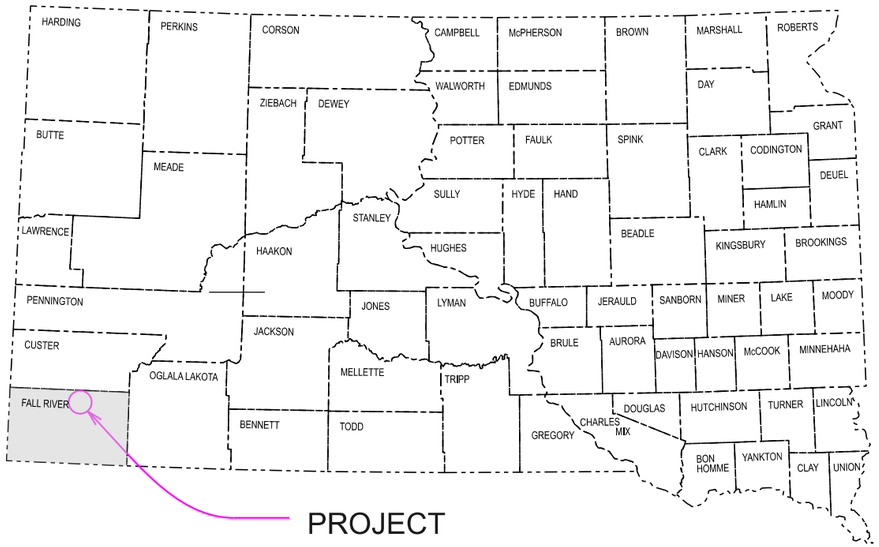
SD DOT	PROJECT	SECTION	SHEET
	385-492	Non	1/17

Plotting Date: 4/25/2025



STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

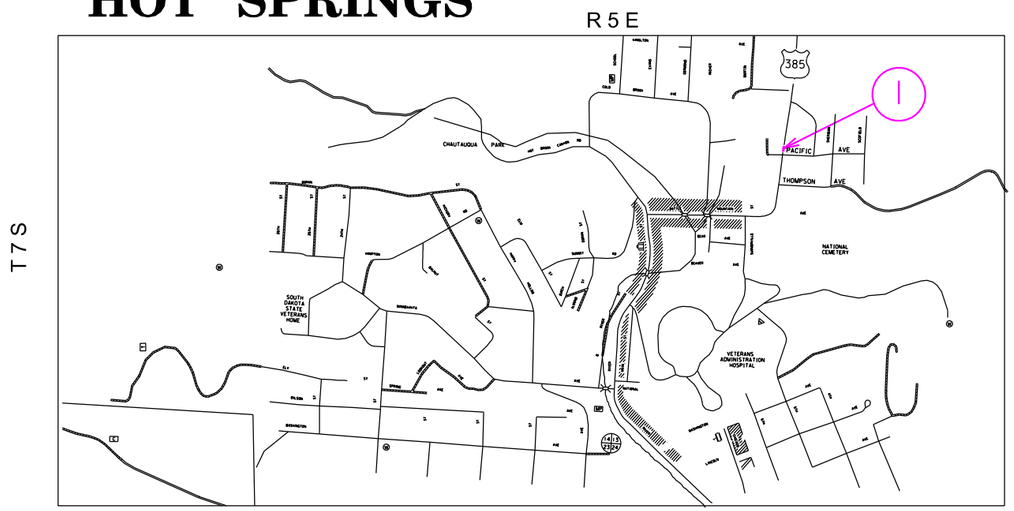
PROJECT 385-492
US HIGHWAY 385
FALL RIVER COUNTY

MILL AND AC OVERLAY APROACH SLABS,
CURB AND GUTTER REPAIR, AND REPAIR DROP INLET WALL
PCN i7VW

INDEX OF SHEETS

Sheet 1:	Title Sheet
Sheet 2 - 5:	Estimate, Notes, and Tables
Sheet 6:	Plan Sheet
Sheet 7-9:	Special Details
Sheet 10 - 17:	Standard Plates

HOT SPRINGS



(1) US385, MRM 36.92 Str. No. 24-294-024 PCN i7VW & i7VX

DESIGN DESIGNATION (US 385)

ADT (2023)	2182
ADT (2043)	3242
DHV	531
D	51%
T DHV	1.7%
T ADT	3.8%
V	35 MPH

STORM WATER PERMIT

No Permit Required

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	25	Ft
110E0420	Remove Drop Inlet Frame and Grate Assembly	1	Each
320E1200	Asphalt Concrete Composite	46.8	Ton
332E0010	Cold Milling Asphalt Concrete	416	SqYd
380E6110	Insert Steel Bar in PCC Pavement	14	Each
380E6500	Planing PCC Pavement	416.0	SqYd
460E0300	Breakout Structural Concrete	0.3	CuYd
462E0100	Class M6 Concrete	0.3	CuYd
480E0100	Reinforcing Steel	43	Lb
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	212	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	212	Ft
634E0010	Flagging	80.0	Hour
634E0110	Traffic Control Signs	281.4	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0600	4" Temporary Pavement Marking Tape Type I	144	Ft
634E0640	Temporary Pavement Marking	318	Ft
650E0080	Type B68 Concrete Curb and Gutter	25	Ft
670E1200	Type B Frame and Grate	1	Each
670E5400	Precast Drop Inlet Collar	1	Each
734E0010	Erosion Control	Lump Sum	LS
734E0845	Sediment Control at Inlet with Frame and Grate	4	Each
734E0847	Sediment Control at Type S Reinforced Concrete Drop Inlet	24	Ft

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

ENVIRONMENTAL COMMITMENTS

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

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

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

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

COMMITMENT 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 B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT C: WATER SOURCE

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

Action Taken/Required:

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

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

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

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

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

State Historic Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

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

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

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

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

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 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

SHPO/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 S: FIRE PREVENTION IN THE BLACK HILLS AREA

This project is located within the Black Hills Forest Fire Protection Boundary.

Action Taken/Required:

The Contractor will adhere to the “Special Provision for Fire Plan”.

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.

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.

DROP INLET

The top 1.5 ft of concrete will be broken out and removed. All cost for removal of this material will be paid for at the contract unit price per CuYd for Breakout Structural Concrete.

Use Standard Plate 670.01 for reinforcing steel in the 1.5' drop inlet extension. No.4 bars with a length of 1' will be doweled vertically into the existing concrete 6" deep. These bars will be spaced 1'.

Bar insertion will be paid for at the unit price per each for Insert Steel Bar in Concrete Pavement

The plan shown quantities of the drop inlet components such as Class M6 Concrete, Reinforcing Steel, and Precast Drop Inlet Collar will be the basis of payment for these items.

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.

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.

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.

Construction vehicles will exit or enter the construction work zone at locations identified by the Engineer. At no time will construction vehicles utilize the maintenance crossovers or the Interstate median to exit or enter Interstate traffic.

ITEMIZED LIST OF TRAFFIC CONTROL DEVICES

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30"	5.2	10.4
W1-3	REVERSE TURN (L or R)	2	48" x 48"	16.0	32.0
W3-1	STOP AHEAD (symbol)	2	48" x 48"	16.0	32.0
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-15	GROOVED PAVEMENT	2	48" x 48"	16.0	32.0
W8-15P	MOTORCYCLE (plaque)	2	24" x 18"	3.0	6.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			281.4

TEMPORARY PAVEMENT MARKING

Temporary Pavement Marking Paint will be used on milled and leveling surfaces for centerlines, lane lines, skips, and as directed by the Engineer. The Temporary Pavement Marking Paint will be placed at the location of the existing pavement markings except that centerline will be double yellow the entire project length and will be offset 6-inches from centerline of the roadway. It will be the Contractor's responsibility to determine which direction to offset so that the markings do not get covered up when the first half of the roadway is paved. Any markings that get covered by the paving operation will be reestablished as directed by the Engineer at the Contractor's expense. The Contractor will be responsible for marking out those exact locations.
Temporary flexible vertical markers (tabs) may be used as detailed in the specifications.

