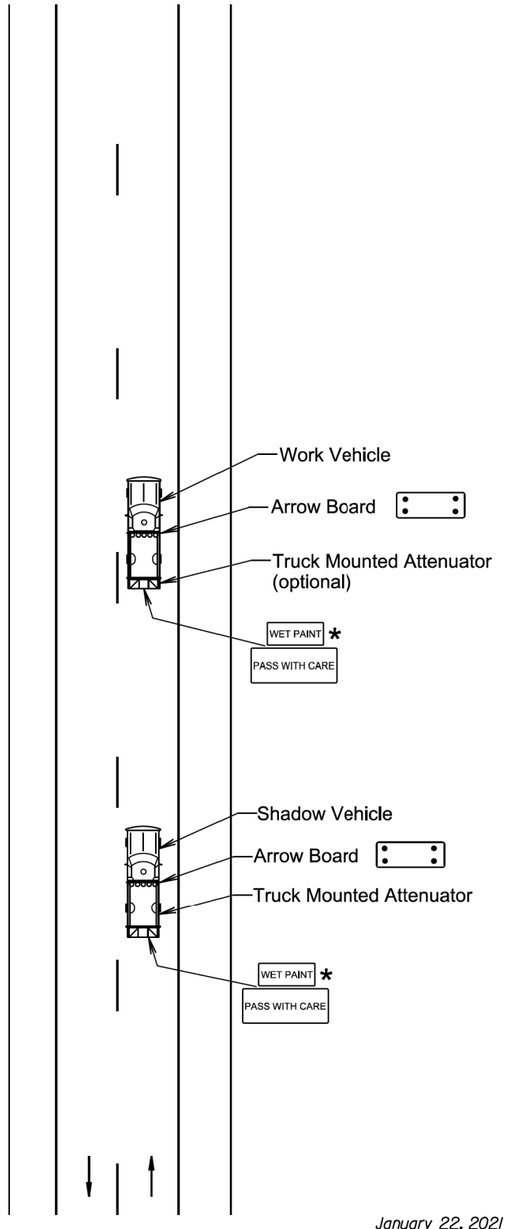
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

Vehicle hazard warning signals will not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

When an arrow board is used, it will be used in the caution mode. Marching Diamonds are acceptable.

Arrow boards will, as a minimum, be Type B, with a size of 60" x 30".

All costs associated with the traffic control for mobile operation including signs, arrow boards and equipment will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

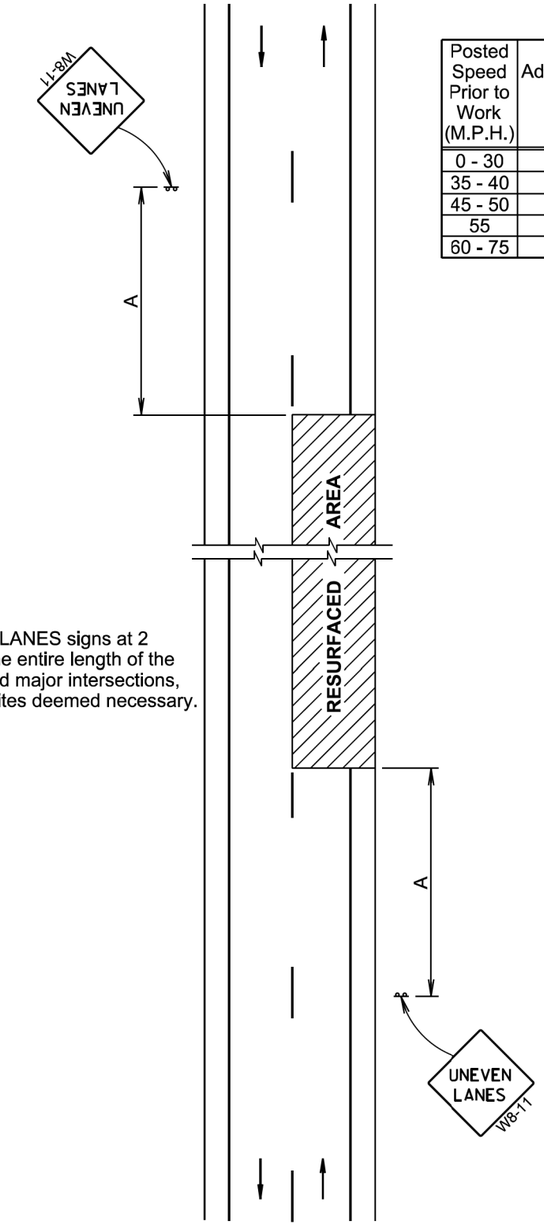


January 22, 2021

Published Date: 2026	SDDOT	MOBILE OPERATIONS ON 2-LANE ROAD	PLATE NUMBER 634.06 Sheet 1 of 1

Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 75	1000



January 22, 2021

Published Date: 2026	SDDOT	UNEVEN ROAD SURFACE	PLATE NUMBER 634.22 Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

Flagger

Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

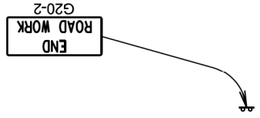
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) will be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices will be drums or 42" cones.

