

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED
**PROJECT 090W-452, 000i-452,
 & 090E-452**
US INTERSTATE 90
PENNINGTON COUNTY
 Pipe Work, Guard Rail Work, and Ditch Grading
 PCN i868, i869
 & i86A

INDEX OF SHEETS

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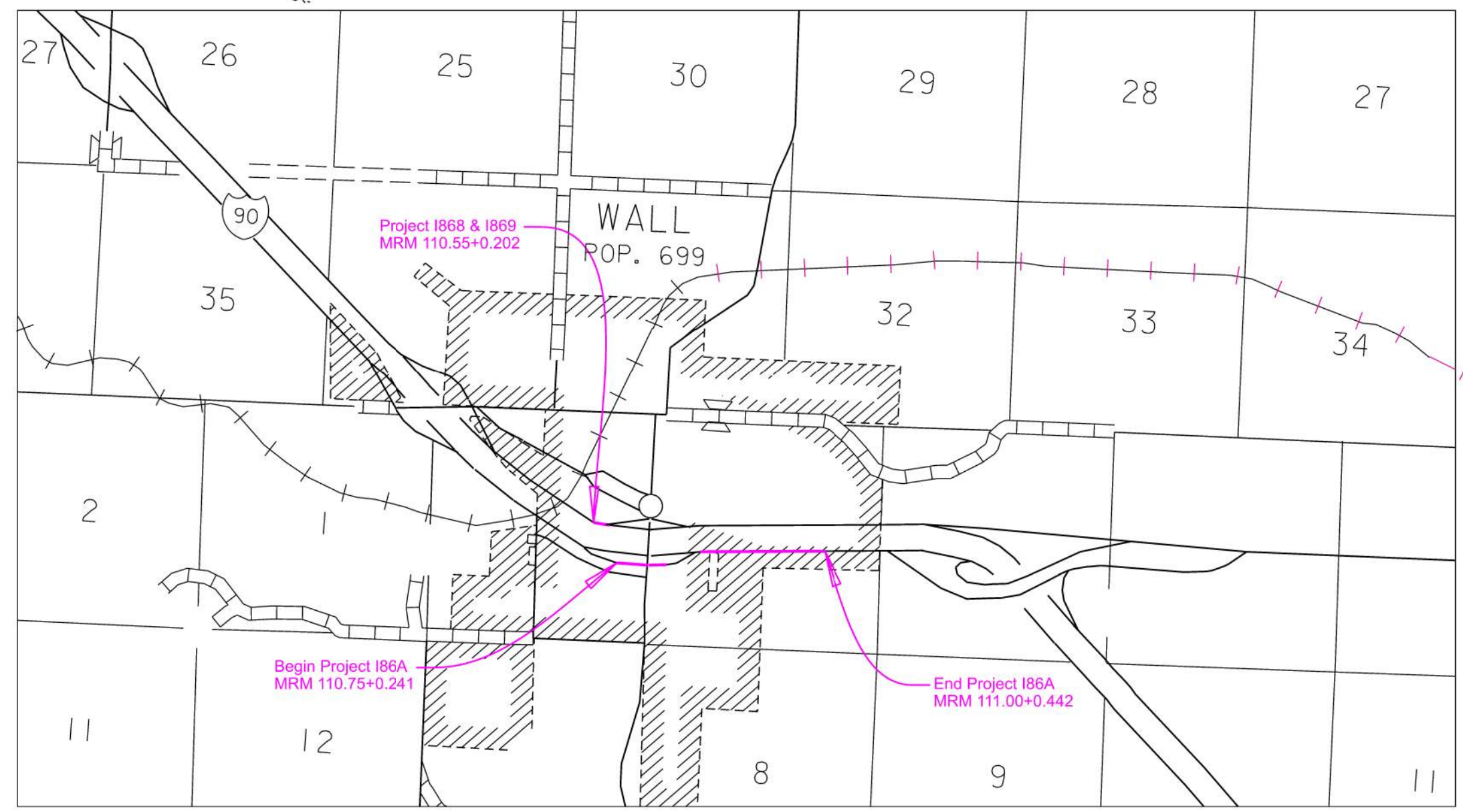
DESIGN DESIGNATION I-90 W

ADT (2025)	3858
ADT (2045)	5412
DHV	1000
D	51%
T DHV	12%
T ADT	26.3%
V	80 MPH

DESIGN DESIGNATION I-90 E

ADT (2025)	3862
ADT (2045)	5419
DHV	1001
D	51%
T DHV	11.9%
T ADT	26.2%
V	80 MPH

STORM WATER PERMIT
 No Permit



ESTIMATE OF QUANTITIES

1868 – 190 W (MRM 110.55+0.202)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
110E0500	Remove Pipe Culvert	14	Ft
450E4767	24" CMP 12 Gauge, Furnish	14	Ft
450E4770	24" CMP, Install	14	Ft
634E0110	Traffic Control Signs	174.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0310	Temporary Flexible Vertical Markers (Tabs)	960	Ft
634E0420	Type C Advance Warning Arrow Board	1	Each
634E1255	Contractor Furnished Vehicle Speed Feedback Sign	1	Each
730E0210	Type F Permanent Seed Mixture	1	Lb
731E0100	Fertilizing	23	Lb
732E0250	Fiber Mulching	46	Lb

1869 – 190 W (MRM 110.55+0.202)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
110E0707	Remove High Tension 4 Cable Guardrail	25	Ft
110E6016	Remove High Tension 4 Cable Guardrail Anchor Assembly for Reset	1	Each
629E0295	Reset High Tension Cable Guardrail Anchor Assembly	1	Each

186A – 190 E (MRM 110.75+0.241 to MRM 111+0.442)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
110E7500	Remove Pipe for Reset	8	Ft
110E7510	Remove Pipe End Section for Reset	1	Each
120E0010	Unclassified Excavation	390	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0020	Incidental Work, Grading	Lump Sum	LS
450E9000	Reset Pipe	8	Ft
450E9001	Reset Pipe End Section	1	Each
634E0110	Traffic Control Signs	258.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0310	Temporary Flexible Vertical Markers (Tabs)	960	Ft
634E0420	Type C Advance Warning Arrow Board	1	Each
634E1255	Contractor Furnished Vehicle Speed Feedback Sign	1	Each
730E0210	Type F Permanent Seed Mixture	13	Lb
731E0100	Fertilizing	750	Lb
732E0250	Fiber Mulching	1,500	Lb
734E0131	Type 1 Turf Reinforcement Mat	785.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	32	Ft
900E5147	Articulated Concrete Mattress	782.0	SqYd

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/doing-business/environmental/about-environmental/>

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 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.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES, (Continued)

A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

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

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

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

The Contractor is responsible 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.

GRADING OPERATIONS

The profile can be adjusted as needed to construct a 2' min. depth on the channel. Utilize excavation material as needed to fill and flatten slopes to construct the channel typical section.

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.

TABLE OF EXCAVATION QUANTITIES

MRM	Station to	Station	Excavation (CuYd)
111.0 + 0.442	0+26	4+66	390
Totals:			390

INCIDENTAL WORK, GRADING

MRM	Station	L/R	Remarks
I-90 Exit 110	11+51	L/R	Shape Inlet/Outlet channels and Cleanout Pipe to drain.
110.75+0.241			
Highway 240	12+61	L	Shape Outlet channels and Cleanout Pipe.
127.5+0.016			
Highway 240	13+57	L	Shape Inlet channels and Cleanout Pipe.
127.5+0.016			
I-90 E	0+26 to 4+66	R	Take Out 18" - 426' CMP and End Sections.
111+0.442			

REMOVE & RESET PIPE

The Contractor will tie each section of pipe to the adjacent sections with tie bolts conforming to Standard Plate 450.18. All costs for drilling holes, furnishing, and installing the tie bolt assembly will be incidental to the corresponding pipe bid item.

Existing tie bolts, if any, may be salvaged and reused if condition is acceptable to the Engineer.

REMOVE AND REPLACE TOPSOIL

Prior to ditch grading, a 4" depth of topsoil will be removed. Following completion of construction, topsoil will be spread evenly over the disturbed areas.

The estimated amount of topsoil to be removed and replaced is 269 CuYd.

All costs associated with removing and replacing the topsoil will be incidental to the contract lump sum price for "Remove and Replace Topsoil".

MYCORRHIZAL INOCULUM

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

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

The mycorrhizal inoculum 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, temporary easements under cultivation, and areas designated to be sod.

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.

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 unit price per pound for "Fiber Mulching".

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

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

TABLE OF FIBER MULCHING

MRM	Project	Location	Quantity (Lb)
I-90 W 110.55+0.202 R	I868	Median Ditch by Pipe	46
I-90 E 111+0.442 R	I86A	Inslope/Ditch	1500
Total:			1546

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor will provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles will remain on the project to decompose.

An additional quantity of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence at wetland areas adjacent to the highway.

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>

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (Inch)	Quantity (Ft)
4+66	Channel Bottom	12	32
Total:			32

TURF REINFORCEMENT MAT

Turf Reinforcement Mat will be installed at locations shown in the table at the widths specified, and at locations determined by the Engineer during construction. The Contractor will use a turf reinforcement mat from the approved products list. The approved product list for turf reinforcement mat may be viewed at the following internet site:

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

Turf Reinforcement Mat will be installed in accordance with the manufacturer's installation instructions.

TABLE OF TURF REINFORCEMENT MAT

Station	Location	Width (Ft)	Type	Quantity (SqYd)
0+26 to 4+66 L	I-90 E Ditch	8	1	395
0+26 to 4+66 R	I-90 E Ditch	8	1	390
Total Type 1 Turf Reinforcement Mat:				785

ARTICULATED CONCRETE MATTRESS

Articulated concrete mattress will be installed at locations noted in the table and at locations determined by the Engineer during construction.

Installation of the articulated concrete mattress will be in accordance with the manufacturer's installation instructions.

All costs for furnishing and installing the articulated concrete mattress including hauling, materials, equipment, labor, and incidentals necessary will be paid for at the contract unit price per square yard for Articulated Concrete Mattress.

The articulated concrete mattress will be as shown below or an approved equal:

Product	Manufacturer
Standard Flexamat	Flexamat Permanent Site Solutions Cincinnati, Ohio Phone: (513) 772-6690 www.flexamat.com

Product	Manufacturer
ShoreFlex	ShoreFlex Denham Springs, Louisiana Phone: (800) 575-7293 www.shoreflex.com

TABLE OF ARTICULATED CONCRETE MATTRESS

Station	Width (Ft)	Location	Quantity (SqYd)
0+26 to 4+66	16	Channel Bottom	782
Total:			782

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.

- 1868 & 1869
- Use Standard plate 634.63 to close Left Passing Lane of I-90 West to Fix CMP Culvert and Remove and Reset Guardrail Anchor.
 - Existing I-90 W On/Off Ramps Exit 110 will remain open, use Standard Plate 634.70 for Signage.
- 186A
- Use Standard plate 634.63 to close Right Driving Lane of I-90 East to Construct Ditch Channel
 - Existing I-90 East On/Off Ramps Exit 110 will remain Open use Standard Plate 634.68 & 634.70 for Signage.

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.

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.

A Type 3 Barricade will be installed at the end of a lane closure taper as detailed in these plans. Additional Type 3 Barricades will be installed facing traffic within the closed lane at a spacing of ¼ mile.

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.

LANE CLOSURES

Interstate lane closures will be removed when work will not be occurring for a period of 3 or more calendar days. Activities that do not involve workers being present, such as curing time for concrete, constitute work. Lane closures will not be set up on a Friday if no work will be occurring on Saturday or Sunday. In these cases, the lane closure will be installed on Monday.

TRAFFIC CONTROL SIGNS

Traffic control signs have been included in a table for each site. Payment will only be for those signs used on each site.

WORK ZONE SPEED REDUCTION

The Department is required to obtain a speed reduction resolution prior to the installation of any SPEED LIMIT (R2-1) signs shown on standard plate 634.63. To provide adequate time for the resolution to be enacted, the Contractor will inform the Engineer a minimum of 3 weeks prior to the scheduled installation of any work zone speed reduction signs on the project. The information provided by the Contractor will include the anticipated date of sign installation, the newly reduced speed limit, the location of the work zone, and the anticipated completion date of work requiring the speed reduction.

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.

OVERWIDTH RESTRICTION

There will be a 16' Overwidth Restriction for I-90 East & West closed lanes.

1868 – I 90 W (MRM 110.55+0.202)

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
R2-1	SPEED LIMIT 45	1	36" x 48"	12.0	12.0
R2-1	SPEED LIMIT 65	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 80	1	36" x 48"	12.0	12.0
R2-6aP	FINES DOUBLE (plaque)	1	36" x 24"	6.0	6.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	1	48" x 48"	16.0	16.0
W4-2L	LEFT LANE ENDS (symbol)	1	48" x 48"	16.0	16.0
W4-3	ADDED LANE (symbol)	1	48" x 48"	16.0	16.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT LANE CLOSED AHEAD	1	48" x 48"	16.0	16.0
EXPRESSWAY/INTERSTATE TRAFFIC CONTROL SIGNS SQFT					174.0

186A – I 90 E (MRM 110.75+0.241 to MRM 111+0.442)

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
G20-2	END ROAD WORK	3	48" x 24"	8.0	24.0
R2-1	SPEED LIMIT 45	1	36" x 48"	12.0	12.0
R2-1	SPEED LIMIT 65	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 80	1	36" x 48"	12.0	12.0
R2-6aP	FINES DOUBLE (plaque)	1	36" x 24"	6.0	6.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	1	48" x 48"	16.0	16.0
W4-2R	RIGHT LANE ENDS (symbol)	1	48" x 48"	16.0	16.0
W4-3	ADDED LANE (symbol)	1	48" x 48"	16.0	16.0
W20-1	ROAD WORK AHEAD	5	48" x 48"	16.0	80.0
W20-5	RIGHT LANE CLOSED AHEAD	1	48" x 48"	16.0	16.0
SPECIAL	EXIT ___ (3 digits) (45° ARROW)	1	60" x 48"	20.0	20.0
EXPRESSWAY/INTERSTATE TRAFFIC CONTROL SIGNS SQFT					258.0

LEGEND

STATE OF SOUTH DAKOTA	PROJECT	SECTION	SHEET
	090W-452, 000I-452, 090E-452	Non	6/24
Plotting Date: 5/7/2026			

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

HORIZONTAL ALIGNMENT DATA

I-90 East Ditch Channel

Type	Station			Northing	Easting
POB	0.000			608320.587	1469212.104
		TL= 39.827	N89.455°E		
PI	39.827			608320.966	1469251.929
		TL= 115.788	S80.830°E		
PI	155.615			608302.514	1469366.237
		TL= 121.340	S81.222°E		
PI	276.956			608283.998	1469486.157
		TL= 211.218	S81.494°E		
POE	488.174			608252.755	1469695.051

I-90 West

Type	Station			Northing	Easting
POB	600.000			608651.717	1465150.210
		TL= 264.670	S64.728°E		
PC	864.670			608538.725	1465389.549
PI	1531.783	R = 2600.000	Delta = 28.781 L	608253.922	1465992.812
PT	2170.721			608294.754	1466658.674
		TL= 442.404	N86.491°E		
POE	2613.125			608321.833	1467100.249

I-90 East On/Off Ramp Exit 110

Type	Station			Northing	Easting
POB	1000.000			608049.006	1466652.848
		TL= 696.615	N85.536°E		
POE	1696.615			608103.223	1467347.349

CONTROL DATA

POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP7A	REFMRK REBAR	605026.862	1467042.812	2857.849
KE1	REFMRK REBAR	608021.035	1466908.993	2851.397

