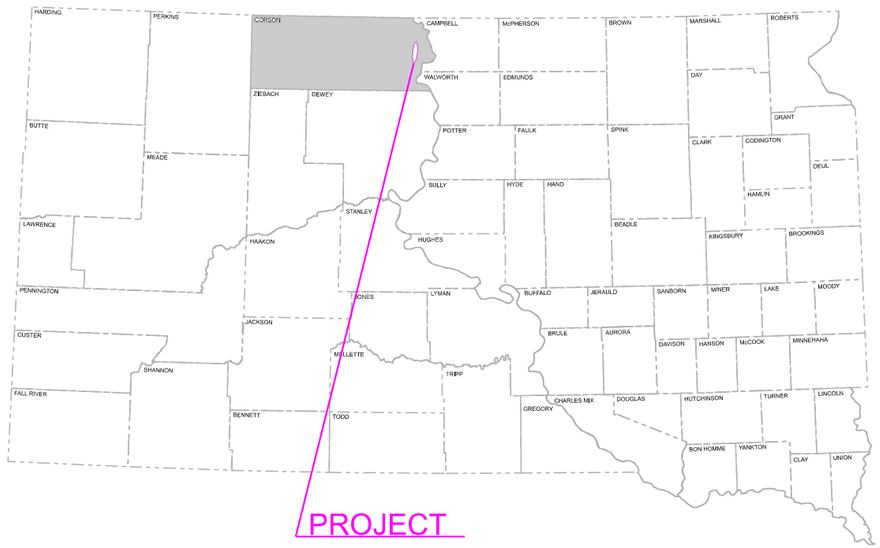


Plot Scale - 1:200

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT P 1806(25)372
S.D. HIGHWAY 1806
CORSON COUNTY

MILL & AC RESURFACING, PIPE WORK
PCN 06RJ

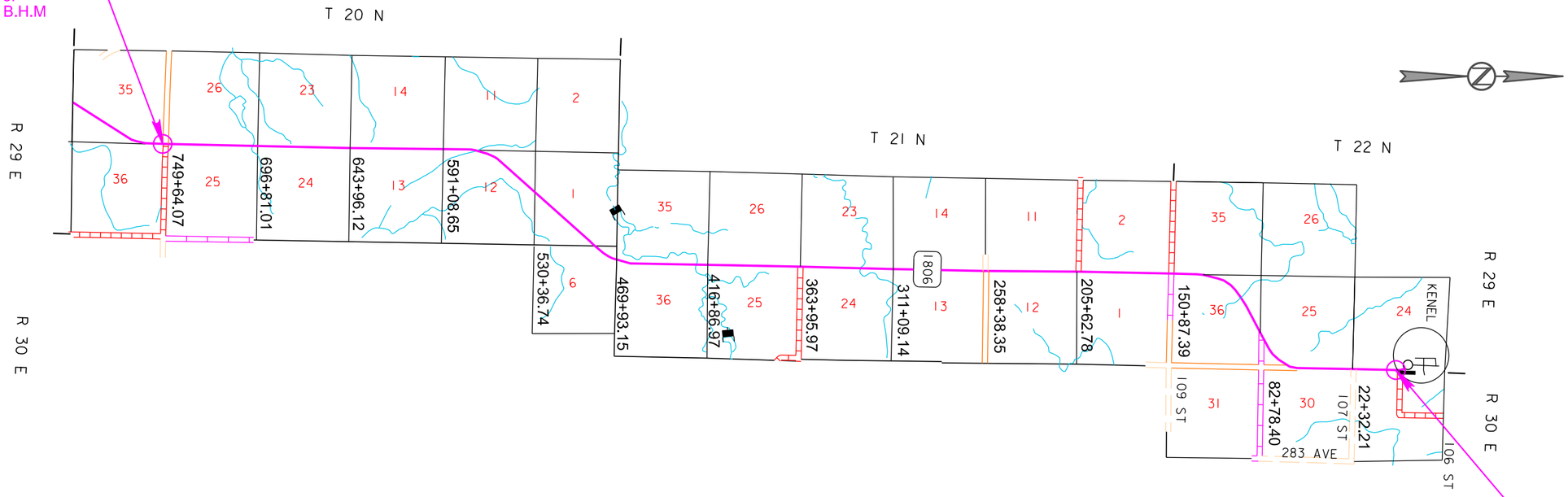
SD DOT	PROJECT	SECTION	SHEET
	P 1806(25)372		1 of 49

Plotting Date: 2/13/2026

INDEX OF SHEETS

Plot Name - $$plotname$$

END P 1806(25)372
Station 750+44.0
on RS 7211(1) & FLH 13(1) (Sec.II)
Approx. 80.0 feet south and 5.4 feet west of
SW Corner of Sec. 25 T20N R29E of the B.H.M
MRM 372.00 +0.298



STORM WATER PERMIT

(None Required)

DESIGN DESIGNATION

ADT (2024)	368
ADT (2044)	481
DHV	77
D	50%
T DHV	2.9%
T ADT	6.3%
V	55 mph

GROSS LENGTH	75044.00 FEET	14.213 MILES
LENGTH OF EXCEPTIONS	0 FEET	0 MILES
NET LENGTH	75044.00 FEET	14.213 MILES

BEGIN P 1806(25)372
Sta. 0+00.00 on RS 7211(1) & FLH 13(1) (Sec. 1)
=Sta. 592+48.0 on BIA Project No. 3-B(1)
Approx. 402.4 feet south and 11.9 feet west of
the east 1/4 corner of Sec. 24 T22N R29E of the B.H.M
MRM 386.83 + 0.00

2

March 18, 2026

Plotted From - TRMO1NT04

File - ...\Cors06RJ\dgn\06RJ_Title.dgn

Plotted From - TRMO1NT04 File - ...\Cors06RJ\dgn\06RJ_Title.dgn

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3210	Construction Staking	14.213	Mile
009E3250	Miscellaneous Staking	14.213	Mile
009E3280	Slope Staking	0.107	Mile
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0510	Remove Pipe End Section	1	Each
110E1010	Remove Asphalt Concrete Pavement	1,066.0	SqYd
110E1690	Remove Sediment	1.6	CuYd
120E0010	Unclassified Excavation	95	CuYd
120E0100	Unclassified Excavation, Digouts	711	CuYd
120E0600	Contractor Furnished Borrow Excavation	289	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E1010	Base Course	1,623.0	Ton
260E1030	Base Course, Salvaged	1,470.0	Ton
260E6000	Granular Material, Furnish	735.0	Ton
270E0220	Blend and Stockpile Granular Material	1,470.0	Ton
320E1200	Asphalt Concrete Composite	355.0	Ton
320E1800	Asphalt Concrete Blade Laid	2,132.0	Ton
320E7008	Grind 8" Rumble Strip or Stripe in Asphalt Concrete	28.4	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	146.5	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	51.8	Ton
330E2000	Sand for Flush Seal	777.1	Ton
332E0010	Cold Milling Asphalt Concrete	209,308	SqYd
450E4699	Tie Bolts for RCP	82	Each
450E5235	54" CMP Flared End, Furnish	1	Each
450E5236	54" CMP Flared End, Install	1	Each
450E8300	Culvert Joint Cleaning	1,015.0	Ft
450E8305	Repair Culvert Joint	1,015.0	Ft
450E8310	Chemical Grout Void Fill	250.0	Gal
450E8910	Cleanout for Culvert Treatment	42	Each
450E9524	24" Cured in Place Pipe	2,108	Ft
450E9526	30" Cured in Place Pipe	120	Ft
450E9528	36" Cured in Place Pipe	354	Ft
450E9530	42" Cured in Place Pipe	50	Ft
450E9532	48" Cured in Place Pipe	132	Ft
450E9534	54" Cured in Place Pipe	180	Ft
600E0300	Type III Field Laboratory	1	Each
632E2510	Type 2 Object Marker Back to Back	8	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	640	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	169	Gal
634E0010	Flagging	440.0	Hour

ESTIMATE OF QUANTITIES (CONTINUED)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0020	Pilot Car	210.0	Hour
634E0110	Traffic Control Signs	720.2	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	56.9	Mile
720E1010	PVC Coated Bank and Channel Protection Gabion	28.5	CuYd
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	700	Ft
734E0165	Remove and Reset Erosion Control Wattle	175	Ft
734E0630	Floating Silt Curtain	300	Ft
831E0110	Type B Drainage Fabric	83	SqYd
900E0010	Refurbish Single Mailbox	3	Each
900E1980	Storage Unit	1	Each

ALTERNATE A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	5,182.1	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	10,364.2	Ton
320E0005	PG 58-34 Asphalt Binder	1,350.7	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	26,055.5	Ton
320E4000	Hydrated Lime	273.5	Ton

*** - Denotes Non-Participating**

ALTERNATE B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	5,005.3	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	10,010.6	Ton
320E0005	PG 58-34 Asphalt Binder	1,130.9	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	26,728.4	Ton
320E4000	Hydrated Lime	288.1	Ton

*** - Denotes Non-Participating**

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 0.17 acres of wetlands (includes temporary and permanent) becoming impacted. 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	459+00 L	0.016	0.00	0.00	0.00	0.016
2	270+00 L/R	0.00	0.00	0.009	0.008	0.017
3	217+00 L/R	0.00	0.00	0.008	0.007	0.015
4	189+00 L/R	0.00	0.00	0.003	0.003	0.006
4	178+00 L/R	0.00	0.00	0.056	0.056	0.112

Action Taken/Required:

Mitigation is required in accordance with the "*Statewide Finding Regarding Wetlands for South Dakota Federal-Aid Highway Projects (February 2018)*". Replacement of 0.016 acres of permanent wetland impacts will be completed through another wetland mitigation opportunity in a manner which considers FHWA's program-wide goal of 'net gain' of wetlands through enhancement, creation, and preservation.

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 A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.01 acres of stream (includes temporary and permanent) becoming impacted. Refer to the plans for location and boundaries of the impacted streams.

Table of Impacted Streams

Stream Name	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
OW 1 (Unnamed Stream)	573+52 L/R	0.013	0.00	0.00	0.00	0.013

Action Taken/Required:

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

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT C: WATER SOURCE

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

Action Taken/Required:

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

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

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

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

Action Taken/Required:

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

COMMITMENT D2: SURFACE WATER DISCHARGE

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

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

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

Action Taken/Required:

If construction dewatering is required and this project is currently covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the contractor will need to submit the dewatering information to the SDDANR using the following form:
< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_AddTemplnfoFillable.pdf >

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

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

COMMITMENT E: STORM WATER

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

Action Taken/Required:

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

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

Storm Water Pollution Prevention Plan

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

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

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

Information on storm water permits and SWPPPs are available on the following websites:
SDDOT: < https://dot.sd.gov/doing-business/environmental/stormwater >
DANR:< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/default.aspx >
EPA: < https://www.epa.gov/npdes >

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

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

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. 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 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 THPO within 48 hours of the discovery to determine an appropriate course of action.

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

COMMITMENT N: SECTION 404 PERMIT

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

Action Taken/Required:

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

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

COMMITMENT O: SECTION 401 WATER QUALITY CERTIFICATION

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

Action Taken/Required:

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

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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.

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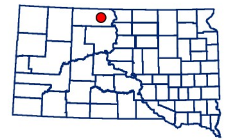
Action Taken/Required:

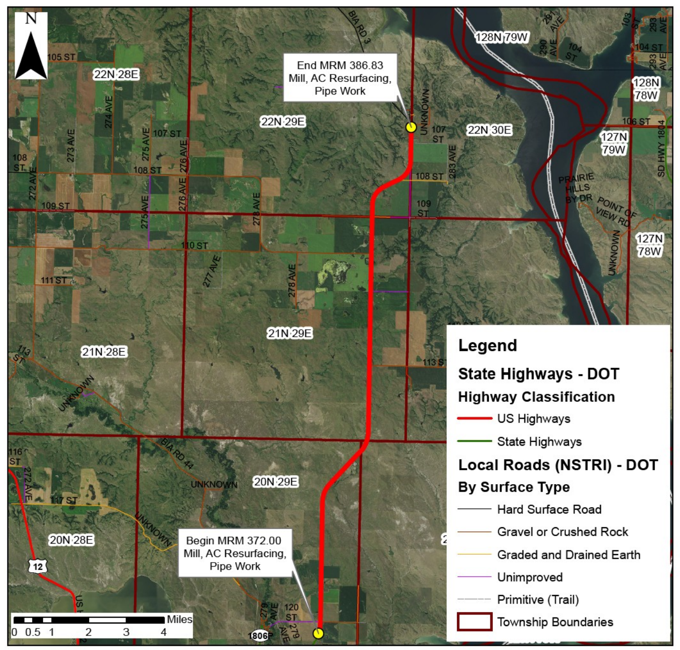
The Contractor will comply with all requirements contained in the Section 401 certification. A copy of the EPA CWA 401 Certification must be retained on-site.

IMPACTED WETLANDS

P 1806(25)372, PCN 06RJ
Corson County
SD1806 - Fm N of 1806 P
to Kenel

Mill, AC Resurfacing,
Pipe Work





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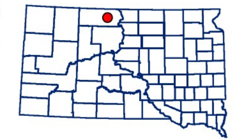
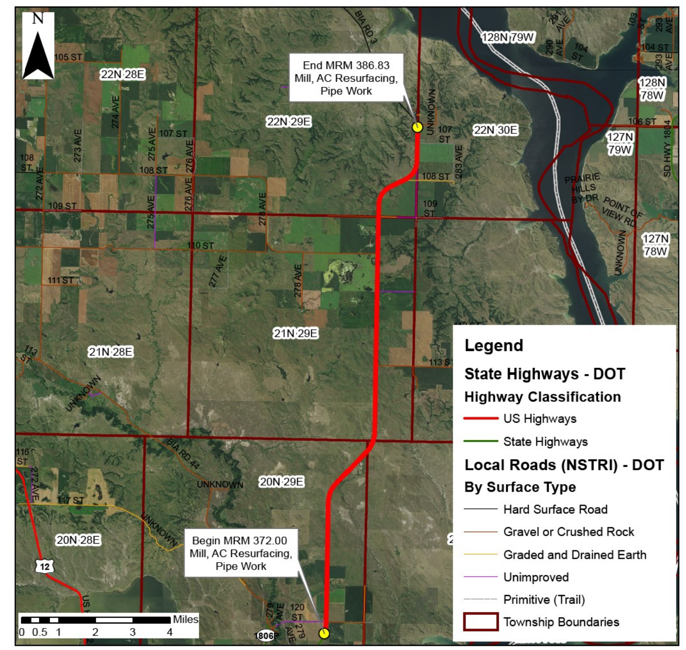
Corson County
SD1806 - Fm N of 1806 P
to Kenel

Mill, AC Resurfacing,
Pipe Work





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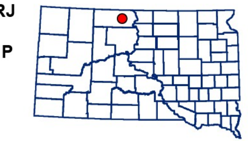

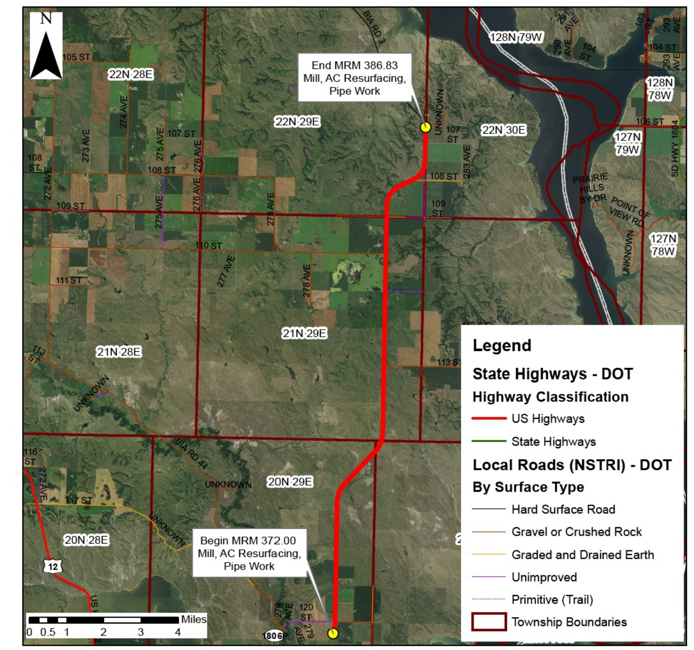

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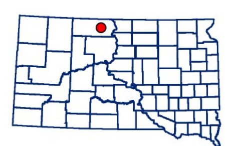

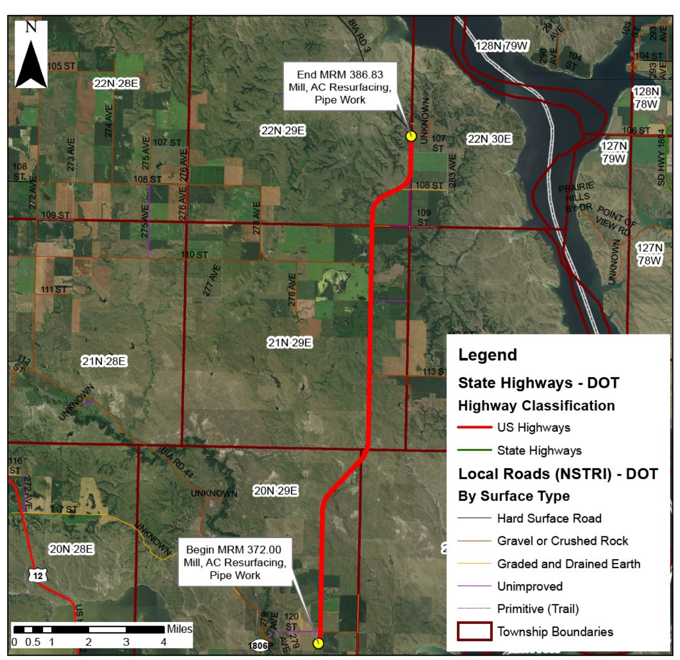

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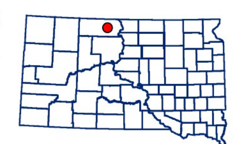

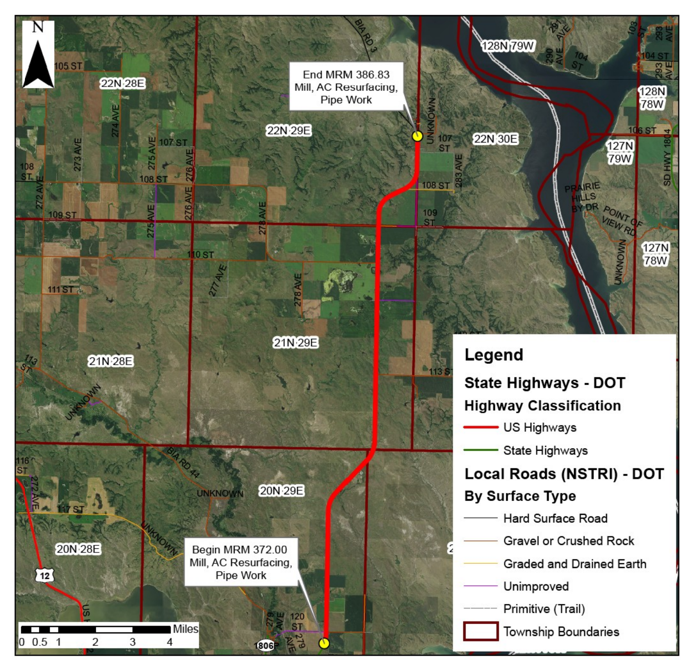

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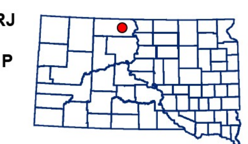
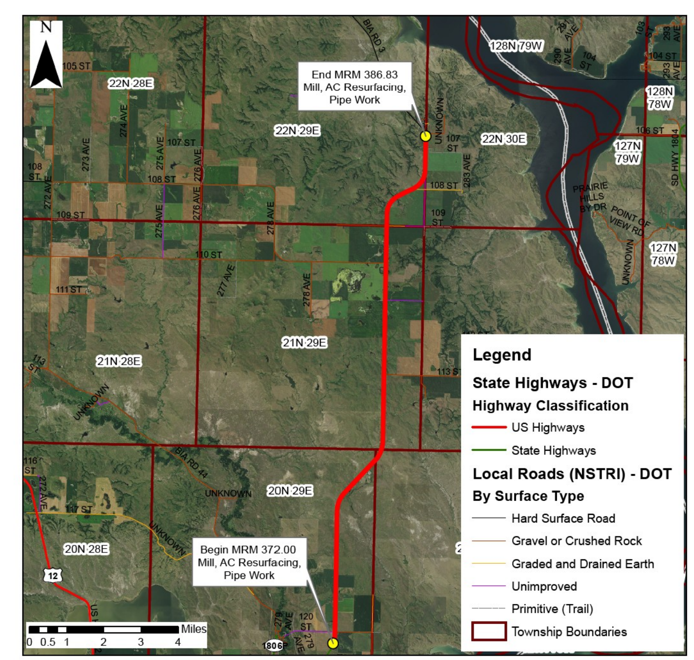




SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the 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.