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.

One pass on top of the milled surface
One pass on top of the final lift of asphalt concrete
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.

PERMANENT PAVEMENT MARKING

The Contractor will be required to repaint all existing pavement markings including centerlines, edge lines, and lane lines, This list is approximate. The Contractor will be required to document and be able to relocate for replacement of the existing markings before the markings are obliterated. The cost to duplicate the existing marking locations will be incidental to the contract unit prices for the various contract items.

TEMPORARY PAVEMENT MARKING TAPE, TYPE I

Temporary pavement marking for stop lines will consist of 4" Temporary Pavement Marking Tape Type I. Placement of each 24" white stop line will be accomplished by placing six pieces of 4" x 12' tape adjacent to one another. Each workspace requires two stop lines which is an equivalent of approximately 144' of 4" tape (1 workspaces at 144' = 144'). Temporary tape will be removed upon completion of the project.

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.

EROSION CONTROL

All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding and fertilizing 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.

Mycorrihizal Inoculum

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

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

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

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

Fertilizing

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

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

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

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 www.sustane.com
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 www.perfect-blend.com
Nature Safe	Nature Safe Fertilizers Irving, TX Phone: 1-605-759-5622 www.naturesafe.com

Permanent Seeding

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways.

Type F Permanent Seed Mixture will consist of the following:

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

Fiber Mulching

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

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.

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:

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

SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES

This type of sediment control device should be used where there is pavement in the vicinity of the drop inlets and storm water or sediment could possibly enter the frame and grate. Sediment Control at Inlet with Frame and Grate will be installed prior to working in the vicinity of the drop inlets.

The Contractor will be responsible for maintaining and repairing the sediment control devices for the duration of the project for which sediment control measures are required. Maintenance will be scheduled to prevent storm water from backing up into the driving lane.

Sediment Control at Inlet with Frame and Grate will be paid for one time at each location, regardless of the number of times the sediment control devices are installed, inspected, cleaned, removed, repaired, or replaced. All costs associated with furnishing, installing, inspecting, maintaining, cleaning, sediment removal, and repairing Sediment Control at Inlet with Frame and Grate will be incidental to the contract unit price per each for Sediment Control at Inlet with Frame and Grate.

The device will be installed in reinforced concrete drop inlets in accordance with the manufacturer’s recommendations.

Sediment collection devices will be:

A sediment control device as shown on Standard Plate 734.10. Filter fabric used for constructing the sediment control at inlets with frames and grates will be the same type of fabric that is used in high flow silt fence from the approved product list. The approved product list may be viewed at the following internet site:

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

COLD MILLING 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. 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.

The initial/final lift of asphalt paving will be completed within 14 days after the pavement has been cold milled. If any pavement repairs or digouts are required by the Engineer after that time frame they will be repaired by the Contractor at their own expense.

Cold milling asphalt is estimated to produce 72 tons of cold milled asphalt concrete material.

The asphalt concrete millings will become the property of the Contractor for disposal.

ASPHALT CONCRETE COMPOSITE

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

FLUSH SEAL

Application of flush seal will be completed within 10 working days following completion of the asphalt concrete surfacing.

Application of flush seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer will notify the Contractor as soon as possible that the flush seal is unnecessary.

PROTECTION OF BRIDGE JOINTS

The Contractor and Engineer will inspect all bridge/pavement expansion joints for preexisting damage prior to pavement removals. The Engineer will inspect all joints for work-related damage following removals and again following completion of final surfacing.

It may be necessary to use special methods and equipment to remove/place material as close as practical to structure appurtenances. Also, the Contractor will mask all expansion joints prior to any removal/placement of material near the joints. The joints will be protected throughout completion of the work. Once the masking has been removed any loose material contained within the joint will be cleaned from the joint. Any damage to the expansion joints along with any existing structure appurtenances will be repaired by the Contractor to the satisfaction of the Engineer at no cost to the Department. All costs related to this work will be incidental to various contract items.

PLANING PCC PAVEMENT

This work will consist of removing a portion of the existing PCC pavement surfacing at the areas specified in these plans

Material resulting from Planing PCC Pavement will be disposed of as directed by the Engineer.

Planing PCC Pavement will be paid for at the contract unit price per square yard of pavement surface planed. Payment for this item will be full payment for furnishing all equipment, labor and incidentals required to plane, pickup, haul and dispose of the removed material, and broom the surface.

STEEL BAR INSERTION

Steel Bar Insertion is provided for the Curb and Gutter replacement work and for doweling into the existing drop inlet.

For the Curb and Gutter the Contractor will insert the Steel Bars (No. 5 x 30 inch epoxy coated deformed tie bars) into drilled holes in the existing concrete pavement. Anchoring of the steel bars in the drilled holes will conform to the Specifications. 6 Bars will be required for this work.

For the drop inlet the Contractor will insert the Steel Bars (No. 4 x 12 inch epoxy coated deformed tie bars) into drilled holes in the existing concrete pavement. Anchoring of the steel bars in the drilled holes will conform to the Specifications. 8 Bars will be required for this work.

The steel bars will be cut to the specified length by sawing or shearing and will be free from burring or other deformations.

Epoxy coated deformed steel bars will be inserted on 48-inch centers in the longitudinal joint and will be placed a minimum of 15 inches from the existing transverse contraction joint.

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.

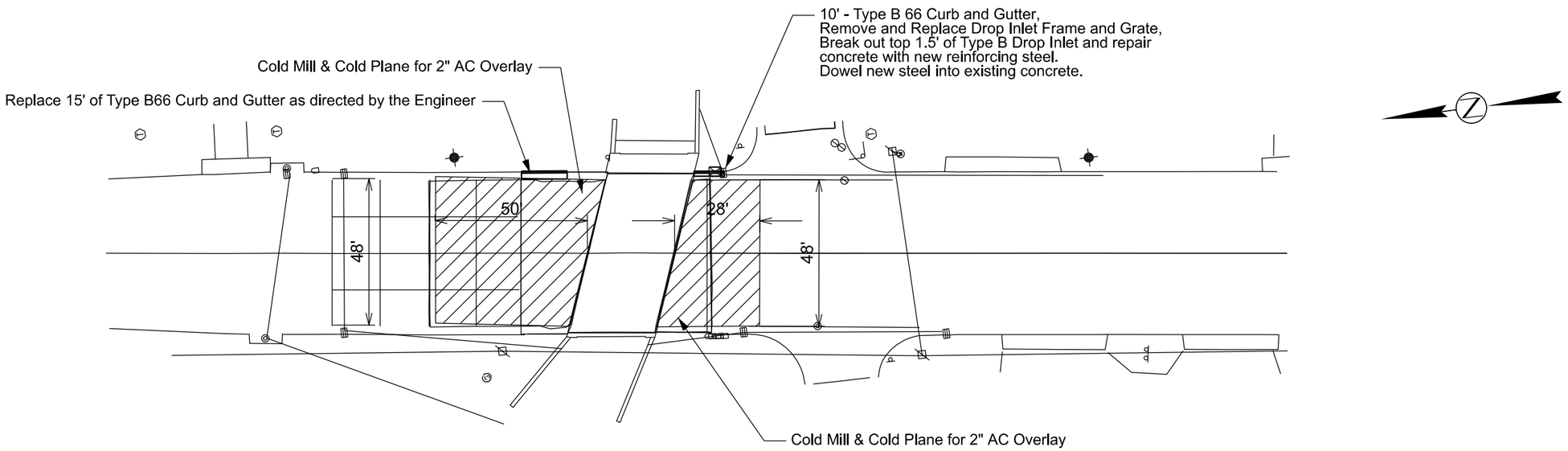
Reflective media will consist of glass beads. Reflective media will require a Certificate of Compliance for Certification for each source and lot. Acceptance sampling will not be required.