I - 90 West

MRM 110.55 + 0.202

STATE OF SOUTH DAKOTA	PROJECT	SECTION	SHEET
	090W-452, 000I-452, 090E-452	Non	8/24

Plotting Date: 5/7/2026



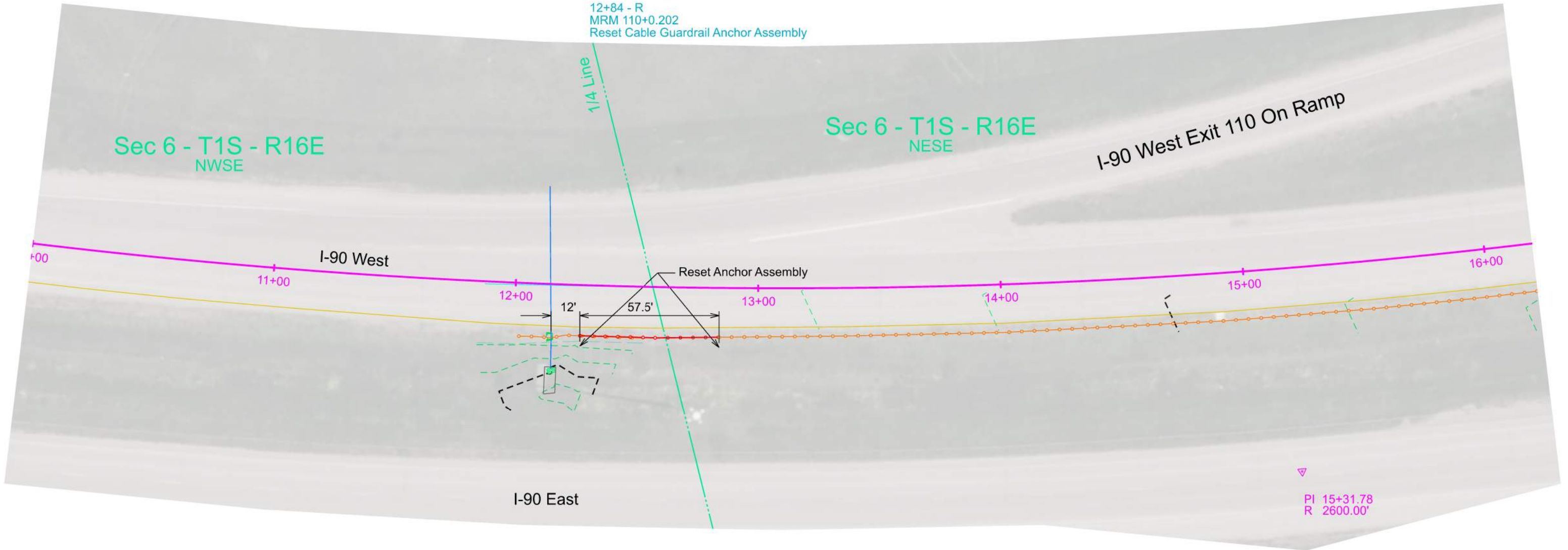
12+16 - 35' R
MRM 110+0.202
Remove 24" - 14' CMP

12+16 - 35' R
MRM 110+0.202
Install 24" - 14' CMP

12+02 - 12+59 - R
MRM 110+0.202
Remove for Reset Cable Guardrail Anchor Assembly

12+59 - 12+84 - R
MRM 110+0.202
Remove 25' of High Tension 4 Cable Guardrail

12+84 - R
MRM 110+0.202
Reset Cable Guardrail Anchor Assembly



I - 90 East Exit 110 Ramps

MRM 110.75 + 0.241

STATE OF SOUTH DAKOTA	PROJECT	SECTION	SHEET
	090W-452, 000I-452, 090E-452	Non	9/24

Plotting Date: 5/7/2026



Highway 090 E1
11+51 - 38' L
MRM 110.75+0.241
Shape Inlet Channel to drain
and Cleanout Pipe Culvert
Incidental Work, Grading

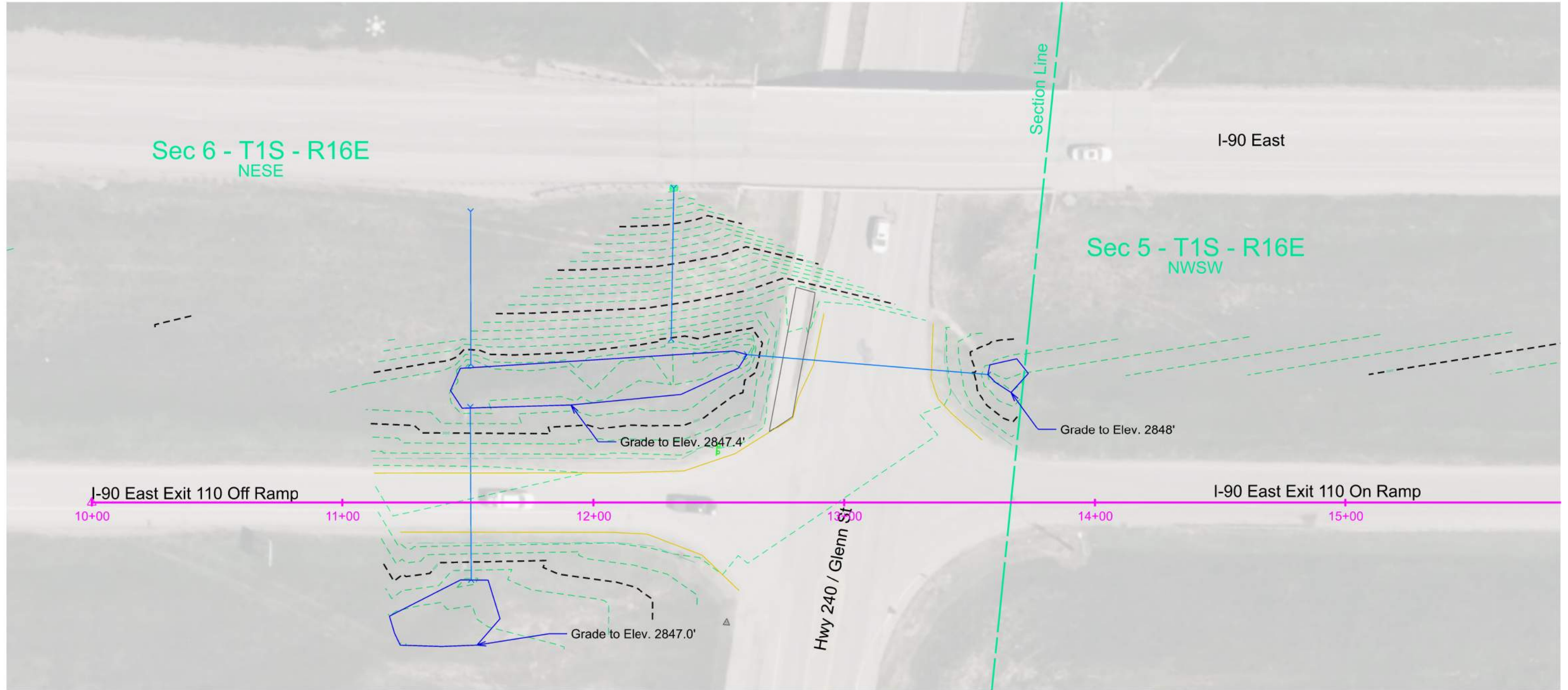
Highway 090 E1
11+51 - 31' R
MRM 110.75+0.241
Shape Outlet Channel to drain
Incidental Work, Grading

Highway 240
12+61 - 59' L
MRM 127.50+0.016
Shape Outlet Channel to drain
Incidental Work, Grading

Highway 240
13+57 - 51' L
MRM 127.50+0.016
Shape Inlet Channel to drain
and Cleanout Pipe Culvert
Incidental Work, Grading

Highway 240
13+57 - 51' L
MRM 127.50+0.016
Remove for Reset 18" - 8' RCP
and Flared End Section Inlet

Highway 240
13+57 - 51' L
MRM 127.50+0.016
Reset 18" - 8' RCP
and Flared End Section Inlet



I - 90 East

MRM 111 + 0.442

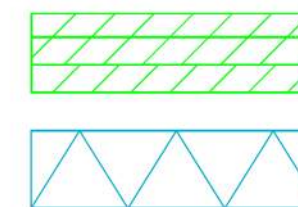
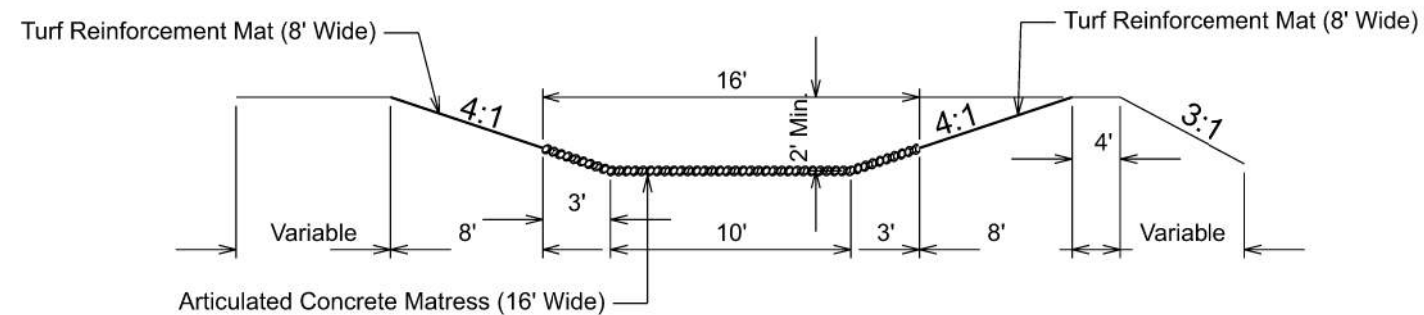
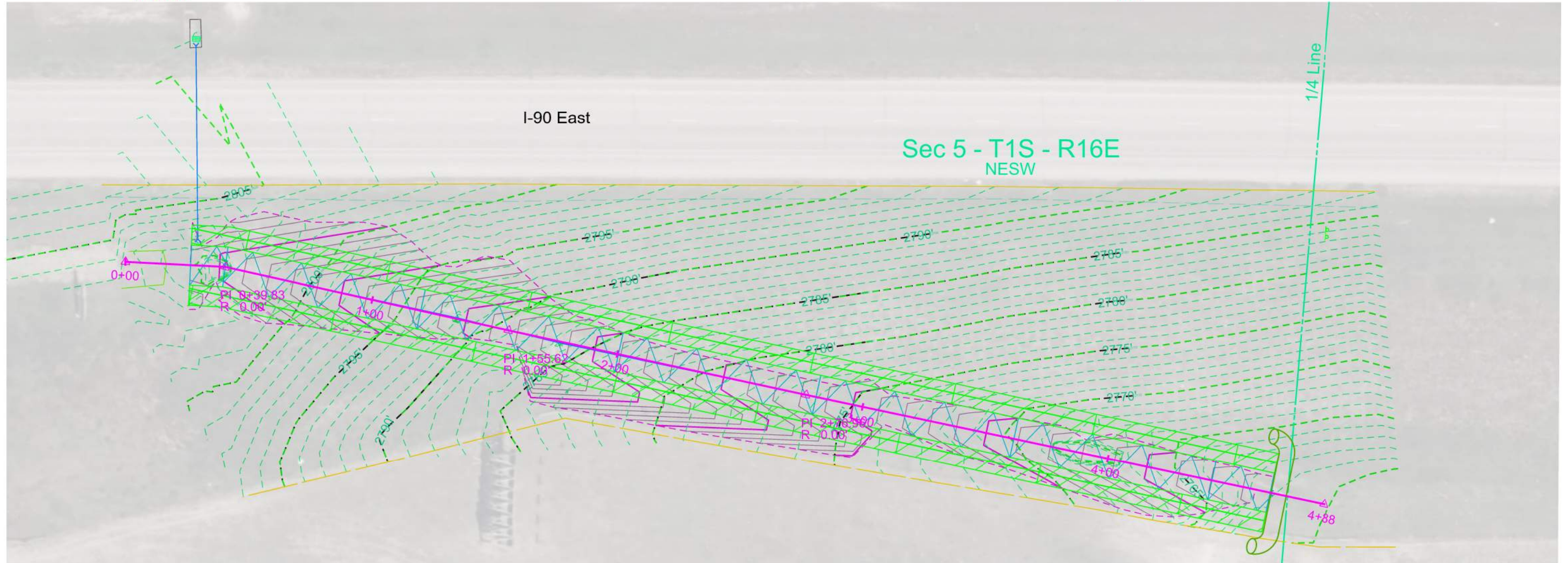
0+26 - 4+66
Install Articulated Concrete
Mattress (16' Wide)

0+26 L - 4+66 L
Install Type 1 Turf Reinforcement
(8' Wide)

0+26 R - 4+66 R
Install Type 1 Turf Reinforcement
(8' Wide)

0+40 - 4+66
Take Out 18" - 426' CMP
and End Sections
Incidental Work, Grading

4+66
Install 12" Diameter Erosion Control
Wattle (32')