The work required for this project includes, but is not limited to, the following items, listed in the general order of execution.

Pipe Work

1. Install Traffic Control Devices
2. Remove & Replace Topsoil (where necessary)
3. Replace/Repair/Line/Reset Culverts/Install gabions
4. Install Erosion Control Measures on Disturbed Areas
5. Remove Traffic Control Devices

Mailbox Turnouts

1. Install Traffic Control Devices
2. Remove & Replace Topsoil
3. Build mailbox turnouts embankment and surfacing
4. Install Erosion Control Measures on Disturbed Areas
5. Remove Traffic Control Devices

Cold Milling & AC Resurfacing

1. Install Fixed Location Signing Prior to Construction Activities Commencing
2. Cold Mill Asphalt Concrete
3. Unclassified Excavation for Digouts & Backfill Operations
4. Asphalt Blade Laid
5. Asphalt Concrete Paving Operations
6. Surfacing Placement Operations on Approaches/Intersecting Roads
7. Grind Rumble Strips
8. Place Flush Seal
9. Permanent Pavement Markings
10. Refurbish Mailboxes
11. Remove Project Temporary Signing
12. Complete Any Remaining Project Cleanup

The Contractor is expected to inspect the project site prior to bidding to evaluate the extent of work that will be required for construction.

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.

The Contractor will be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

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.

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 temporary speed limit signs will have a minimum mounting height of 5 feet in rural locations, even when mounted on portable supports.

Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

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.

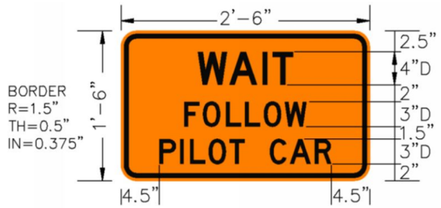
The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.

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.

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 3.6 miles.

It is estimated that 19 DO NOT PASS (R4-1) and 19 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 final lift of asphalt concrete
One pass prior to the flush seal, length as determined by the Engineer
One pass after 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.

TRAFFIC CONTROL FOR ASPHALT CONCRETE RESURFACING

The Contractor will need to install LOOSE GRAVEL (W8-7) signs with advisory speed plaques (W13-1P) in areas where loose sand is present during the flush seal operation. LOOSE GRAVEL signs have been included in these plans for this will be repaired by the Contractor to the satisfaction of the Engineer at no expense to the State. This includes the apparent routing of traffic onto the shoulders around the work zones.

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Base Course, Base Course, Salvaged and Asphalt Concrete 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.

TYPE III FIELD LABORATORY

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

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 28. This value was obtained from testing during construction of the in-place asphalt concrete.

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 10,833.1 tons of cold milled asphalt concrete material. An estimated 4,916.0 for Alterative A or 5,092.8 tons for Alterative B of cold milled asphalt concrete material will be used on this project as RAP in the Class Q2R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q2R Hot Mixed Asphalt Concrete.

The remainder of the salvaged asphalt concrete material will be stockpiled according to the "Blend, Haul, and Stockpile Granular Material" or "Blend and Stockpile Granular Material" plan notes.

RAP achieved for project use and/or other uses is based on the dimensions given in the typical section(s). Field conditions will vary from that given in the typical section(s). Therefore, the Contractor may be required to adjust the mill depth, as necessary, to provide the quantity of RAP specified by the plans, if approved by the Engineer.

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.

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 this project is available from the Pierre Region and Mobridge Area offices.

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 58-34 Asphalt Binder per mile and will be tight bladed on the existing surface 24 feet wide prior to the overlay. Gaps at centerline will not be permitted.

Mineral Aggregate for tight bladed material will use only the fine aggregate components combined in the same proportions as the Class Q2R Hot Mixed Asphalt Concrete mix. Mineral Aggregate for tight bladed material will meet the gradation requirements of the Job Mix Formula. Fine Aggregate Angularity and Sand Equivalent requirements will be the same as the Class Q2R 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 79.6 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)

CLASS Q2R HOT MIXED ASPHALT CONCRETE

MINERAL AGGREGATE:

Asphalt concrete aggregates will consist of reclaimed asphalt pavement (RAP) and virgin aggregate.

Virgin mineral aggregate for Class Q2R Hot Mixed Asphalt Concrete - Alternate A will conform to the requirements of Class Q2.

Virgin mineral aggregate for Class Q2R Hot Mixed Asphalt Concrete - Alternate B will consist of a minimum of 80 percent crushed limestone ledge rock and will conform to the requirements of Class Q2.

The Class Q2R Hot Mixed Asphalt Concrete will include 20 percent RAP in the mixture. RAP will be obtained from the material produced by cold milling on this project.

MIX DESIGN CRITERIA – ALTERNATE B:

Gyratory Controlled QC/QA Mix Design requirements for the Class Q2R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q2 except as modified by the following:

VOIDS IN MINERAL AGGREGATE (VMA):

	Minimum VMA (%):
Class Q2R	13.0

PAY FACTOR ATTRIBUTES – ALTERNATE B:

AIR VOIDS:

	Air Voids (%):
Class Q2R	3.5 ± 1.0

All remaining requirements for Class Q2 will apply.

ASPHALT CONCRETE COMPOSITE

Section 324 will apply except that Class Q2R 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.

BLEND, HAUL, AND STOCKPILE GRANULAR MATERIAL

Excess salvaged asphalt concrete material estimated at 5182.1 tons for Alternate A and 5005.3 tons for Alternate B (for informational purposes only) will be blended with 5182.1 tons for Alternate A and 5005.3 tons for Alternate B tons of Granular Material, Furnish and will be hauled, blended and stockpiled in the Southeast ¼ of Section 32, Township 19 North, Range 29 East of the 5th P.M., Corson County, South Dakota just west of the US12/SD20 junction at the state furnished 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.3 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 735.0 tons (for informational purposes only) of salvaged asphalt mix material produced from cold milling will be blended with 735.0 tons of Granular Material, Furnish and stockpiled at the Contractor’s furnished stockpile site.

The Contractor will use a portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale to control the blending and weighing of the salvage material with Contractor furnished granular material.

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

Excess salvaged asphalt mix 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 costs for crushing the salvaged asphalt mix material, stockpiling, and blending the materials will be incidental to the contract unit price per ton for “Blend and Stockpile Granular Material”.

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.

BASE COURSE, SALVAGED

Base Course, Salvaged will be obtained from the blended material produced and stockpiled on this project 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 (salvaged or virgin). Blended material will be to the satisfaction of the Engineer.

All other requirements for Base Course, Salvaged will apply.

GRIND RUMBLE STRIPES IN ASPHALT CONCRETE

Asphalt concrete rumble stripes will be constructed on the shoulders. 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 28.4 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 14” 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.

TABLE OF 8” RUMBLE STRIPE

Station	to	Station	L/R	Quantity (Mile)
0+00	to	749+00	L	14.2
0+00	to	749+00	R	14.2
				28.4

OBJECT MARKERS

New Type 2 Object Markers Back to Back and posts will be furnished and installed according to the details of Standard Plates 632.01 and 632.03 by the Contractor at the locations shown in the Table of Culvert Repairs. Costs for new Type 2 Object Marker Back to Back and post installation is included in the contract unit price per each for Type 2 Object Marker Back to Back.

REINFORCED CONCRETE PIPE JOINT REPAIR AND VOID GROUTING

The Contractor will provide a notarized statement, from the Manufacturer, that the products used for culvert joint repair meet the specified requirements, along with the Manufacturer's current product specification and installation instructions.

The Contractor will be an Approved Contractor of the Manufacturer of the specified product and will provide written certification from the Manufacturer attesting to their Approved Contractor status.

All product documentation and Contractor submittals must be submitted to the Engineer prior to or at the preconstruction conference. The Contractor must have the Engineer's approval prior to commencing any of this work.

The Contractor will follow the Manufacturer's installation instructions and specifications throughout the repair process.

Temperature of the specified products is critical from the point of pumping to the point of injection. All polyurethanes react faster at higher temperatures. Drum heaters and heated hoses are required when ambient or ground temperatures are below 70 degrees Fahrenheit. The optimum hose temperature will vary with the weather conditions and the particular job site conditions with the minimum hose temperature being 75 degrees Fahrenheit and the maximum hose temperature being 95 degrees Fahrenheit and the drum temperature not to exceed 90 degrees Fahrenheit.

The Contractor will provide worker and inspector safety protective gear in accordance with the manufacturer, including but not limited to chemical goggles, face shields, eye wash system and NBR gloves.

The Contractor will provide safe storage and handling of materials prior to delivery and at the project site. All material installation, handling and storage will be in accordance with the Manufacturer's recommendations.

The Contractor will visit the project to determine the extent of culvert joints to be cleaned and filled, prior to bidding.

Culvert Joint Cleaning and Repair Culvert Joint quantities will be based upon the following table showing circumference of joints based upon culvert size and shape.

Pipe Diameter (In)	Round Pipe Circumference per Joint (Ft)	Arch Pipe Circumference per Joint (Ft)
36	9.4	
42	11.0	11.0
48	12.6	
54	14.1	
60	15.7	
66	17.3	
72	18.8	19.0
78	20.4	
84	22.0	

CULVERT JOINT CLEANING

This work will consist of cleaning of the culvert joints, washing the entire culvert and joints with a high-pressure washer, and if needed, wire brush cleaning of each joint to be repaired as directed by the Engineer. The entire culvert will be clean and dry and most notably the specified joints will be thoroughly cleaned to the satisfaction of the Engineer using a power washer with water pressure of at least 2500 psi. The culvert must be in a clean condition so that no deleterious material is trapped in the joints that are being repaired. The Contractor will dispose of all debris removed from the culverts during the cleaning operation as approved by the Engineer.

All costs for equipment, material and labor for the culvert joint cleaning work will be incidental to the contract unit price per foot for Culvert Joint Cleaning. Culvert Pipe Cleaning will be measured to the nearest 0.1 foot of joint which is cleaned for joint repair.

REPAIR CULVERT JOINT

The culvert joints will be repaired in accordance with the Chemical Grout Manufacturer's directions to prevent future infiltration/exfiltration of soils and water and to keep the chemical grout from expanding back into the structure during injection.

The culvert joint will be repaired with a sealant comprised of water reactive hydrophilic polyurethane resin and dry oil free oakum. All grout will be injected under such pressure so as not to damage the existing drainage structure or roadway structure.

The Contractor will submit to the Engineer for approval a detailed procedure for the installation of the polyurethane grout.

The work will include, but is not limited to sealing each pipe joint with a hydrophilic polyurethane grout meeting the following specifications:

GEL FOAM II (Saturated Oakum Rope Joint Packing) as manufactured by Green Mountain International, LLC or equal.

ULTRA (Single Component Grout for Joint Injection) as manufactured by Green Mountain International, LLC or equal.

Excess grout and oakum will be trimmed from the interior face of the joint prior to applying the UV Protection (Gel Coat). The epoxy gel coat compound will be as recommended by the Manufacturer for both surface sealing and protecting the hydrophilic grout from UV exposure. The epoxy gel compound will be mixed and handled in accordance with the Manufacturer's recommendations and will meet the following requirements:

Epoxy gel sealant compounds manufactured by Green Mountain Grouts, LLC or equal.

All costs for all equipment, material and labor required to complete the work will be incidental to the contract unit price per foot for Repair Culvert Joint. Completion of the work includes initial saturated oakum rope packing of each joint, follow up injection of grout into the back side of each joint, trimming the excess grout and oakum from the interior face of the joint, application of the epoxy gel coat and site clean-up. Payment will be made per 0.1 foot of culvert joint repaired.

DUAL COMPONENT CHEMICAL GROUT FOR VOID FILLING

The external voids surrounding the culvert will be filled with an injected high expansion chemical grout compound. Holes will be strategically drilled as required and grout injected throughout the structure to effectively fill all voids that have developed outside of the structure due to the infiltration of external soils and materials into the culvert and "piping" (water running outside and under the structure due to separated joints). It is the Contractor's responsibility to locate reinforcing bars and conduit prior to drilling any grout holes. All grout will be injected under such pressure so as not to damage the existing drainage structure or roadway structure. All joints will be appropriately cleaned and sealed, with appropriate recommended cure time, prior to the injection of the void grouting. After completion of the void filling, all holes will be properly sealed.

The typical method consists of placing a layer of chemical grout behind or around the structure. The Contractor will submit for approval by the Engineer a detailed grouting plan showing the spacing, orientation and depth of the grout holes, as well as type of polyurethane grout to be used, range of gel times, equipment, mixing procedures, recommended injection pressure, technique for monitoring grout travel and any other pertinent information. The grouting plan should address the prevention of overfilling and prevention of damage to structures or roadway. The Contractor will submit this detailed procedure for the installation of the expansion grout to the Engineer for approval. The holes are drilled with a rotary percussion hammer drill using a sharp masonry bit with a minimum diameter of 3/8 inch to a maximum diameter of 5/8 inch. Care must be taken to prevent holes from causing damage to reinforcing bars or utility conduits. Drilled holes should be vacuumed and flushed. Use injection grout and methods as recommended by Manufacturer.

Injection can be monitored by either applicator's visual inspection or by pumping a specific amount of injection grout into each hole. The work will start at the inlet end of the pipe and proceed downstream to the outlet. Inject bottom row every other hole. When material appears at the adjacent port, discontinue injection at entry port and begin injection at the adjacent port. Continue injection process section by section from bottom of pipe to top of pipe in a continuous manner to next pipe section. Injection pressure will vary from 200 psi to 3000 psi depending on the width of the joint, thickness of the structure, and condition of the concrete.

The Contractor must supply the Engineer with three (3) prior job references of projects where they have successfully injected urethane resin for subgrade void filling applications, or soil stabilization.

In lieu of three (3) prior job references the Contractor will:
a) Obtain hands on training from the supplier on the installation procedures,
and

b) Have the supplier on site to provide training to Contractor's staff. Supplier will be present for at least two complete pipe culvert repairs and until the Engineer is satisfied that Contractor's staff is competent in performing this work.

DUAL COMPONENT CHEMICAL GROUT FOR VOID FILLING (Continued)

The chemical grout will be a dual component hydrophobic polyurethane grout compound which is non-flammable and non-toxic when cured.

The chemical grout mixture will have expansion properties listed in the data sheets of greater than eighteen (18) times its original volume and cure to rigid closed cell polyurethane foam. The grout will expand to fill any voids and must bond to the exterior surface of the structure. The chemical grout will be Mountain Grout U 4.0 dual component polyurethane grouts as manufactured by Green Mountain International LLC or equal.

All costs for equipment, material, and labor required to fill external voids surrounding the culvert will be incidental to the contract unit price per gallon for Chemical Grout Void Fill. Any overfilling of voids that results in damage to overlying pavement, highway user ride quality, or drainage structure integrity will be corrected and paid for by the Contractor. All corrections will be approved by the Engineer. Payment will be to the 0.1 gallon of chemical grout used, prior to expansion of the material.

A calibrated metering device will be used to measure the chemical grout and to assure proper mixing ratio of components.

After the grout cures, excess material will be removed flush with the pipe interior wall and the pipe left clean.

CLEANOUT FOR CULVERT TREATMENT

Cleanouts of pipe culvert and cattle pass will be done in advance of the culvert lining and joint repair.

Material in existing pipe culvert will be cleaned out by water flushing or other approved methods.

Material removed from the pipe culvert will become property of the Contractor for disposal.

The Contractor will implement appropriate sediment control measures prior to water flushing to prevent discharges from the project boundaries.

The pipe culvert will be cleaned to the satisfaction of the Engineer.

All costs to dewater, clean pipe, and dispose of removed materials will be incidental to the contract unit price per each for “Cleanout for Culvert Treatment”.

CULVERT LINING

Pipe culvert lengths shown in the Table of Mainline Culvert Work were obtained from the original grading plans and were not verified in the field.

The Contractor will submit to the Area Engineer a minimum of 2 week prior to the Preconstruction Meeting a detailed plan of how the pipe culvert cleaning and inspection will be staged. The plan will show how the Contractor is going to maintain traffic at each pipe culvert site, where equipment is going to be stored, the total length of the workspace if a lane of traffic needs to be closed to traffic, and the methods used to prevent material removed from the pipe culverts from entering the waterway. These plans will be approved by the Area Engineer prior to starting work on the pipe culvert cleaning and lining.

Sediment control may be required if water is flowing through the pipe culvert at the time of cleaning. Otherwise, sediment control is not anticipated.

The Contractor will implement appropriate sediment control measures prior to water flushing to prevent discharges beyond the project boundaries. Wattles have been provided in the Estimate of Quantities and will be used to capture pipe cleanout material. Placement of the wattles will be as directed by the Engineer.

CURED IN PLACE PIPE (CIPP) LINER

See Special Provision for Glass Reinforced Plastic (GRP) Ultraviolet Light (UV) Cured in Place Pipe (CIPP) Liner.

REMOVE AND REPLACE TOPSOIL

Topsoil will also be salvaged and stockpiled prior to constructing the following: culvert extension/resets and mailbox turnouts. Limits of this work, depth of salvage, and stockpile location will be directed by the Engineer. Following completion of construction, topsoil will be spread evenly over the disturbed areas.

The estimated amount of topsoil to be removed and replaced is 400 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”.

EROSION CONTROL

The estimated area requiring erosion control is 0.508 acres. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, fertilizing, and mulching will be incidental to the contract lump sum price for “Erosion Control”.

The limits of erosion control work will be determined by the Engineer during construction.

Fertilizing

The Contractor will apply an all-natural slow release fertilizer prior to seeding. 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:

https://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 C Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	16
Canada Wildrye	Mandan	2
	Total:	18

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 lump sum price for “Erosion Control”.

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

Fiber Mulching

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

An additional 2% by weight of tackifier will be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier will be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier will be synthetic.

Fiber mulch will be applied at the rate of 3,000 pounds per acre.

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 lump sum price for “Erosion Control”.

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:

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

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations noted in the "Table of Culvert Repairs", Plans sheets 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:

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

FLOATING SILT CURTAIN

Floating silt curtain may be necessary. If at the time of construction, the level of water in the wetland at the location noted in the table exceeds the height of the 12" Erosion Control Wattles, the Floating Silt Curtain will be installed.