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.

US Hwy 385
MRM 36.92, Over Dry Creek
Str. No. 24-294-024

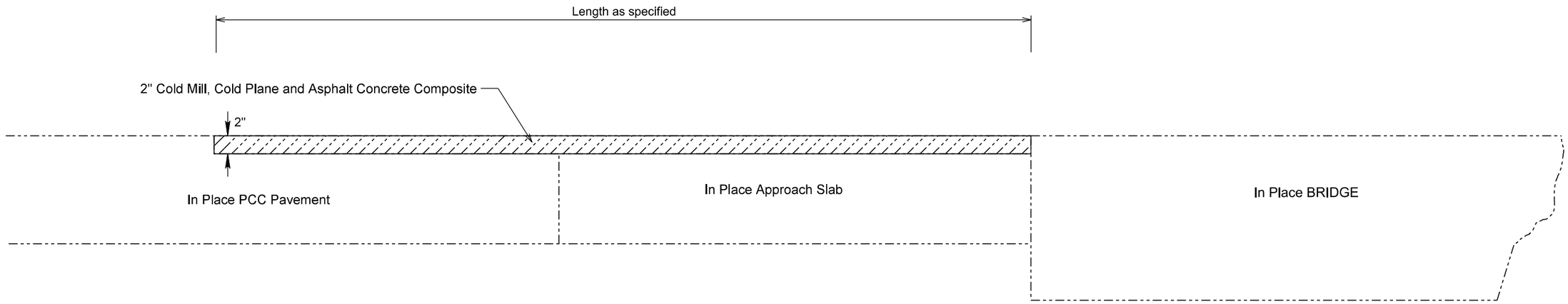


Sec. 13 - T7S - R5E

SD DOT	PROJECT	SECTION	SHEET
	385-492	Non	8/17

Plotting Date: 4/25/2025

ASPHALT CONCRETE RESURFACING AT BRIDGE ENDS



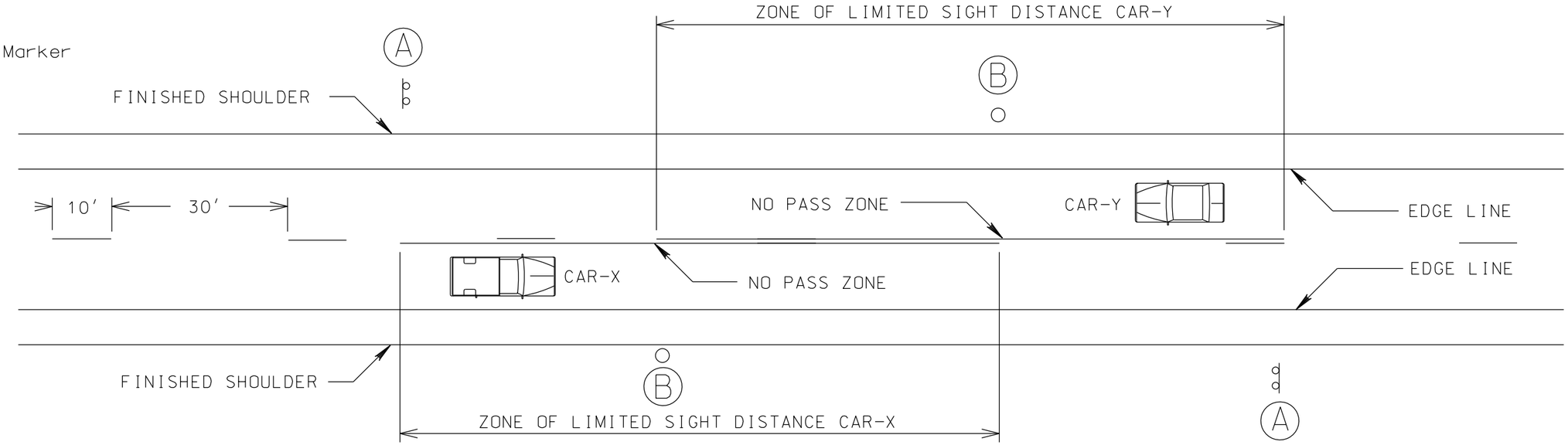
TYPICAL PAVEMENT MARKING LAYOUT

SD DOT	PROJECT	SECTION	SHEET
	385-492	Non	9/17

Plotting Date: 4/25/2025

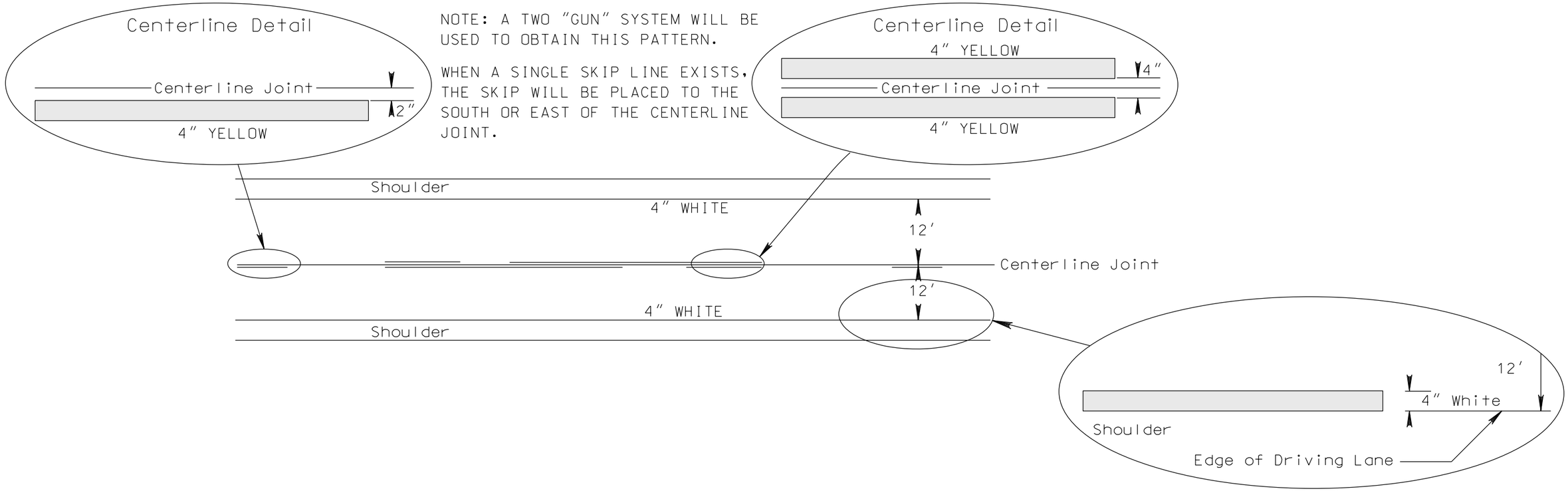
(A) NO PASSING ZONE

(B) End of Zone Marker



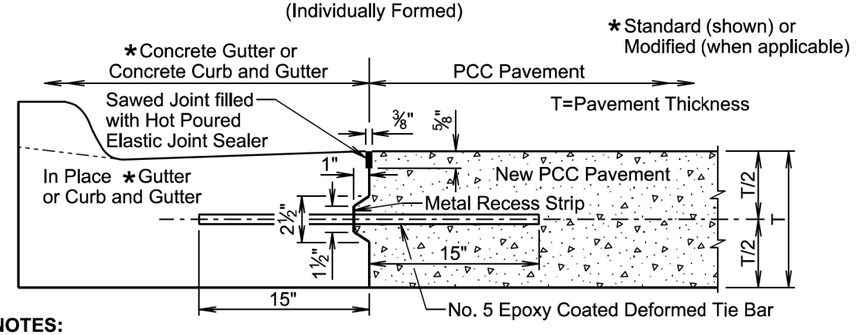
NOTE: A TWO "GUN" SYSTEM WILL BE USED TO OBTAIN THIS PATTERN.

