

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	1	15

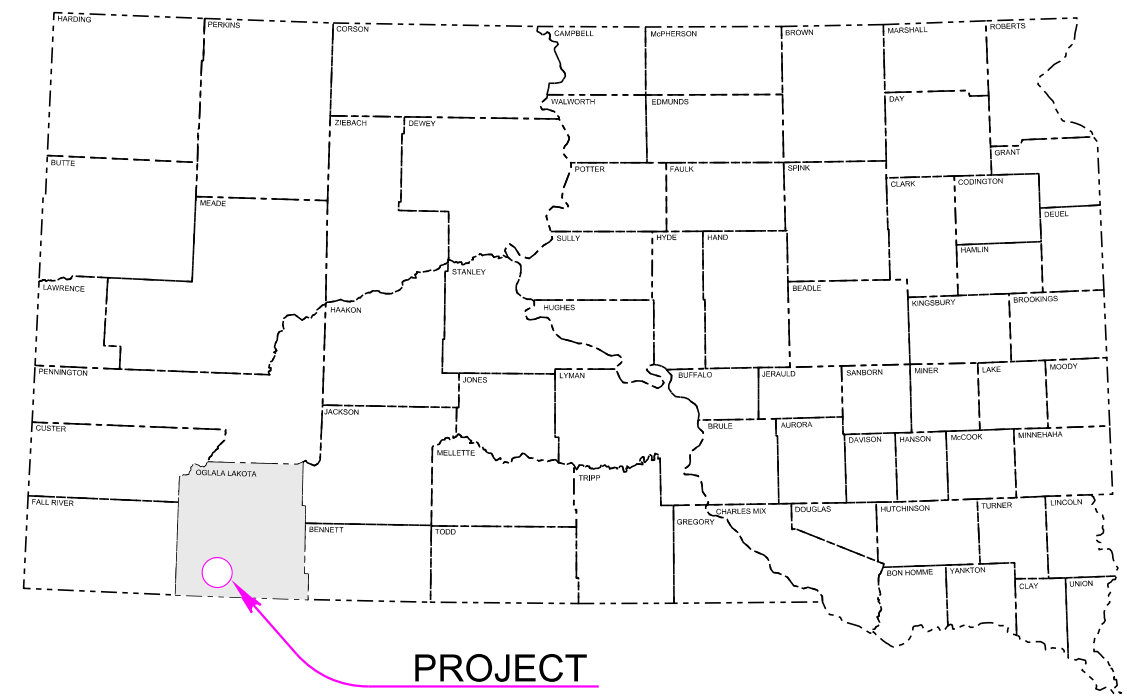
Plotting Date: 05/16/2017

PROJECT 018-492
U.S. HIGHWAY 18
OGLALA LAKOTA COUNTY

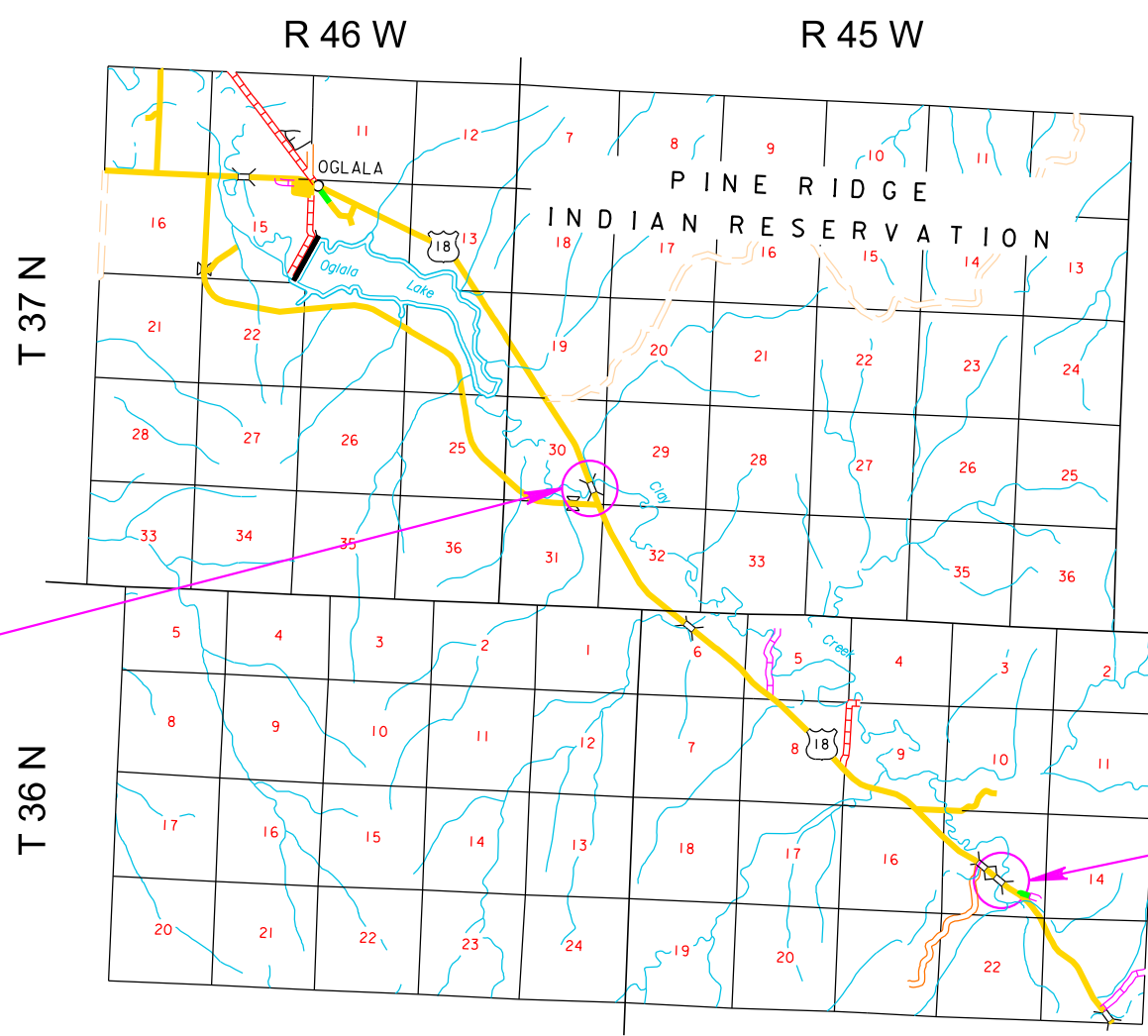
APPROACH SLAB REPAIR & EROSION REPAIR
 PCN i4ru & i4rw

INDEX OF SHEETS

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PROJECT



PCN i4ru
 MRM 92.4
 Structure 57-169-389

PCN i4rw
 MRM 97.9
 Structure 57-206-426



DESIGN DESIGNATION

ADT (2016)	2511
ADT (2036)	3186
DHV	376
D	51%
T DHV	3.5%
T ADT	7.6%
V	70 mph

STORM WATER PERMIT

Major Receiving
 Body of Water:
 Area Disturbed:
 Total Project Area:
 Approx. Begin Lat,Long: 43.1465722, -102.6833111 (PCN i4ru)
 43.09442778, -102.6022889 (PCN i4rw)

Plot Scale - 1:200

Plotted From - Irrc11626

File - ...DesignTitle.dgn

ESTIMATE OF QUANTITIES – PCN i4ru (MRM 92.4)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	130.8	Ton
332E0010	Cold Milling Asphalt Concrete	1,244	SqYd
633E1400	Pavement Marking Paint, 4" White	800	Ft
633E1405	Pavement Marking Paint, 4" Yellow	100	Ft
634E0010	Flagging	80.0	Hour
634E0110	Traffic Control Signs	154.2	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

ESTIMATE OF QUANTITIES – PCN i4rw (MRM 97.9)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E6200	Remove Double Thrie Beam Guardrail for Reset	25.0	Ft
320E1200	Asphalt Concrete Composite	130.8	Ton
332E0010	Cold Milling Asphalt Concrete	1,244	SqYd
630E2110	Beam Guardrail Post and Block	12	Each
630E5130	Reset Double Thrie Beam Rail	25.0	Ft
630E5500	Furnish Beam Guardrail Post and Block	12	Each
633E1400	Pavement Marking Paint, 4" White	800	Ft
633E1405	Pavement Marking Paint, 4" Yellow	100	Ft
634E0010	Flagging	80.0	Hour
634E0110	Traffic Control Signs	154.2	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
650E4090	Type C9 Concrete Gutter	56	Ft
700E0210	Class B Riprap	103.5	Ton
734E0010	Erosion Control	Lump Sum	LS
734E0103	Type 3 Erosion Control Blanket	23	SqYd
734E0154	12" Diameter Erosion Control Wattle	80	Ft
831E0110	Type B Drainage Fabric	112	SqYd

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived 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. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

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 pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

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 shall 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) shall 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 Environment and Natural Resources.