The Contractor will determine the water depth and other waterway characteristics such as stream flow velocity and seek technical advice from the manufacturer before ordering the floating silt curtain so that the floating silt curtain installed is the correct type for the individual sites.

The Contractor will install the floating silt curtain in accordance with the manufacturer's installation instructions or as directed by the Engineer.

The Contractor will maintain the floating silt curtains for the duration of the project to ensure continuous protection of the waterway.

The Floating Silt Curtain provided will be from the approved product list. The approved product list may be viewed at the following internet site:

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

TABLE OF FLOATING SILT CURTAIN

Station		Location	Quantity (Ft)
178+65 to 181+46	R	MRM 383.08	300
		Total:	300

MAILBOXES

Existing mailboxes will be removed, turnouts constructed (as shown in Table of Refurbished Mailboxes), and mailboxes reset on new posts with the necessary support hardware for single or double mailbox assemblies according to the plans. The local Postmaster will determine the recommended mounting height. The Contractor will coordinate with the Engineer on the proper postal representative to contact.

TABLE OF REFURBISH MAILBOX

Station	Side	Contractor Furnished Borrow Excavation	Base Course	Class Q2R Asphalt Concrete Alt A	Class Q2R Asphalt Concrete Alt B	Refurbish Single Mailbox
	L/R	CuYd	Ton	Ton	Ton	Each
180+40	R	164	62.6	25.2	25.9	1
201+80	R	125	64.1	25.8	26.4	2
Totals:		289	126.7	51	52.3	3

Contractor Furnished Borrow Excavation and Base Course for mailbox turnouts will be placed and compacted to the satisfaction of the Engineer.

Topsoil in the widening areas for the mailbox turnouts will be removed and replaced and then seeded, fertilized, and mulched.

Payment for REFURBISH SINGLE MAILBOX and REFURBISH DOUBLE MAILBOX will include all costs for removing and resetting mailboxes with new post and necessary support hardware.

UNCLASSIFIED EXCAVATION

The Contractor will remove and dispose of the existing materials in the areas of the proposed Base Course and Asphalt Concrete of the mailbox turnout widening.

Salvaged materials other than asphalt from the Unclassified Excavation may be used in building the embankment for the turnouts, as determined by the Engineer.

All cost for materials, labor, and equipment necessary for saw cutting, asphalt removal and granular material removal will be incidental to the contract unit price per cubic yard for "Unclassified Excavation"

CONTRACTOR FURNISHED BORROW EXCAVATION

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

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

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 14 days and within 42 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.

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Length (Mile)	Construction Staking Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Engineer Directed Surveying/Staking (Hour)
SD 1806 Centerline	0+00	750+44	2	75,044	14.213	14.213	14.213		
SD 1806 Mailbox Turnout	178+78	181+59		281	0.053			0.053	
SD 1806 Mailbox Turnout	200+04	202+88		284	0.054			0.054	
					Totals	14.213	14.213	0.107	40.0

TABLE OF PROJECT STATIONING AND MATERIAL QUANTITIES

SD DOT	PROJECT	SECTION	SHEET
	P 1806(25)372		15 of 49

Plotting Date: 2/13/2026

PROJECT STATIONING

P 1806(25)372 - PCN 06RJ - SD 1806 (MRM 272.00 + 0.292 to 386.83 + 0.000)

SECTION	STATION		TO	STATION	DESCRIPTION	RESURFACING LENGTHS	EXCEPTION LENGTHS	GROSS PROJECT LENGTHS
	Begin Project	0+00.00	to	750+44.00	SD 1806	75044.00'	-	75044.00'
						75044.00'	0.00'	75044.00'
					TOTALS =	**14.213 Miles**	**0.000 Miles**	**14.213 Miles**

MATERIAL QUANTITIES

Description	Contractor Furnished Borrow Excavation (CuYd)	Base Course (Ton)	Base Course, Salvaged (Ton)	Granular Material, Furnish (Ton)	*Granular Material, Furnish (Alternate A) (Ton)	*Granular Material, Furnish (Alternate B) (Ton)	Asphalt Concrete Composite (Ton)	Asphalt Concrete Blade Laid (Ton)	Class Q2R Hot Mixed Asphalt Concrete (Alternate A) (Ton)	PG 58-34 Asphalt Binder (Alternate A) (Ton)	Hydrated Lime (Alternate A) (Ton)	Class Q2R Hot Mixed Asphalt Concrete (Alternate B) (Ton)	PG 58-34 Asphalt Binder (Alternate B) (Ton)	Hydrated Lime (Alternate B) (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
PCN 06RJ								2,132.0	23,579.4	1,080.2	227.4	24,219.0	881.2	241.6	61.1	49.7	739.1
Asphalt Concrete Blade Laid								-	-	157.8	21.3		157.8	21.3	79.6	-	-
Table of Additional Quantities Totals =	289	1,623.0	1,470.0	735.0	5,182.1	5,005.3	355.0	-	2,476.1	112.7	24.8	2,509.4	91.9	25.2	5.8	2.1	38.0
Subtotal=	**289**	**1,623.0**	**1,470.0**	**735.0**	**5,182.1**	**5,005.3**	**355.0**	**2,132.0**	**26,055.5**	**1,350.7**	**273.5**	**26,728.4**	**1,130.9**	**288.1**	**146.5**	**51.8**	**777.1**

* Denotes Non-participating

RATES OF MATERIALS

SECTION 1 (per mile)

Cold Milling Asphalt Concrete is computed at the rate of 14,608 Square Yards, applied 24.9 feet wide.

Class Q2R Hot Mixed Asphalt Concrete

	Alt. A	Alt. B
Aggregate (80% Contractor Furnished)	1254 Tons	1300 Tons
Reclaimed Asphalt Pavement (RAP) (20%)	313 Tons	325 Tons
PG 58-34 Asphalt Binder	76 Tons	62 Tons
TOTAL MIX	**1643 Tons**	**1687 Tons**
Hydrated Lime	16 Tons	17 Tons
TOTAL MIX WITH HYDRATED LIME	**1659 Tons**	**1704 Tons**

The exact proportions of these materials will be determined on construction.

Tack

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 5.6 tons applied 25.0 feet wide (Rate = 0.09 gallon per square yard), prior to application Asphalt Concrete Blade Laid.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 4.3 tons applied 29.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2.0” lift of Class Q2R Hot Mixed Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 3.5 tons applied 28.0 feet wide (Rate = 0.05 gallon per square yard).

Provide Sand for Flush Seal at the rate of 52 tons applied 22.0 feet wide with 1’ centerline gap and 6” fog line gaps (Rate = 8 pounds per square yard).

SUMMARY OF ASPHALT CONCRETE

Location	Alt. A Class Q2R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	Alt. A Class Q2R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)	Alt. B Class Q2R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	Alt. B Class Q2R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)
Section 1 - PCN 06RJ				
24' Finished Roadway Width	22,636.2	-	23,250.2	-
2.0' Bevel	-	943.2	-	968.8
Totals =	22,636.2	943.2	23,250.2	968.8
Table of Additional Quantities Totals =	0.0	2,476.1	0.0	2,509.4
TOTALS =	**22,636.2**	**3,419.3**	**23,250.2**	**3,478.2**

TABLE OF ADDITIONAL QUANTITIES

Description	N.A.B.I. (FOR INFORMATION ONLY) Water For Granular Material & Water for Embankment (MGal)	Remove Asphalt Concrete Pavement (SqYd)	Cold Milling Asphalt Concrete (SqYd)	N.A.B.I. (FOR INFORMATION ONLY) Cold Milling Asphalt Concrete (Tons)	N.A.B.I. (FOR INFORMATION ONLY) Salvaged Asphalt Concrete for RAP (Alternate A) (Ton)	N.A.B.I. (FOR INFORMATION ONLY) Salvaged Asphalt Concrete for RAP (Alternate B) (Ton)	Unclassified Excavation, Digouts (CuYd)	Asphalt Concrete Composite (Ton)	Contractor Furnished Borrow Excavation (CuYd)	Unclasssified Excavation (CuYd)	Base Course (Ton)	Base Course, Salvaged (Ton)	Granular Material, Furnish (Ton)	Blend, Haul and Stockpile Granular Material (Ton)	Alternate A		Alternate B		Q2R Alternate. A			Q2R Alternate B			SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
															*Granular Material, Furnish (Ton)	*Blend, Haul and Stockpile Granular Material (Ton)	*Granular Material, Furnish (Ton)	*Blend, Haul and Stockpile Granular Material (Ton)	Class Q2R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)	Class Q2R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)			
PCN 06RJ																											
Transitions (Begin/End Projects)			221	17.4																							
	All Asphalt																										
2	Intersecting Road, Private, Commercial Entrances & Mailbox Turnouts (Refer to "Table of Approaches" sheets for locations)	1.8		0.0	0.0	10.1	10.4			289	95	126.7	0.0							53.6	2.4	0.5	55.0	2.0	0.6	0.1	0.1	1.9
	Asphalt Radius																										
12	Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	0.6		160	12.6	59.5	61.8					45.0	0.0							315.2	14.4	3.2	327.5	12.0	3.3	0.8	0.6	11.4
	Asphalt Pad																										
98	Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	21.6		1303	102.6	129.5	133.2					30.0	1470.0							686.0	31.2	6.9	705.6	25.8	7.1	1.6	1.4	24.7
Cold milling (for calculating Blend, Haul and Stockpile Granular Material)			207624	10700.5	4448.7	4619.2																					
Blend, Haul, & Stockpile Cold Milled Asphalt													735.0	1470.0	5182.1	10364.2	5005.3	10010.6									
Spot Leveling, Strengthening, & Repair					268.2	268.2													1421.3	64.7	14.2	1421.3	52.1	14.2	3.3	-	-
Digouts	20.5	1066			0.0	0.0	711	355			1421.3																
PROJECT TOTALS =	**44.5**	**1066**	**209308**	**10833.1**	**4916.0**	**5092.8**	**711**	**355**	**289**	**95**	**1623.0**	**1470.0**	**735.0**	**1470.0**	**5182.1**	**10364.2**	**5005.3**	**10010.6**	**2476.1**	**112.7**	**24.8**	**2509.4**	**91.9**	**25.2**	**5.8**	**2.1**	**38.0**

N.A.B.I. denotes Not a Bid Item
Tonnage shown in the tables above for Class Q2R Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the plans.
The quantities above are included in the Material Quantities table in the "Table of Material Quantities" sheet.
* Denotes Non-participating

TABLE OF APPROACHES

Revised: 01/08/2026 SJa

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Plotting Date: 2/13/2026

Approach number	Station	Side	Type	None (N), Pad (P), Radius (R), or All (A)	1" Cold Milling Asphalt Concrete SqYd	3" Q2R Asphalt Concrete ALT. A Tons	3" Q2R Asphalt Concrete ALT. B Tons	Base Course, Salvaged Tons	Base Course Tons	Comment
1	3+55	L	Commercial Entrance	P	13.3	7	7.2	15.0	15.0	Wacipi grounds
2	4+40	R	Commercial Entrance	R	13.3	8.5	8.7	-	5.0	Cemetery (R=15')
3	8+00	R	Commercial Entrance	R	13.3	16.1	16.5	-	-	Church (R=25')
4	9+90	L	Commercial Entrance	P	13.3	7	7.2	15.0	15.0	Wacipi grounds
5	13+85	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
6	16+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		Sewage ponds
7	22+37	L	Intersecting Road	R	13.3	16.1	16.5	-	5.0	Section line (R=25')
8	22+37	R	Intersecting Road	P	13.3	7	7.2	15.0		Section line
9	48+90	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
10	48+90	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
11	54+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
12	56+65	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
13	66+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
14	66+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
15	81+00	L	Intersecting Road	R	13.3	25.3	26	-	5.0	Section line (R=35')
16	84+00	R	Intersecting Road	R	13.3	25.3	26	-	5.0	108th street (R=35')
17	91+50	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
18	92+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
19	95+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
20	95+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
21	119+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
22	119+50	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
23	131+70	I	Field/Farm Ent.	P	13.3	7	7.2	15.0		
24	131+70	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
25	152+87	L	Intersecting Road	R	13.3	16.1	16.5	-	5.0	Section line (R=25')
26	152+87	R	Intersecting Road	R	13.3	25.3	26	-	5.0	109th street (R=35')
27	157+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
28	164+75	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
29	169+30	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
30	170+30	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
*	180+40	R	Mailbox Turnout	A	-	26.5	27.2	-	62.6	Mailbox Turnout
31	180+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
32	187+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
33	187+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
34	198+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
35	201+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
*	201+80	R	Mailbox Turnout	A	-	27.1	27.8	-	64.1	Mailbox Turnout
36	205+65	L	Intersecting Road	P	13.3	7	7.2	15.0		Section Line
37	205+65	R	Intersecting Road	R	13.3	47.6	48.9	-	5.0	110th street (R=50')
38	208+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
39	212+75	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
40	227+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
41	227+50	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
42	241+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
43	241+50	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
44	258+38	L	Intersecting Road	P	13.3	7	7.2	15.0		Section Line
45	258+38	R	Intersecting Road	P	13.3	7	7.2	15.0		Section Line
46	275+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
47	275+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
48	284+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
49	284+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
50	298+35	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
51	298+35	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
52	311+09	L	Intersecting Road	P	13.3	7	7.2	15.0		Section Line
53	311+09	R	Intersecting Road	P	13.3	7	7.2	15.0		Section Line
54	325+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
55	325+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
56	337+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
57	337+50	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
58	352+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
59	363+95	L	Intersecting Road	R	13.3	25.3	29.9	-	5.0	113th street (R=35')
60	363+95	R	Intersecting Road	P	13.3	7	7.2	15.0		Section line
61	372+20	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
62	372+20	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
63	389+40	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
64	404+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
65	404+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
66	440+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
67	440+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
68	460+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
69	460+50	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
70	475+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
71	475+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
72	486+25	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
73	488+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
74	503+00	L	Commercial Entrance	R	13.3	31	31.8	-	-	Water Plant (R=75')
75	503+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
76	510+50	L	Commercial Entrance	R	13.3	31	31.8	-	-	Water Plant (R=75')
77	528+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
78	528+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
79	542+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
80	542+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
81	558+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
82	558+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
83	575+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
84	575+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
85	591+08	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
86	591+08	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
87	608+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
88	608+50	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
89	608+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
90	620+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
91	643+96	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
92	643+96	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
93	658+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
94	658+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
95	670+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
96	670+50	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
97	681+00	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
98	681+00	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
99	696+81	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
100	696+81	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
101	703+82	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
102	703+82	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
103	706+50	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
104	709+50	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
105	723+22	L	Field/Farm Ent.	P	13.3	7	7.2	15.0		
106	723+22	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
107	735+50	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
108	737+80	R	Field/Farm Ent.	P	13.3	7	7.2	15.0		
109	749+68	L	Intersecting Road	R	13.3	47.6	48.9	-	5.0	120th street (R=50')
110	749+68	R	Intersecting Road	P	13.3	7	7.2	15.0		Section line
			Total		**1463.0**	**1054.8**	**1088.1**	**1470.0**	**201.7**	

TABLE OF CULVERT REPAIRS

Stationing				701+90		700+40		679+00		654+00		651+29		635+60		627+45		609+00		600+42		593+00		584+65		573+52	
MRM				373.00 + 0.227		373.00 + 0.26		373.00 + 0.66		374.00 + 0.134		374.00 + 0.183		374.00 + 0.48		374.00 + 0.636		374.00 + 0.986		375.00 + 0.147		375.00 + 0.285		375.00 + 0.441		375.00 + 0.648	
Existing Structure Type				60" Cattle Pass RCP		42" Round CMP		36" Round CMP		60" Cattle Pass RCP		36" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		48" Round CMP	
Existing End Treatment				Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared	
P 1806(25)372 PCN 06RJ Corson County			PROJECT TOTALS	Joint Repair		No Work		Line Pipe		Joint Repair		No Work		Line Pipe		Line Pipe		Line Pipe		Line Pipe		Line Pipe, Gabion Lt.		Line Pipe		Line Pipe, Gabion Lt.	
Bid Item	Bid Item Description	Unit		Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt.	Rt.	Lt.	Rt.
110E0510	Remove Pipe End Section	(Each)	1																								
450E5235	54" CMP Flared End, Furnish	(Each)	1																								
450E5236	54" CMP Flared End, Install	(Each)	1																								
450E4699	Tie Bolts for RCP	(Each)	82	28						18																	
450E8300	Culvert Joint Cleaning	(Ft)	1015	344						237																	
450E8305	Repair Culvert Joint	(Ft)	1015	344						237																	
450E8310	Chemical Grout Void Fill	(Gal)	250	85						55																	
450E8910	Cleanout for Culvert Treatment	(Each)	42	1				1		1				1		1		1		1		1		1		1	
450E9524	24' Cured in Place Pipe	(Ft)	2108											132		74		52		64		56		60			
450E9526	30' Cured in Place Pipe	(Ft)	120																								
450E9528	36' Cured in Place Pipe	(Ft)	354					96																			
450E9530	42' Cured in Place Pipe	(Ft)	50																								
450E9532	48' Cured in Place Pipe	(Ft)	132																							132	
450E9534	54' Cured in Place Pipe	(Ft)	180																								
632E2510	Type 2 Object Marker Back to Back	Each	8																								
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	28.5																			4.5				12.0	
831E0110	Type B Drainage Fabric	(SqYd)	83																			15				34	

TABLE OF CULVERT REPAIRS

Stationing				545+25		544+46		538+94		524+43		507+80		501+42		476+00		465+50		459+00		452+75		446+10		433+23	
MRM				376.00 + 0.192		376.00 + 0.205		376.00 + 0.312		376.00 + 0.585		376.00 + 0.901		377.00 + 0.022		377.00 + 0.502		377.00 + 0.702		377.00 + 0.825		377.00 + 0.943		378.00 + 0.071		378.00 + 0.316	
Existing Structure Type				60" Cattle Pass RCP		42" Round CMP		48" Round CMP		24" Round CMP		24" Round CMP		36" Round CMP		24" Round CMP		54" Round CMP		54" Round CMP		24" Round CMP		24" Round CMP		48" Round CMP	
Existing End Treatment				Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared	
P 1806(25)372 PCN 06RJ Corson County			PROJECT TOTALS	Joint Repair		No Work		No Work		No Work		Line Pipe		Line Pipe		No Work		No Work		Line Pipe, Replace End Rt., Gabion Rt.		Line Pipe		Line Pipe		No Work	
Bid Item	**Bid Item Description**	**Unit**		**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt.**	**Rt.**	**Lt.**	**Rt.**
110E0510	Remove Pipe End Section	(Each)	**1**																		1						
450E5235	54" CMP Flared End, Furnish	(Each)	**1**																		1						
450E5236	54" CMP Flared End, Install	(Each)	**1**																		1						
450E4699	Tie Bolts for RCP	(Each)	**82**	18																							
450E8300	Culvert Joint Cleaning	(Ft)	**1015**	237																							
450E8305	Repair Culvert Joint	(Ft)	**1015**	237																							
450E8310	Chemical Grout Void Fill	(Gal)	**250**	55																							
450E8910	Cleanout for Culvert Treatment	(Each)	**42**	1								1		1						1		1		1			
450E9524	24' Cured in Place Pipe	(Ft)	**2108**									90										102		88			
450E9526	30' Cured in Place Pipe	(Ft)	**120**																								
450E9528	36' Cured in Place Pipe	(Ft)	**354**											94													
450E9530	42' Cured in Place Pipe	(Ft)	**50**																								
450E9532	48' Cured in Place Pipe	(Ft)	**132**																								
450E9534	54' Cured in Place Pipe	(Ft)	**180**																	102							
632E2510	Type 2 Object Marker Back to Back	Each	**8**																								
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	**28.5**																		12.0						
831E0110	Type B Drainage Fabric	(SqYd)	**83**																		34						