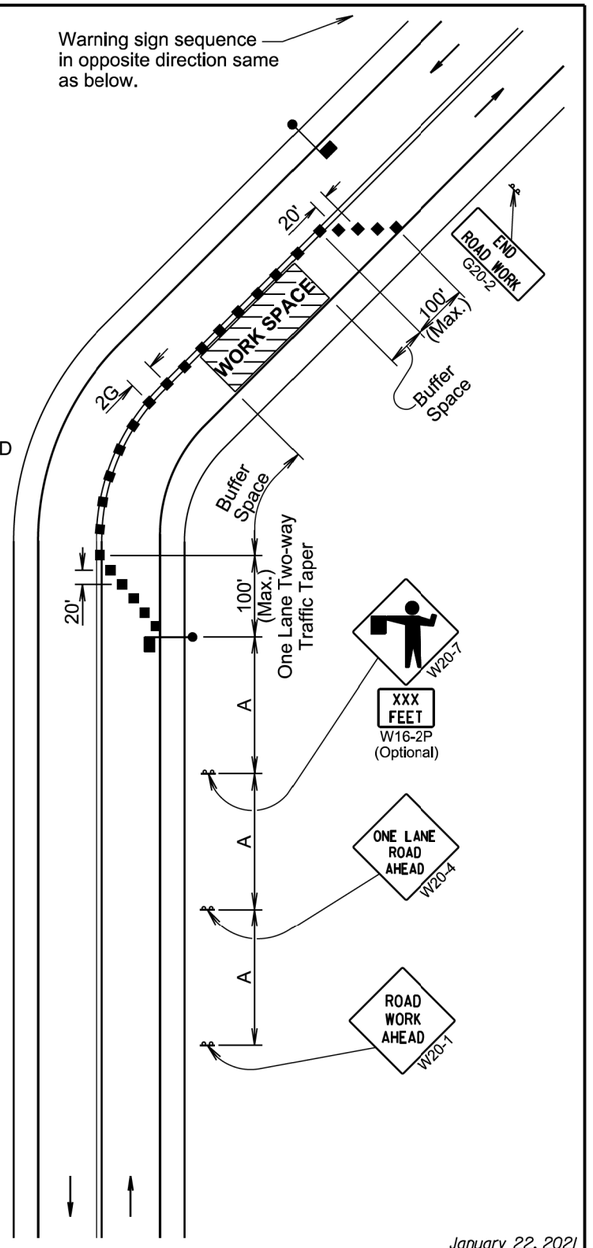
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



Channelizing devices and flaggers will be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.