The waste disposal site(s) shall 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 Project Engineer.

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the Public ROW through the use of 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 of time not to exceed the duration of the project. Prior to project completion, the waste shall 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) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. 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 shall arrange and pay for a cultural resource survey and/or records search. 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; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on 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 shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). 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.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order 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 shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

UTILITIES

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

Utilities are not planned to be affected on this project. 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 shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

SURFACING THICKNESS DIMENSIONS

Plans tonnage shall be applied even though the thickness may vary from that shown in the plans. At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

COLD MILLING ASPHALT CONCRETE

The Contractor shall remove the existing asphalt concrete surface as shown on the "Approach Pavement Removal & Surfacing" sheets and/or as directed by the Engineer.

After completion of the milling operation, the Contractor shall clean up and dispose of any remaining debris to the satisfaction of the engineer.

It is estimated (for informational purposes only) that the following will be produced from cold milling operations.
 130.7 tons from Str. 57-169-389
 130.7 tons from Str. 57-206-426

All cold milled material shall become the property of the Contractor for their disposal.

A stringline for grade control shall be used for the asphalt repair and surfacing work.

TABLE OF SURFACING QUANTITIES – PCN i4ru

MRM	Length (Ft)	Width (Ft)	Cold Milling Asphalt (SY)	Asphalt Concrete Composite (Tons)
92.4	400	28	1244	130.8

TABLE OF SURFACING QUANTITIES – PCN i4rw

MRM	Length (Ft)	Width (Ft)	Cold Milling Asphalt (SY)	Asphalt Concrete Composite (Tons)
97.9	400	28	1244	130.8

TABLE OF GUARDRAIL

Location	Remove Double Thrie Beam Guardrail for Reset (Ft)	Reset Straight Double Class A Thrie Beam Guardrail (Ft)	Beam Guardrail Post and Block (Each)
Structure No. 57-206-426			
End Bridge Lt.	12.5	12.5	6
End Bridge Rt.	12.5	12.5	6
Totals:	25	25	12

PERMANENT PAVEMENT MARKING – GENERAL NOTES

Application of permanent pavement marking paint shall be completed within 14 calendar days following the completion of the flush seal. A minimum 7 day cure time shall be required for the Flush Seal prior to pavement marking paint application.

The Contractor shall survey and re-mark disturbed Passing/No Passing zone markings as they currently exist.

All pavement markings shall be a Waterborne Pavement Marking Paint with High Grade Polymer.

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

WATERBORNE PAVEMENT MARKING PAINT WITH HIGH GRADE POLYMER

All materials shall be applied as per manufacturer's recommendations.

This material shall consist of a durable high build, low VOC, fast drying, waterborne traffic paint with a 100% acrylic polymer (Dow DT-400 or Dow HD-21A or equivalent). The Contractor shall provide certification that the material is one of the following products or an equivalent as approved by the Operations Traffic Engineer:

- Diamond Vogel's Waterborne High Build Polymer Marking Paint
- Ennis-Flint's High Build Polymer Marking Paint

No further testing of this material will be required. Reflective media consisting of glass beads as well as bonded core reflective elements shall be adhered to the paint.

The bonded core reflective elements shall contain either clear or yellow tinted microcrystalline ceramic beads bonded to the outer surface. All microcrystalline ceramic beads bonded to reflective elements shall have a minimum index of refraction of 1.8 when tested using the liquid oil immersion method.

RATES OF MATERIALS FOR WATERBORNE PAVEMENT MARKING PAINT WITH HIGH GRADE POLYMER

- Solid 4" line = 27.8 Gals/Mile
- Glass Beads = 5.3 Lbs/Gal.
- Composite Reflective Elements = 2.1 Lbs/Gal.

All cost for materials, labor and equipment necessary to furnish and install the pavement markings shall be incidental to the contract unit price per foot for "Pavement Marking Paint, White or Yellow".