TABLE OF CULVERT REPAIRS

Stationing				424+00		402+00		389+00		380+50		364+37		357+50		354+40		340+60		330+35		323+00		311+17		304+30	
MRM				378.00 + 0.488		378.00 + 0.905		379.00 + 0.154		379.00 + 0.315		379.00 + 0.622		379.00 + 0.747		379.00 + 0.819		380.00 + 0.068		380.00 + 0.262		380.00 + 0.403		380.00 + 0.625		380.00 + 0.756	
Existing Structure Type				60" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		48" Round CMP		48" Round CMP		54" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP	
Existing End Treatment				Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared	
P 1806(25)372 PCN 06RJ Corson County			PROJECT TOTALS	No Work		Line Pipe		Line Pipe		Line Pipe		Line Pipe		No Work		No Work		No Work		No Work		Line Pipe		Line Pipe		Line Pipe	
Bid Item	**Bid Item Description**	**Unit**		**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt.**	**Rt.**	**Lt.**	**Rt.**
110E0510	Remove Pipe End Section	(Each)	**1**																								
450E5235	54" CMP Flared End, Furnish	(Each)	**1**																								
450E5236	54" CMP Flared End, Install	(Each)	**1**																								
450E4699	Tie Bolts for RCP	(Each)	**82**																								
450E8300	Culvert Joint Cleaning	(Ft)	**1015**																								
450E8305	Repair Culvert Joint	(Ft)	**1015**																								
450E8310	Chemical Grout Void Fill	(Gal)	**250**																								
450E8910	Cleanout for Culvert Treatment	(Each)	**42**			1		1		1		1										1		1		1	
450E9524	24' Cured in Place Pipe	(Ft)	**2108**			94		54		98		56										144		88		96	
450E9526	30' Cured in Place Pipe	(Ft)	**120**																								
450E9528	36' Cured in Place Pipe	(Ft)	**354**																								
450E9530	42' Cured in Place Pipe	(Ft)	**50**																								
450E9532	48' Cured in Place Pipe	(Ft)	**132**																								
450E9534	54' Cured in Place Pipe	(Ft)	**180**																								
632E2510	Type 2 Object Marker Back to Back	Each	**8**																								
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	**28.5**																								
831E0110	Type B Drainage Fabric	(SqYd)	**83**																								

TABLE OF CULVERT REPAIRS

Stationing				284+65		270+00		243+31		236+00		217+00		189+00		178+00		153+75		147+19		135+00		120+00		111+50	
MRM				381.00	+ 0.129	381.00	+ 0.407	381.00	+ 0.911	382.00	+ 0.049	382.00	+ 0.408	382.00	+ 0.938	383.00	+ 0.158	383.00	+ 0.604	383.00	+ 0.73	383.00	+ 0.959	384.00	+ 0.238	384.00	+ 0.408
Existing Structure Type				24" Round CMP		42" Round CMP		24" Round CMP		36" Round CMP		36" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP	
Existing End Treatment				Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared	
P 1806(25)372 PCN 06RJ Corson County			PROJECT TOTALS	Line Pipe		Line Pipe		Line Pipe		Line Pipe		Line Pipe		Line Pipe, Install Object Markers		Line Pipe, Install Object Markers		Line Pipe, Install Object Markers		Line Pipe		Line Pipe		Line Pipe, Install Object Markers		Line Pipe	
Bid Item	Bid Item Description	Unit		Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt.	Rt.	Lt.	Rt.
110E0510	Remove Pipe End Section	(Each)	1																								
450E5235	54" CMP Flared End, Furnish	(Each)	1																								
450E5236	54" CMP Flared End, Install	(Each)	1																								
450E4699	Tie Bolts for RCP	(Each)	82																								
450E8300	Culvert Joint Cleaning	(Ft)	1015																								
450E8305	Repair Culvert Joint	(Ft)	1015																								
450E8310	Chemical Grout Void Fill	(Gal)	250																								
450E8910	Cleanout for Culvert Treatment	(Each)	42	1		1		1		1		1		1		1		1		1		1		1		1	
450E9524	24' Cured in Place Pipe	(Ft)	2108	74				68						66		60		58		50		70		58		58	
450E9526	30' Cured in Place Pipe	(Ft)	120																								
450E9528	36' Cured in Place Pipe	(Ft)	354							44		70															
450E9530	42' Cured in Place Pipe	(Ft)	50			50																					
450E9532	48' Cured in Place Pipe	(Ft)	132																								
450E9534	54' Cured in Place Pipe	(Ft)	180																								
632E2510	Type 2 Object Marker Back to Back	Each	8											1	1	1	1	1	1					1	1		
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	28.5																								
831E0110	Type B Drainage Fabric	(SqYd)	83																								

TABLE OF CULVERT REPAIRS

Stationing				109+75		107+73		104+00		94+00		79+35		62+12		32+00		18+00											
MRM				384.00 + 0.439		384.00 + 0.476		384.00 + 0.548		384.00 + 0.735		385.00 + 0.017		385.00 + 0.345		385.00 + 0.914		386.00 + 0.18											
Existing Structure Type				48" Cattle Pass RCP		36" Round RCP		24" Round CMP		24" Round CMP		24" Round CMP		54" Round CMP		36" Round CMP		30" Round CMP											
Existing End Treatment				Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared											
P 1806(25)372 PCN 06RJ Corson County		PROJECT TOTALS		Joint Repair		No Work		Line Pipe		Line Pipe		Line Pipe		Line Pipe		Line Pipe		Line Pipe											
Bid Item	Bid Item Description	Unit		Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt										
110E0510	Remove Pipe End Section	(Each)	1																										
450E5235	54" CMP Flared End, Furnish	(Each)	1																										
450E5236	54" CMP Flared End, Install	(Each)	1																										
450E4699	Tie Bolts for RCP	(Each)	82	18																									
450E8300	Culvert Joint Cleaning	(Ft)	1015	197																									
450E8305	Repair Culvert Joint	(Ft)	1015	197																									
450E8310	Chemical Grout Void Fill	(Gal)	250	55																									
450E8910	Cleanout for Culvert Treatment	(Each)	42	1				1		1		1		1		1		1											
450E9524	24' Cured in Place Pipe	(Ft)	2108					56		44		98																	
450E9526	30' Cured in Place Pipe	(Ft)	120															120											
450E9528	36' Cured in Place Pipe	(Ft)	354													50													
450E9530	42' Cured in Place Pipe	(Ft)	50																										
450E9532	48' Cured in Place Pipe	(Ft)	132																										
450E9534	54' Cured in Place Pipe	(Ft)	180											78															
632E2510	Type 2 Object Marker Back to Back	Each	8																										
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	28.5																										
831E0110	Type B Drainage Fabric	(SqYd)	83																										

TABLE OF SWPPP QUANTITIES

Stationing	593+00		573+52		459+00		180+40		201+80			Total
MRM	375.00	+ 0.285	375.00	+ 0.648	377.00	+ 377.	383.00	+ 0.08	382.00	+ 0.68		
Structure Type	24" Round CMP		48" Round CMP		54" Round CMP							
P 1806(25)372 PCN 06RJ Corson County — Work	Line Pipe, Gabion Lt.		Line Pipe, Gabion Lt.		Line Pipe, Replace End Rt., Gabion Rt.		Mailbox Turnout		Mailbox Turnout		Additional	
Side	Lt	Rt	Lt	Rt	Lt	Rt		Rt		Rt		
Estimated Seeding Disturbed Area (SqFt)	850		1250			1250		9372		9366		**22088**
Estimated Seeding Disturbed Area (SqYd)	94.4		138.9			138.9		1041.3		1040.7		**2454**
Estimated Seeding Disturbed Area (ac.)	0.02		0.029			0.029		0.215		0.215		**0.508**
Wattle (ft)								300		300	100	**700**
Permanent Seed (lb) N.A.B.I.	0.4		0.5			0.5		3.9		3.9		**9**
Fertilizer (lb) N.A.B.I.	40		58			58		430		430		**1016**
Fiber Mulching (lb) N.A.B.I.	60		87			87		645		645		**1524**

N.A.B.I.= Not a Bid Item

TYPICAL SECTION

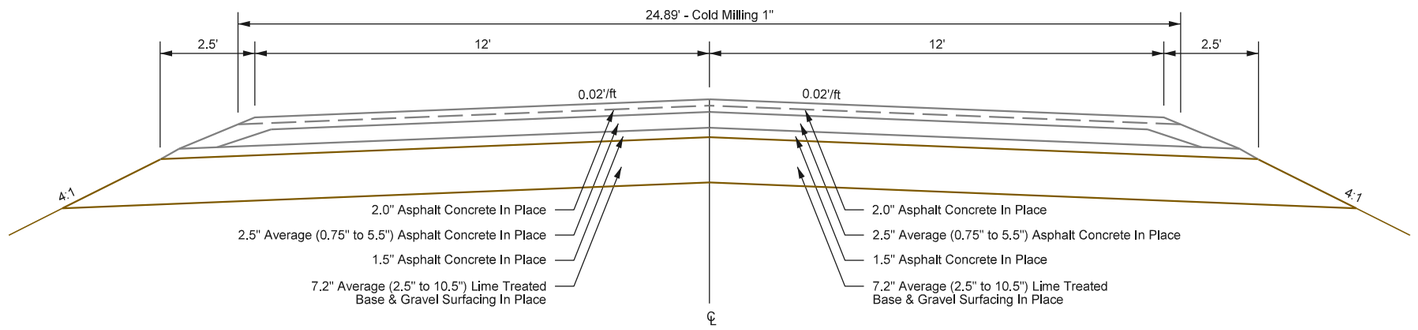
SD DOT	PROJECT	SECTION	SHEET
	P 1806(25)372		26 of 49

Plotting Date: 2/13/2026

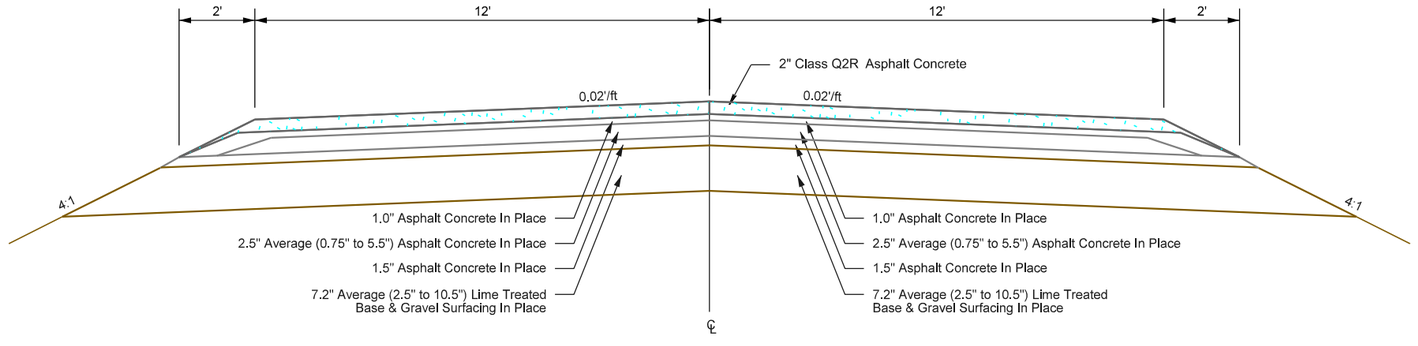
SECTION 1

Station 0+00 to Station 750+44.0

IN PLACE & COLD MILLING SECTION



RESURFACING SECTION

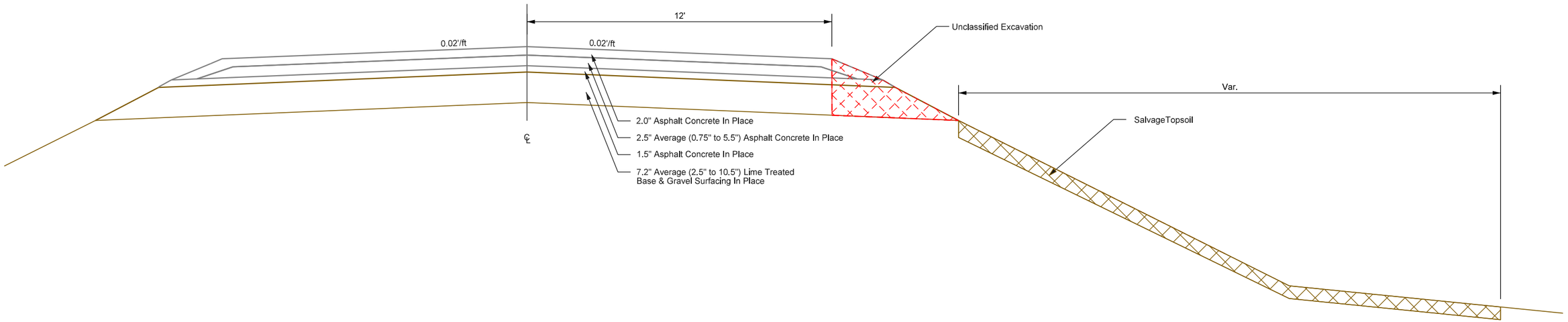


TYPICAL SECTION

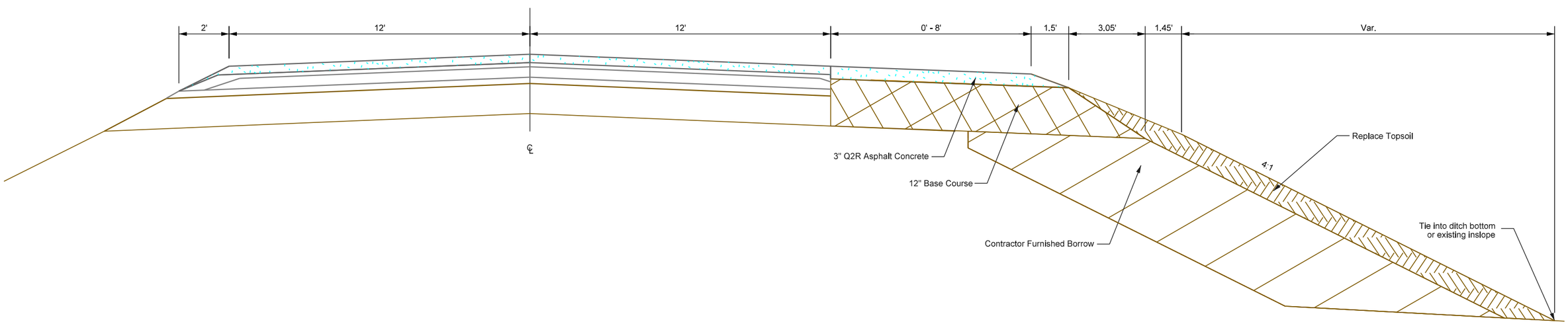
MRM 383.08 (Sta. 180+40)
MRM 382.68 (Sta. 201+80)
Mailbox Turnouts

See Standard Plate 900.01 for transitions

IN PLACE & REMOVAL SECTION



RESURFACING SECTION



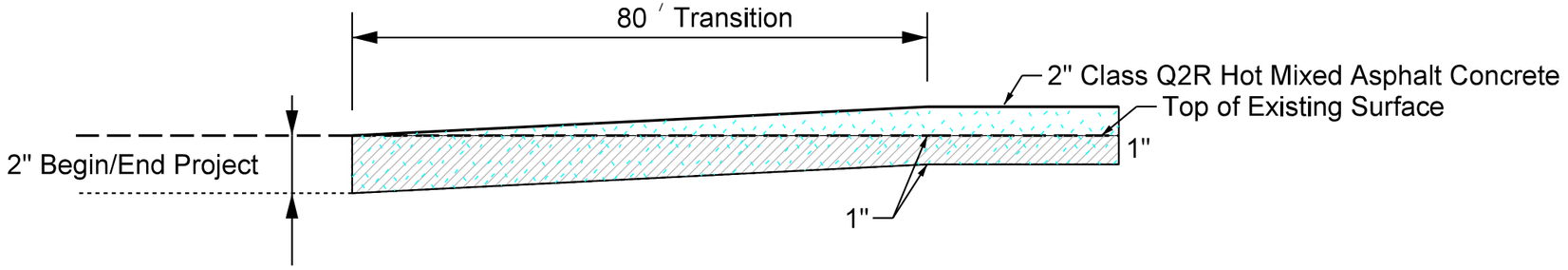
Surfacing Transition Layouts

SD DOT	PROJECT	SECTION	SHEET
	P 1806(25)372		28 of 49

Plotting Date: 2/13/2026

2" Class Q2R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete

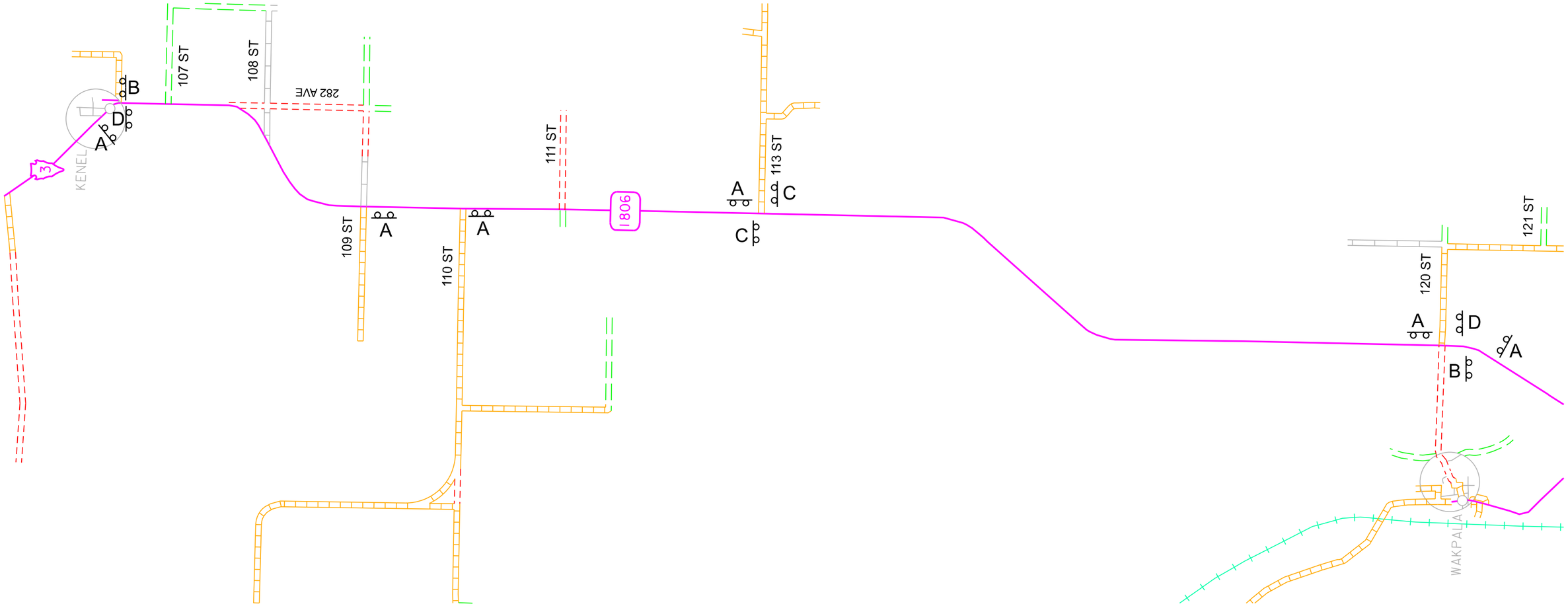


FIXED LOCATION SIGNS

Revised: 01/08/2026 SJa

SD DOT	PROJECT	SECTION	SHEET
	P 1806(25)372		29 of 49

Plotting Date: 2/13/2026



A — ROAD WORK AHEAD — W20-1 (48"X48")

C — ROAD WORK NEXT 7 MILES — G20-1 (36"X18")

B — END ROAD WORK — G20-2 (36"X18")

D — ROAD WORK NEXT 14 MILES — G20-1 (36"X18")

Notes:

Sign locations will be verified in the field by the Engineer prior to installation.