WHEN A SINGLE SKIP LINE EXISTS, THE SKIP WILL BE PLACED TO THE SOUTH OR EAST OF THE CENTERLINE JOINT.



LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(Individually Formed)



GENERAL NOTES:

No. 5 epoxy coated deformed tie bars will be spaced 48 inches center to center. The tie bars will be placed a minimum of 15 inches from existing transverse contraction joints. The keyway shown above is a female keyway.

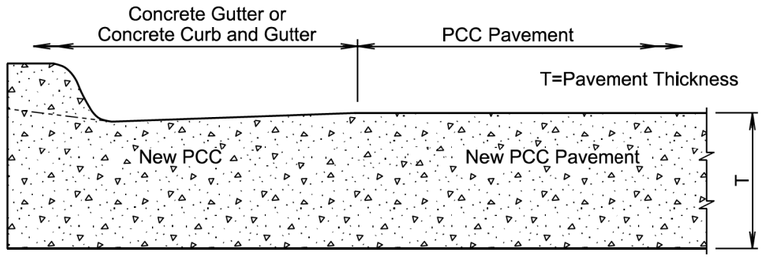
The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

The transverse contraction joints in the concrete gutter or concrete curb and gutter will be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter will be 1½ inches deep if formed in fresh concrete using a suitable grooving tool. If a saw is used to cut the transverse contraction joints, then the depth of the joint will be at least ¼ the thickness of the concrete gutter or concrete curb and gutter.

Standard curb and gutter may not be placed monolithically with PCC pavement if the mainline lane width is greater than 12 feet.

The term "In Place *Gutter or Curb and Gutter" in the above drawing indicates that the in place *concrete gutter and concrete curb and gutter was placed on the current project.

POURED MONOLITHICALLY (Standard Concrete Curb and Gutter)



GENERAL NOTES:

The mainline curb and gutter may be placed monolithically with the PCC pavement if the mainline lane width is less than or equal to 12 feet. If this method of construction is used, the tie bars and the sawed joint between the curb and gutter and the PCC pavement will be eliminated.

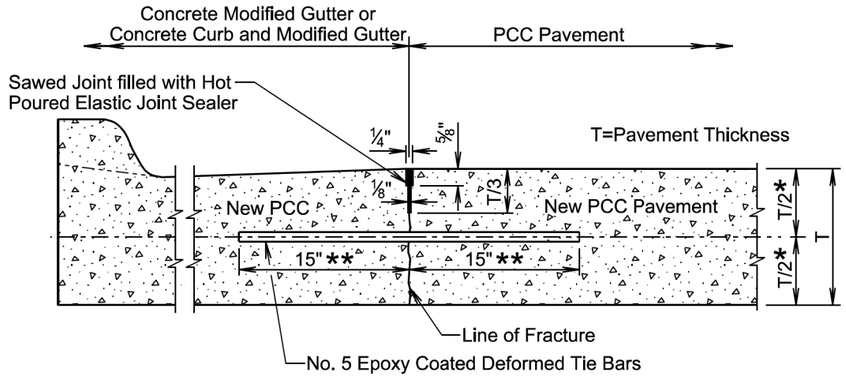
The gutter or curb and gutter will be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter will be sawed and sealed same as the transverse contraction joints in the PCC pavement.

The slope of the gutter will be the slope designated for the type of gutter or curb and gutter to be constructed. The bottom slope of the gutter or curb and gutter will be constructed at the same slope as the mainline concrete pavement.

March 31, 2024

Published Date: 2025	SDDOT	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.21 Sheet 1 of 2

POURED MONOLITHICALLY (Concrete Curb and Modified Gutter)



GENERAL NOTES:

No. 5 epoxy coated deformed tie bars will be spaced 48 inches center to center.

The tie bars will be placed a minimum of 15 inches from existing transverse contraction joints.

The mainline curb and modified gutter may be placed monolithically with the PCC pavement if the mainline lane width is less than or equal to 14 feet.

The first saw cut to control cracking will be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

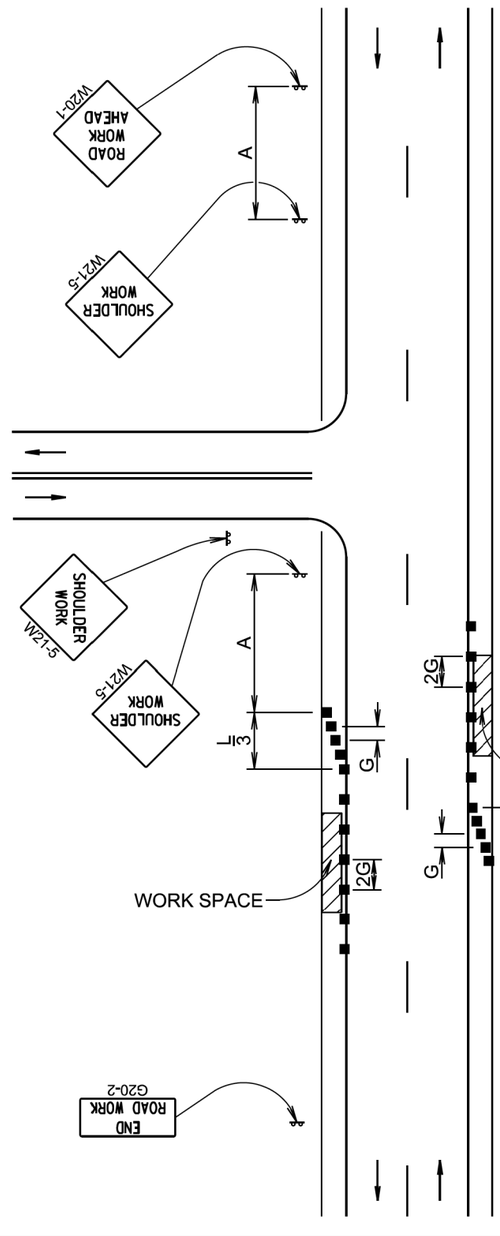
The gutter or curb and gutter will be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter will be sawed and sealed same as the transverse contraction joints in the PCC pavement.

The slope of the gutter will be the slope designated for the type of gutter or curb and gutter to be constructed. The bottom slope of the gutter or curb and gutter will be constructed at the same slope as the mainline concrete pavement.

* The vertical placement tolerance for any part of the tie bar will be ± T/6.
** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

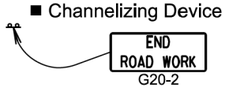
March 31, 2024

Published Date: 2025	SDDOT	PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER	PLATE NUMBER 380.21 Sheet 2 of 2



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: 2025	SDDOT	WORK ON SHOULDERS	PLATE NUMBER 634.03
			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.