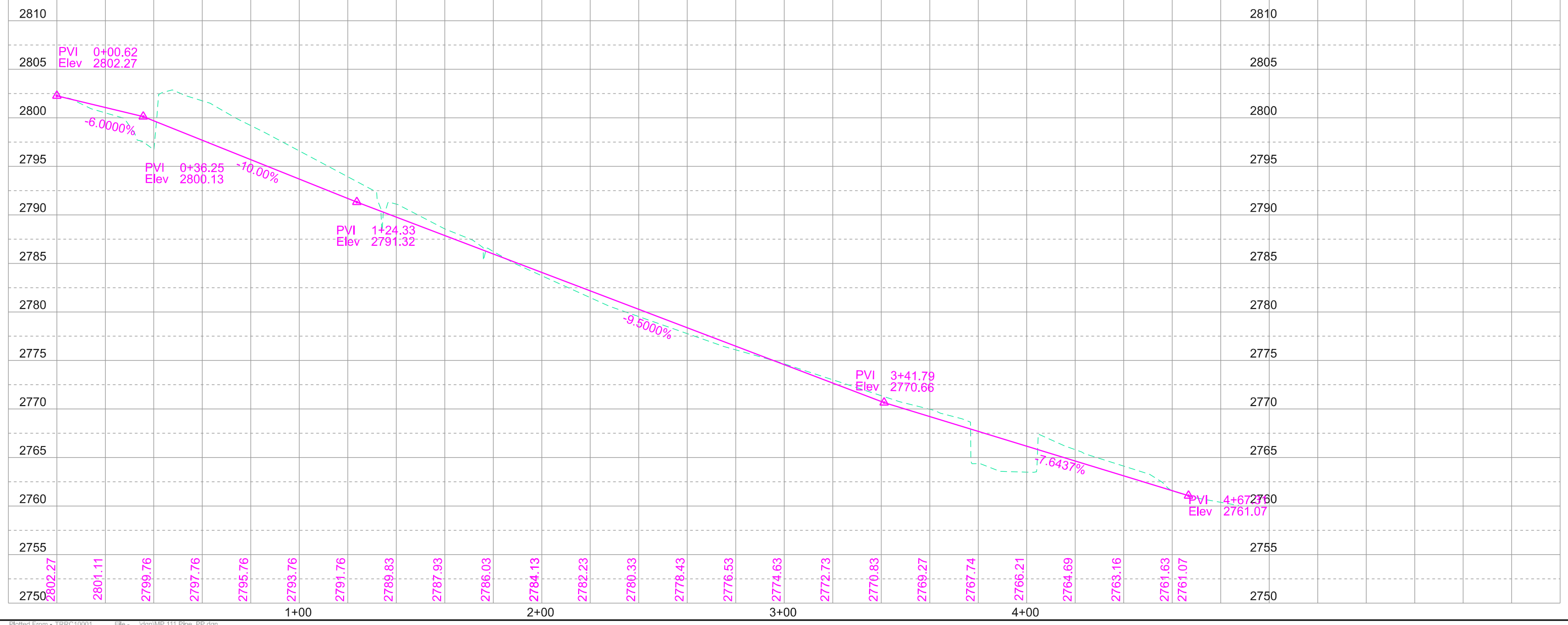


Type 1 Turf Reinforcement Mat

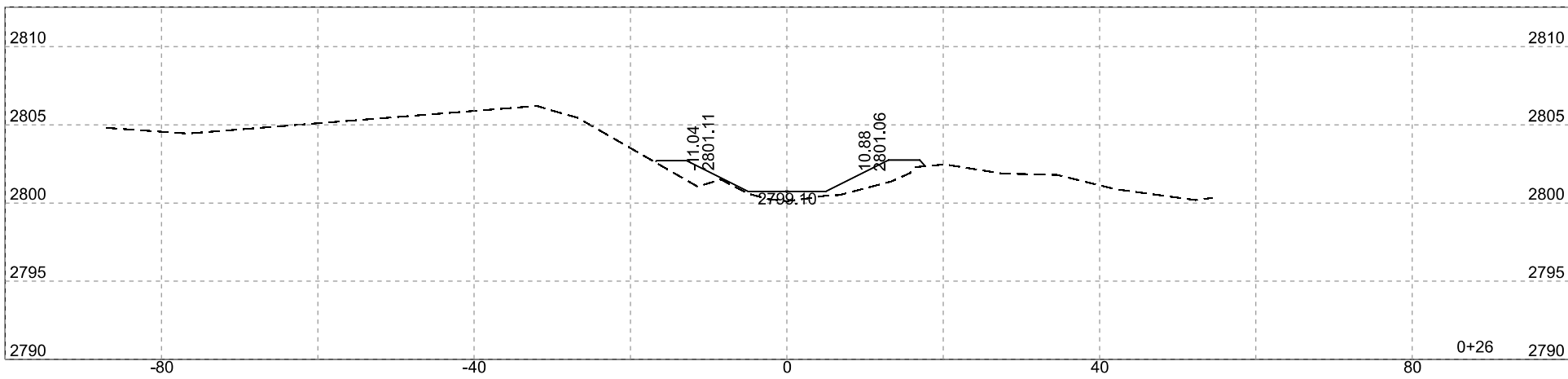
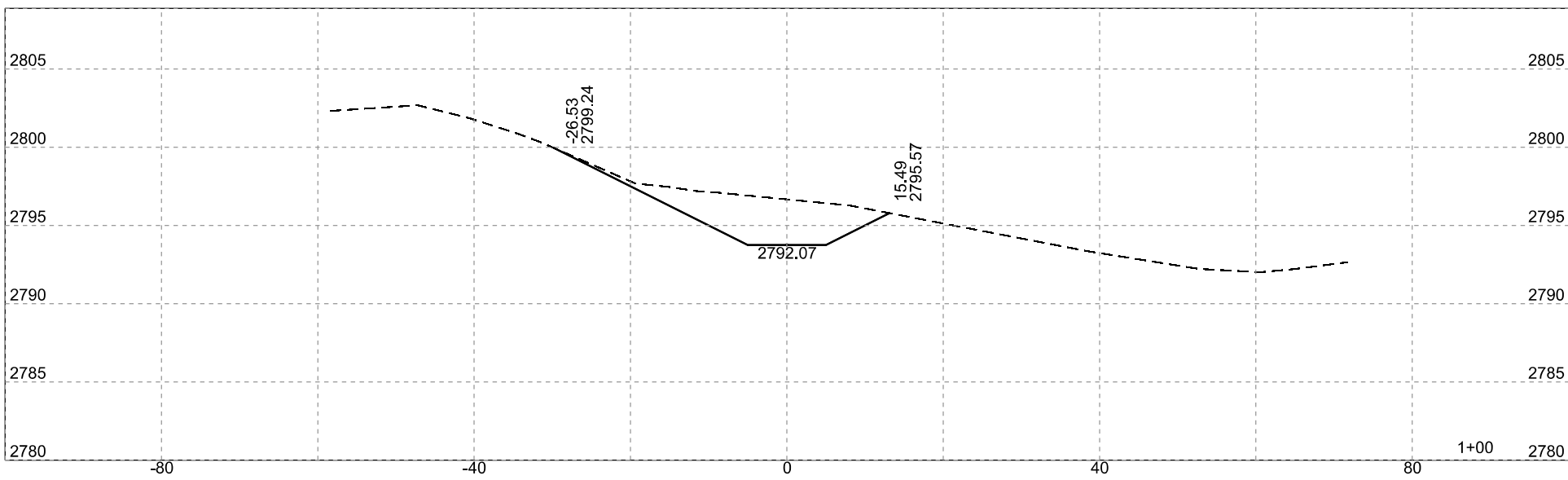
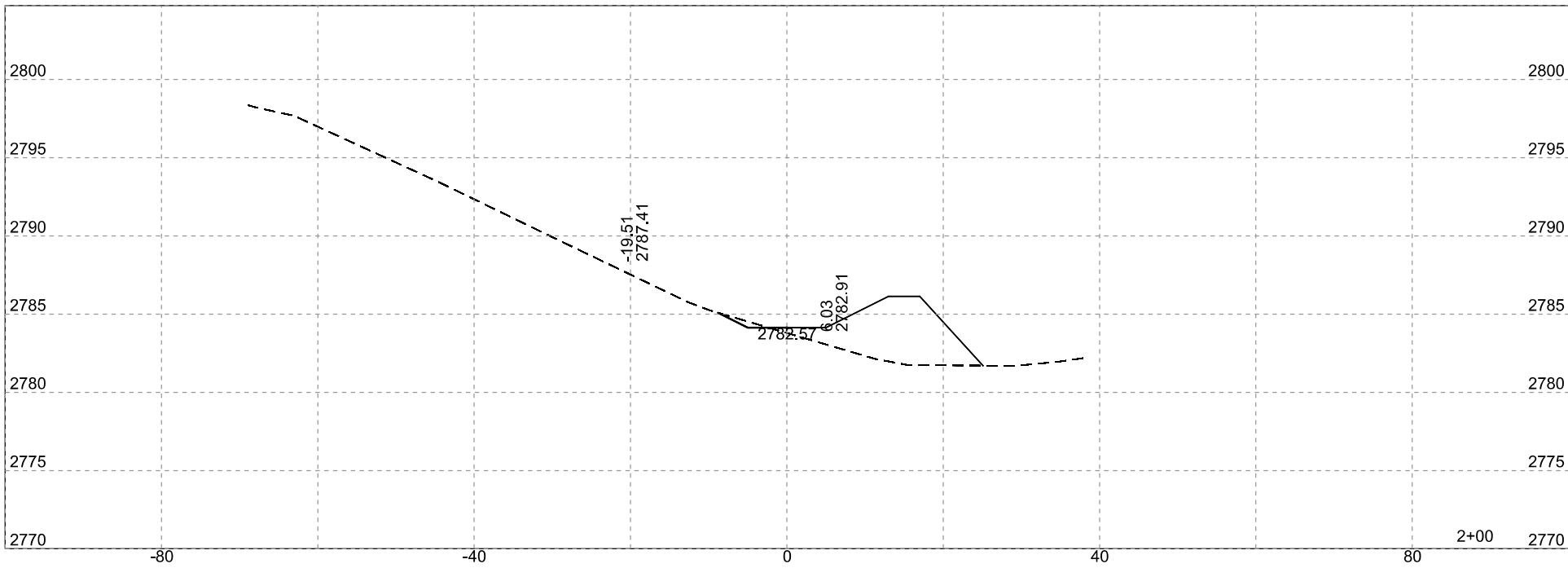
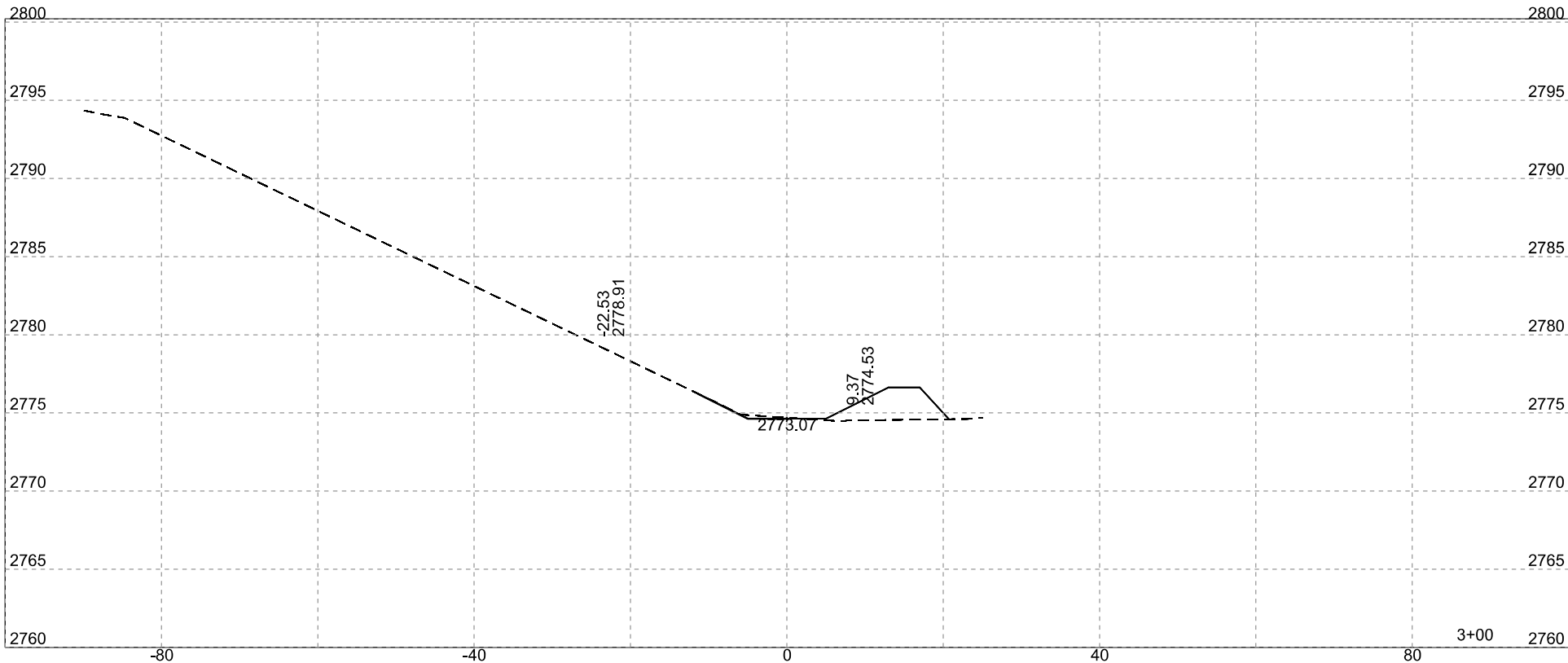
Articulated Concrete Mattress

Channel Typical Section

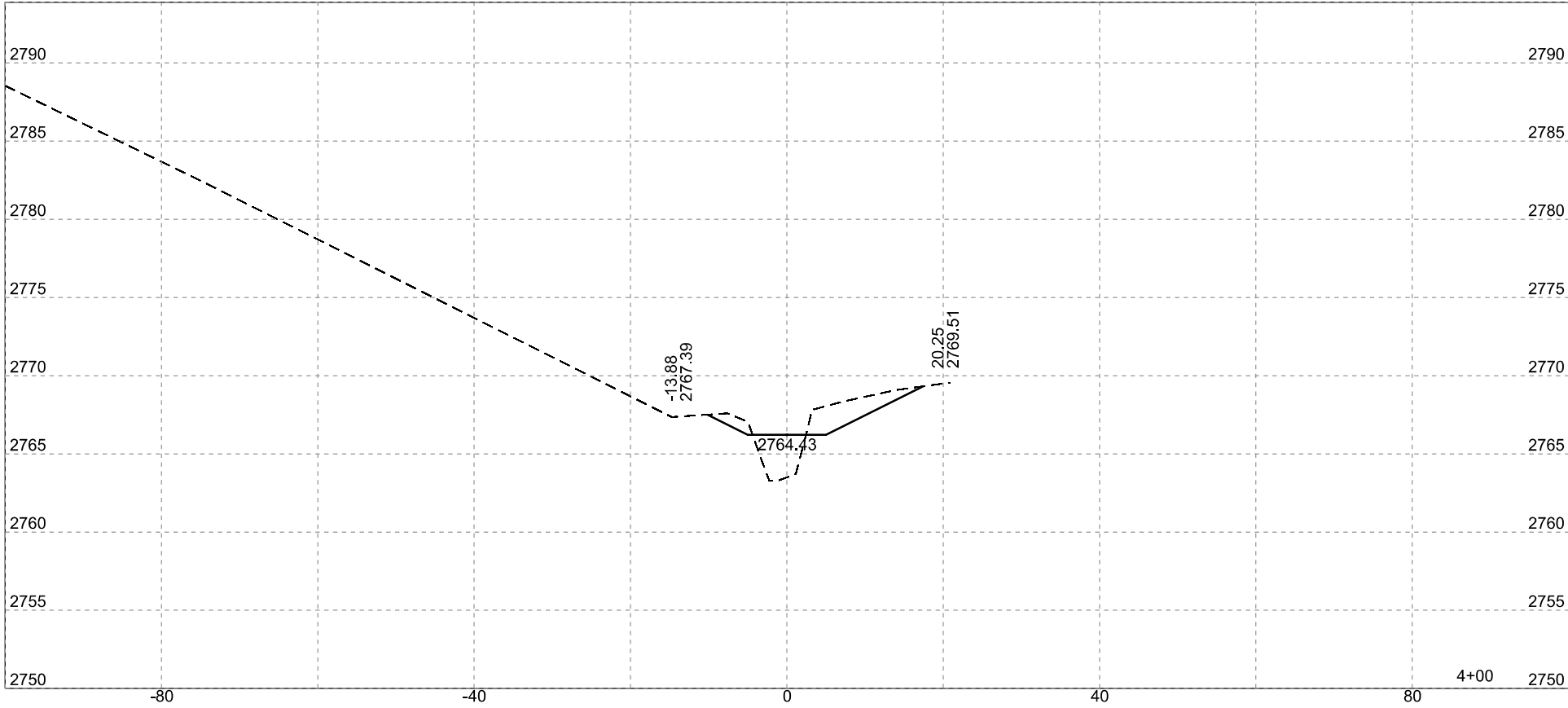
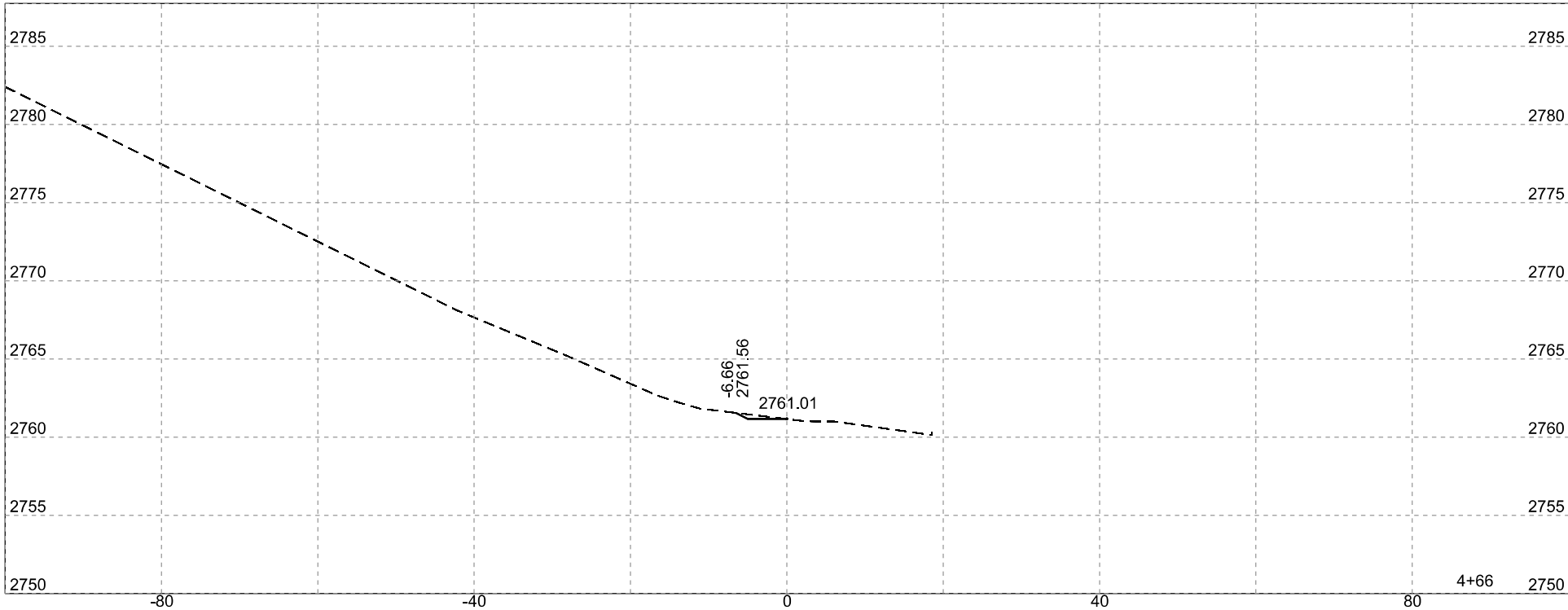
MRM 111 + 0.442