January 22, 2021

Published Date: 2026

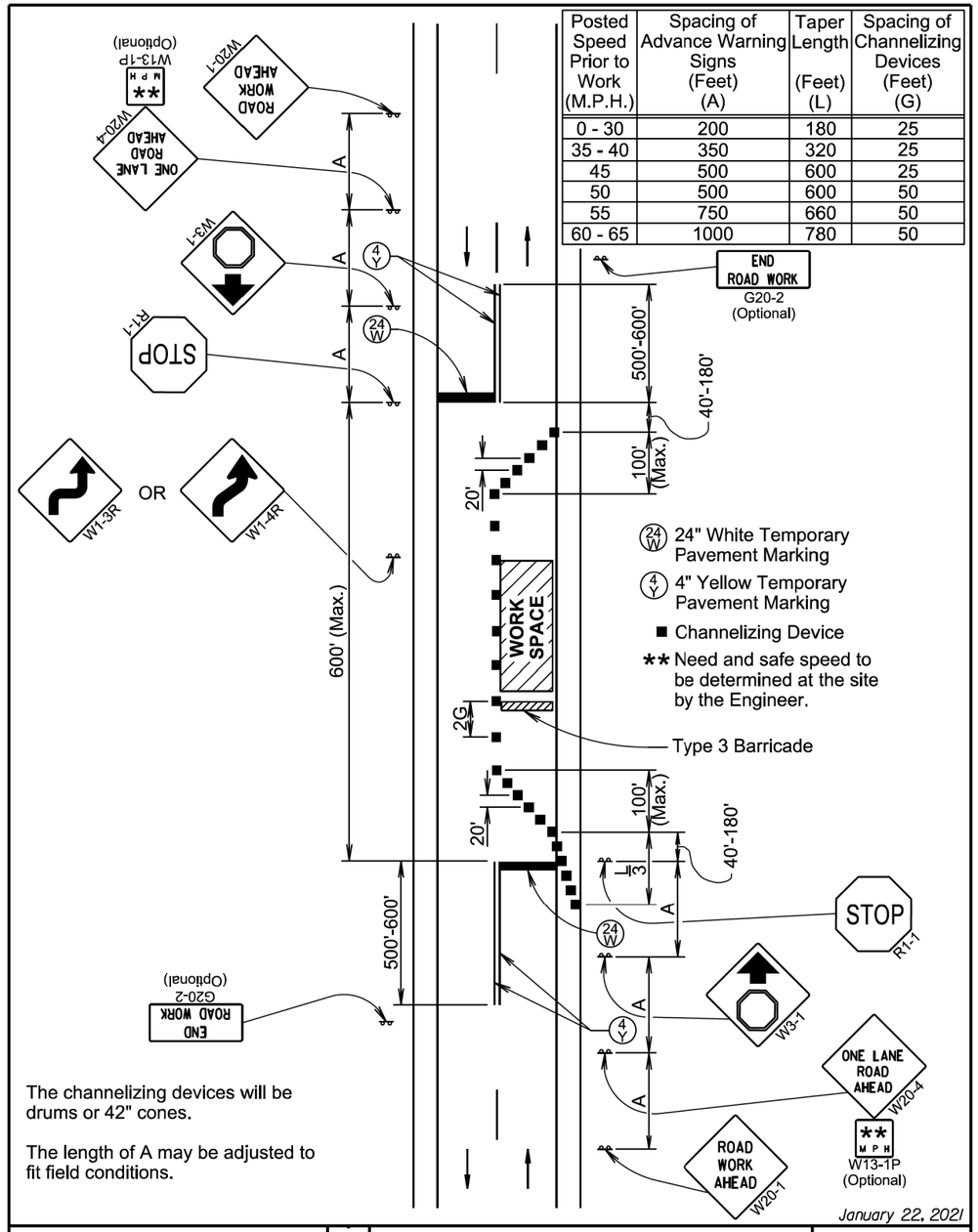
SDDOT

LANE CLOSURE WITH FLAGGER PROVIDED

PLATE NUMBER 634.23

Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50
55	750	660	50
60 - 65	1000	780	50



The channelizing devices will be drums or 42" cones.

The length of A may be adjusted to fit field conditions.

January 22, 2021

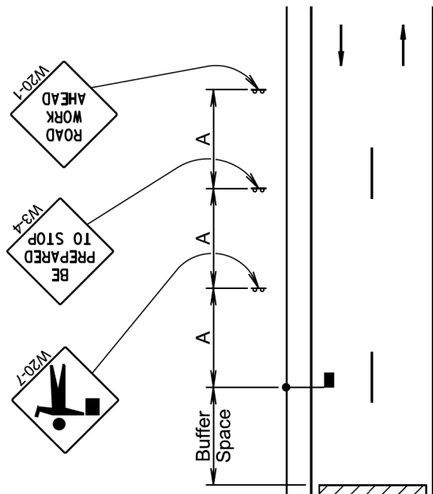
Published Date: 2026

SDDOT

LANE CLOSURE USING STOP SIGNS

PLATE NUMBER 634.25

Sheet 1 of 1



Conditions represented are for work that requires closings during daytime hours only.

This application is intended for a planned temporary closing not to exceed 15 to 20 minutes.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000

Flagger

END ROAD WORK
G20-2
(Optional)

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

Buffer space dependent on work site limitations.

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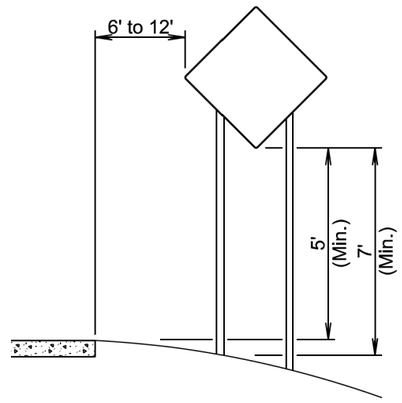
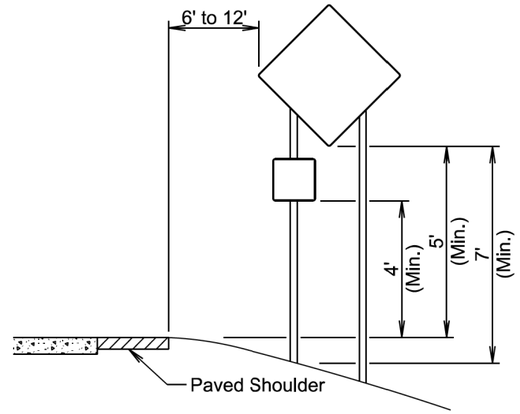
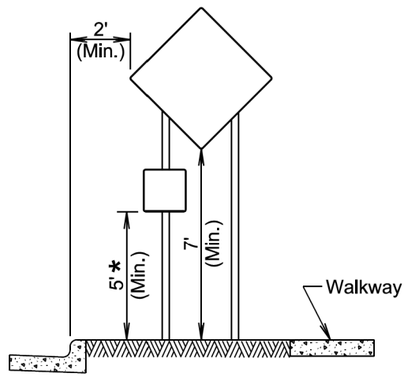
Published Date: 2026	SDDOT	TEMPORARY ROAD WORK	PLATE NUMBER 634.30	Sheet 1 of 1



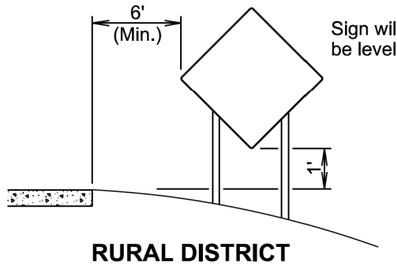
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

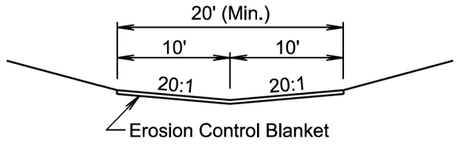


RURAL DISTRICT 3 DAY MAXIMUM
(Not applicable to regulatory signs)

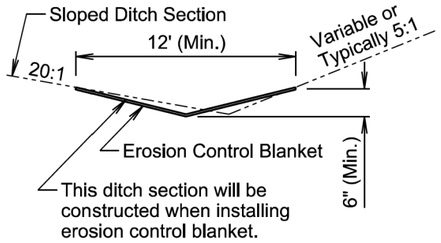
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

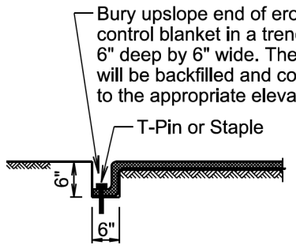
Published Date: 2026	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85	Sheet 1 of 1