Fixed location signs to remain in place until the completion of permanent pavement markings.

PROJECT SIGN TABULATION

Revised: 01/08

SD DOT

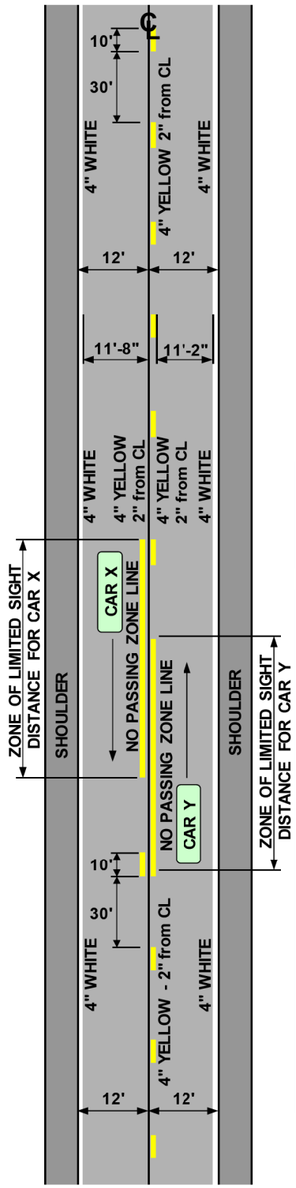
PROJECT	SECTION	SHEET
P 1806(25)372		30 of 49

Plotting Date: 2/13/2026

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-1	BUMP	2	48" x 48"	16.0	32.0
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	2	48" x 48"	16.0	32.0
W8-11	UNEVEN LANES	2	48" x 48"	16.0	32.0
W8-15	GROOVED PAVEMENT	4	48" x 48"	16.0	64.0
W8-15P	MOTORCYCLE (plaque)	4	24" x 18"	3.0	12.0
W13-1P	ADVISORY SPEED (plaque)	4	30" x 30"	6.3	25.2
W20-1	ROAD WORK AHEAD	12	48" x 48"	16.0	192.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
W21-2	FRESH OIL	4	48" x 48"	16.0	64.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-1	ROAD WORK NEXT 7 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 14 MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
SPECIAL	"WAIT FOLLOW PILOT CAR"	4	48" x 36"	12.0	48.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			720.2

PROJECT PAINT TABULATION

TWO LANE ROADWAY



PAVEMENT MARKING

Typical pavement marking as shown on this sheet will be applied throughout the entire length of two lane roadway.

Traffic Control will be incidental to the cost of application. The striper and advance or trailing warning vehicle will be equipped with flashing amber lights and advance warning arrow board.

Application rates will be as follows:

Two Lane Roadway (Rates for one line)
Dashed Yellow Centerline Rate = 6.2 Gals./Pass-Mile
Solid Yellow Centerline Rate = 22.5 Gals./Pass-Mile
Solid White Edgeline Rate = 22.5 Gals./Pass-Mile

4" Yellow Skip Centerline (when not adjacent to a 4" Yellow No Passing Zone) will be placed consistently to the south or east side of centerline.

ESTIMATED QUANTITIES (BASED ON ONE APPLICATION)	
HIGH BUILD	QUANTITY
WHITE	640 GALLONS
YELLOW	169 GALLONS

Included in the above quantities are:					
Additional White (1 Application)			Additional Yellow (1 Application)		
Description		Gallons	Description		Gallons
4" Lines	-	-	Transitions	- -	-
8" Lines	-	-	4" Skip Lines	-	-
12" Gore Lines	-	-	8" Lines	-	-
Crosswalks	- -	-	12" Lines	-	-
24" Stop Lines	-	-	24" Hatches	-	-
24" Hatches	-	-	Solid Areas	-	-
Solid Areas	-	-	Additional Yellow:		-
Arrows					
Left Arrows	-	-			
Right Arrows	-	-			
Straight Arrows	-	-			
Combo Arrows	-	-			
Lane Drop Arrows	-	-			
Messages					
STOP	-	-			
STOP AHEAD	-	-			
R X R with Bars	-	-			
SCHOOL X-ING	-	-			
Additional White:		-			

Additional Quantities

Rates of Coverage:	SqFt/Gal
4", 8" and 12" Lines -	60
24" Lines and Bars -	40
Arrows, Messages and Solid Areas -	25

All pavement marking dimensions are based on 12' driving lanes.

ESTIMATED QUANTITIES (BASED ON ONE APPLICATION)				
HIGH BUILD	Project No. 1 GALLONS	Project No. 2 GALLONS	Project No. 3 GALLONS	TOTALS GALLONS
WHITE	640	-	-	640
YELLOW	169	-	-	169

CONTROL DATA

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
CP3				708,320.53	1,846,163.82	2,024.00
CP2				722,448.53	1,846,109.57	2,008.70
CP4				679,575.18	1,839,701.56	1,825.59
1806 380.62			HARN Point - 1806 380.62, PID AC7966 LOCATED 2.0 MI SOUTH OF COUNTY ROAD 3110 (MCLAUGHLIN ROAD), 74.0 FT EAST OF THE HIGHWAY CENTERLINE 1.0 FT WEST OF A WITNESS POST AND FENCE.	708,320.53	1,846,163.83	2,024.10
CP5				658,743.67	1,835,534.96	1,690.54

HORIZONTAL ALIGNMENT DATA

Type	Station			Northing	Easting
PC	581+58.400			737845.399	1851195.301
PI	587+31.084	R = 1432.416	Delta = 43°35'00" R	737428.251	1851587.672
PT	a 0+00.000			736855.577	1851584.310
EQNBK	592+48.000			736855.577	1851584.310
EQNAHD	a 0+00.000			736855.577	1851584.310
		TL= 4819.230	S00°20'11"W		
PC	a 48+19.230			732036.430	1851556.016
PI	a 65+51.428	R = 2864.788	Delta = 62°19'07" R	730304.262	1851545.846
PT	a 79+35.160			729508.582	1850007.209
		TL= 2526.970	S62°39'18"W		
PC	a 104+62.130			728347.825	1847762.611
PI	a 121+93.495	R = 2864.791	Delta = 62°17'39" L	727552.527	1846224.715
PT	a 135+76.840			725821.197	1846213.812
		TL= 2762.520	S00°21'39"W		
PI	a 163+39.360			723058.732	1846196.414
		TL= 29554.850	S00°21'39"W		
PC	a 458+94.210			693504.468	1846010.287
PI	a 473+64.561	R = 3819.708	Delta = 42°06'26" R	692034.146	1846001.027
PT	a 487+01.350			690949.537	1845008.277
		TL= 6433.820	S42°28'05"W		
PC	a 551+35.170			686203.604	1840664.297
PI	a 566+03.786	R = 3819.731	Delta = 42°03'42" L	685120.274	1839672.718
PT	a 579+39.290			683651.695	1839662.301
		TL= 17024.780	S00°24'23"W		
PI	a 749+64.070			666627.343	1839541.549
		TL= 541.710	S00°24'23"W		
PC	a 755+05.780			666085.647	1839537.706
PI	a 765+83.943	R = 3819.722	Delta = 31°31'29" R	665007.511	1839530.059
PT	a 776+07.430			664092.491	1838959.820
		TL= 6162.610	S31°55'52"W		
PC	a 837+70.040			658862.378	1835700.420
PI	a 844+83.424	R = 1273.231	Delta = 58°31'24" R	658256.940	1835323.112
PT	a 850+70.550			658262.598	1834609.750
		TL= 302.000	N89°32'44"W		
POE	a 853+72.550			658264.994	1834307.759

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (ITRF to NAD 83/2011); epoch 2010.00; Geoid 12B; SF =0.99992570
The elevations shown on this sheet are based on NAVD 88.

TABLE OF SUPERELEVATED CURVES

STATION		TO	STATION		REMARKS
Sta	-10+89.60	to	Sta.	-0+27.80	4° 00’ Curve Rt. 0.034 Superelevation Rate Point of Rotation - 12’ Rt.
Sta	-0+27.80	to	Sta.	0+87.20	Superelevation Transition
Begin Project 0+00					**0.0232 Superelevation Rate at BOP**
Sta	0+87.20	to	Sta.	46+96.8	Normal Crown Section
Sta	46+96.8	to	Sta.	48+49.8	Superelevation Transition
Sta	48+49.8	to	Sta.	79+04.5	2° 00’ Curve Rt. 0.04 Superelevation Rate Point of Rotation - 12’ Rt.
Sta	79+04.5	to	Sta.	80+57.5	Superelevation Transition
Sta	80+57.5	to	Sta.	103+39.7	Normal Crown Section
Sta	103+39.7	to	Sta.	104+92.7	Superelevation Transition
Sta	104+92.7	to	Sta.	135+46.2	2° 00’ Curve 0.04 Superelevation Rate Point of Rotation - 12’ Lt.
Sta	135+46.2	to	Sta.	136+99.2	Superelevation Transition
Sta	136+99.2	to	Sta.	457+83.8	Normal Crown Section
Sta	457+83.8	to	Sta.	459+21.8	Superelevation Transition
Sta	459+21.8	to	Sta.	486+73.8	1° 30’ Curve 0.034 Superelevation Rate Point of Rotation - 12’ Rt.
Sta	486+73.8	to	Sta.	488+11.8	Superelevation Transition
Sta	488+11.8	to	Sta.	550+24.8	Normal Crown Section
Sta	550+24.8	to	Sta.	551+62.8	Superelevation Transition
Sta	551+62.8	to	Sta.	579+11.7	1° 30’ Curve 0.034 Superelevation Rate Point of Rotation - 12’ Lt.
Sta	579+11.7	to	Sta.	580+49.7	Superelevation Transition
Sta	580+49.7	to	Sta.	750.44.1	Normal Crown Section
End Project					

LEGEND

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Plotting Date: 2/13/2026

- 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
- Sixty-Fourth 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

EROSION AND SEDIMENT CONTROL LEGEND

- Erosion Control Wattles on Slopes
- Floating Silt Curtain

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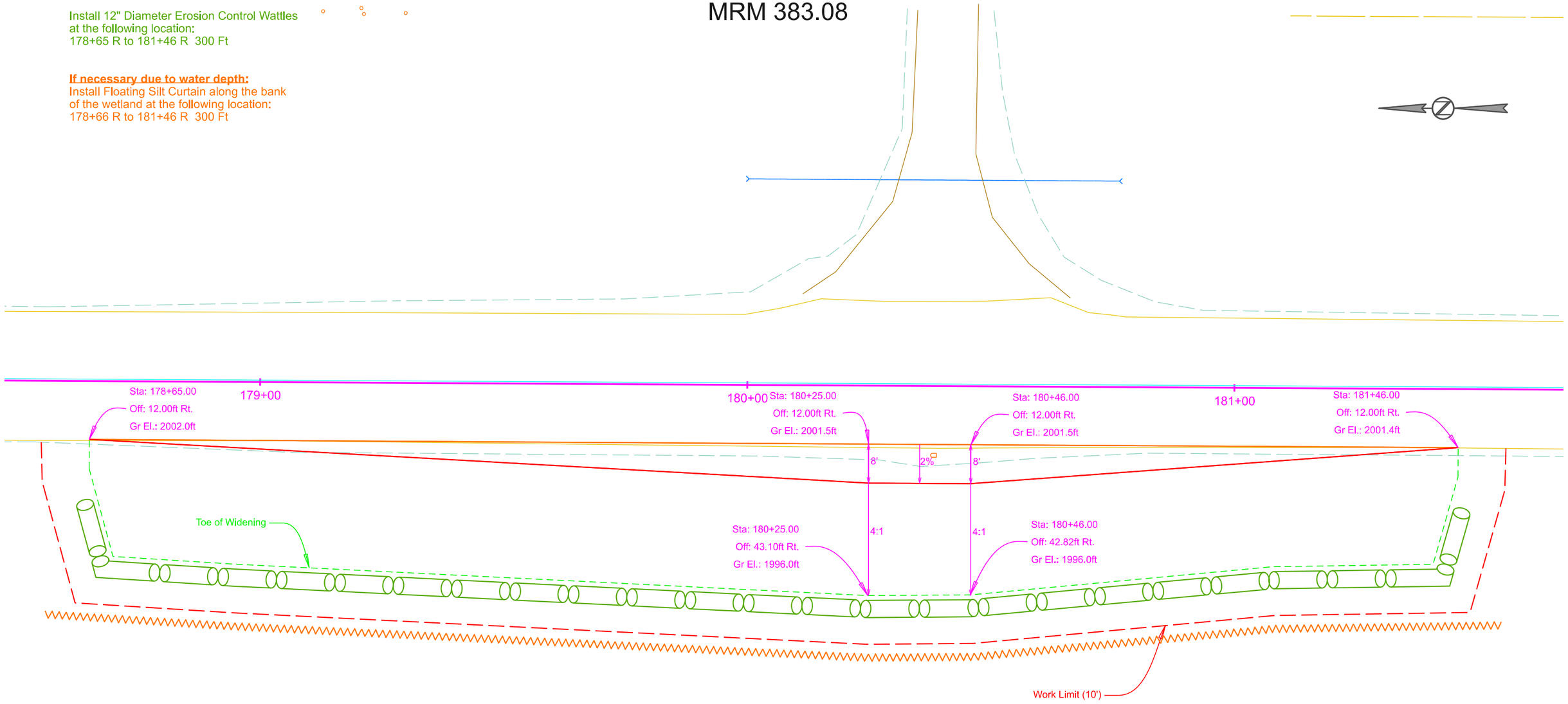
Plotting Date: 2/13/2026

PCN 06RJ
Mailbox Turnout
MRM 383.08

Install 12" Diameter Erosion Control Wattles
at the following location:
178+65 R to 181+46 R 300 Ft

If necessary due to water depth:
Install Floating Silt Curtain along the bank
of the wetland at the following location:
178+66 R to 181+46 R 300 Ft



Revised 01/08/2026 SJa

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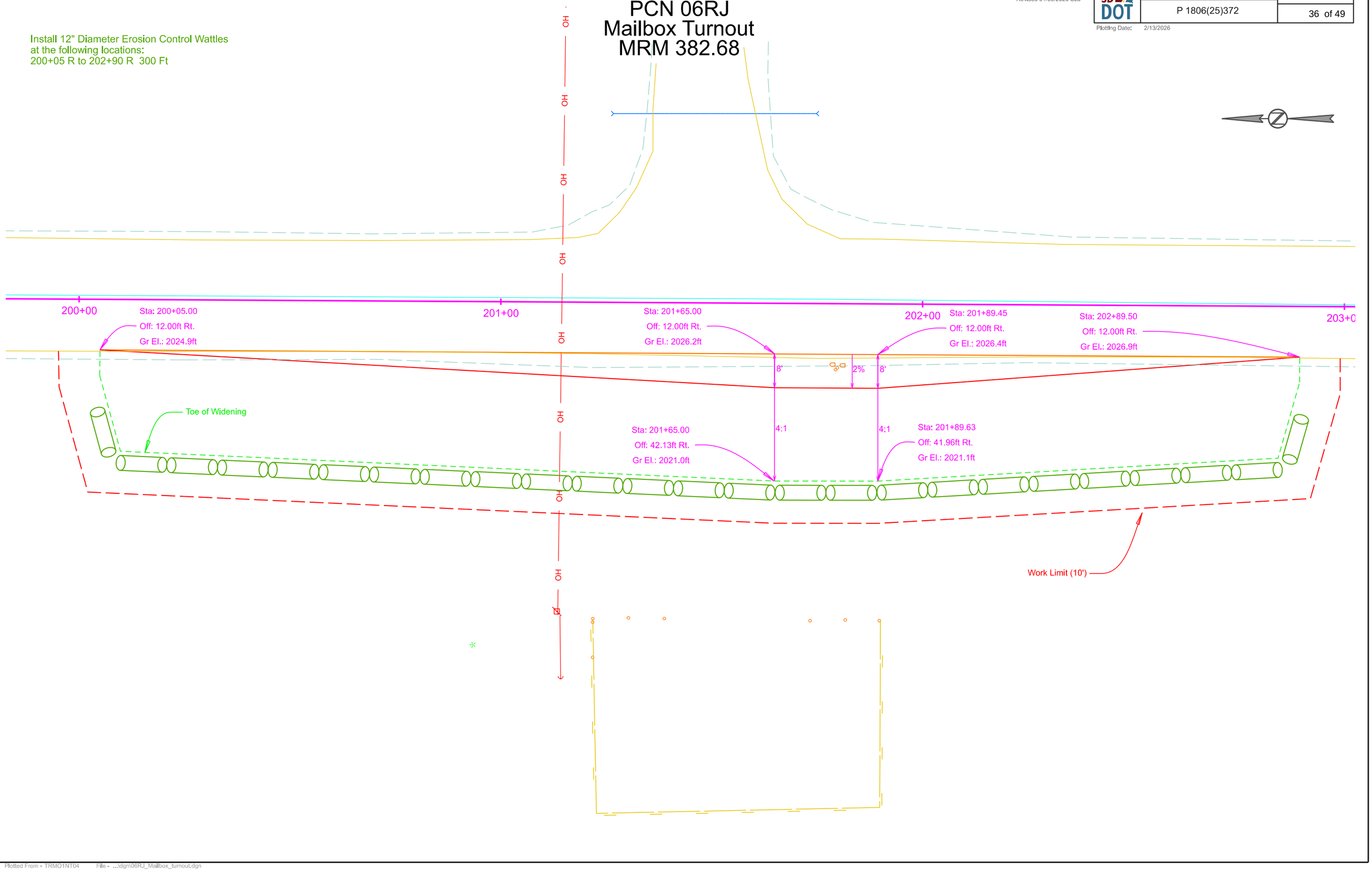
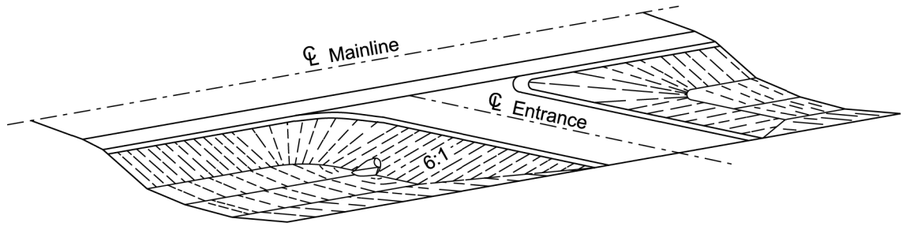
Plotting Date: 2/13/2026

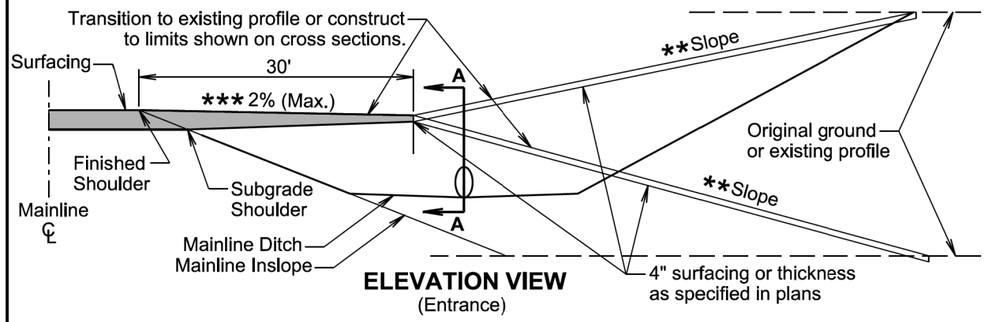
PCN 06RJ
Mailbox Turnout
MRM 382.68

Install 12" Diameter Erosion Control Wattles
at the following locations:
200+05 R to 202+90 R 300 Ft