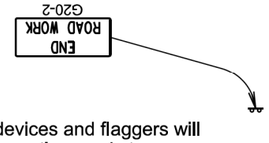
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

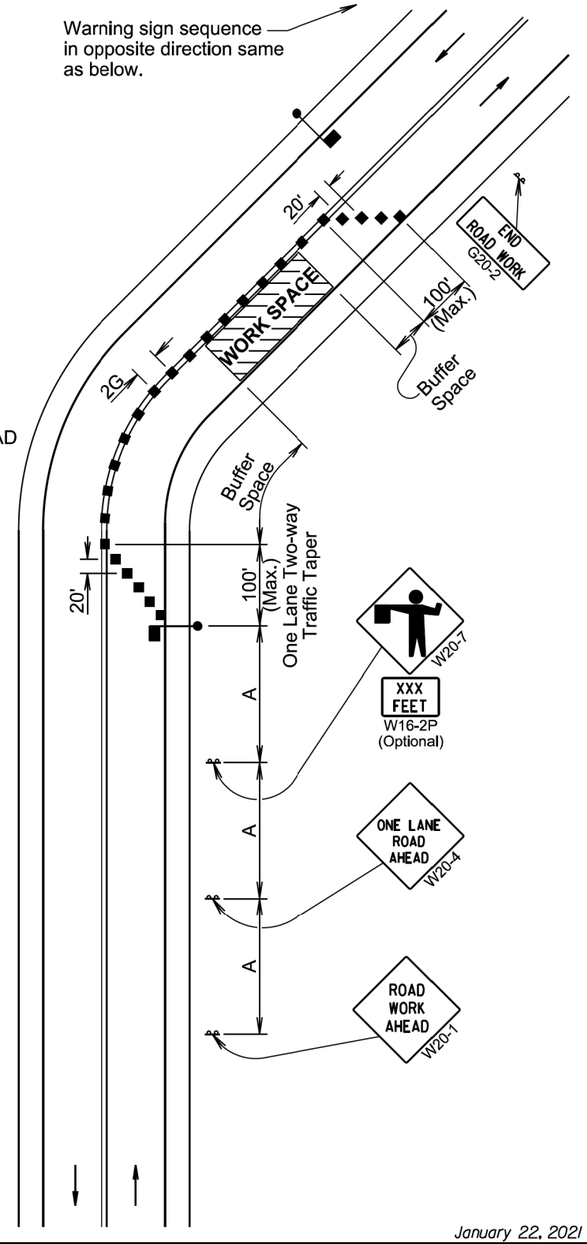
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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.

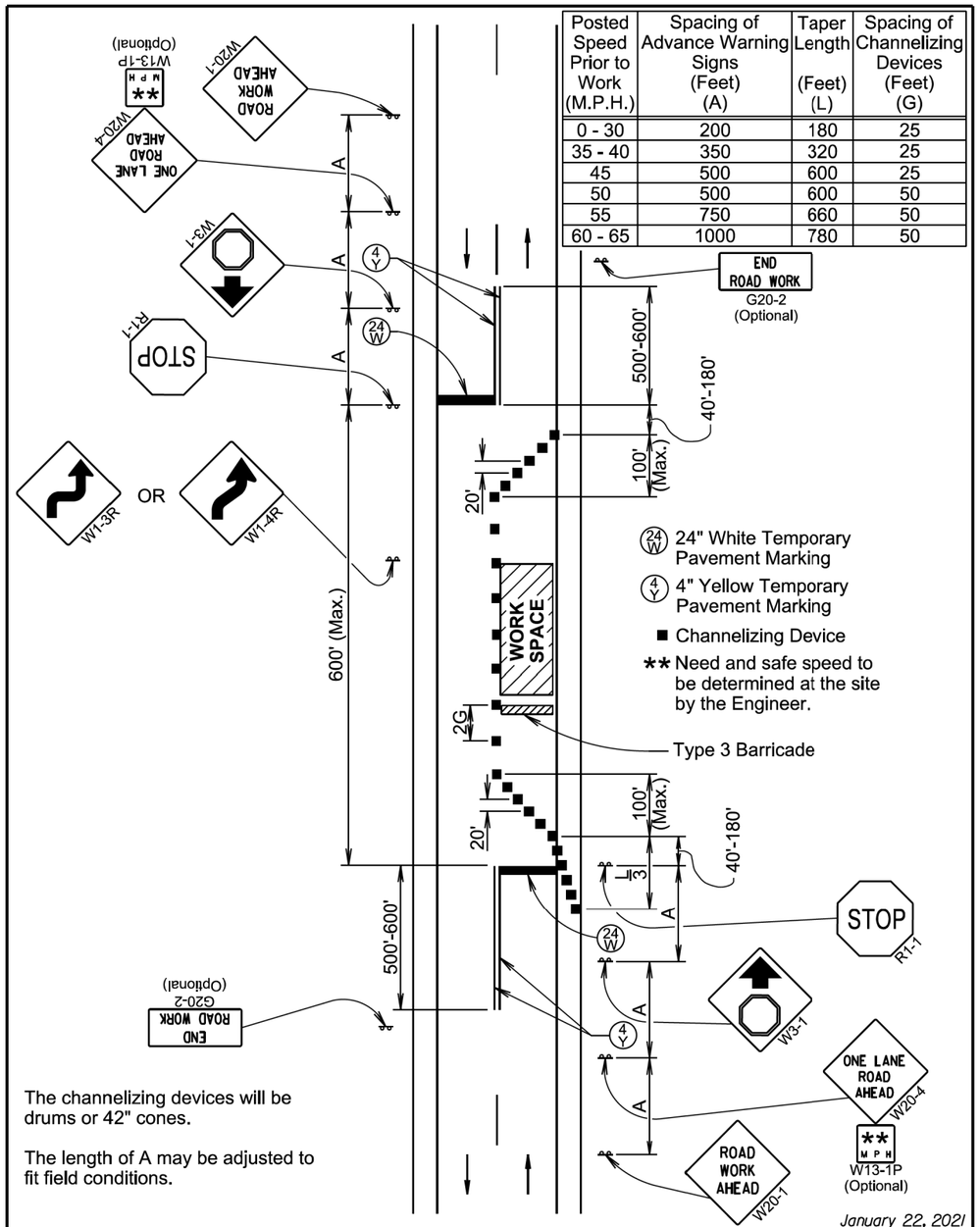
The length of A may be adjusted to fit field conditions.



January 22, 2021

Published Date: 2025	SDDOT	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

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



24 W 24" White Temporary Pavement Marking

4 Y 4" Yellow Temporary Pavement Marking

■ Channelizing Device

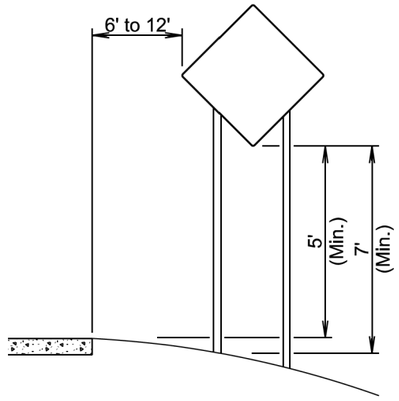
** Need and safe speed to be determined at the site by the Engineer.

The channelizing devices will be drums or 42" cones.

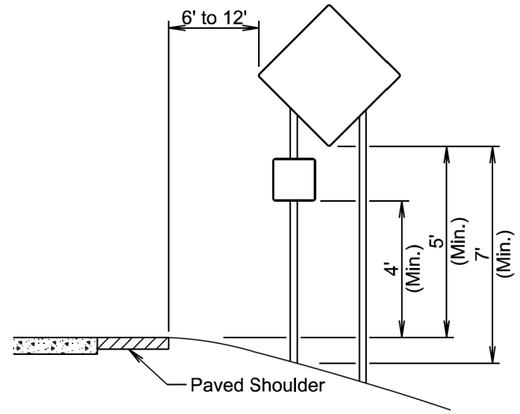
The length of A may be adjusted to fit field conditions.