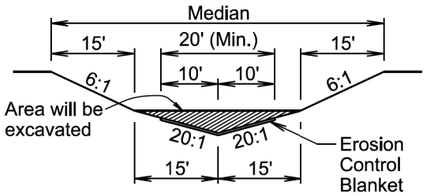
STANDARD DITCH SECTION



SLOPED DITCH SECTION

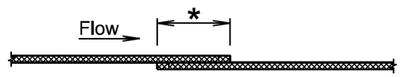


TRENCH DETAIL



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

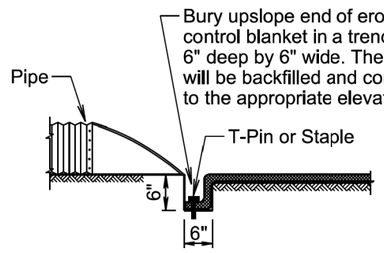
MEDIAN SECTION



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

* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



PIPE END DETAIL

GENERAL NOTES:

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

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

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

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

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

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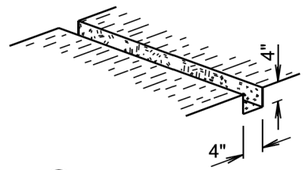
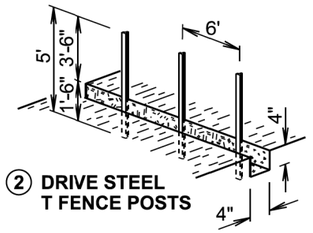
Published Date: 2026	SDDOT	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
			Sheet 1 of 1

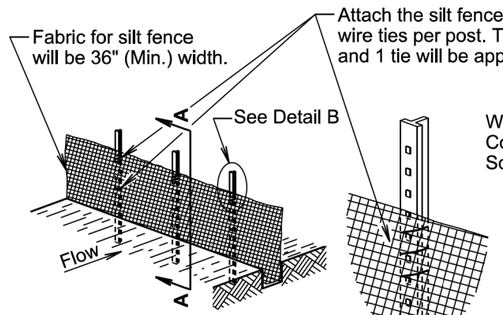
MANUAL HIGH FLOW SILT FENCE INSTALLATION



① EXCAVATE TRENCH

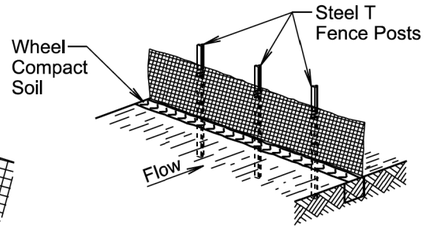


② DRIVE STEEL T FENCE POSTS

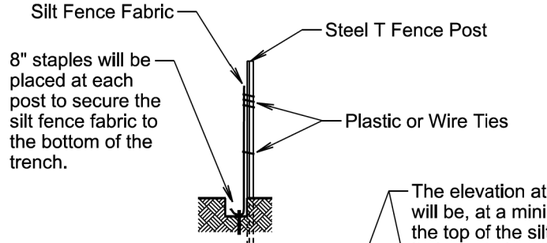


③ ATTACH SILT FENCE FABRIC

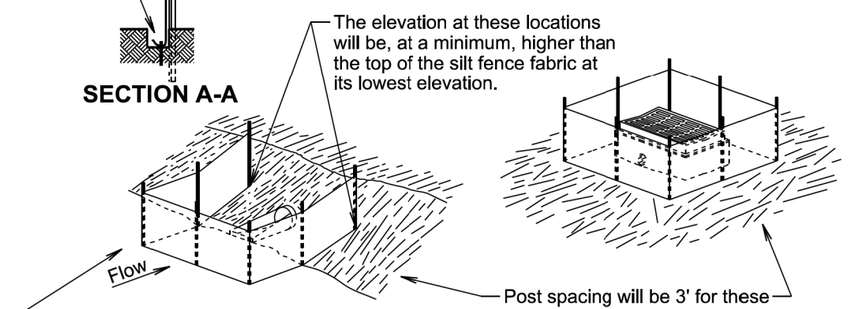
DETAIL B



④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



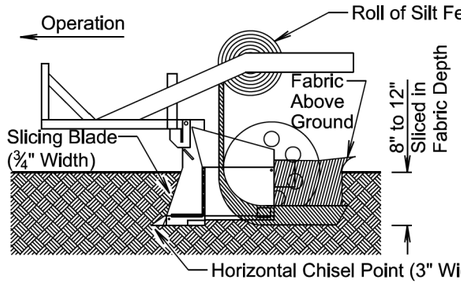
SECTION A-A

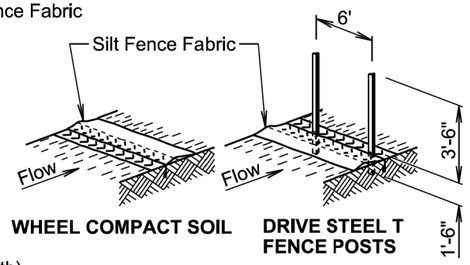


February 14, 2020

Published Date: 2026	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
			Sheet 1 of 2