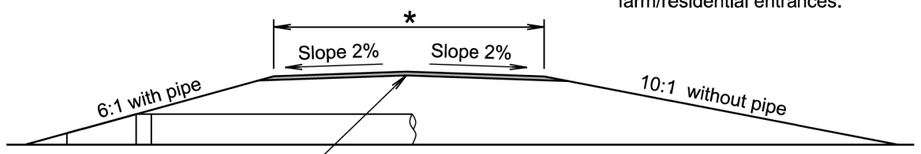
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW
(Entrance)

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

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



SECTION A-A
(Entrance and Intersecting Road)

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

GENERAL NOTES:

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

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

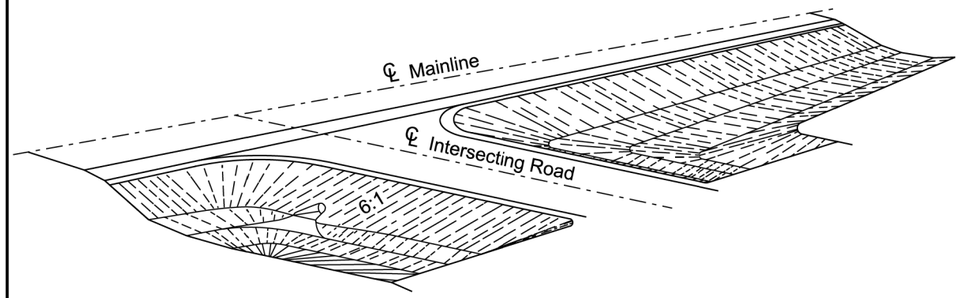
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

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

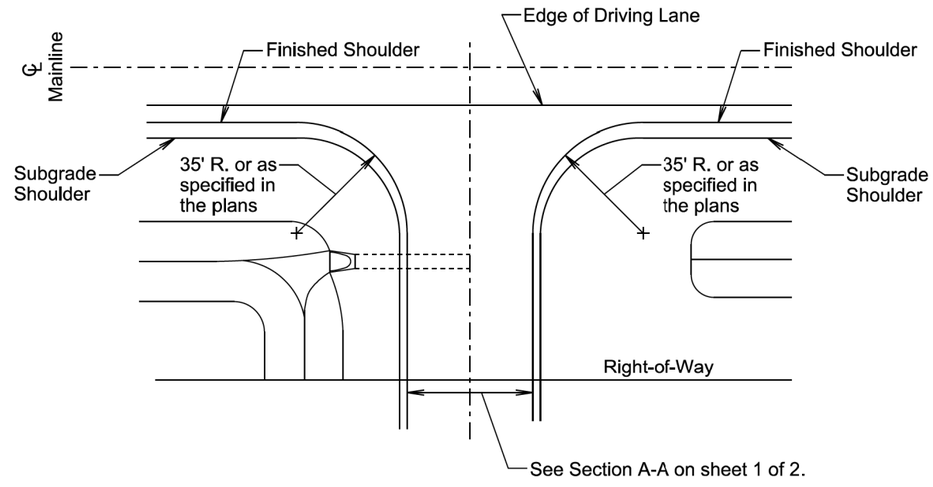
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

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



PERSPECTIVE OF INTERSECTING ROAD



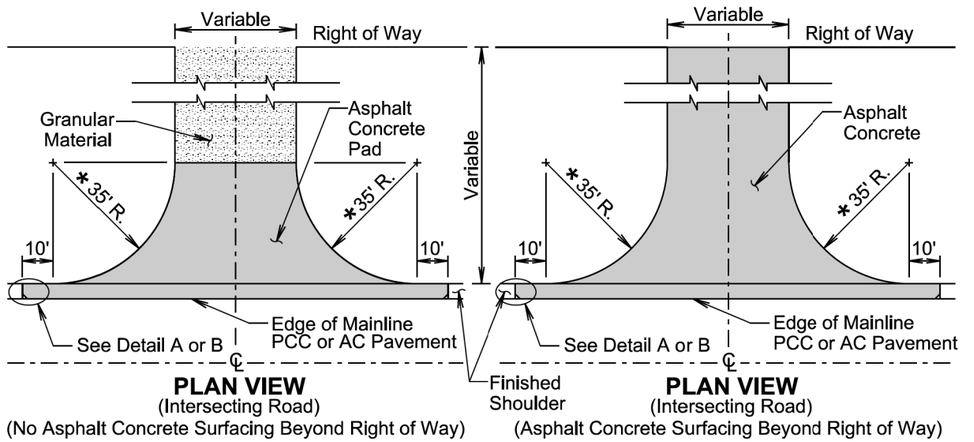
PLAN VIEW

GENERAL NOTES:

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

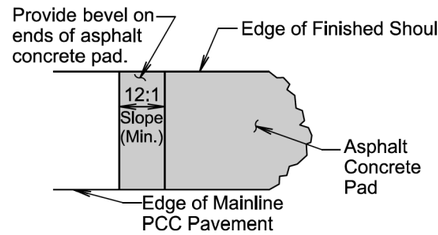
November 19, 2021

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

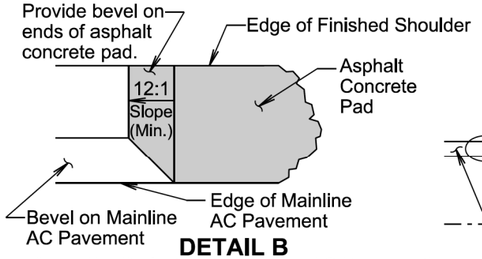


PLAN VIEW
(Intersecting Road)
(No Asphalt Concrete Surfacing Beyond Right of Way)

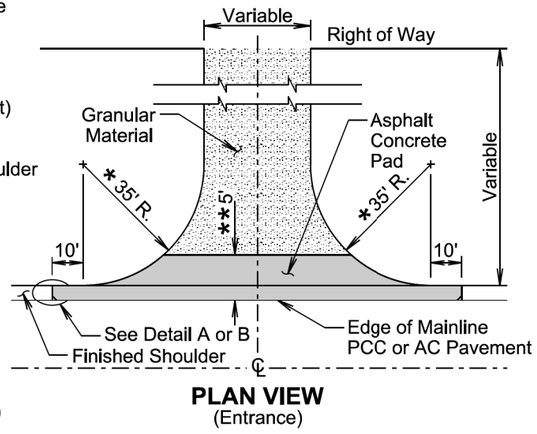
PLAN VIEW
(Intersecting Road)
(Asphalt Concrete Surfacing Beyond Right of Way)



DETAIL A
(Typ. For Projects with Mainline PCC Pavement)



DETAIL B
(Typ. For Projects with Mainline AC Pavement)



PLAN VIEW
(Entrance)

GENERAL NOTES:

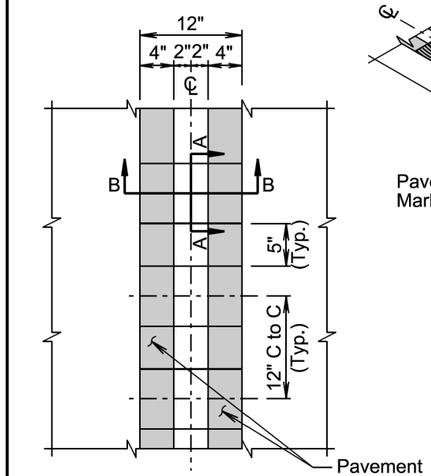
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

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

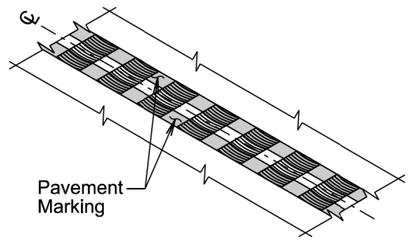
** For shoulder widths < 4', the Asphalt Concrete Pad width must be 5'. For shoulders widths of 4' or more, pave the full width of the shoulder only.

August 27, 2020

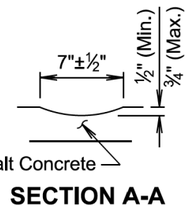
Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (SHOULDERS: GRANULAR MATERIAL OR COLD RECYCLED MATERIAL)	PLATE NUMBER 320.01	Sheet 1 of 1



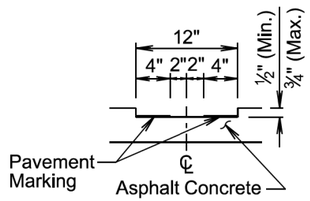
PLAN VIEW
(Typical Rumble Stripe in Asphalt Concrete)



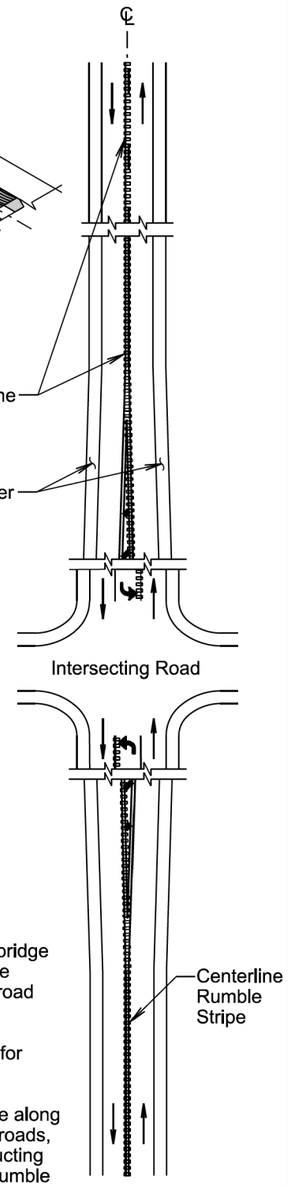
PERSPECTIVE VIEW
(Typical Rumble Stripe in Asphalt Concrete)



SECTION A-A



SECTION B-B



PLAN VIEW

GENERAL NOTES:

A rumble stripe will be constructed on the centerline of the roadway by grinding continuous indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

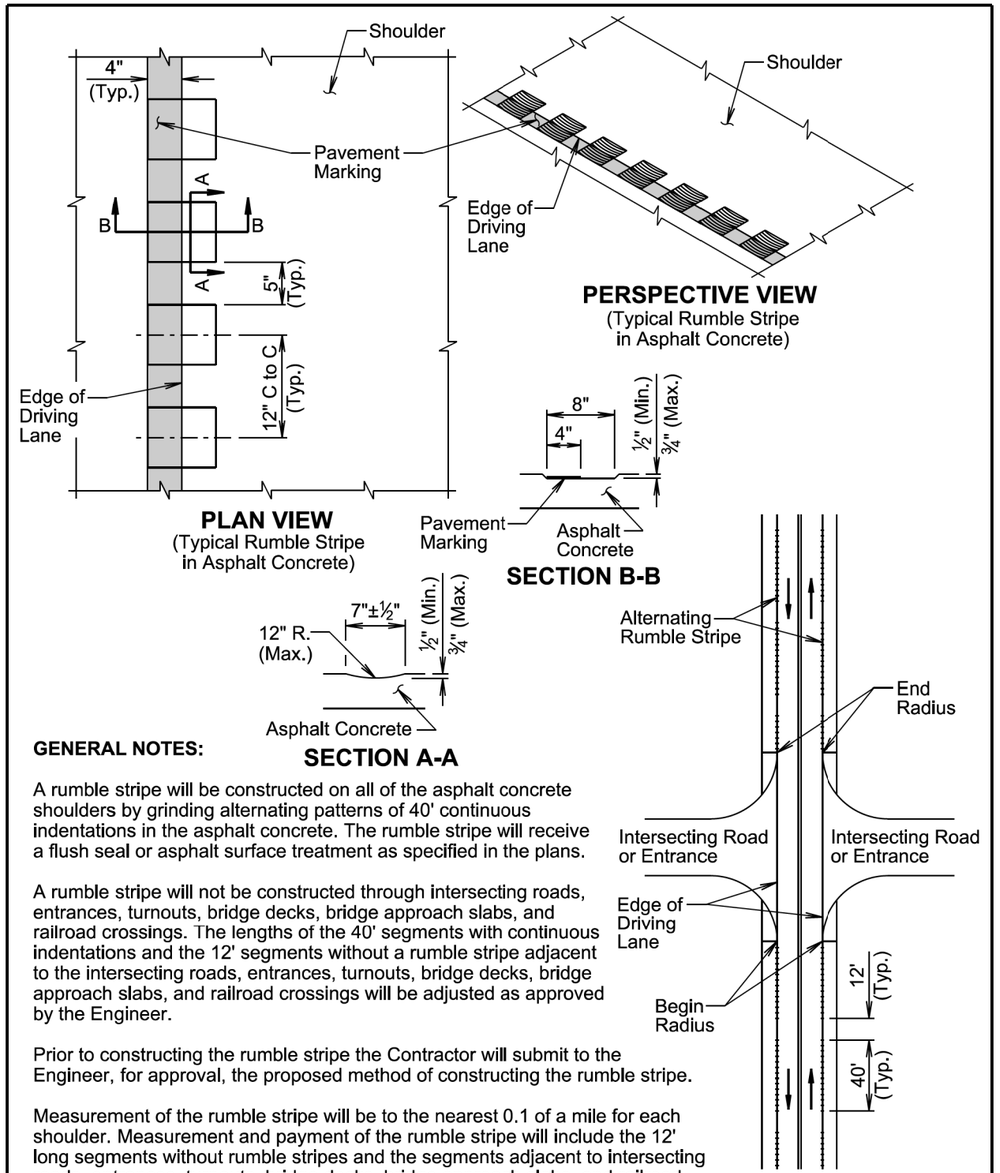
A rumble stripe will not be constructed through intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. The beginning and ending locations of the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the 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 and payment of the rumble stripe will be to the nearest 0.1 of a mile along the centerline and will include segments without the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind Centerline Rumble Stripe in Asphalt Concrete".

November 19, 2020

Published Date: 2026	SDDOT	12" CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.18	Sheet 1 of 1



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.

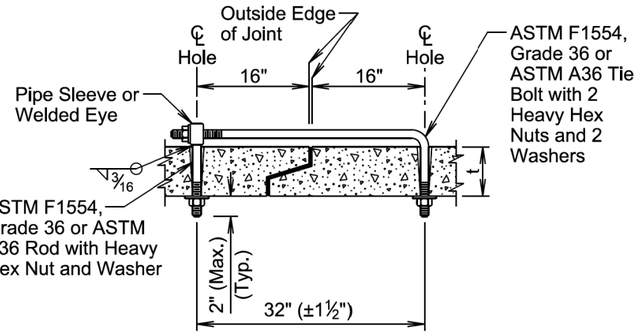
Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

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*

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



ADJUSTABLE EYE BOLT TIE

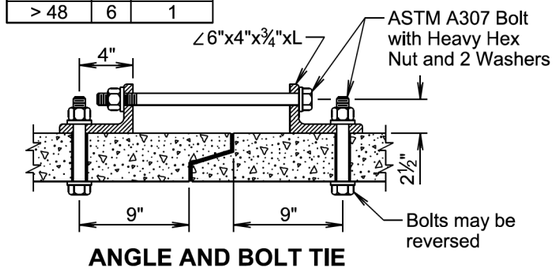
GENERAL NOTES:

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



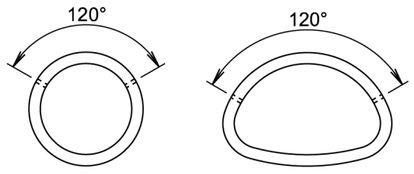
ANGLE AND BOLT TIE

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.

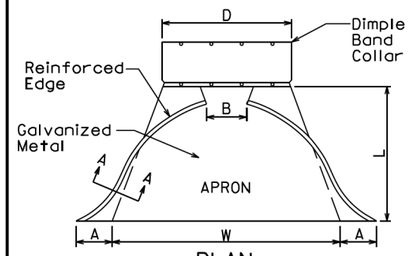
All pipe sections of R.C.P. and R.C.P. Arch will be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manholes, and junction boxes will be tied with tie bolts.

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.

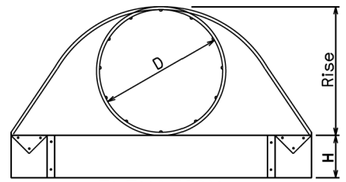
April 8, 2025

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

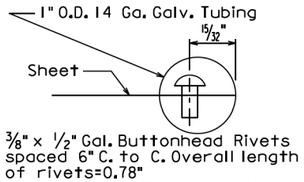
Alternate Type Connector Sections may be used with approval of the Engineer.



PLAN

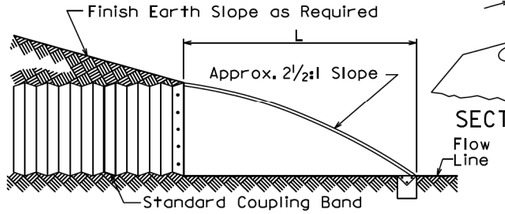


ELEVATION



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

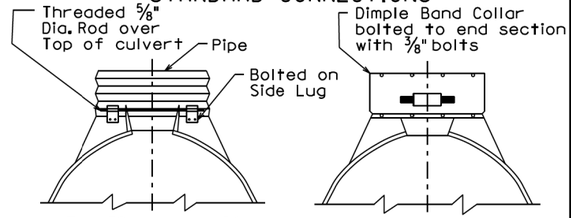
TUBING ATTACHMENT DETAILS
SECTION A-A



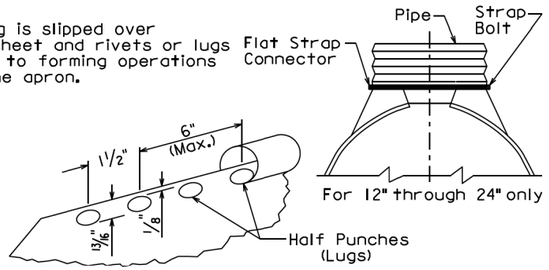
TYPICAL CROSS-SECTION

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.

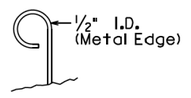
STANDARD CONNECTIONS



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



SECTION A-A (alternate)



SECTION A-A (alternate)

GENERAL NOTES:

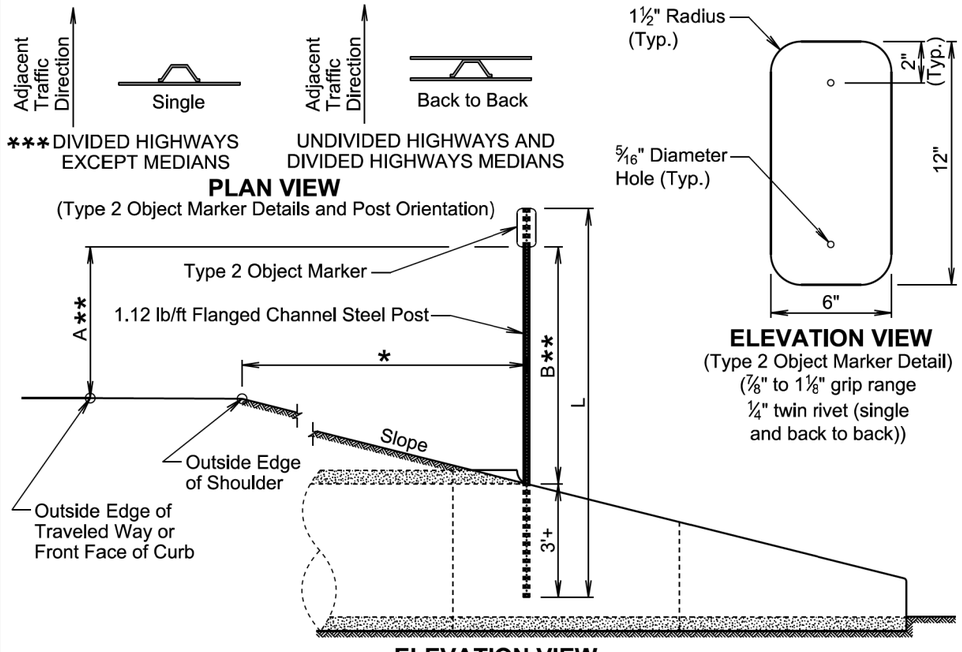
All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be greater than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by ⅜" Dia. galvanized rivets or bolts.