Plotting Date: 5/7/2026

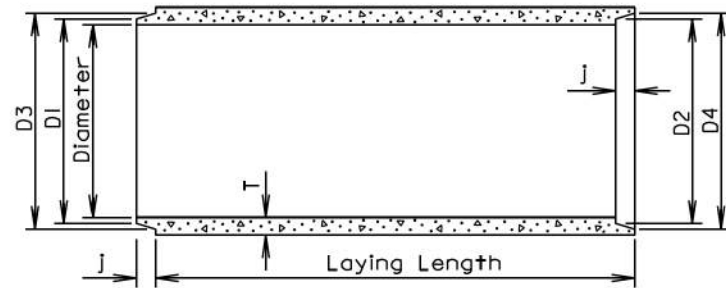


Plotting Date: 5/7/2026

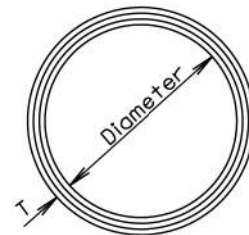


TOLERANCES IN DIMENSIONS

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



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

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

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

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

June 26, 2015

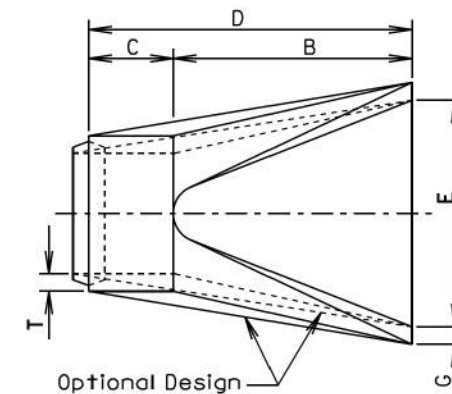
**S
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T**

REINFORCED CONCRETE PIPE

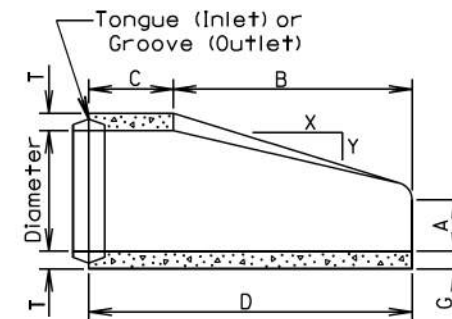
PLATE NUMBER
450.01

Sheet 1 of 1

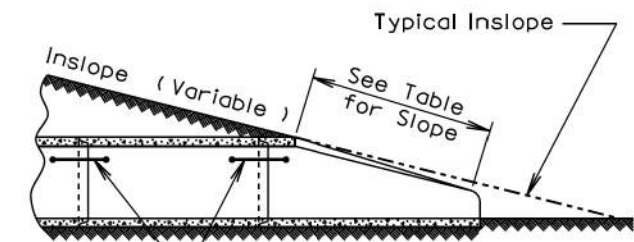
Published Date: 2026



TOP VIEW



LONGITUDINAL SECTION



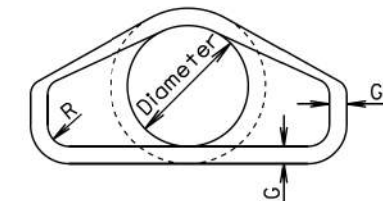
See Standard Plate 450.18
(TIE BOLTS FOR R.C.P. AND R.C.P. ARCH)

SLOPE DETAIL

GENERAL NOTES:

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

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



END VIEW

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4:1	2	4	24	48 7/8	72 1/8	24	2	1 1/2
15	740	2.4:1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3:1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4:1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5:1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5:1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5:1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5:1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5:1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5:1	5	24	72	26	98	84	5	1 1/2
54	8240	2:1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9:1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7:1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8:1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8:1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6:1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5:1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

June 26, 2015

**S
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T**

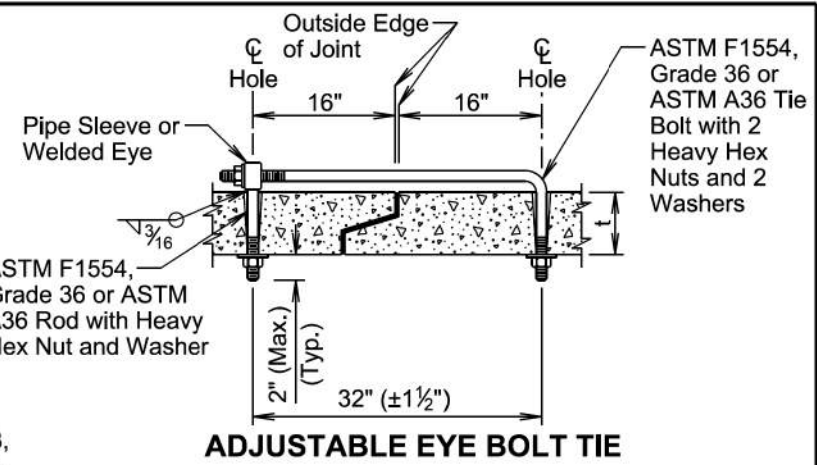
R. C. P. FLARED ENDS

PLATE NUMBER
450.10

Sheet 1 of 1

Published Date: 2026

Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3/4	5/8	3/4
3 1/2 - 6 1/2	3/4	1
≥ 7	1	1 1/4



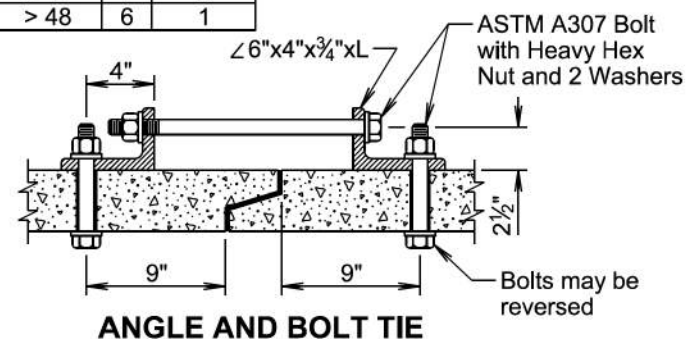
GENERAL NOTES:

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.

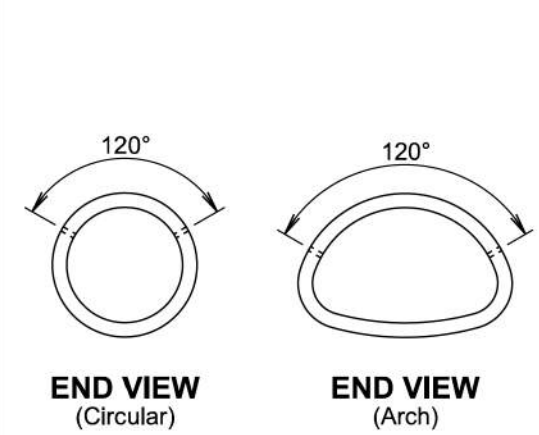
Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	3/4
> 48	6	1



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.



GENERAL NOTES:

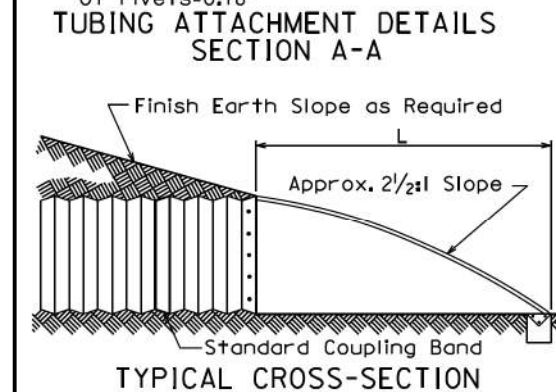
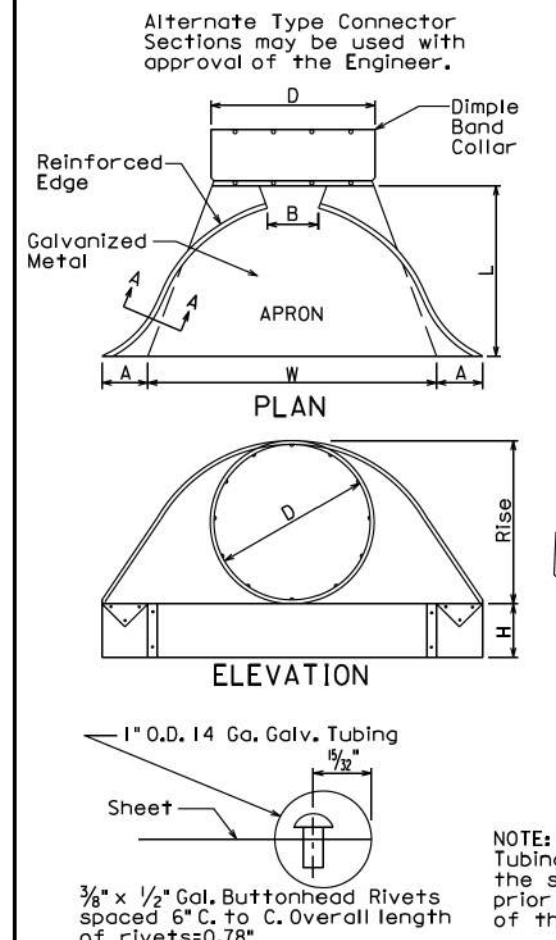
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

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.

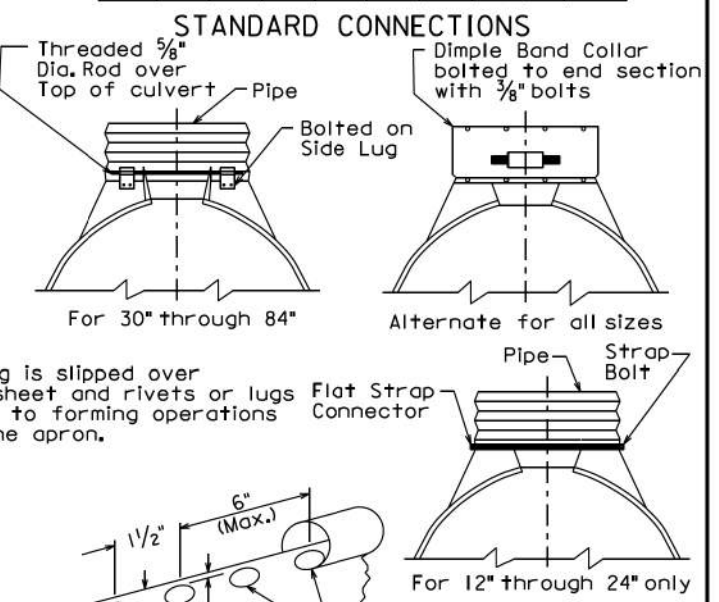
There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts will be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

April 8, 2025

S D D O T	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
		Sheet 1 of 1
Published Date: 2026		



Dia. D (in.)	Ga.	DIMENSIONS (in.)						Approx. Slope	Body
		A	B	H	L	W			
12	16	6	6	6	21	24	2 1/2:1	1 Pc.	
15	16	7	8	6	26	30	2 1/2:1	1 Pc.	
18	16	8	10	6	31	36	2 1/2:1	1 Pc.	
21	16	9	12	6	36	42	2 1/2:1	1 Pc.	
24	16	10	13	6	41	48	2 1/2:1	1 Pc.	
30	14	12	16	8	46	60	2 1/2:1	1 Pc.	
36	14	14	19	9	51	72	2 1/2:1	2 Pc.	
42	12	16	22	11	60	84	2 1/2:1	2 Pc.	
48	12	18	27	12	69	90	2 1/4:1	2 Pc.	
54	12	18	30	12	78	102	2:1	3 Pc.	
60	12	18	33	12	84	114	1 3/4:1	3 Pc.	
66	12	18	36	12	87	120	1 1/2:1	3 Pc.	
72	12	18	39	12	87	126	1 1/3:1	3 Pc.	
78	12	18	42	12	87	132	1 1/4:1	3 Pc.	
84	12	18	45	12	87	138	1 1/6:1	3 Pc.	



GENERAL NOTES:

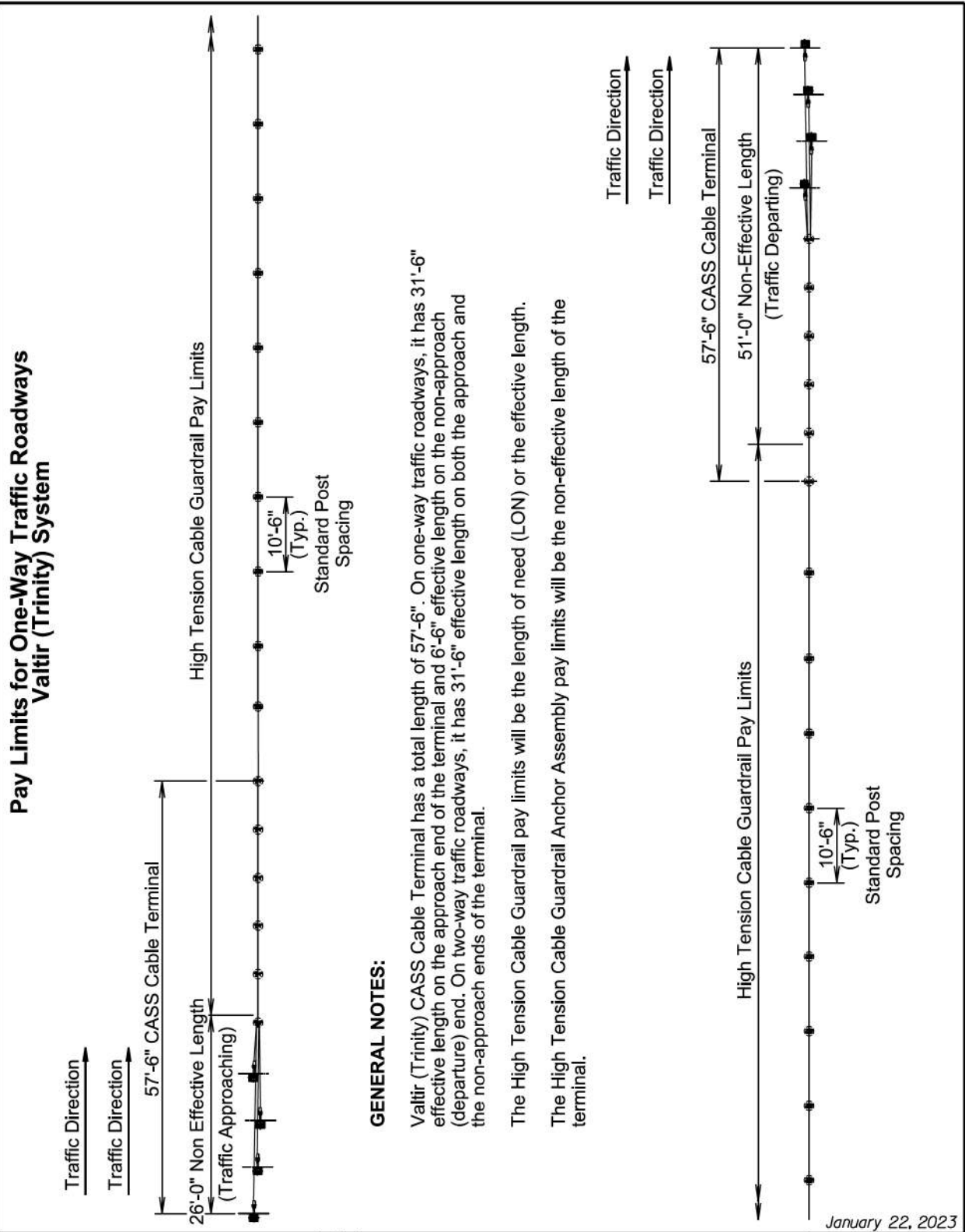
All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be greater than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by 3/8" Dia. galvanized rivets or bolts.

For 60" through 84" sizes, reinforced edges shall be supplemented with galvanized stiffener angles. The angles will be 2" x 2" x 1/4" for 60" through 72" diameters and 2 1/2" x 2 1/2" x 1/4" for 78" and 84" diameters. The angles shall be attached by 3/8" diameter galvanized nuts and bolts.