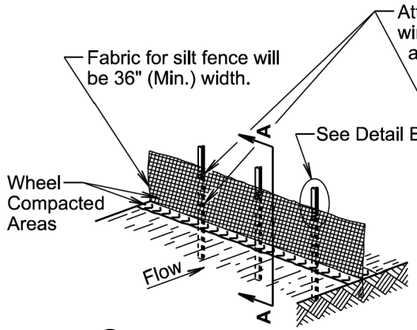
MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



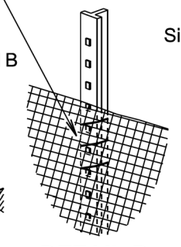


① **INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.**

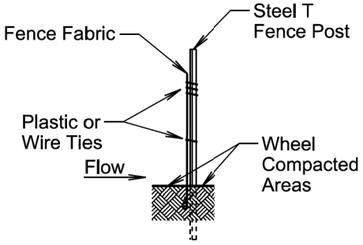
② **WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.**



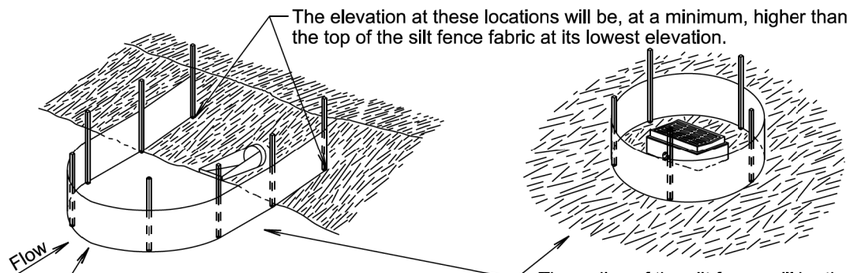
③ **ATTACH SILT FENCE FABRIC**



DETAIL B



SECTION A-A

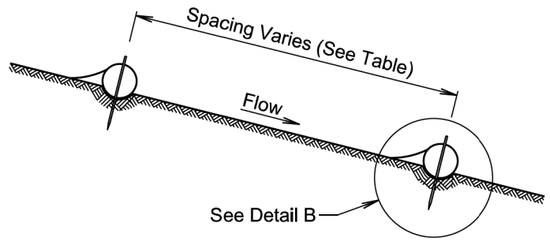


GENERAL NOTE:

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

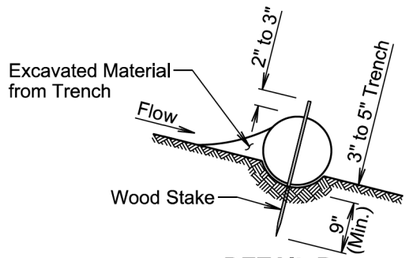
February 14, 2020

Published Date: 2026	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05 Sheet 2 of 2

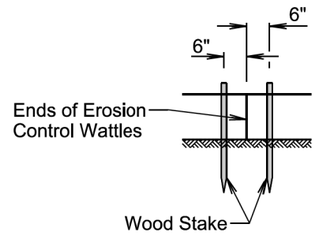


ELEVATION VIEW
(Cut or Fill Slope Installation)

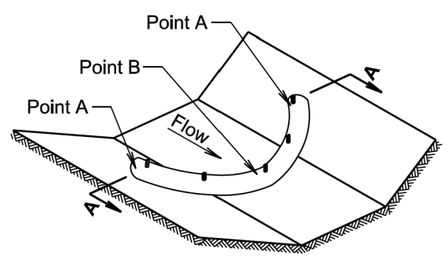
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



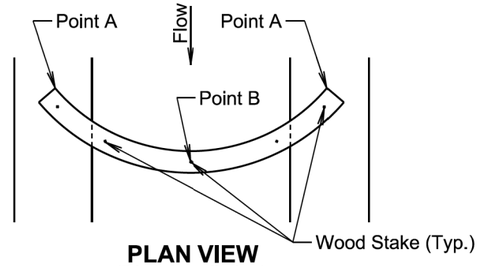
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

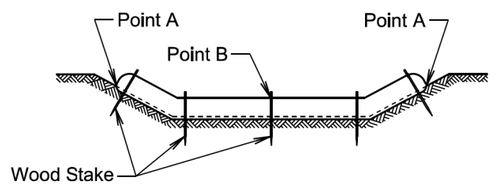


ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)

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



SECTION A-A

February 14, 2020

Published Date: 2026	SDDOT	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".

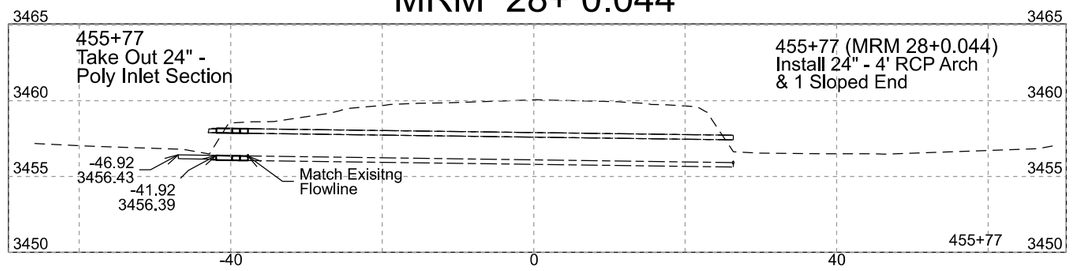
All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

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".