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 5/16" 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



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.

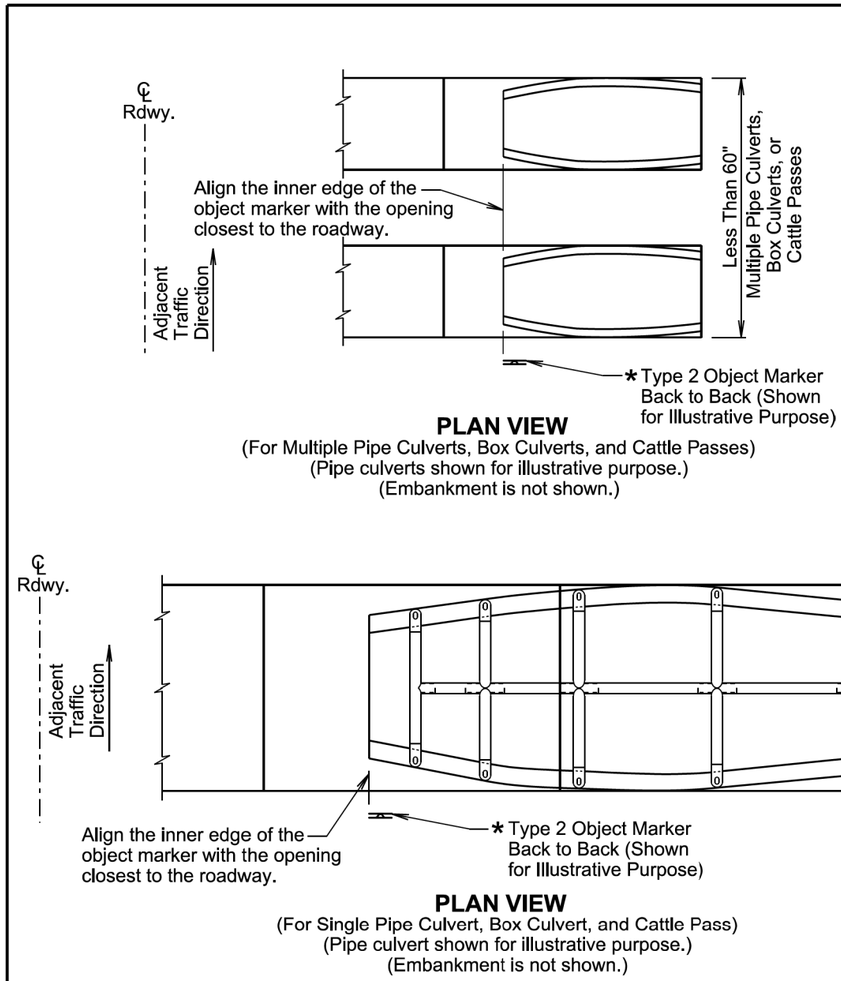
** Dimension A is 4 feet when the Offset * is 8 feet and less. Dimension B is 4 feet when Offset * is greater than 8 feet.

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



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

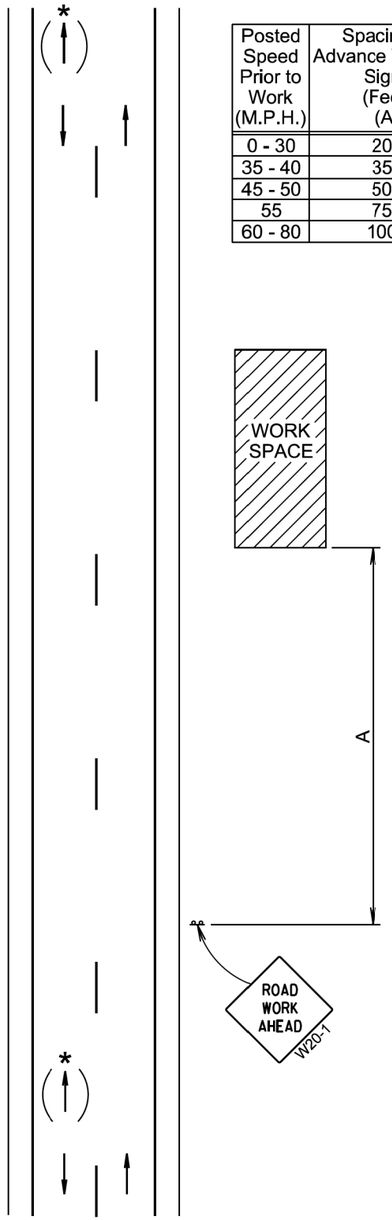
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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.

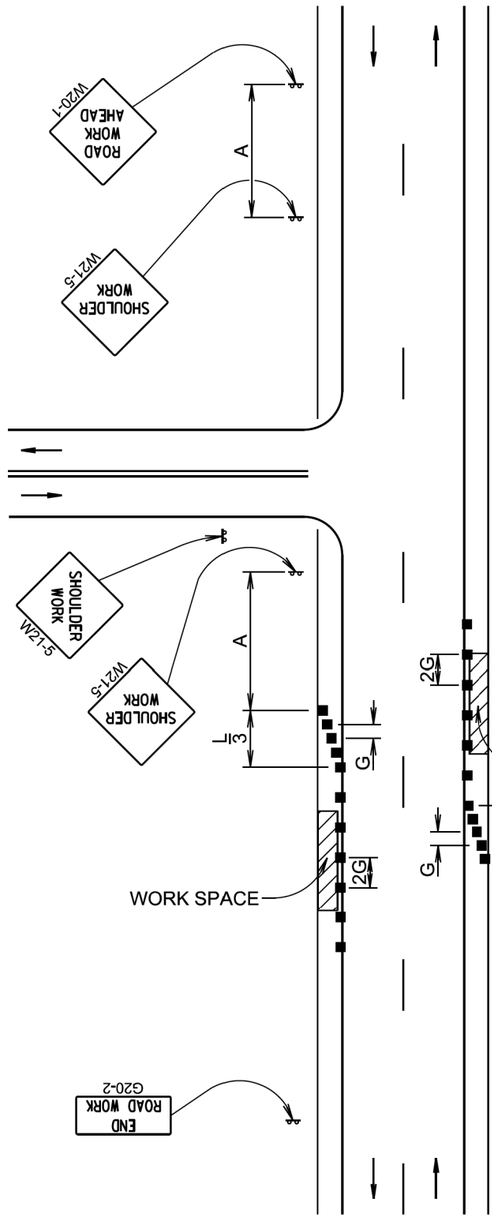
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



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.

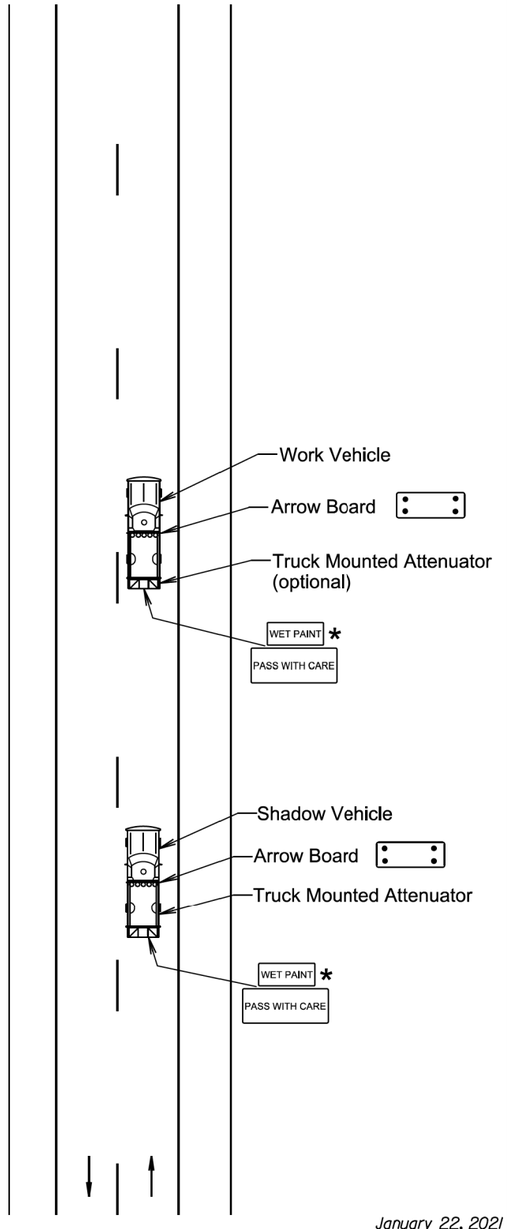
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

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".

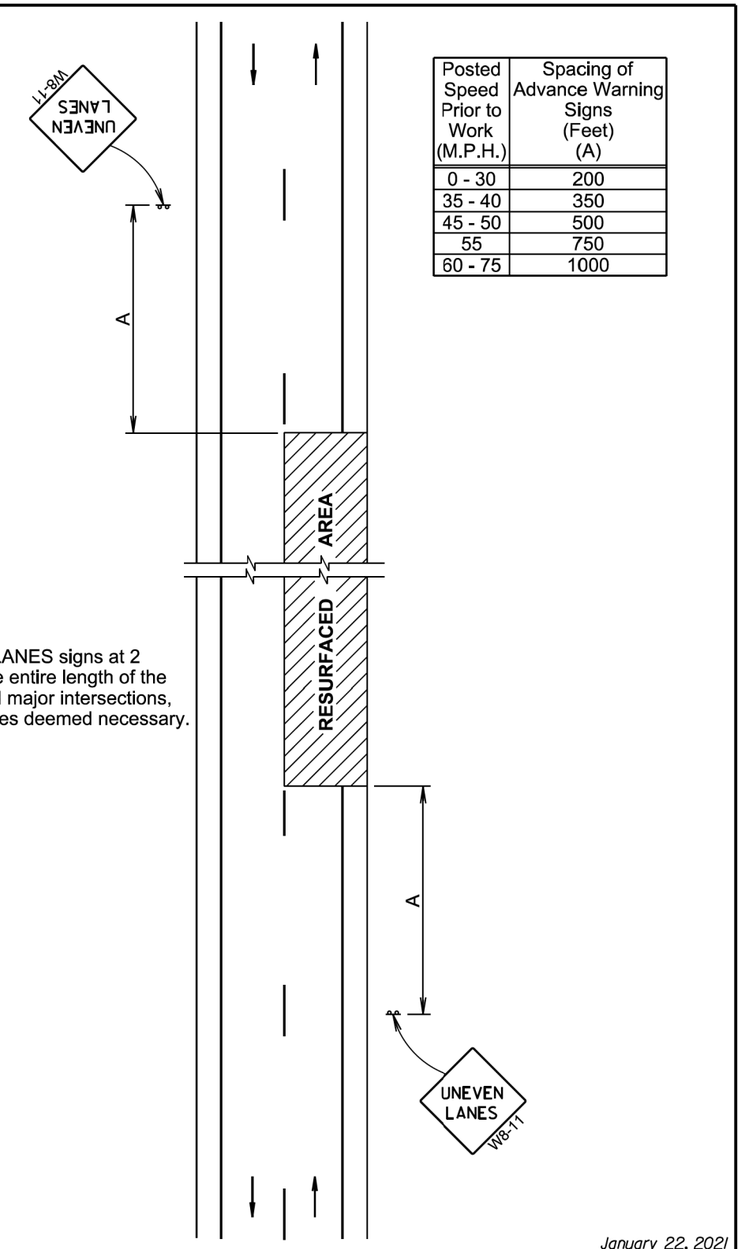


January 22, 2021

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

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

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.



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.

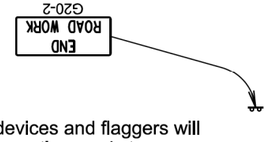
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

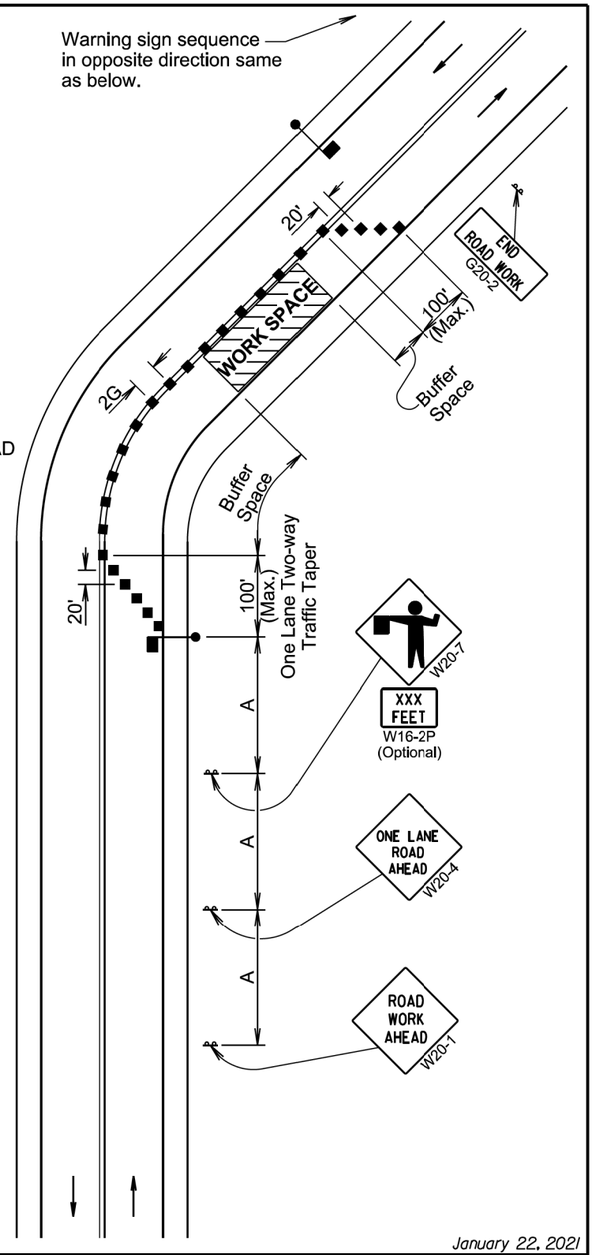
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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

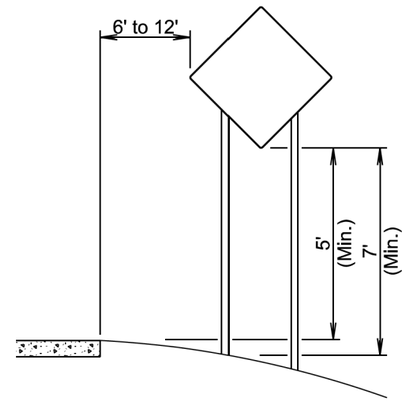
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

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

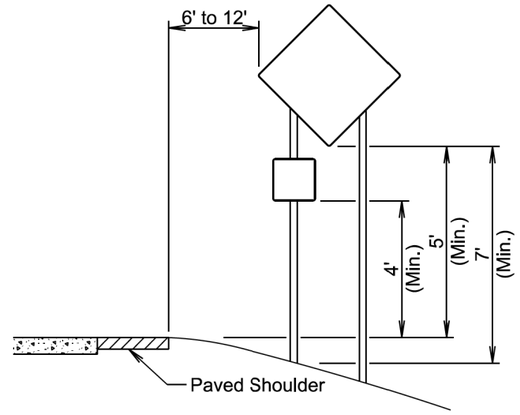


January 22, 2021

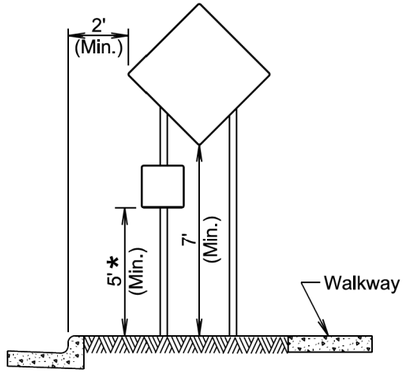
Published Date: 2026	SDDOT	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23 Sheet 1 of 1



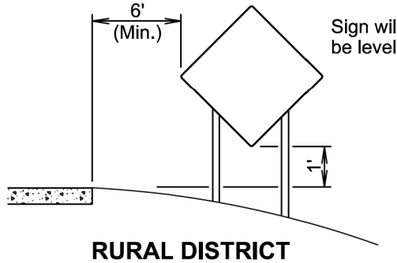
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

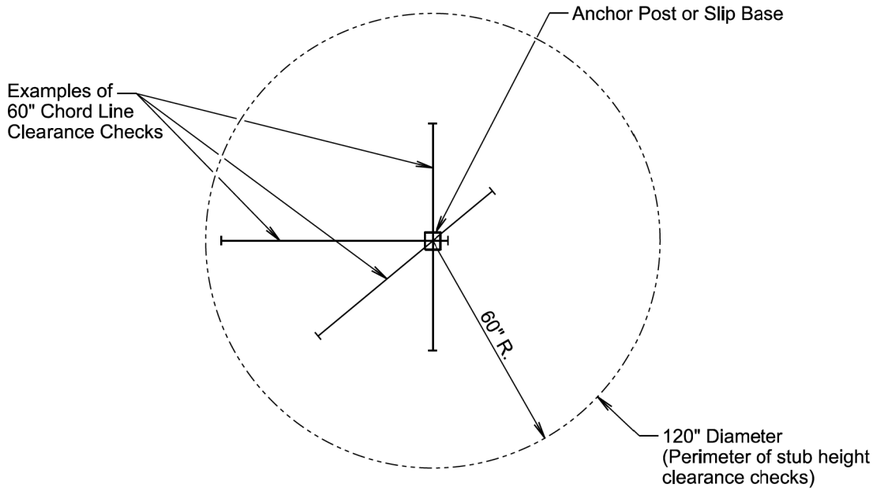


RURAL DISTRICT 3 DAY MAXIMUM
(Not applicable to regulatory signs)

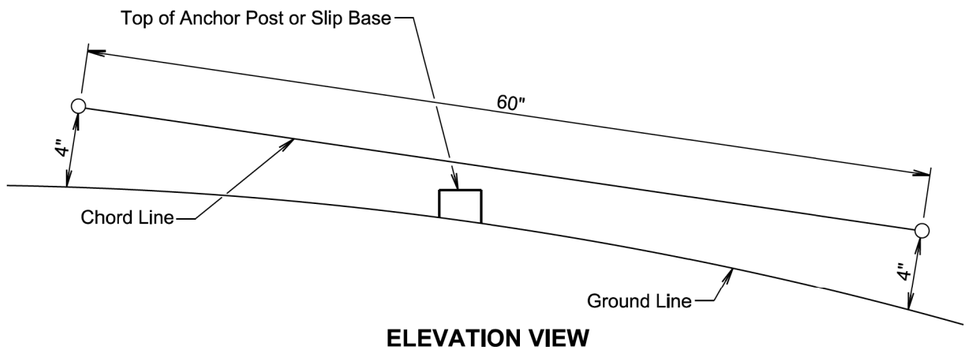
*If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

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



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

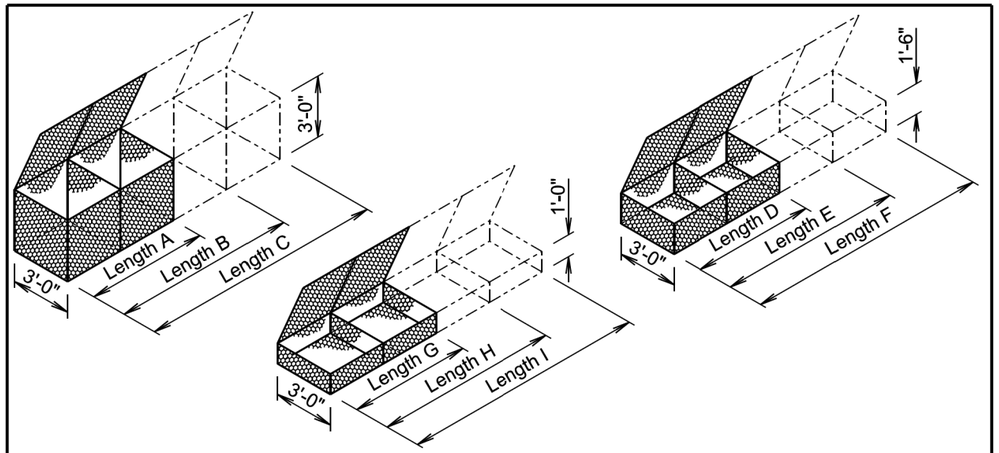
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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

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

January 22, 2021

Published Date: 2026	SDDOT	**BREAKAWAY SUPPORT STUB CLEARANCE**	PLATE NUMBER 634.99 Sheet 1 of 1



GABION DETAILS

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

GENERAL NOTES: Above dimensions subject to mill tolerances.