TABLE OF PAVEMENT MARKING QUANTITIES

MRM	Side of Bridge	Length (Ft)	Pavement Marking Paint, 4" White (Ft)	Pavement Marking Paint, 4" Yellow (Ft)
92.4	North	200	400	50
92.4	South	200	400	50
Total (PCN i4ru):			800	100
97.9	North	200	400	50
97.9	South	200	400	50
Total (PCN i4rw):			800	100

SEQUENCE OF OPERATIONS

1. Set up traffic control.
2. Complete mill and asphalt concrete surfacing.
3. Remove/reset guardrail, repair/install erosion control (PCN i4rw).
4. Complete pavement marking.
5. Remove traffic control.

TRAFFIC CONTROL – GENERAL NOTES

Unless otherwise stated in these plans, no work will be allowed during hours of darkness.

Existing guide, route, informational logo, regulatory, warning signs and delineation shall be temporarily reset and maintained during construction as directed by the Engineer. Removing, relocating, salvaging and resetting of the above items shall be the responsibility of the Contractor.

Non-applicable traffic control devices shall be completely covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 2 calendar days.

All regulatory signs shall have a minimum mounting height of 5' in rural locations, even when mounted on portable supports.

All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.

The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

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

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

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD – whichever is more stringent shall be used, as determined by the Engineer.

Temporary Flexible Vertical Markers (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5' spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

BUMP MARKERS

Bump markers shall be placed adjacent to the bump location.

After placing the bump markers, "Bump" warning signs with the appropriate speed advisory plates shall be placed 500 feet to 750 feet in advance of the bump location in rural areas. These distances may be adjusted by the Engineer if local conditions do not allow the placement of warning signs within the specified areas.

The steel delineator post shall be 1.12 lb/ft flanged channel post for ground mounted installation. If the duration is less than 3 days, the Type 1 Object Marker can be installed on temporary supports.

INVENTORY OF TRAFFIC CONTROL DEVICES – PCN i4ru

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-1	BUMP	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6
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
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
-	TYPE 1 YELLOW OBJECT MARKER	2	18" x 18"	2.3	4.6
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS					154.2
SQFT					

INVENTORY OF TRAFFIC CONTROL DEVICES – PCN i4rw

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-1	BUMP	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6
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
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
-	TYPE 1 YELLOW OBJECT MARKER	2	18" x 18"	2.3	4.6
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS					154.2
SQFT					

EROSION CONTROL

The area disturbed as a result of the work on this project shall be restored and/or reshaped to the satisfaction of the Engineer. All disturbed areas shall be seeded, fertilized, and mulched. Disturbed areas anticipated on the project include the embankment berms adjacent to the Type C9 Gutter on the east side of the bridge at MRM 97.9 (PCN i4rw) and other areas to the satisfaction of the Engineer.

The contract lump sum price for Erosion Control shall include all material, equipment, and labor necessary to seed, mycorrhizal inoculum, fertilizer and mulch all areas disturbed by construction of this project. The Engineer, at the time of construction, shall determine limits of the Erosion control work. The estimated area to be seeded is approximately 0.1 acre (PCN i4rw).

Type F Permanent Seed Mixture shall consist of the following:

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

Mycorrhizal Inoculum

Mycorrhizal inoculum shall 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 shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

- Glomus intraradices* 25%
- Glomus aggregatu* 25%
- Glomus mosseae* 25%
- Glomus etunicatum* 25%

All seed shall be inoculated with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed shall be incidental to the contract lump sum price for Erosion Control.

Fertilizing

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (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 shall 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 shall 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 shall 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 application rate is 1500 pounds per acre.

The all-natural slow release fertilizer shall be from the list below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 http://www.sustane.com/

TABLE OF EROSION CONTROL QUANTITIES - PCN i4rw

Location at Bridge	Area (SF)	Approximate Depth (Ft)	Type B Drainage Fabric (SY)	*Class B Riprap (Tons)	Type C9 Gutter (Ft)	Type 3 Erosion Control Blanket (SF)
Northwest	126	3	27	19.6		
Southwest	106	3	24	16.5		
Northeast	124	3	28	19.3	30	12
Southeast	137	3	35	21.3	26	11
Totals:			112	76.7	56	23

* For estimating purposes only, a factor of 1.4 tons/cu. yd. was used to convert Cu. Yds. to Tons.

TYPE C GUTTER

The Type C Gutter shall be placed behind the guardrail posts on the east end of structure 57-206-426. The inlet of the Type C Gutter shall be warped in the field to provide proper drainage into the gutter without creating an excessive hump or dip near the guardrail post.