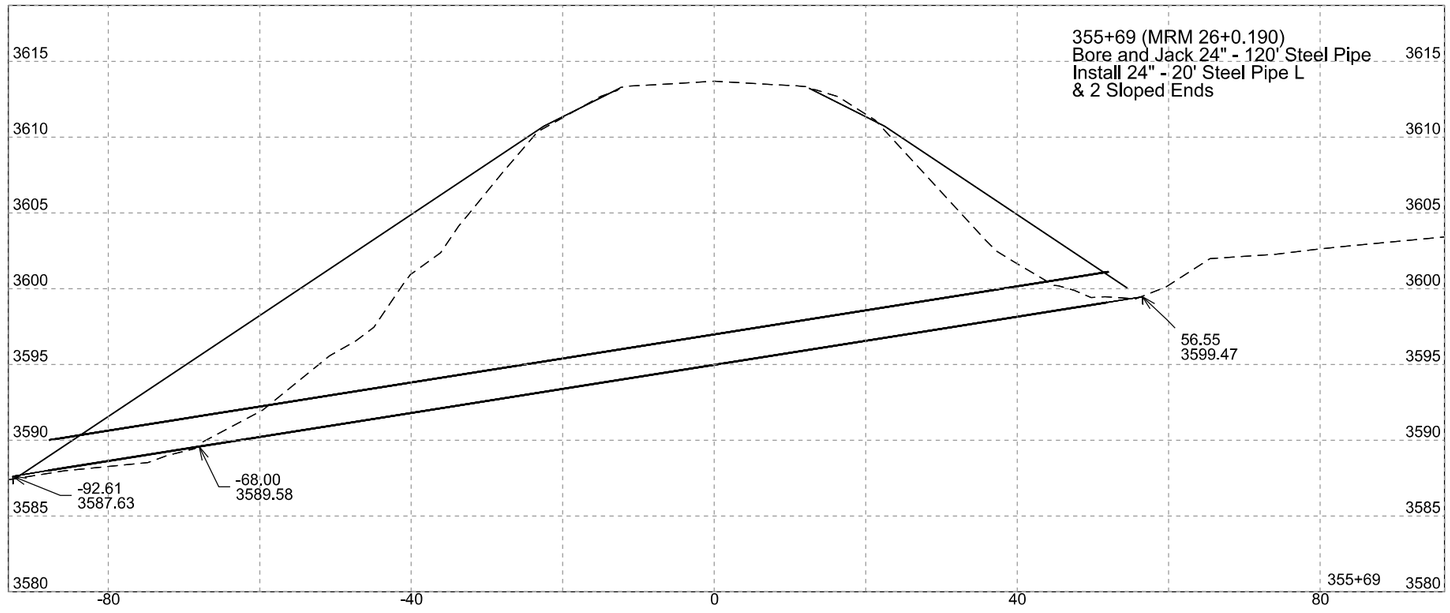
February 14, 2020

Published Date: 2026	SDDOT	***EROSION CONTROL WATTLE***	***PLATE NUMBER*** *734.06*
			Sheet 2 of 2