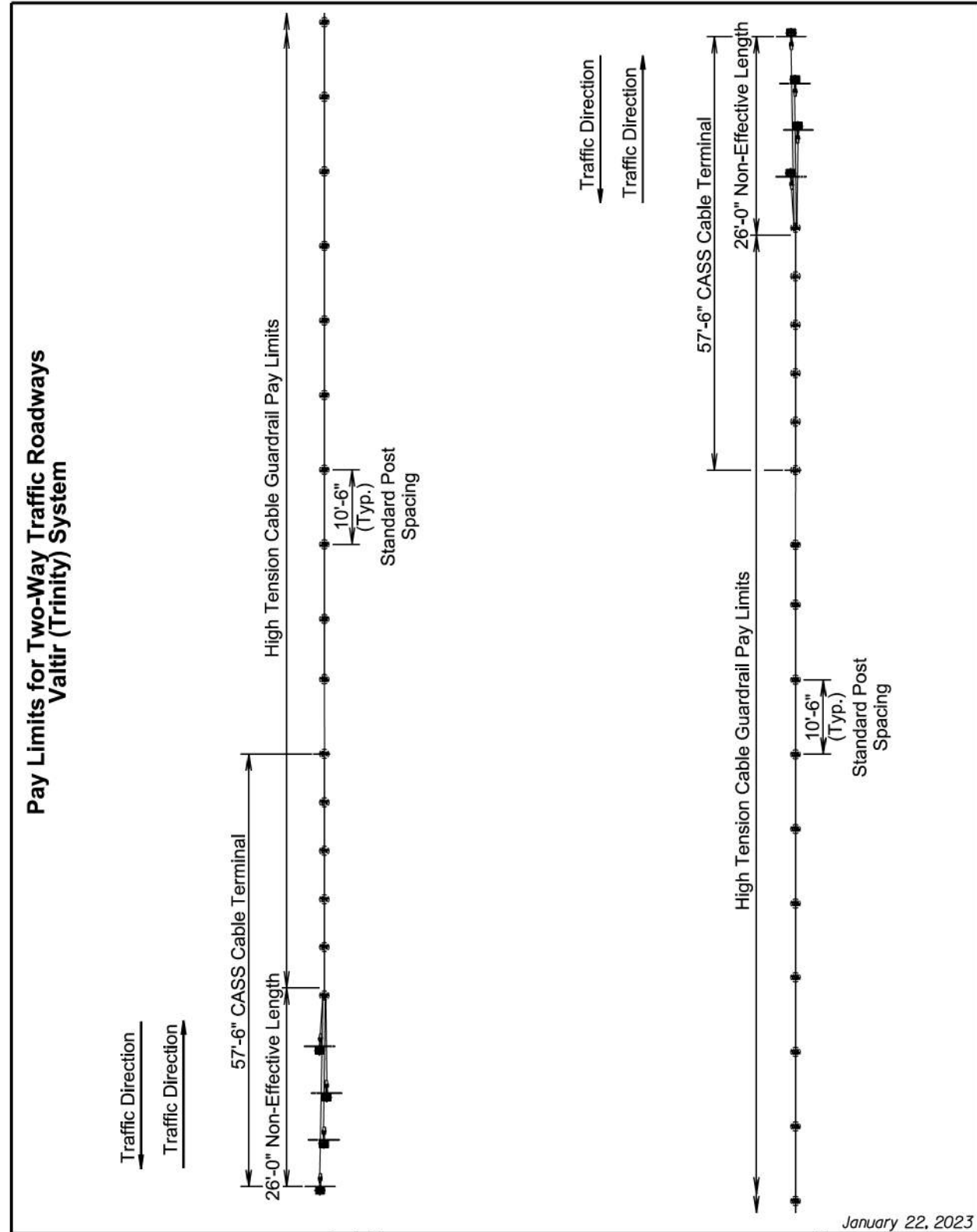
Rivets and Bolts shall be 3/8" Dia. Min. for 10 Ga. and 12 Ga. sheet, and 5/16" Dia. Min. for 14 Ga. and 16 Ga. sheets. Tighten nuts with torque wrench to 25 lbs. torque.

March 31, 2000

S D D O T	C.M.P. FLARED ENDS	PLATE NUMBER 450.35
		Sheet 1 of 1
Published Date: 2026		

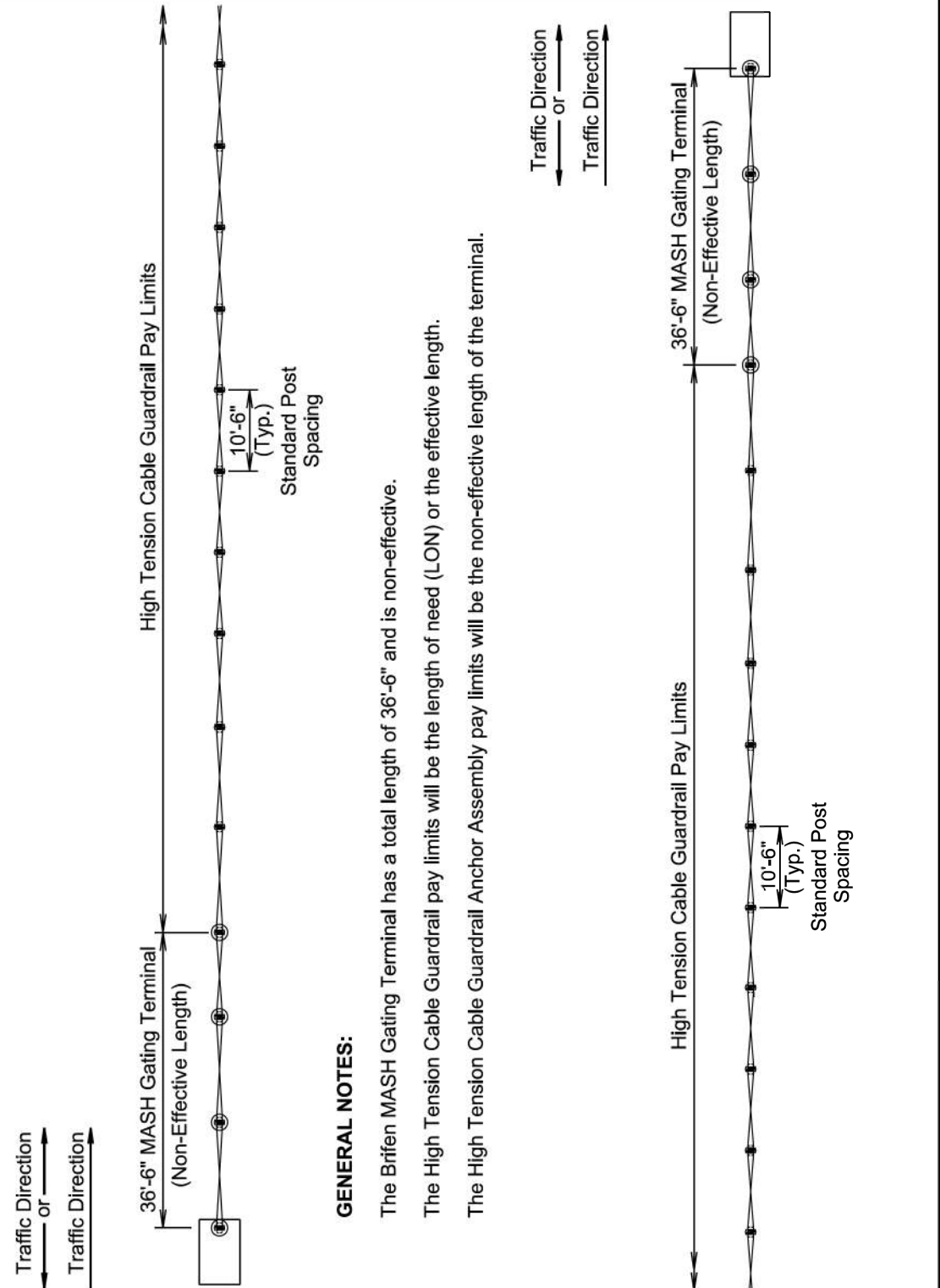


S D D O T	HIGH TENSION CABLE GUARDRAIL	PLATE NUMBER 629.50
		Sheet 1 of 3
<i>Published Date: 2026</i>		



S D D O T	HIGH TENSION CABLE GUARDRAIL	PLATE NUMBER 629.50
		Sheet 2 of 3
<i>Published Date: 2026</i>		

Pay Limits for One-Way and Two-Way Traffic Roadway
Brifen System

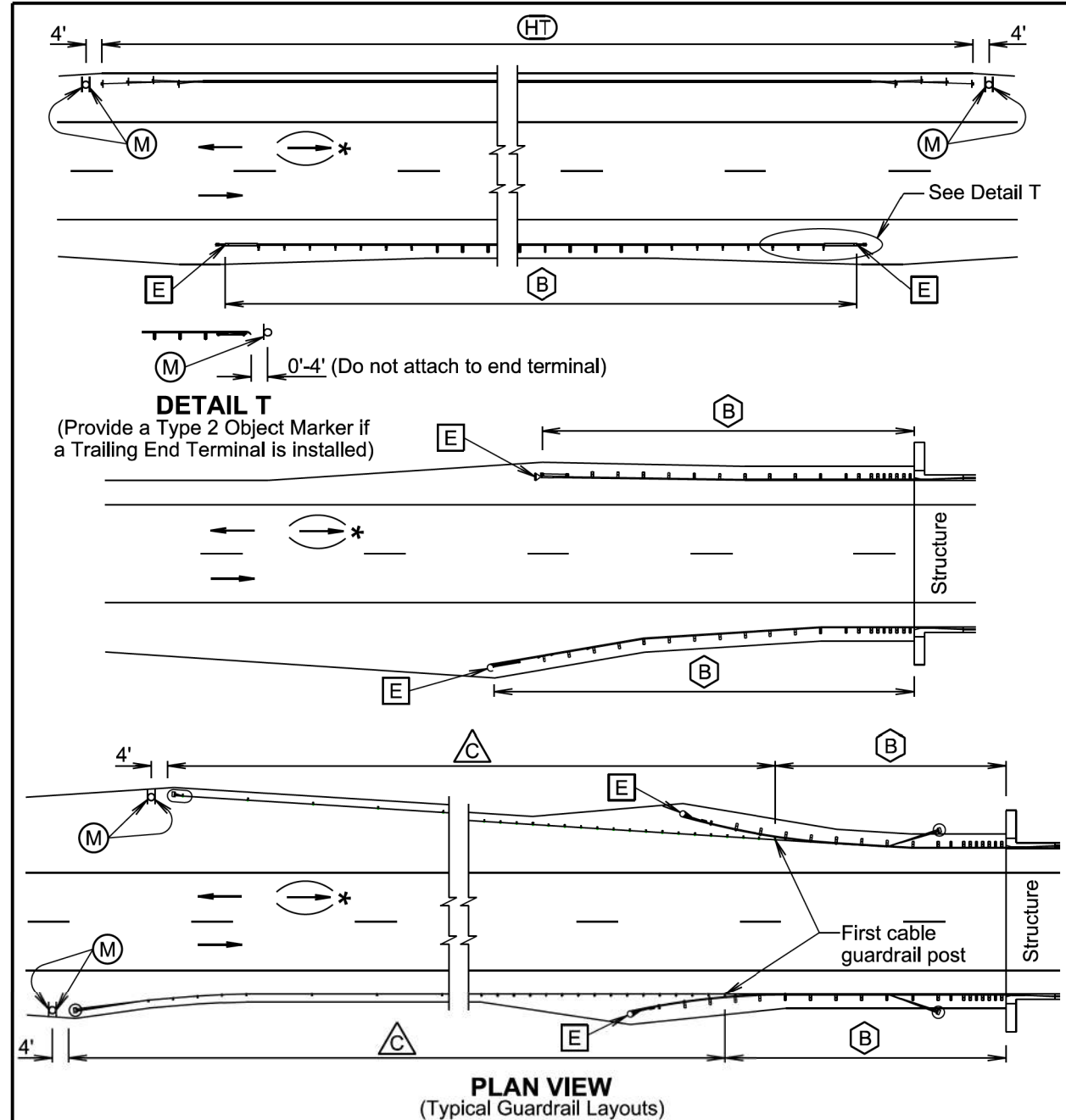


GENERAL NOTES:

The Brifen MASH Gating Terminal has a total length of 36'-6" and is non-effective.
 The High Tension Cable Guardrail pay limits will be the length of need (LON) or the effective length.
 The High Tension Cable Guardrail Anchor Assembly pay limits will be the non-effective length of the terminal.

January 22, 2023

Published Date: 2026	S D D O T	HIGH TENSION CABLE GUARDRAIL	PLATE NUMBER 629.50
			Sheet 3 of 3



DETAIL T

(Provide a Type 2 Object Marker if a Trailing End Terminal is installed)

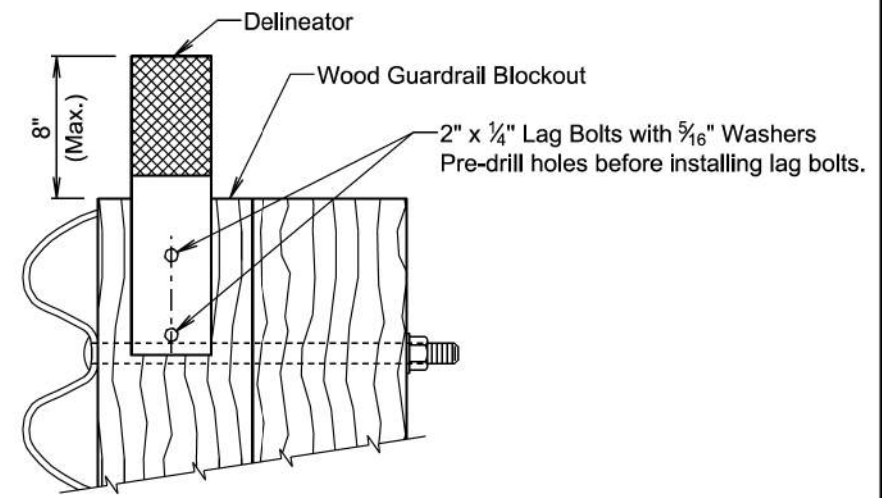
PLAN VIEW
(Typical Guardrail Layouts)

- (B) Steel Beam Guardrail Delineation
- (E) Guardrail End Terminal Object Marker
- (C) 3 Cable Guardrail (Low Tension) Delineation
- (HT) High Tension Cable Guardrail Delineation
- (M) Type 2 Object Marker

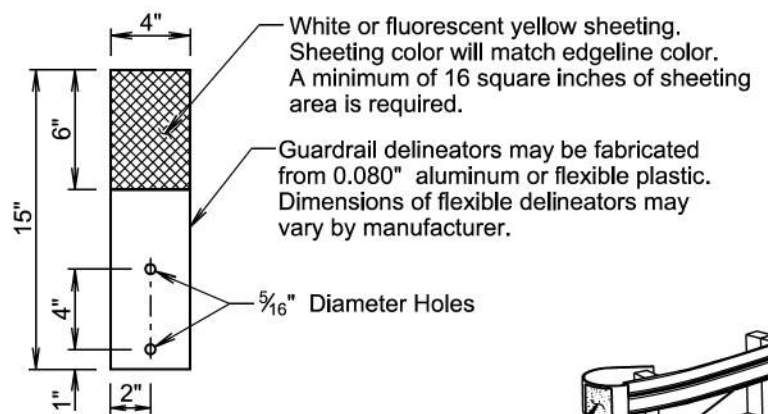
*For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

April 8, 2025

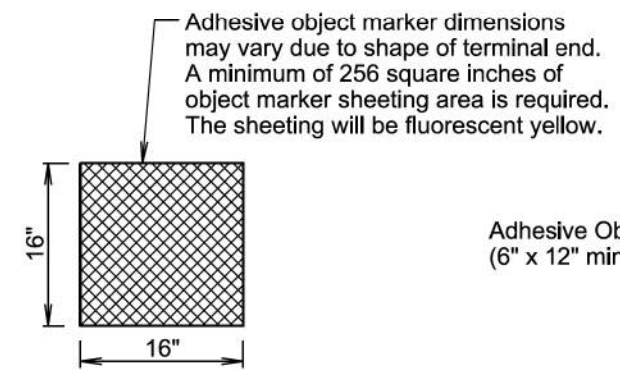
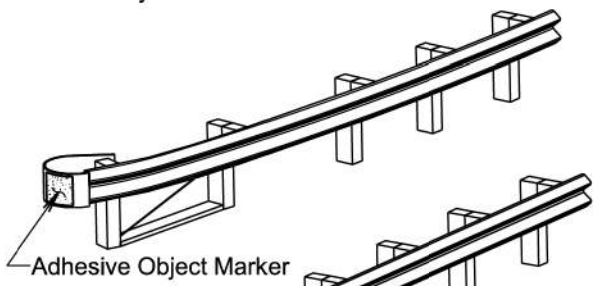
Published Date: 2026	S D D O T	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 1 of 4



B STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)

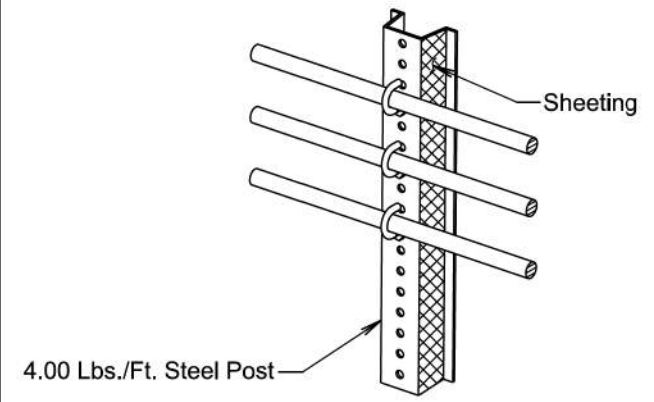


ADHESIVE OBJECT MARKER

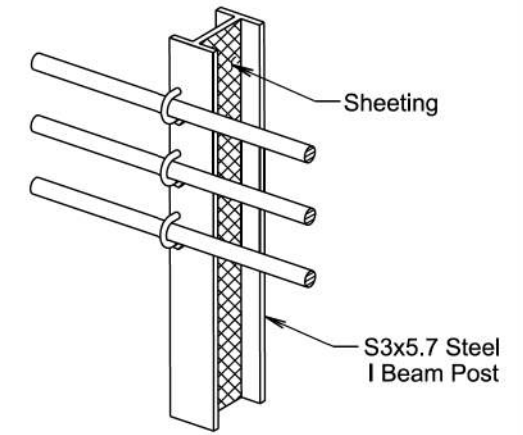


April 8, 2025

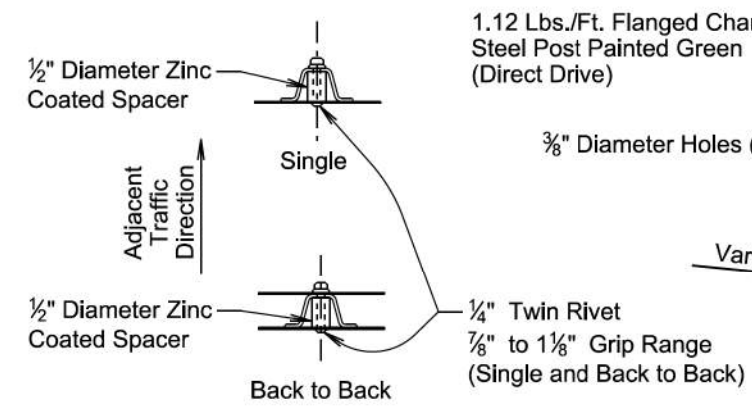
Published Date: 2026	S D D O T	DELINEATION GUARDRAIL	PLATE NUMBER 632.40
			Sheet 2 of 4



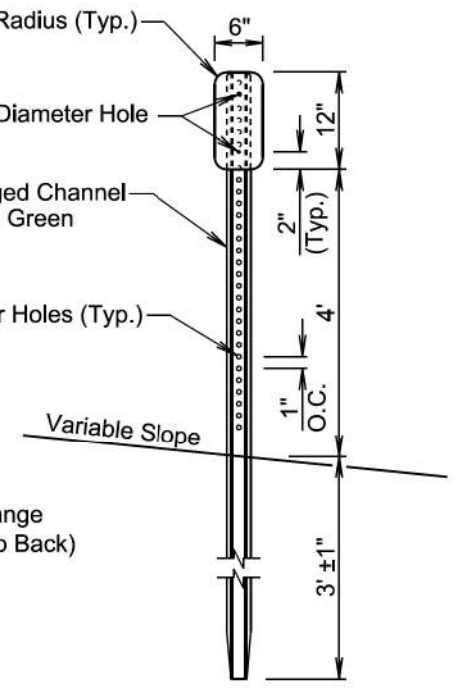
C 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



C 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



PLAN VIEW
(Type 2 Object Marker Details and Post Orientation)



ELEVATION VIEW

M (Type 2 Object Marker)
(For Marking 3 Cable Guardrail (Low Tension) Anchor, High Tension Cable Guardrail Anchor, and Trailing End Terminal)

April 8, 2025

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			Sheet 3 of 4

GENERAL NOTES:

The delineation of high tension cable guardrail will be reflective sheeting placed back to back on every third post cap or cable spacer. Maximum spacing of delineation will not exceed 35 feet. The sheeting will be type XI in conformance with ASTM D4956. The color of the reflective sheeting will be the same as the nearest pavement marking.

The delineators for steel beam guardrail and sheeting on 3 cable guardrail (low tension) posts will be covered with a minimum of 16 square inches of reflective sheeting. The reflective sheeting will be type XI in conformance with ASTM D4956. Along two-way roadways the sheeting will be on both sides of the delineators and guardrail posts and will be white in color. For one-way roadways the sheeting will only be required on the side facing traffic and the color will be the same as the nearest pavement marking, yellow on the left side of the roadway and white on the right side.

When steel beam guardrail is attached to a bridge the first delineator will be attached to the post nearest the bridge.

At bridges with guardrail less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object marker. The spacing between the delineators will be approximately one third of the length of the guardrail.

At bridges with guardrail 200 feet and greater in length, including bridges that have steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.

Steel beam guardrail that is not attached to a bridge and is less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object markers. The spacing between the delineators will be approximately one third of the length of the guardrail.

Steel beam guardrail that is not attached to a bridge and is 200 feet and greater in length, including steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.

All costs for furnishing and installing single or back to back guardrail delineation on 3 cable guardrail and steel beam guardrail will be included in the contract unit price per each for "Guardrail Delineator".

All costs for furnishing and installing the reflective sheeting on the cable spacers or post caps for the high tension cable guardrail will be incidental to the respective high tension cable guardrail contract item.

An adhesive object marker will be placed on the end of the W beam guardrail or MGS end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required on end terminals with sufficient surface area. Other end terminals (SoftStop) will require an adhesive object marker with a minimum size of 6" x 12". The reflective sheeting will be fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the adhesive object marker will be incidental to various contract items.

A type 2 object marker will be placed such that the edges of the type 2 object marker and the 3 cable guardrail (low tension) anchor, high tension cable guardrail anchor, or the trailing end terminal that are nearest to the roadway will be installed in line with the same lateral offset from the traveled way at the location as noted on sheet 1 of this standard plate. The type 2 object marker (6" x 12") will have fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the type 2 object marker including the steel post, 6" x 12" reflective panel, and hardware will be included in the contract unit price per each for "Type 2 Object Marker" for single-sided and "Type 2 Object Marker Back to Back" for back to back type 2 object markers.

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			Sheet 4 of 4

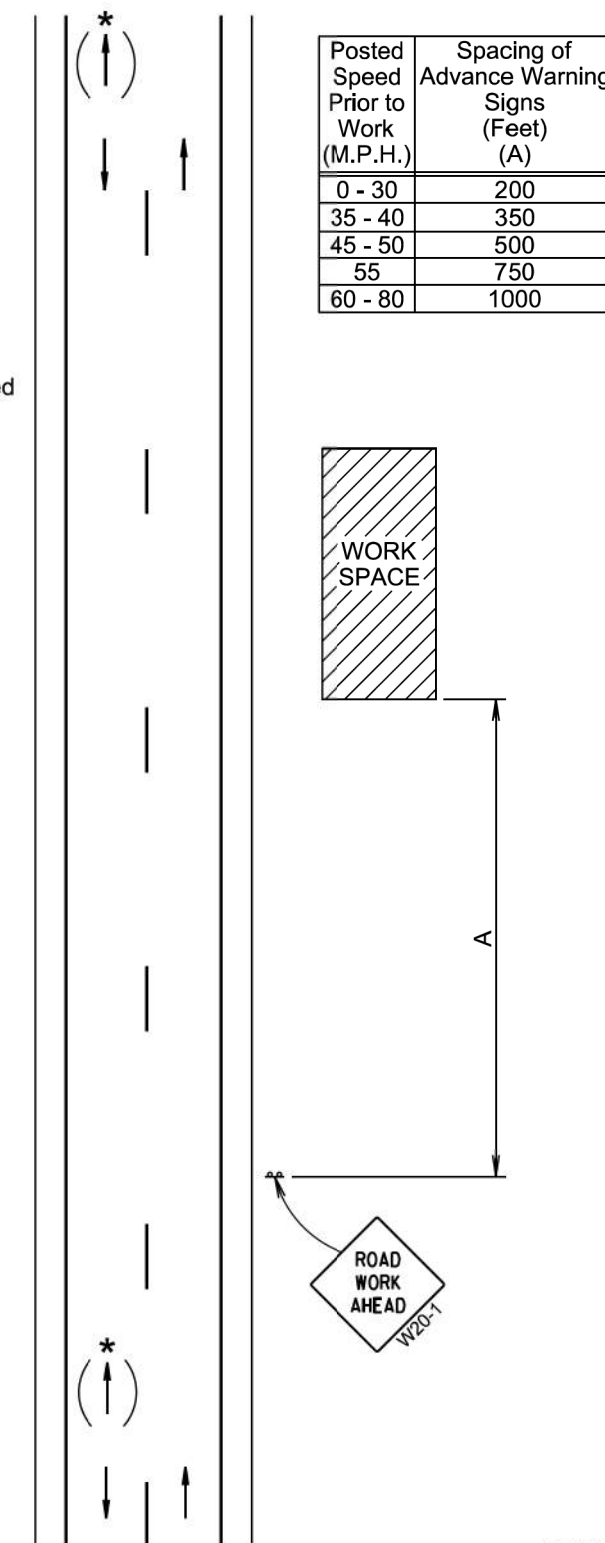
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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.

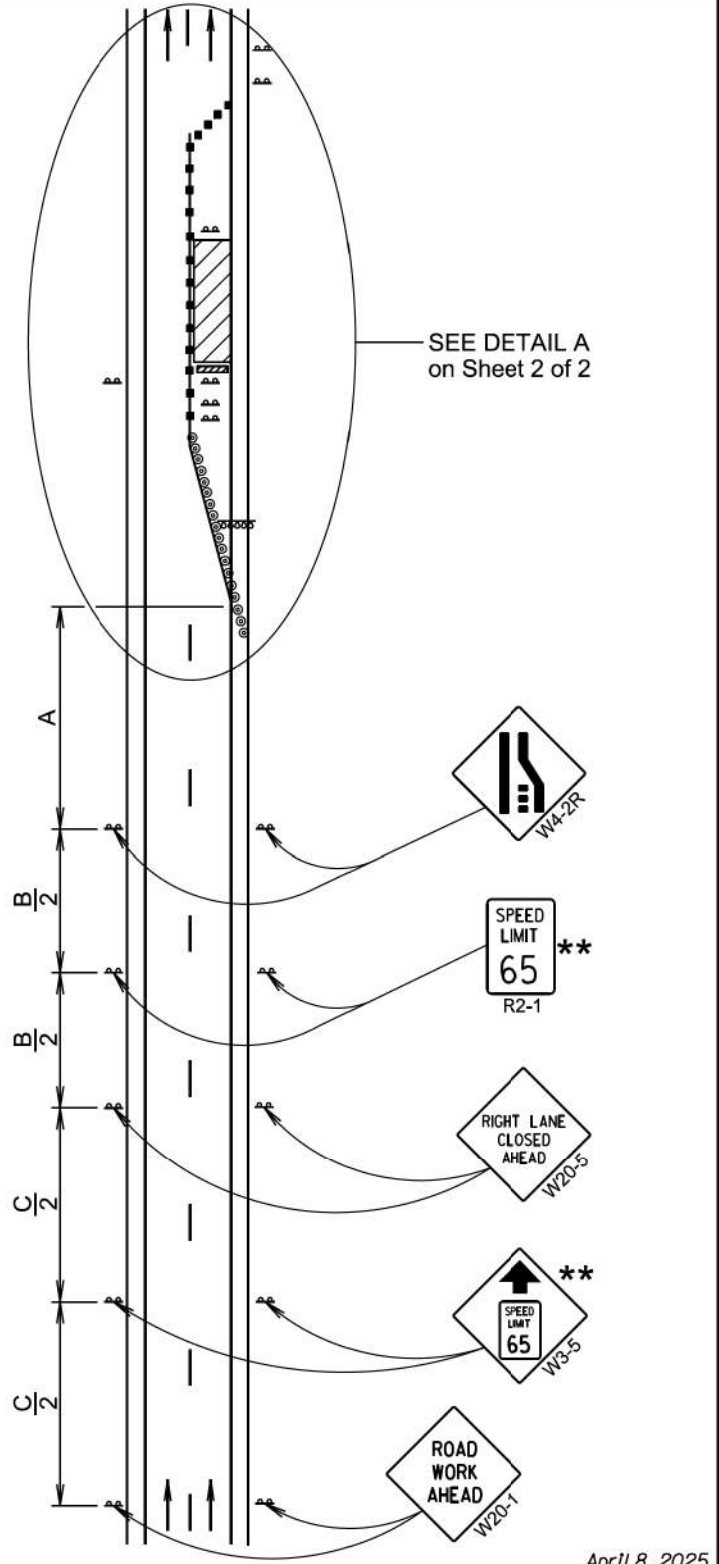
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



January 22, 2021

Published Date: 2026	S D D O T	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)	(B)	(C)
0 - 30	200		
35 - 40	350		
45 - 50	500		
55	750		
60 - 65	1000		
70 - 80	1000	1500	2640



** Speed appropriate for location.

- ⊙ Reflectorized Drum
- Channelizing Device

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

High speed is defined as having a posted speed limit greater than 45 mph.

April 8, 2025

S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
	Published Date: 2026	Sheet 1 of 2

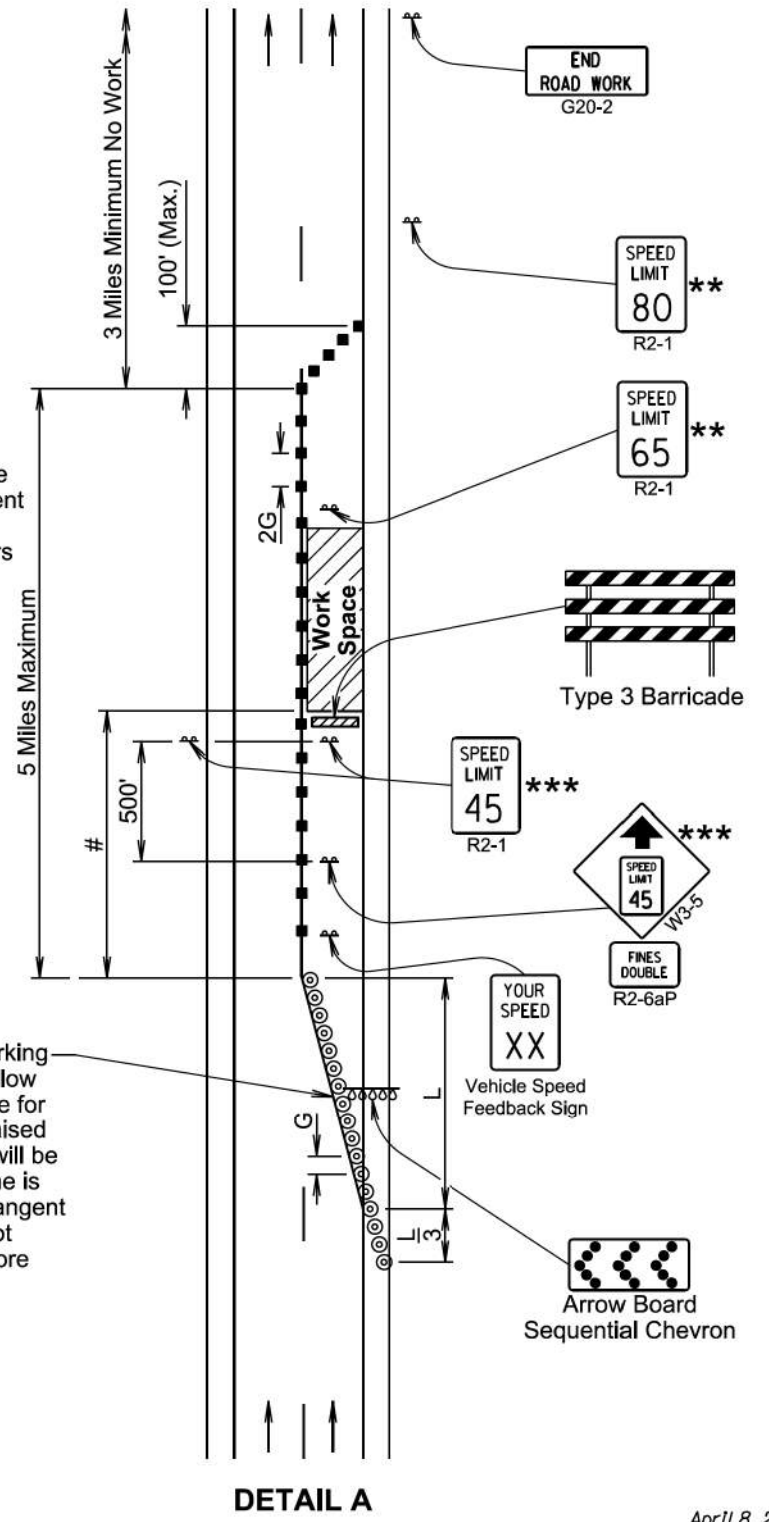
Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 - 30	25	180
35 - 40	25	320
45	25	600
50	50 *	600
55	50 *	660
60 - 65	50 *	780
70 - 80	50 *	960

- * Spacing is 40' for 42" cones.
- ** Speed appropriate for location.
- *** Use speed limit designated for the condition when workers are present in the work space. Signs will be covered or removed when workers are not present.
- ⊙ Reflectorized Drum
- Channelizing Device
- # The Work Space will be a minimum of 500' from the end of the taper.