CLASS B RIPRAP

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	6	15

Both sides of the abutments at MRM 97.9 (Structure No. 57-206-426), PCN i4rw, have eroded. The Contractor is to fill in the eroded areas with Class B Riprap to the satisfaction of the Engineer. Material excavated for the gutter on the east side of the bridge may be used to fill in eroded areas prior to placement of the Type B Drainage Fabric or as determined by the Engineer.

Riprap shall be placed in the areas shown on the "Approach Pavement Removal & Surfacing" sheet and/or as directed by the Engineer. All riprap shall be placed over Type B Drainage Fabric.

EROSION CONTROL WATTLE

A quantity of 80' of 12" Diameter Erosion Control Wattles for structure 57-206-426 has been added for temporary erosion and sediment control for embankment repair. Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

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

Erosion control wattles shall remain on the project to decompose.

The erosion control wattle provided shall be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

EROSION CONTROL BLANKET

Erosion control blanket shall be installed 2 feet wide at the locations noted in the table and at locations determined by the Engineer during construction. The locations identified in the table are the berms adjacent to the Type C9 Gutter east of the bridge at MRM 97.9 (PCN i4rw).

The erosion control blanket provided shall be from the approved product list. The approved product list for erosion control blanket may be viewed at the following internet site:

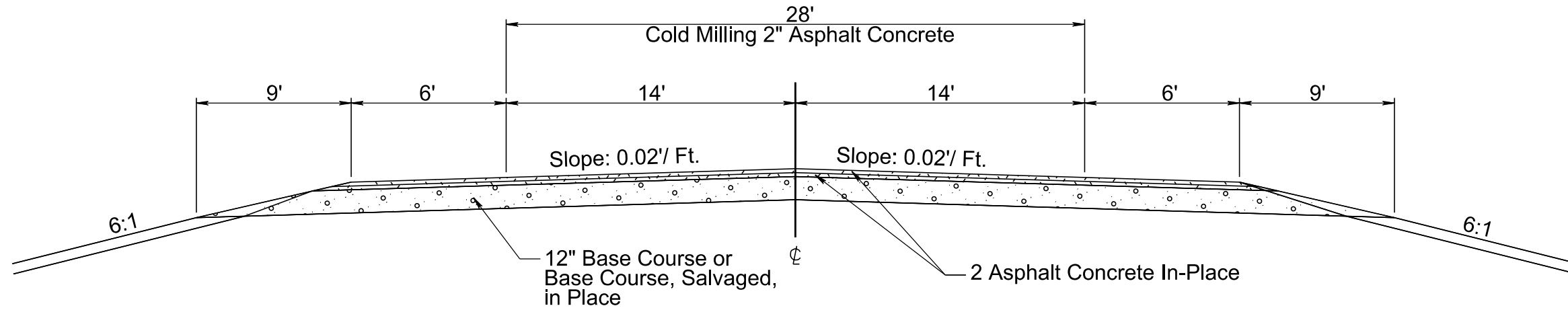
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APPROACH ROADWAY SECTION

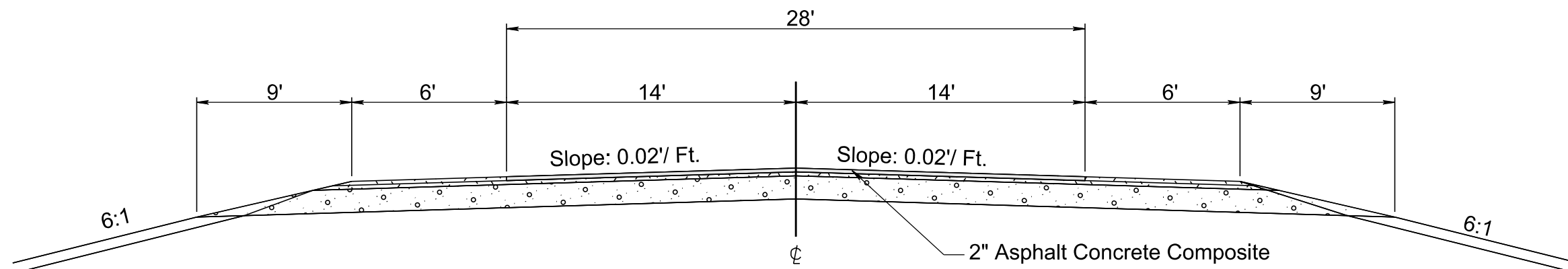
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	7	15