MRM 28+ 0.044



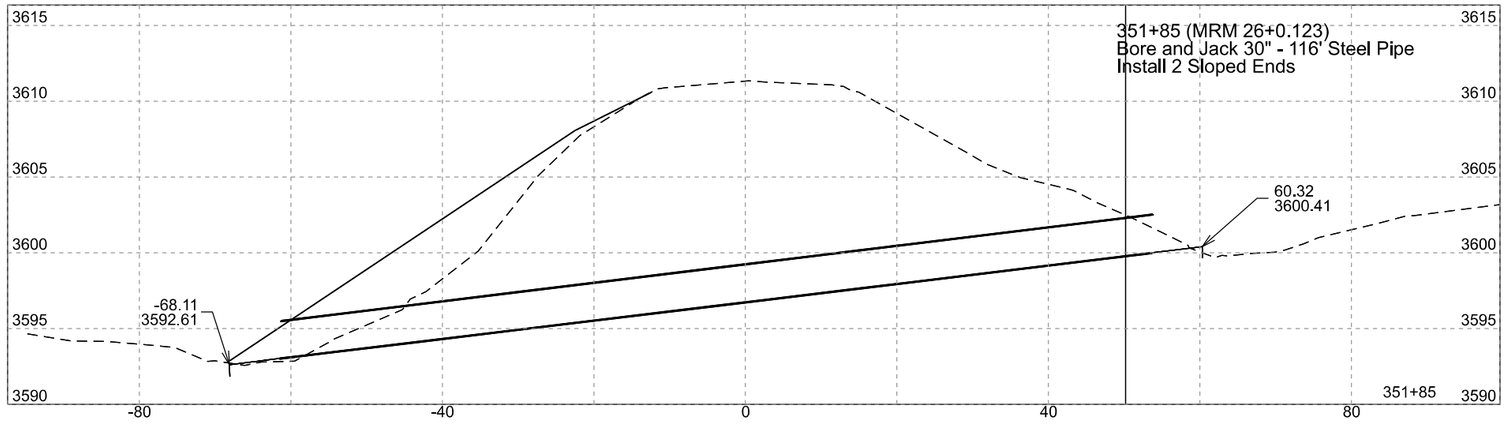
MRM 26+ 0.190



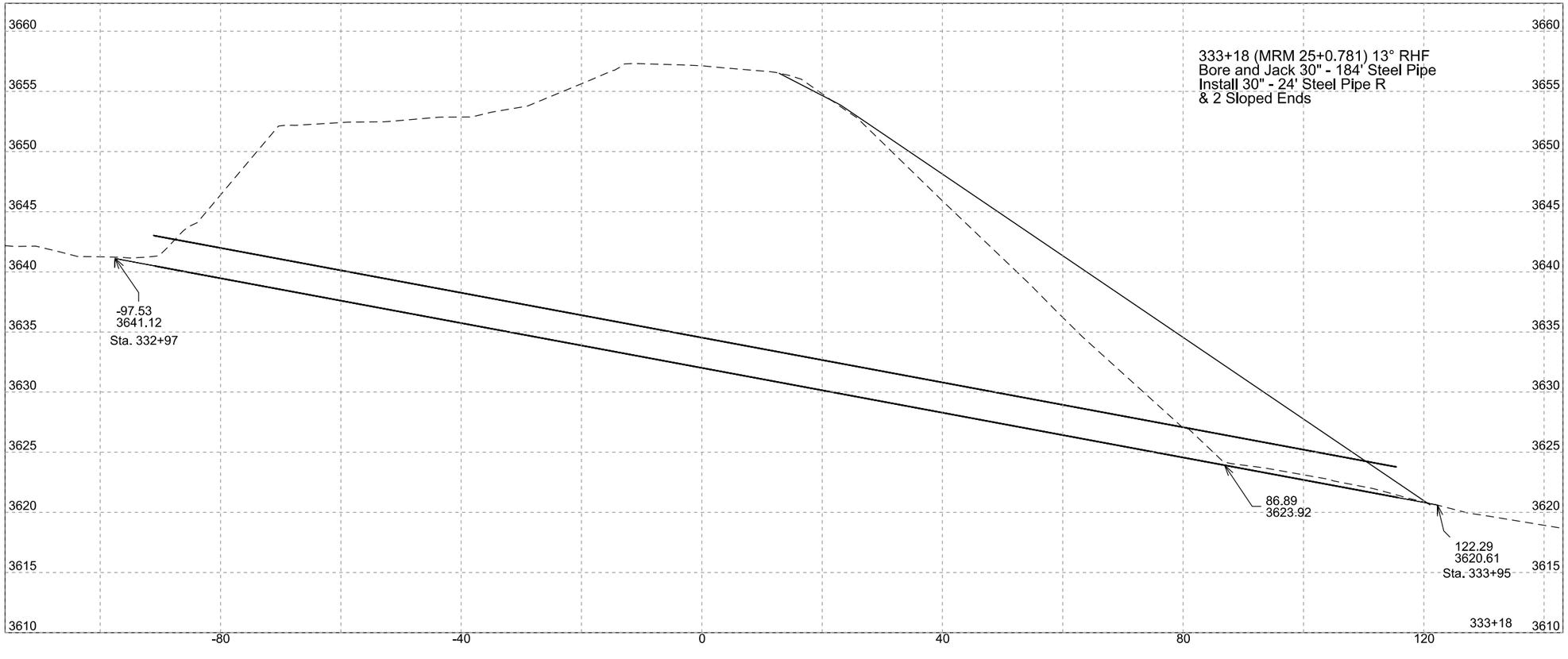
SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	72/74