January 22, 2021

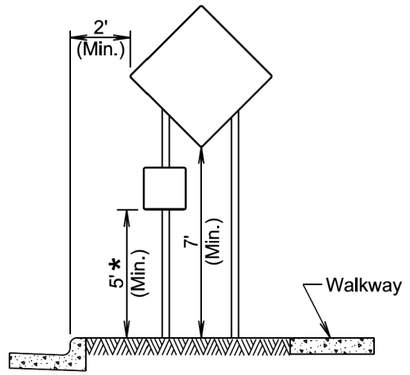
Published Date: 2025	SDDOT	LANE CLOSURE USING STOP SIGNS	PLATE NUMBER 634.25
			Sheet 1 of 1



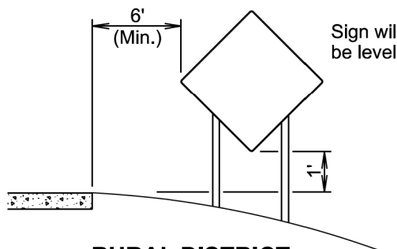
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

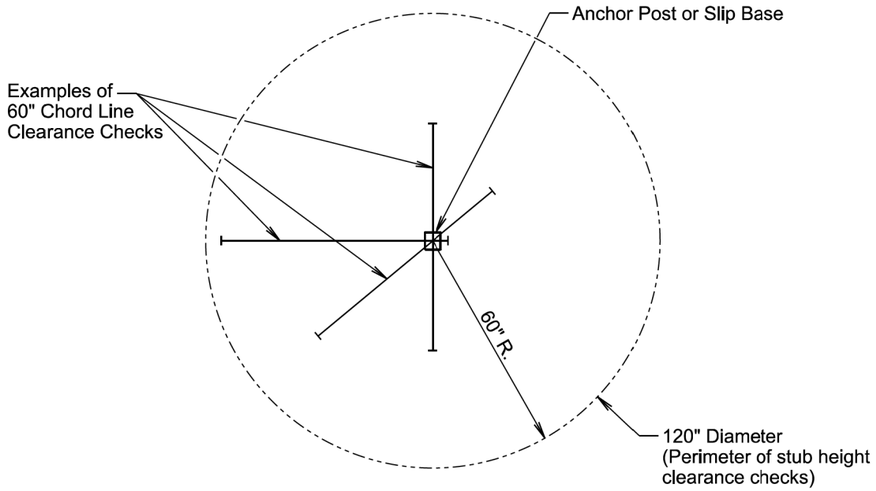


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

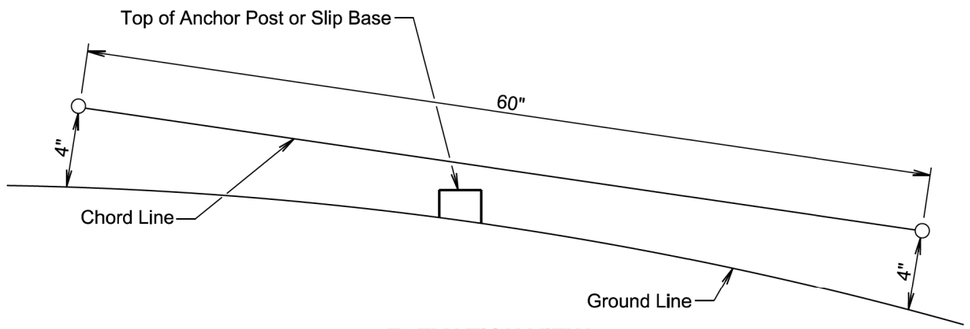
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2025	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:

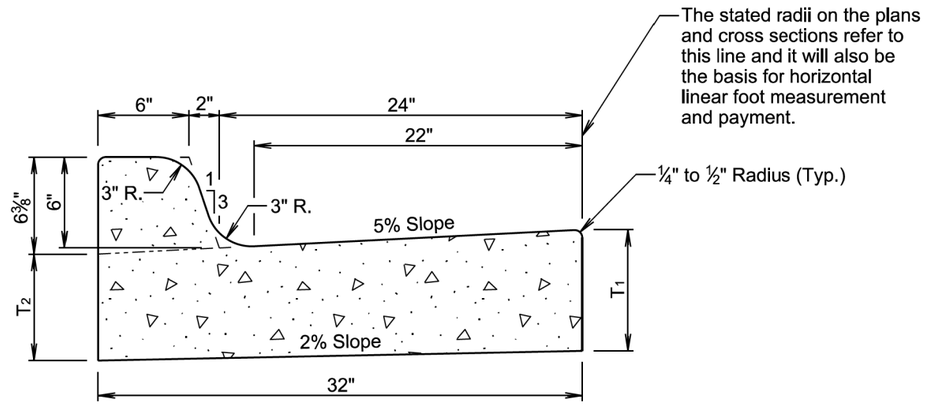
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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: 2025	SDDOT	*BREAKAWAY SUPPORT STUB CLEARANCE*	*PLATE NUMBER* 634.99
			Sheet 1 of 1



TYPE B CONCRETE CURB AND GUTTER				
Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5 1/16	0.057	17.7
B67	7	6 1/16	0.065	15.4
B68	8	7 1/16	0.073	13.7
B68.5	8.5	7 9/16	0.077	13.0
B69	9	8 1/16	0.081	12.3
B69.5	9.5	8 9/16	0.085	11.7
B610	10	9 1/16	0.090	11.2
B610.5	10.5	9 9/16	0.094	10.7
B611	11	10 1/16	0.098	10.2
B611.5	11.5	10 9/16	0.102	9.8
B612	12	11 1/16	0.106	9.4

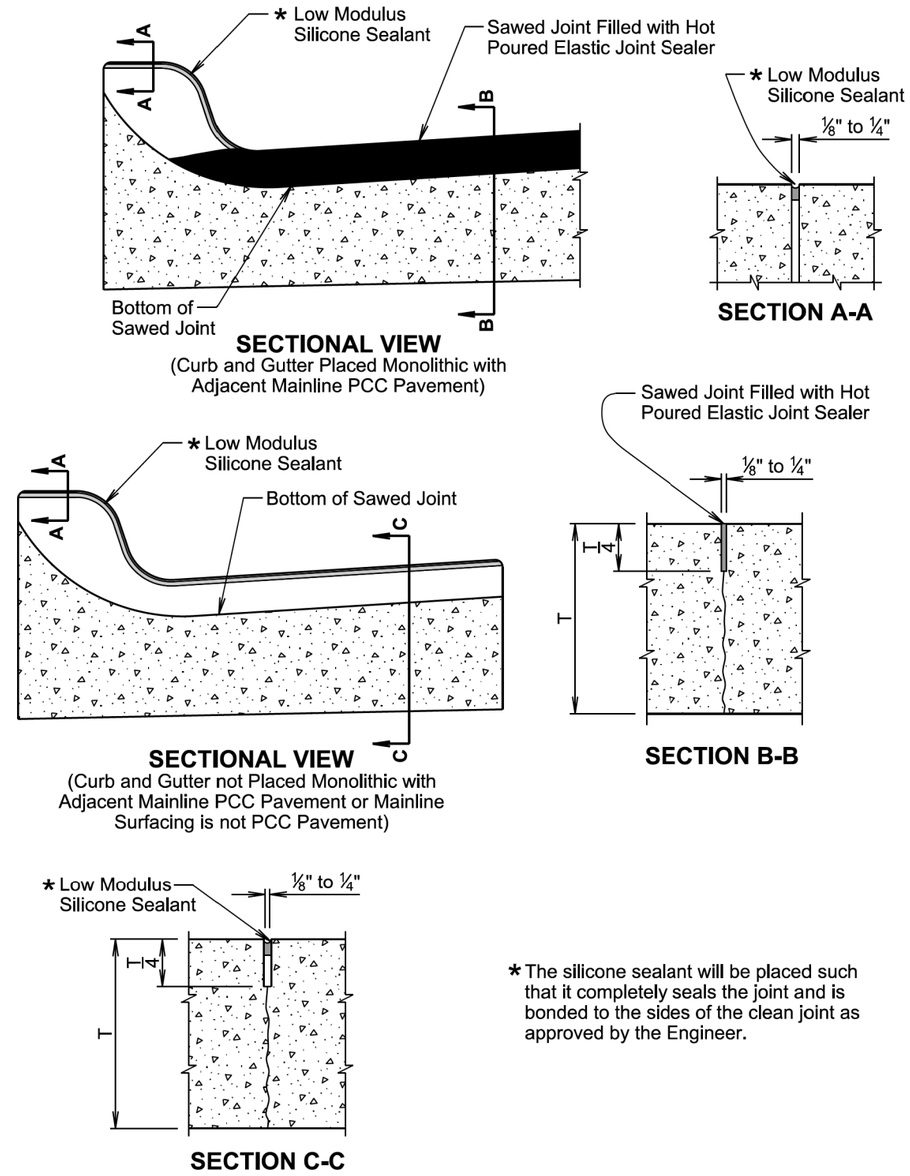
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.21.