Plotting Date: 05/16/2017

In-Place and Cold Milling Typical Section Highway 18



Resurfacing Typical Section Highway 18



Plot Scale - 1:6.25

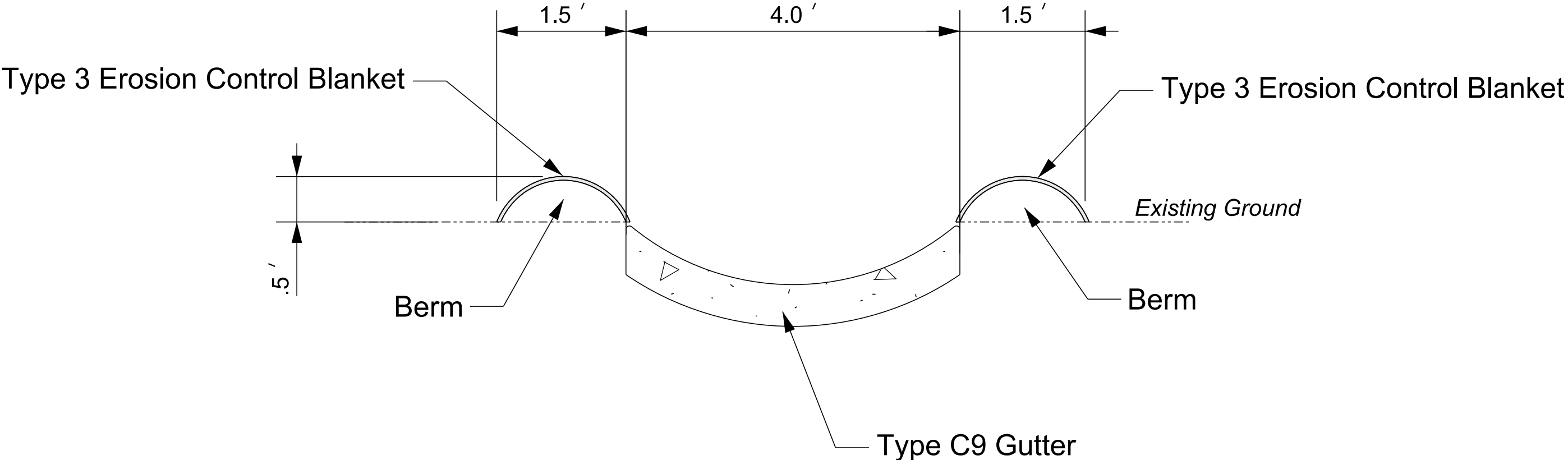
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GUTTER TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	8	15

Plotting Date: 05/16/2017



Plot Scale - 1:1.29

Plotted From - trcs11626

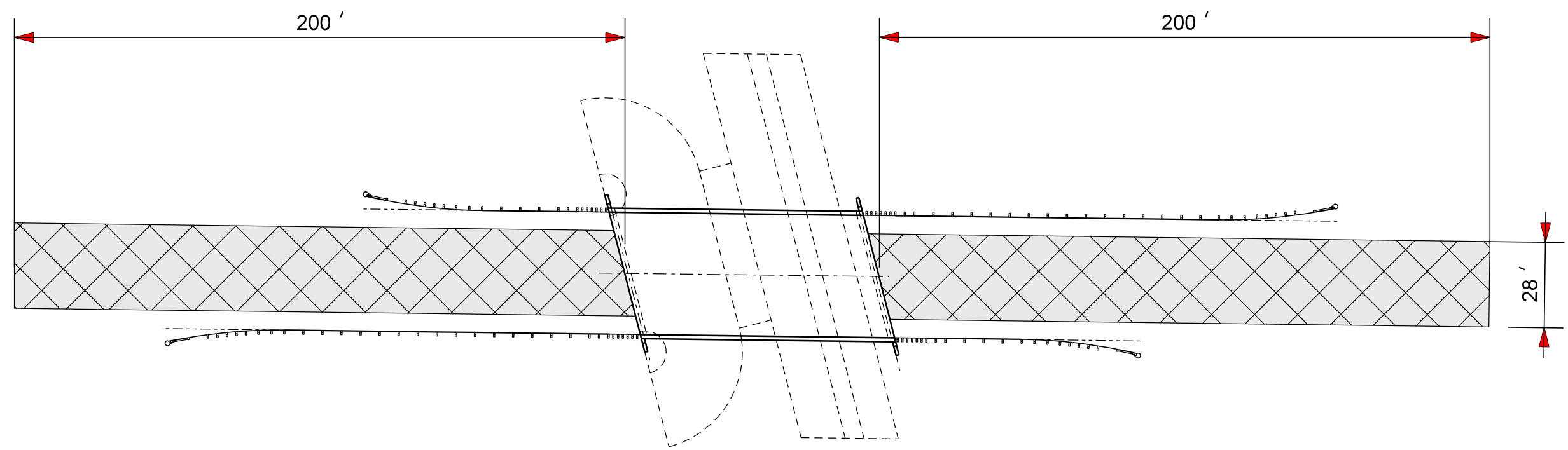
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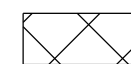