The channelizing devices will be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

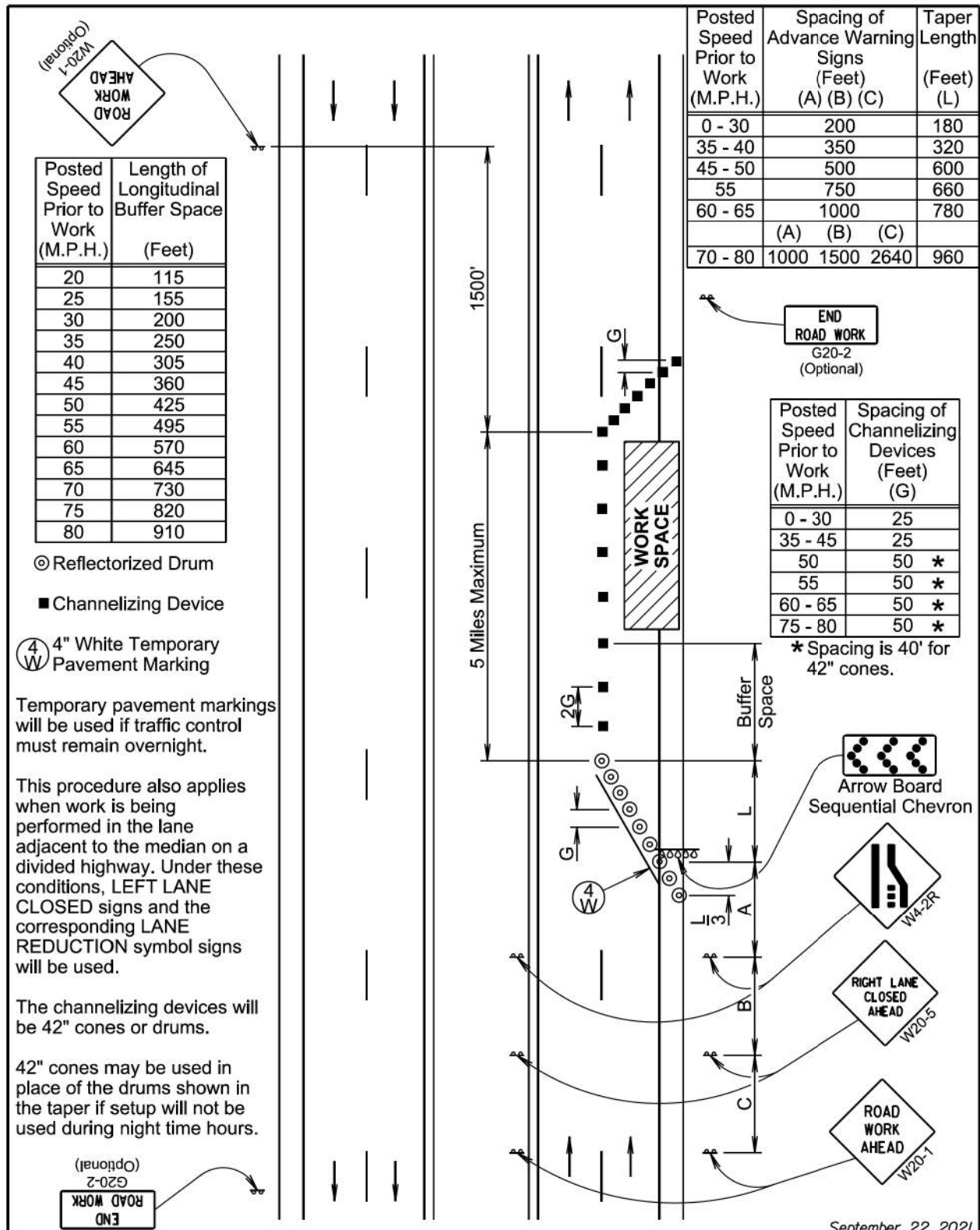
4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary raised pavement markers at 5' spacing will be installed in the taper when the lane is closed overnight, and along the tangent section where the skip lines do not exist and the lane is closed for more than 3 days.



DETAIL A

April 8, 2025

S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
	Published Date: 2026	Sheet 2 of 2



Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)			Taper Length (Feet) (L)
	(A)	(B)	(C)	
0 - 30	200			180
35 - 40	350			320
45 - 50	500			600
55	750			660
60 - 65	1000			780
70 - 80	1000	1500	2640	960

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet)	
	(G)	(L)
0 - 30	25	
35 - 45	25	
50	50 *	
55	50 *	
60 - 65	50 *	
75 - 80	50 *	

- ⊙ Reflectorized Drum
- Channelizing Device
- Ⓞ 4" White Temporary Pavement Marking

Temporary pavement markings will be used if traffic control must remain overnight.

This procedure also applies when work is being performed in the lane adjacent to the median on a divided highway. Under these conditions, LEFT LANE CLOSED signs and the corresponding LANE REDUCTION symbol signs will be used.

The channelizing devices will be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

END ROAD WORK (Optional) G20-2

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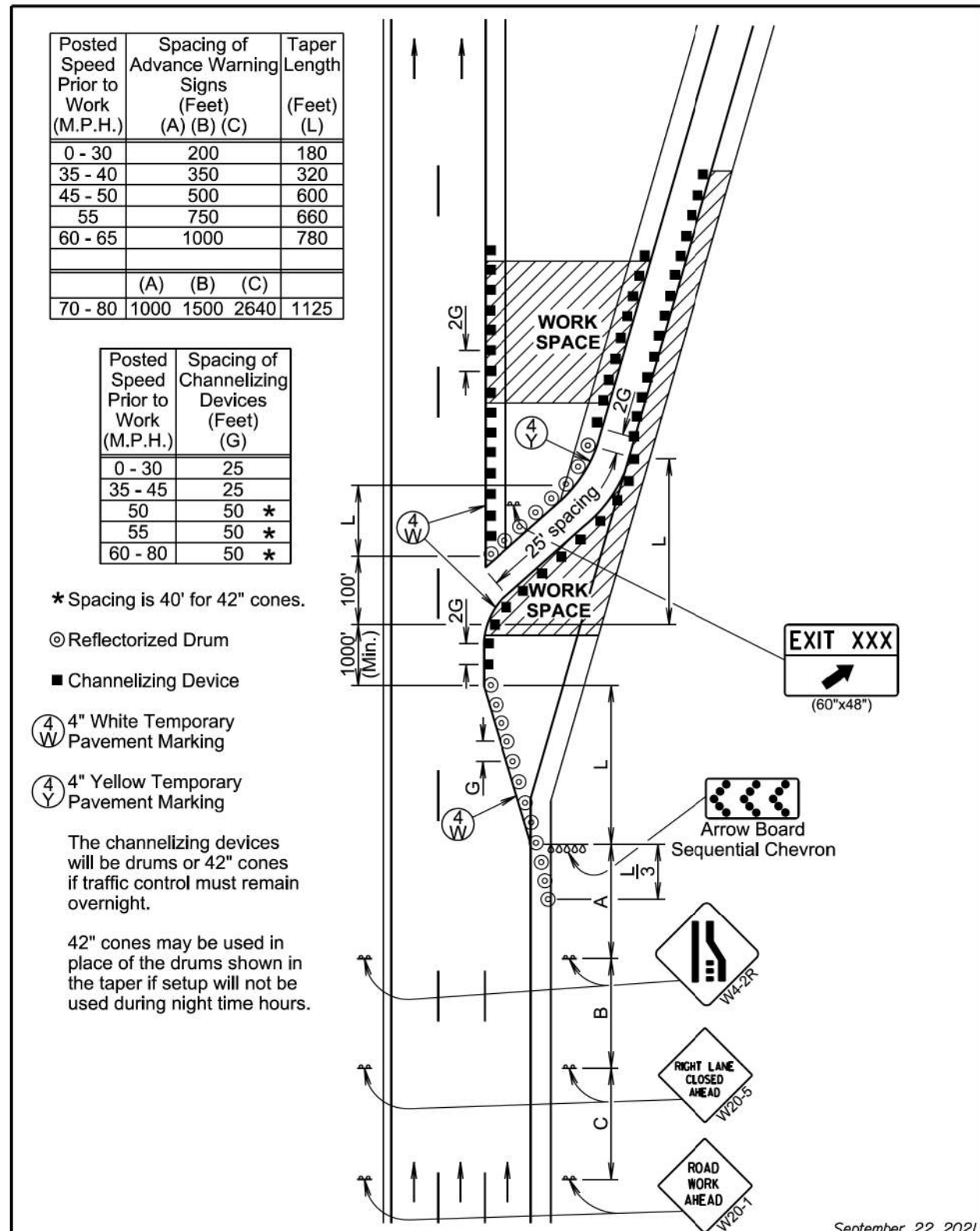
S D D O T

LANE CLOSURE WITHOUT BARRIER

PLATE NUMBER 634.64

Sheet 1 of 1

September 22, 2021



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)			Taper Length (Feet) (L)
	(A)	(B)	(C)	
0 - 30	200			180
35 - 40	350			320
45 - 50	500			600
55	750			660
60 - 65	1000			780
70 - 80	1000	1500	2640	1125

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet)	
	(G)	(L)
0 - 30	25	
35 - 45	25	
50	50 *	
55	50 *	
60 - 80	50 *	

* Spacing is 40' for 42" cones.

- ⊙ Reflectorized Drum
- Channelizing Device
- Ⓞ 4" White Temporary Pavement Marking
- Ⓞ 4" Yellow Temporary Pavement Marking

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

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

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S D D O T

WORK IN VICINITY OF EXIT RAMP

PLATE NUMBER 634.68

Sheet 1 of 1

September 22, 2021

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)			Taper Length (Feet) (L)
	(A)	(B)	(C)	
0 - 30	200			180
35 - 40	350			320
45 - 50	500			600
55	750			660
60 - 65	1000			780
	(A)	(B)	(C)	
70 - 80	1000	1500	2640	1125

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	
	(A)	(B)
0 - 30	25	
35 - 45	25	
50	50 *	
55	50 *	
60 - 80	50 *	

* Spacing is 40' for 42" cones.

⊙ Reflectorized Drum

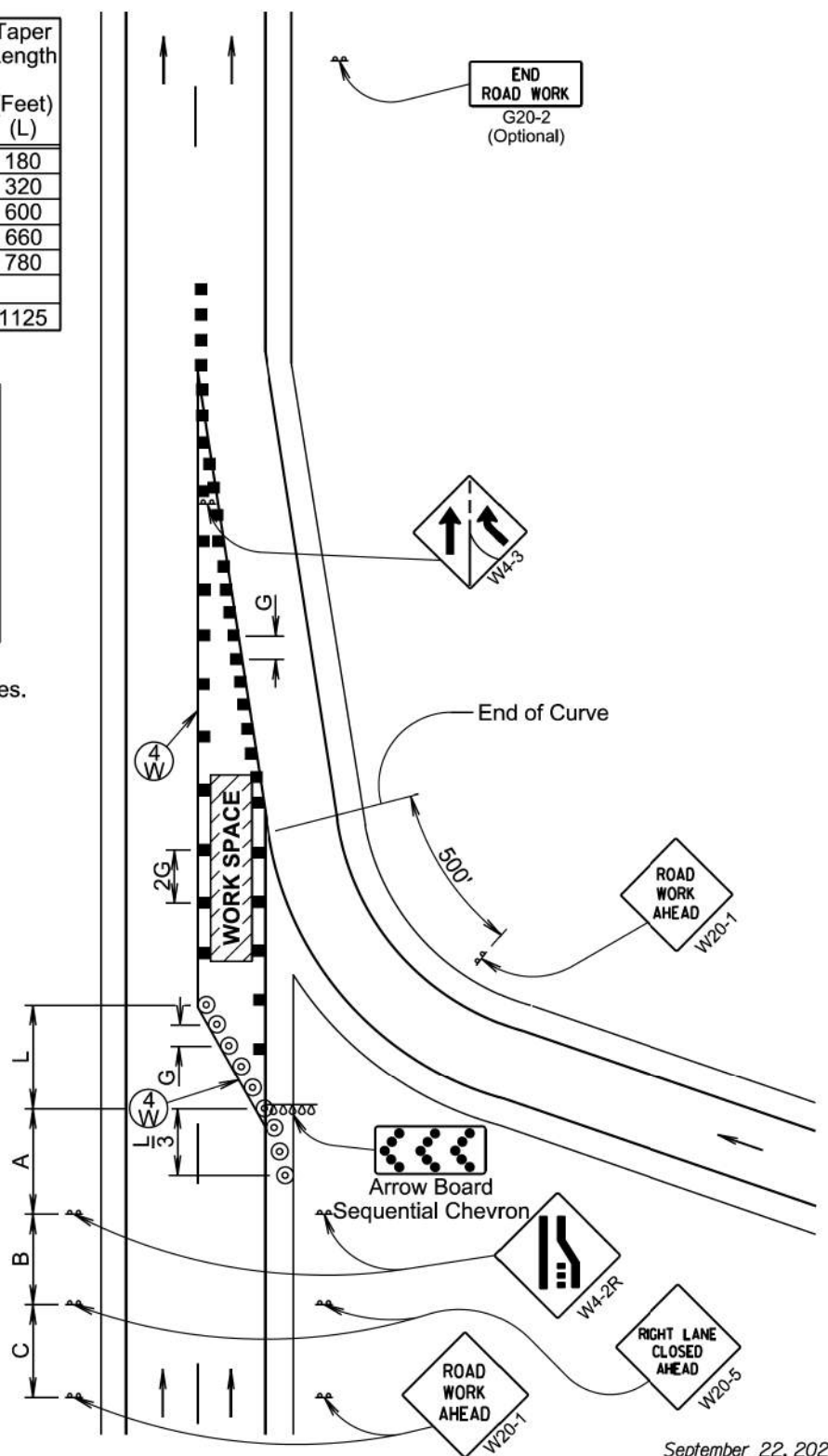
■ Channelizing Device

Ⓞ 4" White Temporary Pavement Marking

Temporary pavement markings will be used if traffic control must remain overnight.