See standard plate 650.90 for expansion and contraction joints in the curb and gutter.

January 22, 2023

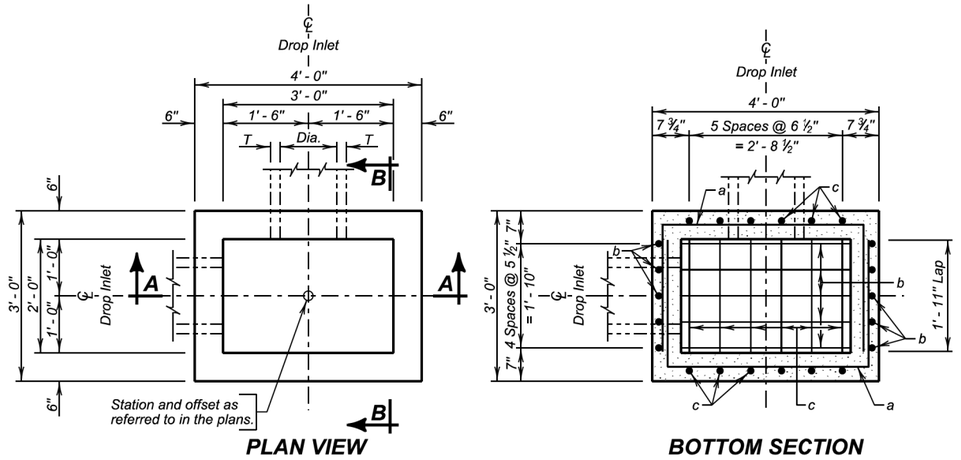
Published Date: 2025	SDDOT	*TYPE B CONCRETE CURB AND GUTTER*	*PLATE NUMBER 650.01* *Sheet 1 of 1*



* The silicone sealant will be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

December 23, 2019

Published Date: 2025	SDDOT	*JOINTS IN CONCRETE CURB AND GUTTER*	*PLATE NUMBER 650.90* *Sheet 1 of 2*



PLAN VIEW

BOTTOM SECTION

ESTIMATED QUANTITIES

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
⚹ Class M6 Concrete	Cu. Yd.	0.26	0.22H
Reinforcing Steel	Lb.	51.19	28.97H
Frame and Grate Assembly	Each	1	———

DROP INLETS FOR 12" TO 24" DIAMETER PIPE

SPECIFICATIONS

Design Specifications: AASHTO LRFD Bridge Design Specifications, 2012 Edition.

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES:

Design Live Load: HL-93. No construction loading in excess of legal load was considered.

Reinforcing steel shall conform to ASTM A615 grade 60. The d bars shall be lapped 12 inches with the b and c bars. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.

Drop inlet may be precast. If precast drop inlet details differ from this standard plate, submit a checked design done by a SD registered P.E. and shop plans to the Office of Bridge Design for approval.

⚹ Reduce total quantities of concrete by the amount of concrete displaced by the pipe(s). The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.

Drop inlet shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering drop inlet must fit between the inside face of walls and shall not enter through the corners.

Maximum R.C.P. diameter shall not exceed 18 inches on the 2-foot wide side and shall not exceed 24 inches (24 inches for R.C. arch) on the 3-foot wide side of the drop inlet.

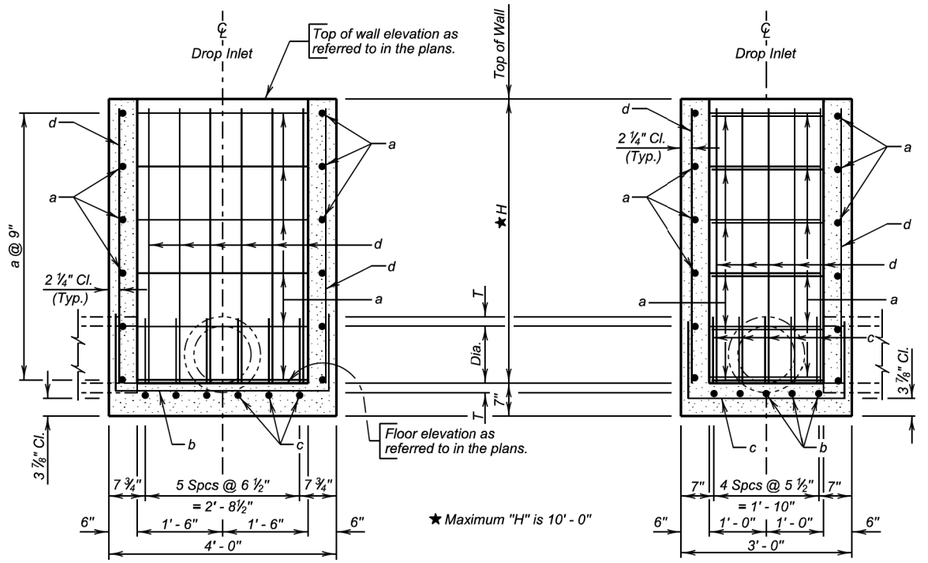
The dimension of H is in feet. Maximum H is 10 feet.

PIPE DISPLACEMENT REDUCTIONS

	Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
R.C.P.	12	2	0.03
	15	2 ¼	0.04
	18	2 ½	0.05
	24	3	0.09
R.C. ARCH	18	2 ½	0.05
	24	3 ½	0.09

March 31, 2024

Published Date: 2025	SDDOT	2'X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
			Sheet 1 of 2

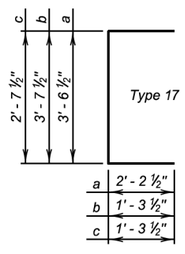


SEC. A - A

SEC. B - B

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
a	2.67H	4	8' - 0"	17	
b	5	5	6' - 3"	17	
c	6	4	5' - 3"	17	
d	22	4	H - 2"	Str.	

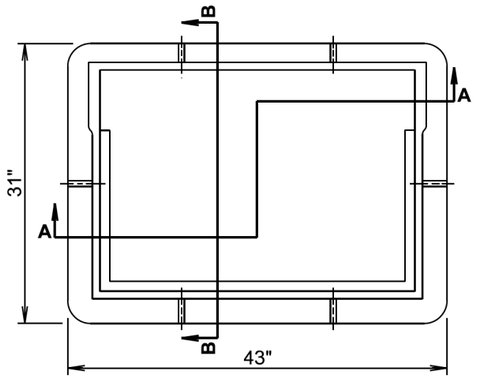


a	2' - 2 ½"
b	1' - 3 ½"
c	1' - 3 ½"

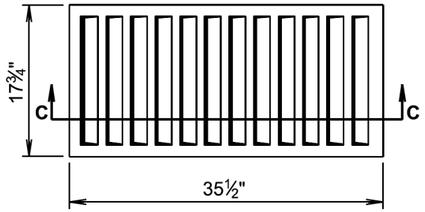
NOTE:
All dimensions are out to out of bars.