APPROACH PAVEMENT REMOVAL & SURFACING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	9	15

Plotting Date: 05/16/2017

Str. No. 57-169-389
(MRM 92.4)



-  Cold Milling Asphalt Concrete Limits
-  2" Asphalt Concrete Composite

Plot Scale - 1:40

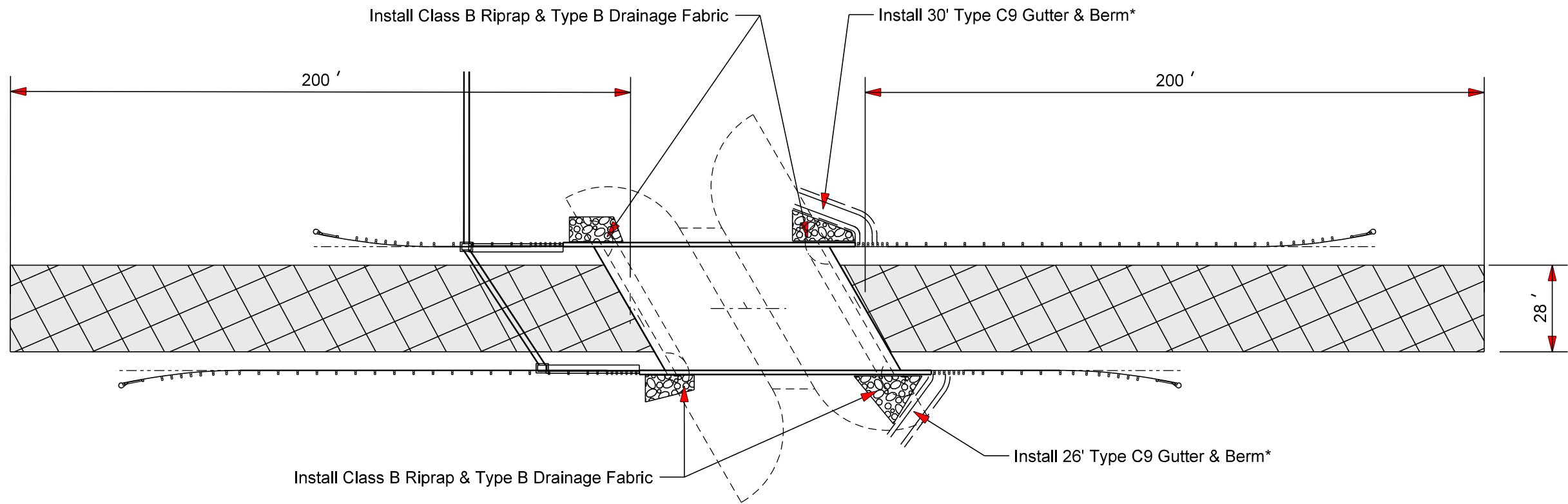
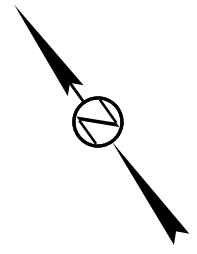
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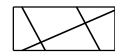

APPROACH PAVEMENT REMOVAL & SURFACING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	10	15
Plotting Date:		05/16/2017	

Str. No. 57-206-426
(MRM 97.9)