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

The lacing procedure is as follows:

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

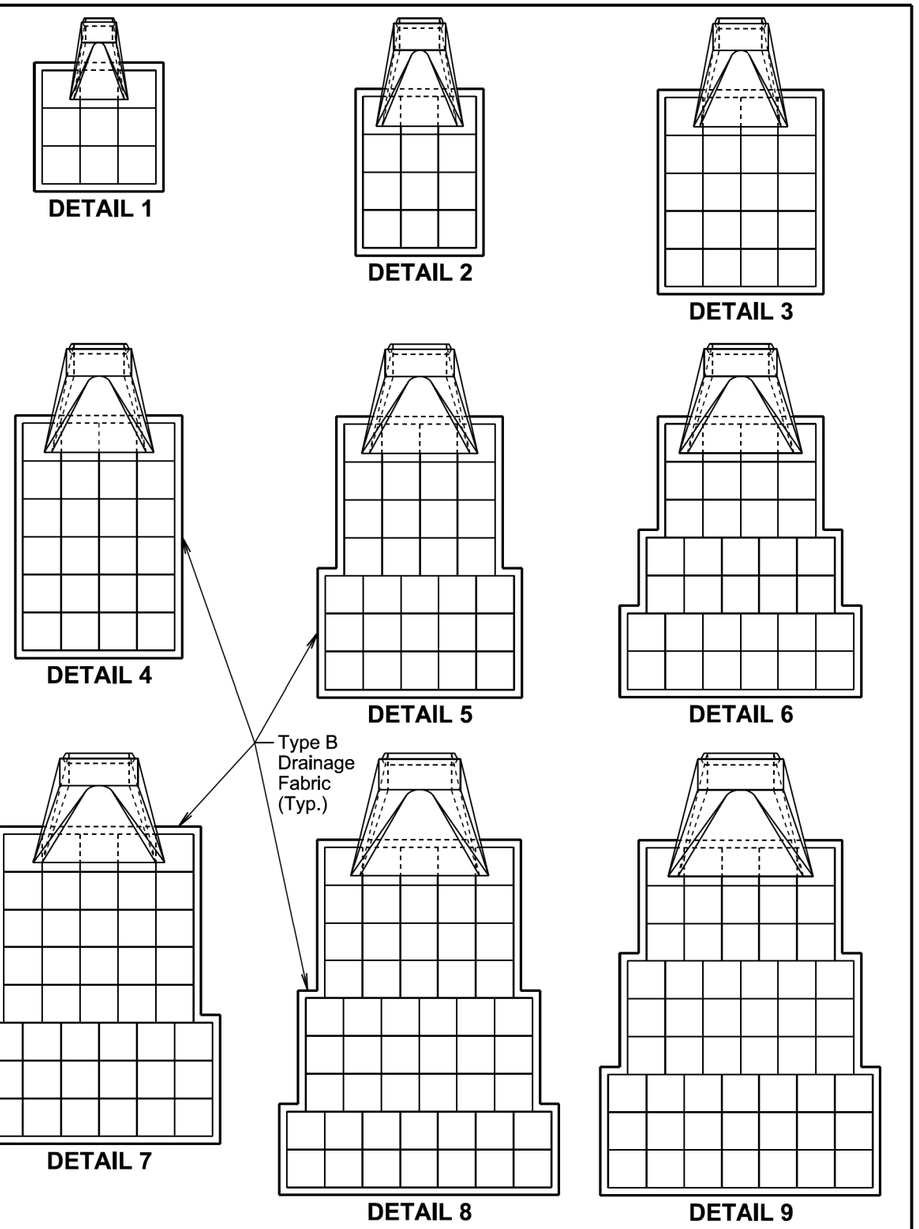
Wire lacing or interlocking type fasteners will be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions will be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing will conform to ASTM A641-92,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

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

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

February 14, 2020

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



February 14, 2020

Published Date: 2026

SDDOT

BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS

PLATE NUMBER 720.03

Sheet 1 of 2

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

GENERAL NOTES:

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

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

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

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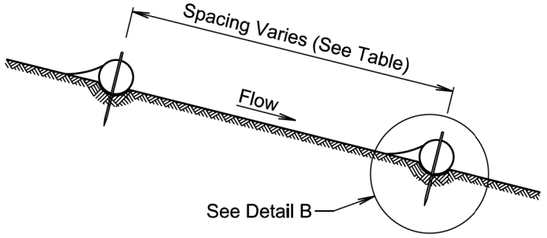
SDDOT

BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS

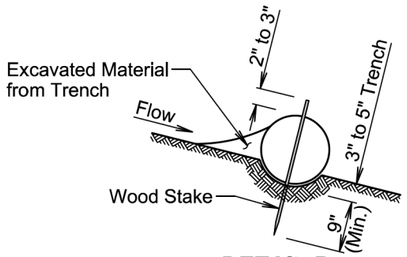
PLATE NUMBER 720.03

Sheet 2 of 2

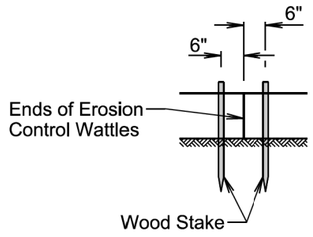


ELEVATION VIEW
(Cut or Fill Slope Installation)

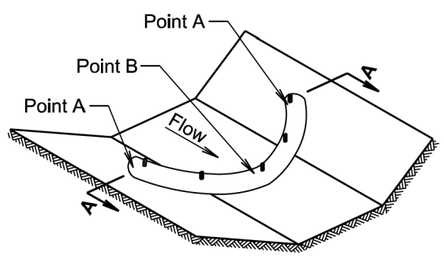
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



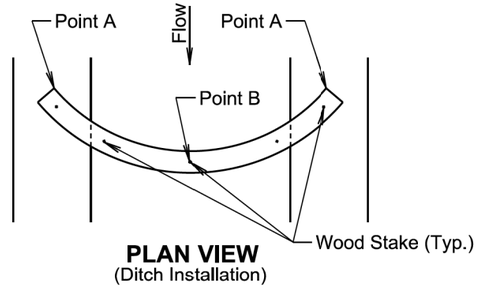
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

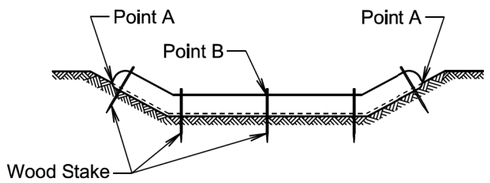


ISOMETRIC VIEW
(Ditch Installation)



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.

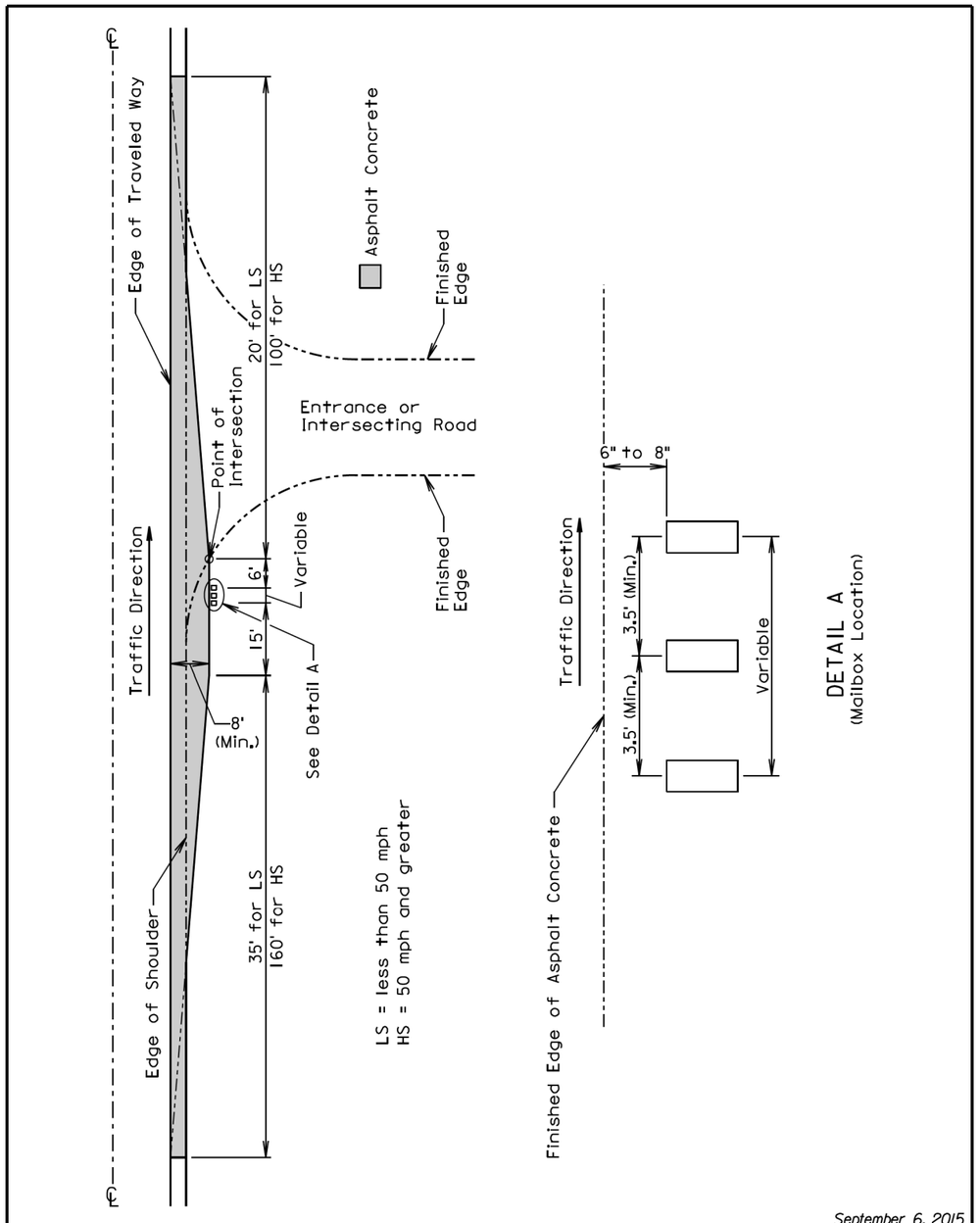
Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

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".

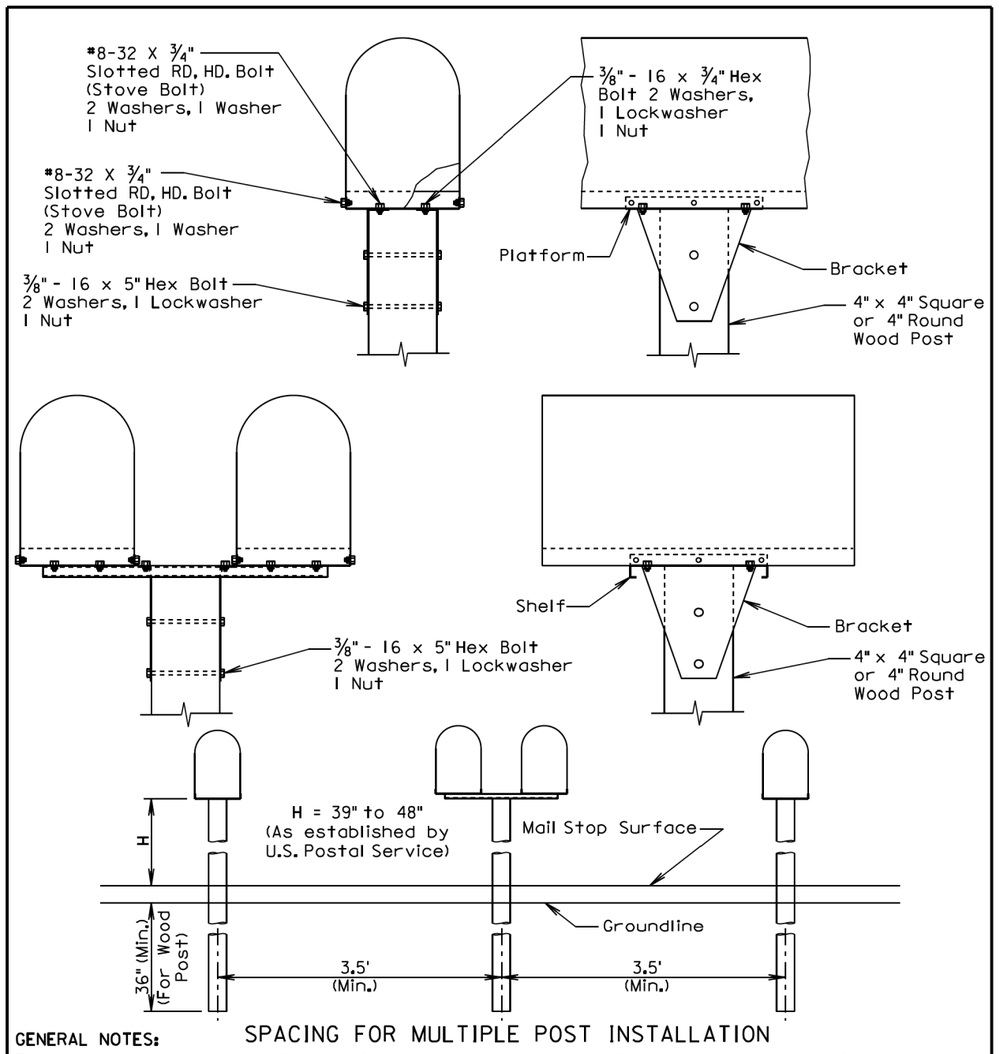
February 14, 2020

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



September 6, 2015

Published Date: 2026	SDDOT	MAILBOX TURNOUT	PLATE NUMBER 900.01 Sheet 1 of 1



SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

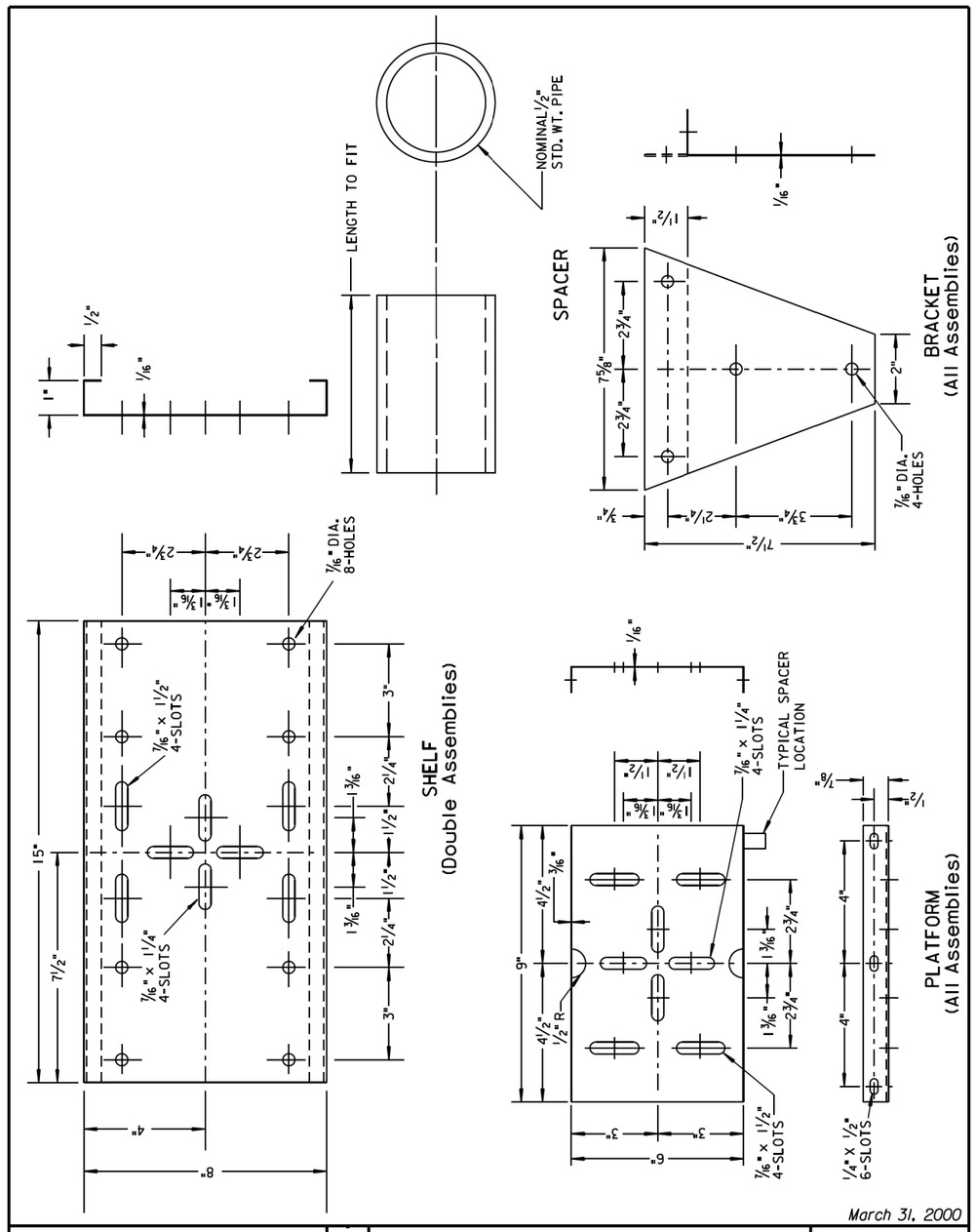
The post support assemblies provided should be consistant throughout the project. Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

Published Date: 2026	SDDOT	***SINGLE AND DOUBLE MAILBOX ASSEMBLIES***	***PLATE NUMBER*** 900.02 Sheet 1 of 1



March 31, 2000

Published Date: 2026	SDDOT	***MAILBOX SUPPORT HARDWARE***	***PLATE NUMBER*** 900.03 Sheet 1 of 1