March 31, 2024

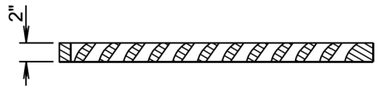
Published Date: 2025	SDDOT	2'X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
			Sheet 2 of 2



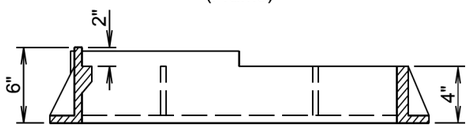
PLAN VIEW
(Frame)



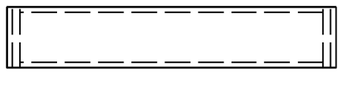
PLAN VIEW
(Grade)



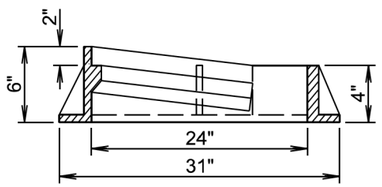
SECTION C-C



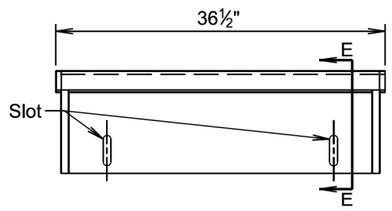
SECTION A-A



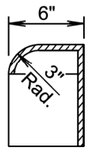
TOP VIEW
(Curb Box)



SECTION B-B



ELEVATION VIEW
(Curb Box)



SECTION E-E

GENERAL NOTES:

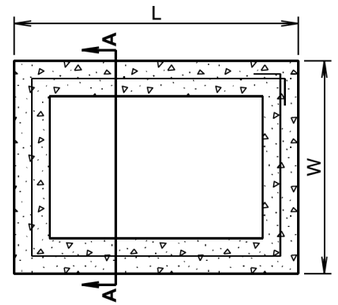
The product dimensions may vary from those shown on the standard plate depending on the manufacturer. Grate size and configuration will be similar to the standard plate for hydraulic capacity and bicycle safety. Any variation in dimensions will be approved by the Engineer and the type B frame and grate assembly will be from a manufacturer on the approved products lists.

Design load for the grate will meet the requirements of AASHTO HL-93.

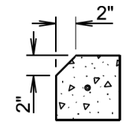
The curb box will be adjustable 6" to 9".

June 1, 2022

Published Date: 2025	SDDOT	*TYPE B FRAME AND GRATE*	*PLATE NUMBER 670.80* *Sheet 1 of 1*

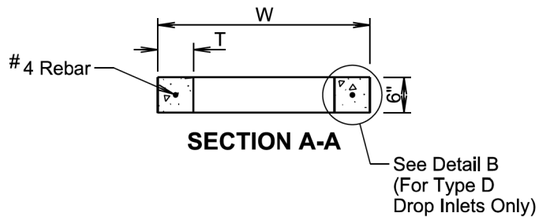


PLAN VIEW



For Type D Drop Inlets only:
Use Precast Drop Inlet Collar with
2" chamfer on L sides only.

DETAIL B



SECTION A-A

INFORMATIONAL QUANTITIES					
FRAME AND GRATE TYPE	L (Ft-in)	W (Ft-in)	T (in)	CLASS M6 CONCRETE (CuYd)	REINFORCING STEEL (Lb)
TYPE A, B, and E	4'-0"	3'-0"	6	0.11	9
TYPE C	5'-0"	4'-0"	6	0.15	11
TYPE D	4'-0"	2'-6"	6	0.10	8

GENERAL NOTES:

All reinforcing steel will conform to ASTM A615, Grade 60.

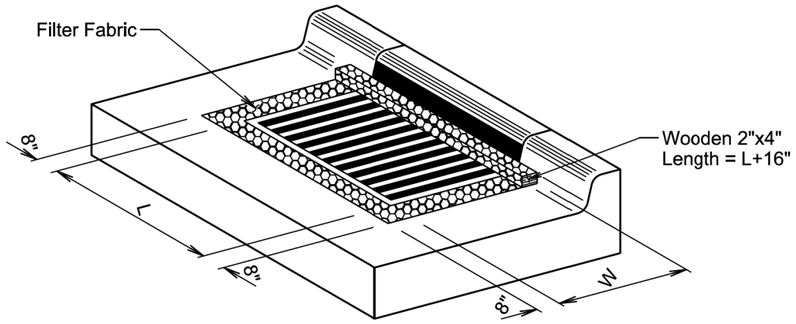
The ½" diameter bar will lap 6"± and will be centered in the concrete.

The cost of furnishing and installing Precast Drop Inlet Collars, including labor, materials, and incidentals will be incidental to the contract unit price per Each for "Precast Drop Inlet Collar".

June 1, 2022

Published Date: 2025	SDDOT	*PRECAST DROP INLET COLLAR*	*PLATE NUMBER 670.99* *Sheet 1 of 1*

L = Length of Grate
W = Width of Grate



ISOMETRIC VIEW

GENERAL NOTES:

The grate and curb and gutter shown are for illustrative purposes only.

The sediment control at inlet with frame and grate will be placed at locations stated in the plans or at locations determined by the Engineer.

The filter fabric will be the type specified in the plans.

The filter fabric will be placed in the inlet opening prior to placing the grate. Approximately 18 inches of excess filter fabric will be wrapped around the 2"x4" and stapled securely to the 2"x4" after the grate has been placed.

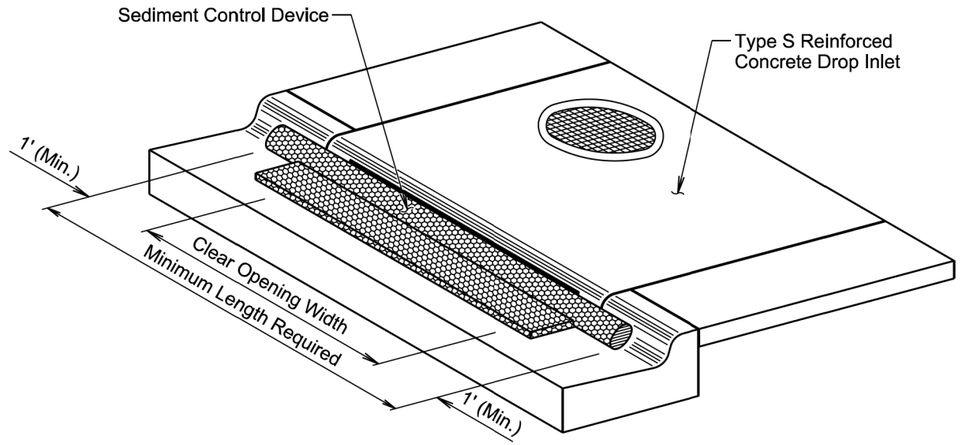
The Contractor and Engineer will inspect the sediment control device in accordance with the storm water permit. The Contractor will maintain the sediment control device by removing accumulated sediment and replacing torn filter fabric with new filter fabric.

The removed sediment will be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

All costs for furnishing, installing, inspecting, maintaining, removing, and replacing the sediment control device at the inlet including labor, equipment, and materials will be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

February 14, 2020

Published Date: 2025	SDDOT	SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES	PLATE NUMBER 734.10 Sheet 1 of 1



ISOMETRIC VIEW

GENERAL NOTES:

The type of sediment control device shown is for illustrative purposes only.

The type of sediment control device used will be one of the types as specified in the plans.

The sediment control device will be placed at the drop inlets according to the manufacturer's installation instructions.

The sediment control at inlet for type S reinforced concrete drop inlet will be placed at locations stated in the plans or at locations determined by the Engineer.

The Contractor and Engineer will inspect the sediment control device in accordance with the storm water permit. The Contractor will maintain the sediment control device by removing the device, removing accumulated sediment, and resetting the device.

The removed sediment will be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.

Payment for the "Sediment Control at Type S Drop Inlet" will be based on the minimum length required at the drop inlets. Some of the sediment control devices specified in the plans will have to be longer due to available length.

All costs for furnishing, installing, inspecting, maintaining, removing, and resetting the sediment control device at the drop inlet including labor, equipment, and materials will be incidental to the contract unit price per foot for "Sediment Control at Type S Reinforced Concrete Drop Inlet".

February 14, 2020

Published Date: 2025	SDDOT	SEDIMENT CONTROL AT INLETS FOR TYPE S REINFORCED CONCRETE DROP INLETS	PLATE NUMBER 734.11 Sheet 1 of 1