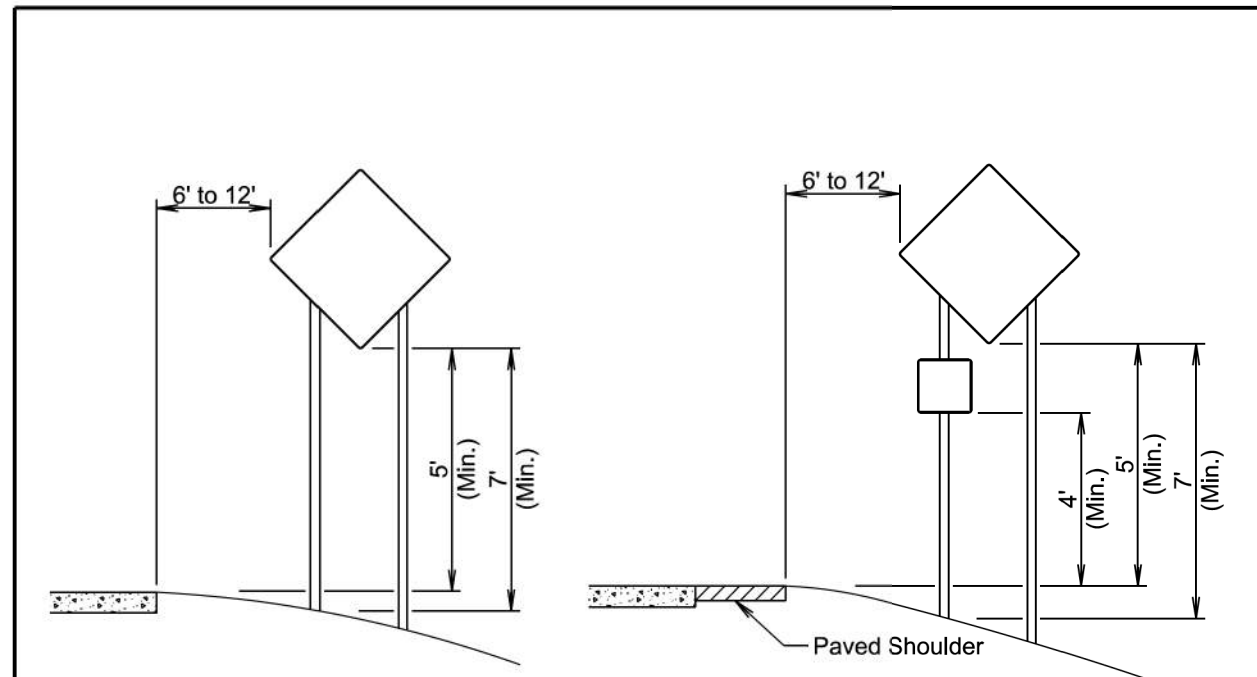
The channelizing devices will be drums or 42" cones if traffic control must remain overnight.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.



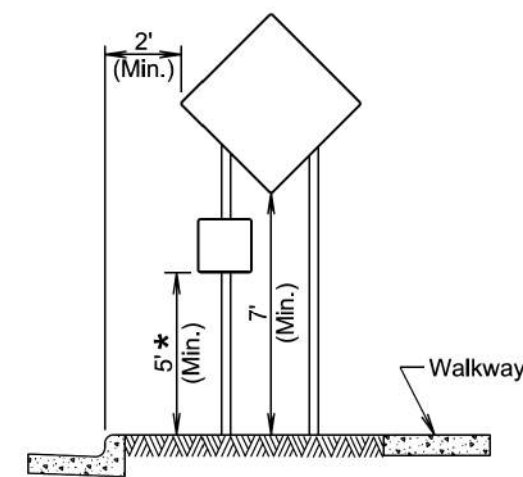
September 22, 2021

Published Date: 2026	S D D O T	WORK IN VICINITY OF ENTRANCE RAMP	PLATE NUMBER 634.70
			Sheet 1 of 1

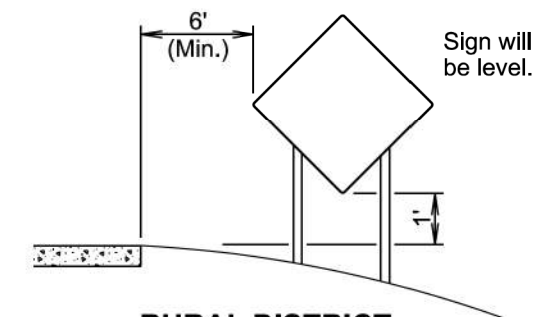


RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT



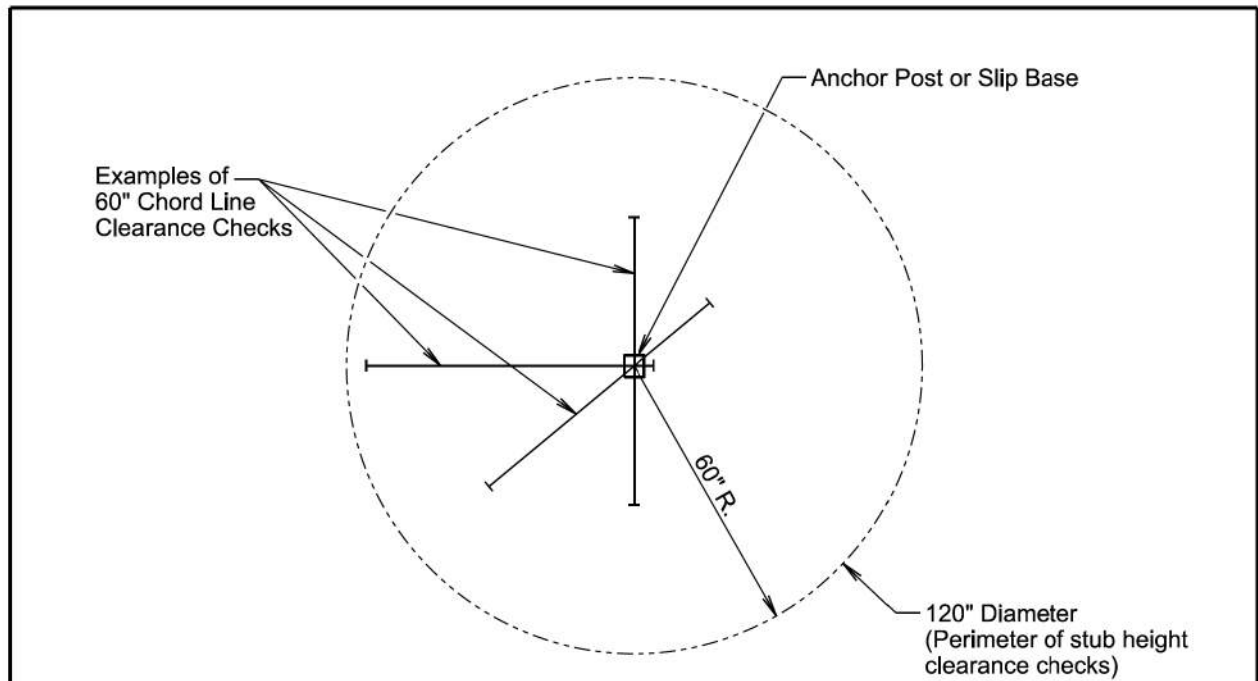
RURAL DISTRICT 3 DAY MAXIMUM

(Not applicable to regulatory signs)

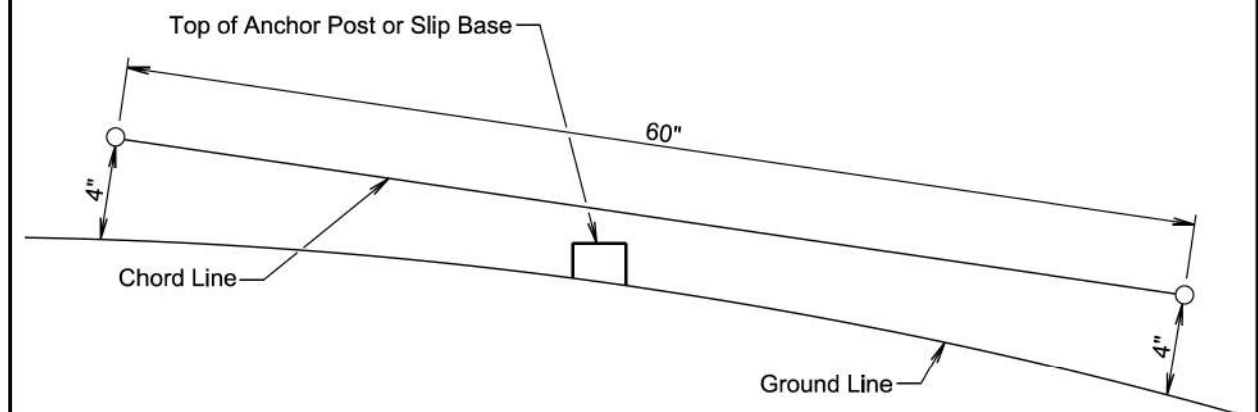
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2026	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



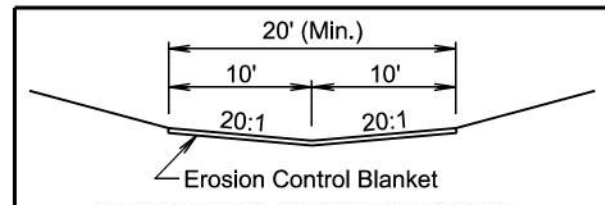
ELEVATION VIEW

GENERAL NOTES:

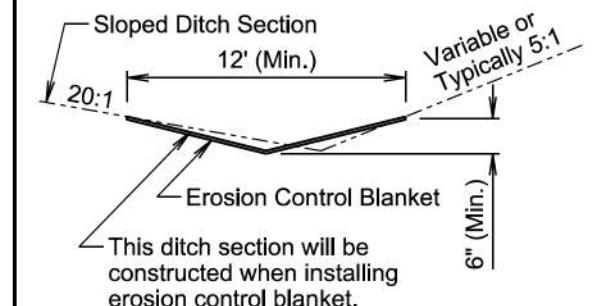
- The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.
- At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line 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

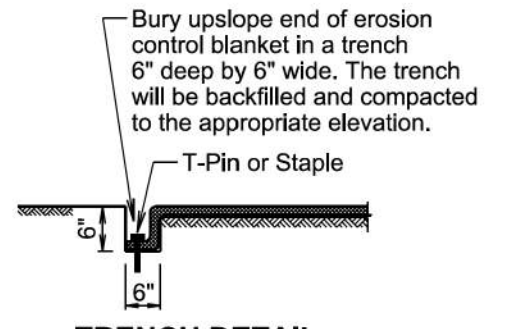
S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
		Sheet 1 of 1
<i>Published Date: 2026</i>		



STANDARD DITCH SECTION



SLOPED DITCH SECTION



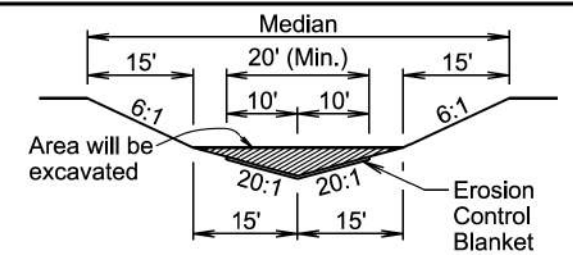
TRENCH DETAIL

GENERAL NOTES:

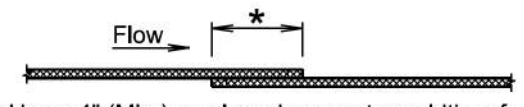
- Prior to placement of the erosion control blanket, the areas will be properly prepared, shaped, seeded, and fertilized.
- Erosion control blanket will be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket will be buried in a trench 6" wide by 6" deep. There will be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.
- The erosion control blanket will be pinned to the ground according to the manufacturer's installation recommendations.
- After the placement of the erosion control blanket, the Contractor will fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.
- All ditch sections will be shaped when installing the erosion control blanket. All costs for shaping the ditches will be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

February 14, 2020

S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
		Sheet 1 of 1
<i>Published Date: 2026</i>		



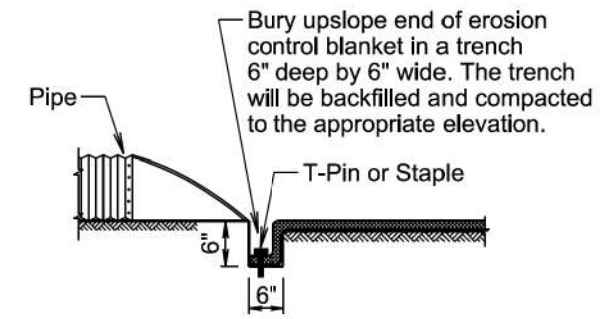
MEDIAN SECTION



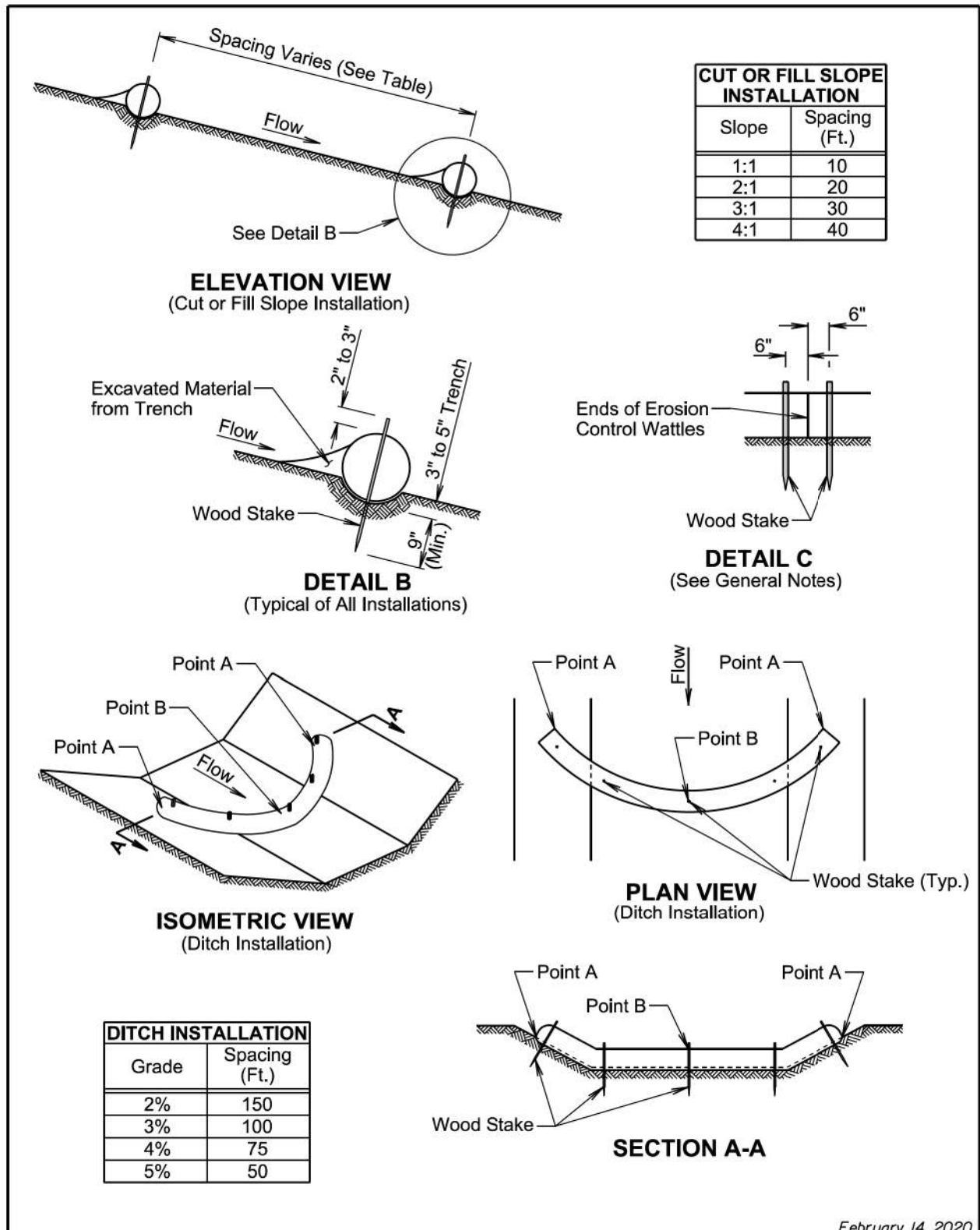
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

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

OVERLAP DETAIL



PIPE END DETAIL



February 14, 2020

Published Date: 2026	S D D O T	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	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2