Plotting Date: 2/24/2025

MRM 26+ 0.123

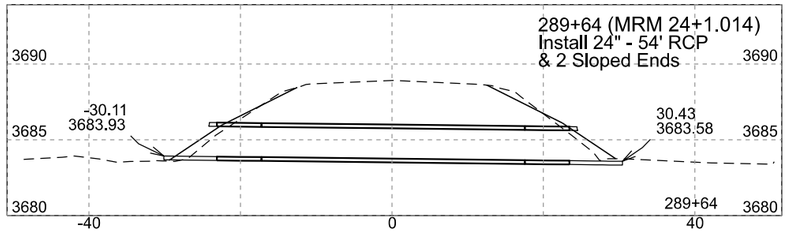


MRM 25+ 0.781

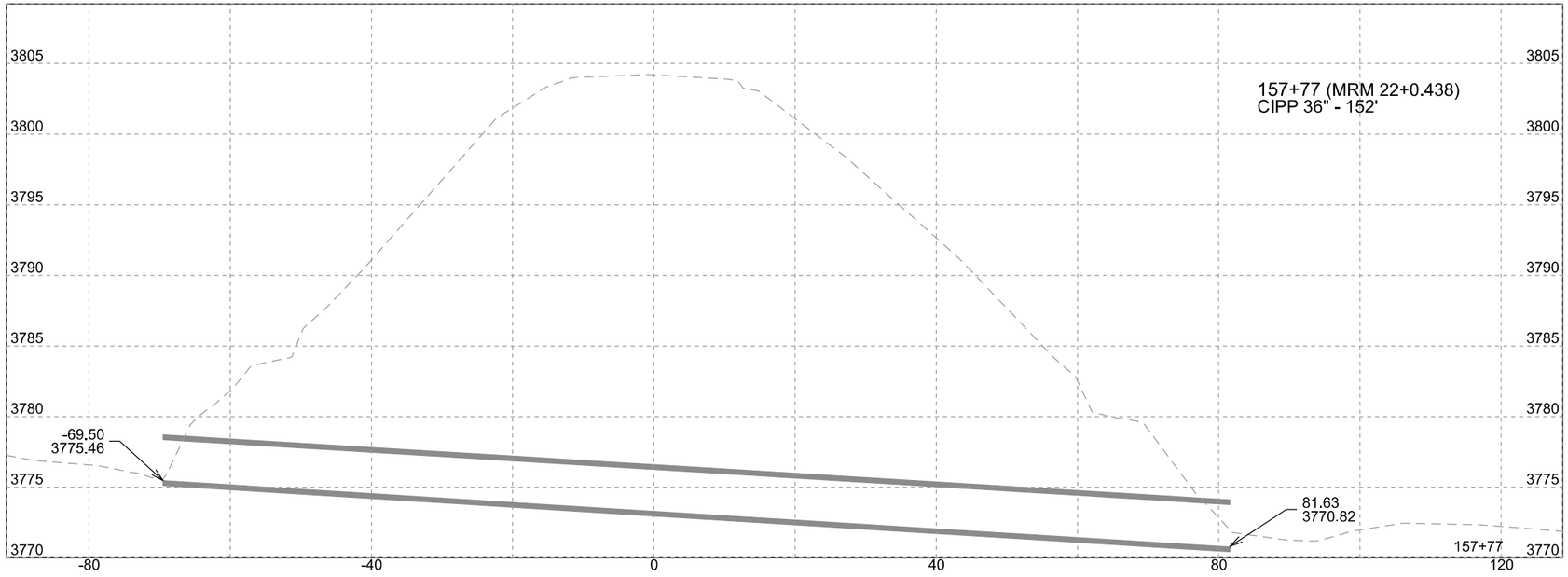


Revised: 11-06-25 Initials: TS

MRM 24+ 1.014



MRM 22+ 0.438

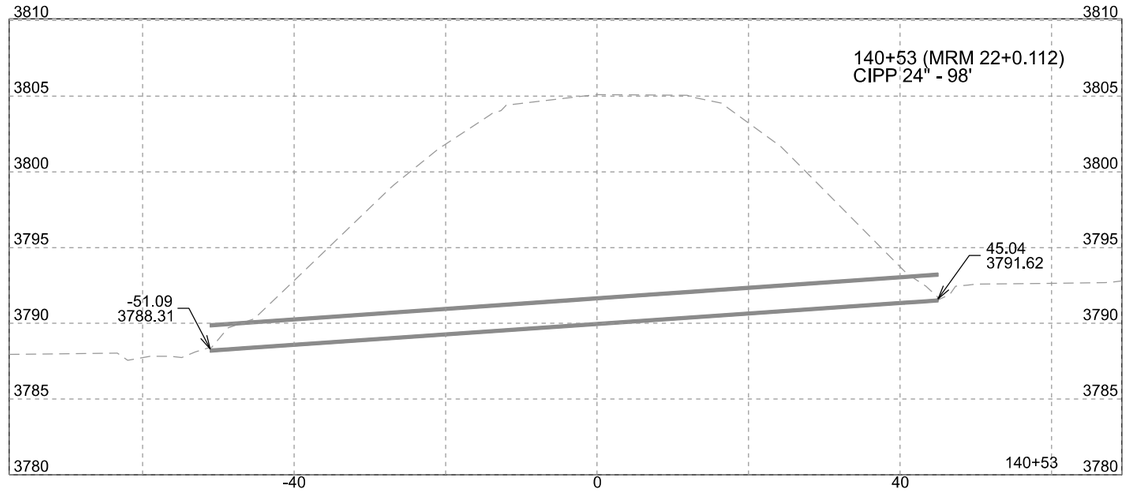


SD DOT	PROJECT	SECTION	SHEET
	P 0471(10)19 & P 018P(05)12	Non	74/74

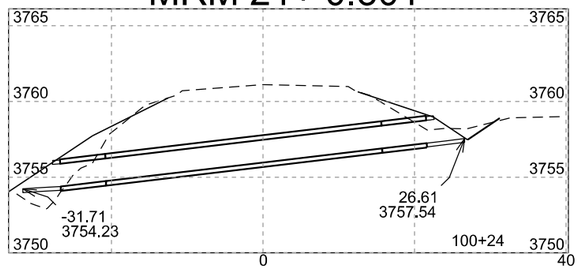
Plotting Date: 11/6/2025

Revised: 11-06-25 Initials: TS

MRM 22+ 0.112

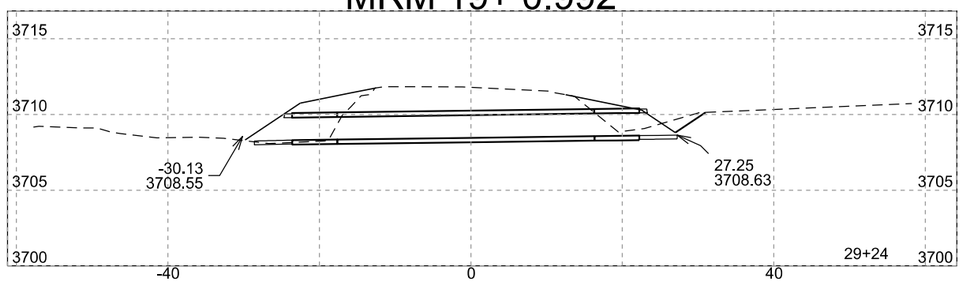


MRM 21+ 0.301



100+24 (MRM 21+0.301)
Install 24" - 48' RCP Arch
& 2 - 24" RCP Arch Sloped Ends

MRM 19+ 0.992



29+24 (MRM 19+0.992)
Install 24" - 48' RCP Arch
& 2 - 24" RCP Arch Sloped Ends