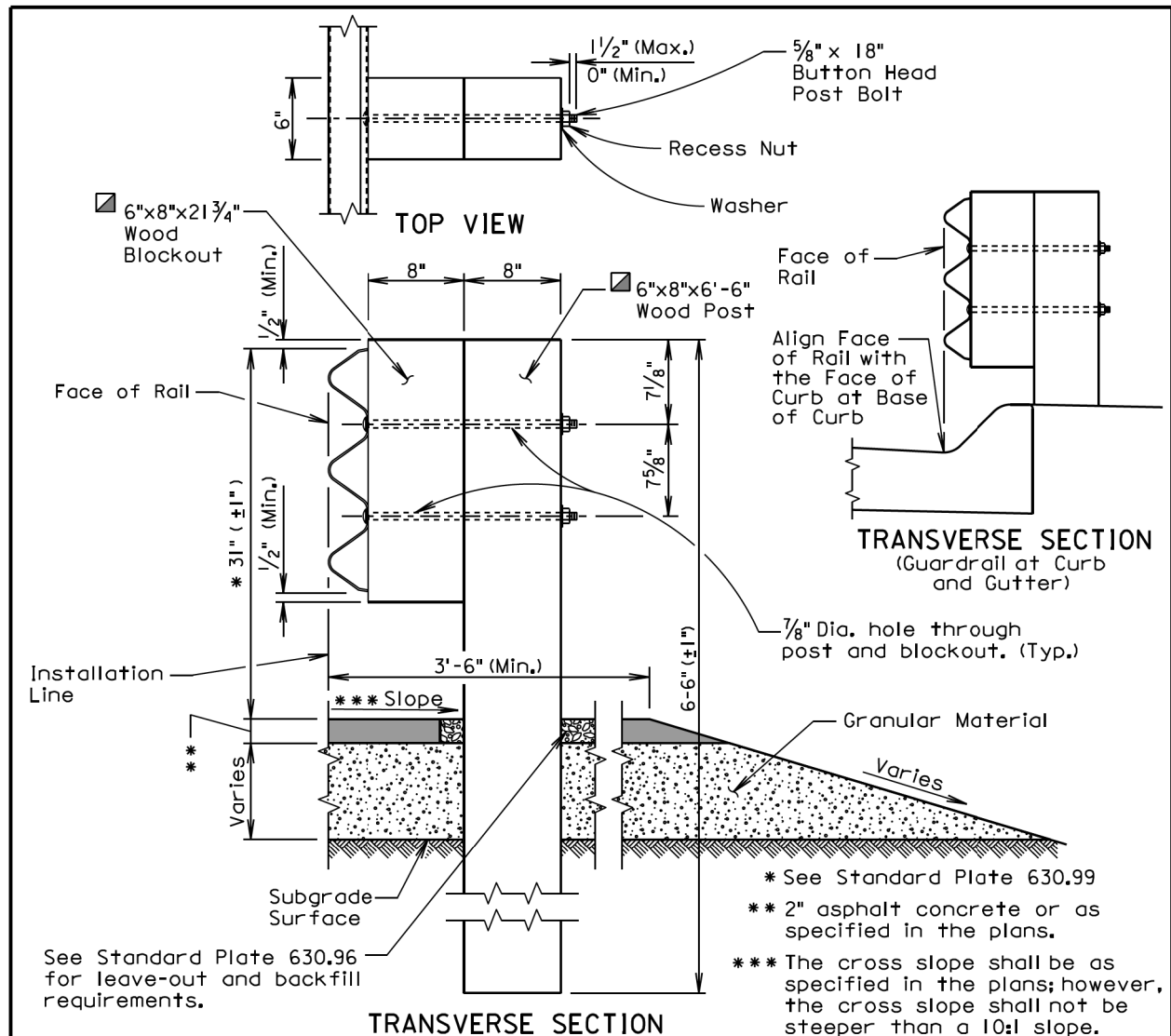
*See Typical Section for Gutter & Berm Details

-  Cold Milling Asphalt Concrete Limits
-  2" Asphalt Concrete Composite

Plot Scale - 1:39.96

Plotted From - Irrc11626

File - ...Design\MRM97.9.dgn



See Standard Plate 630.96 for leave-out and backfill requirements.

GENERAL NOTES:

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

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

Topsoil is not shown in the transverse section drawing.

The post and blockout illustrated above is typical for standard thrie beam guardrail. When other variations of posts and blockouts are specified on other standard plates (e.g. transitions) then the posts and blockouts shall be as specified on the other standard plates or as specified in the plans.

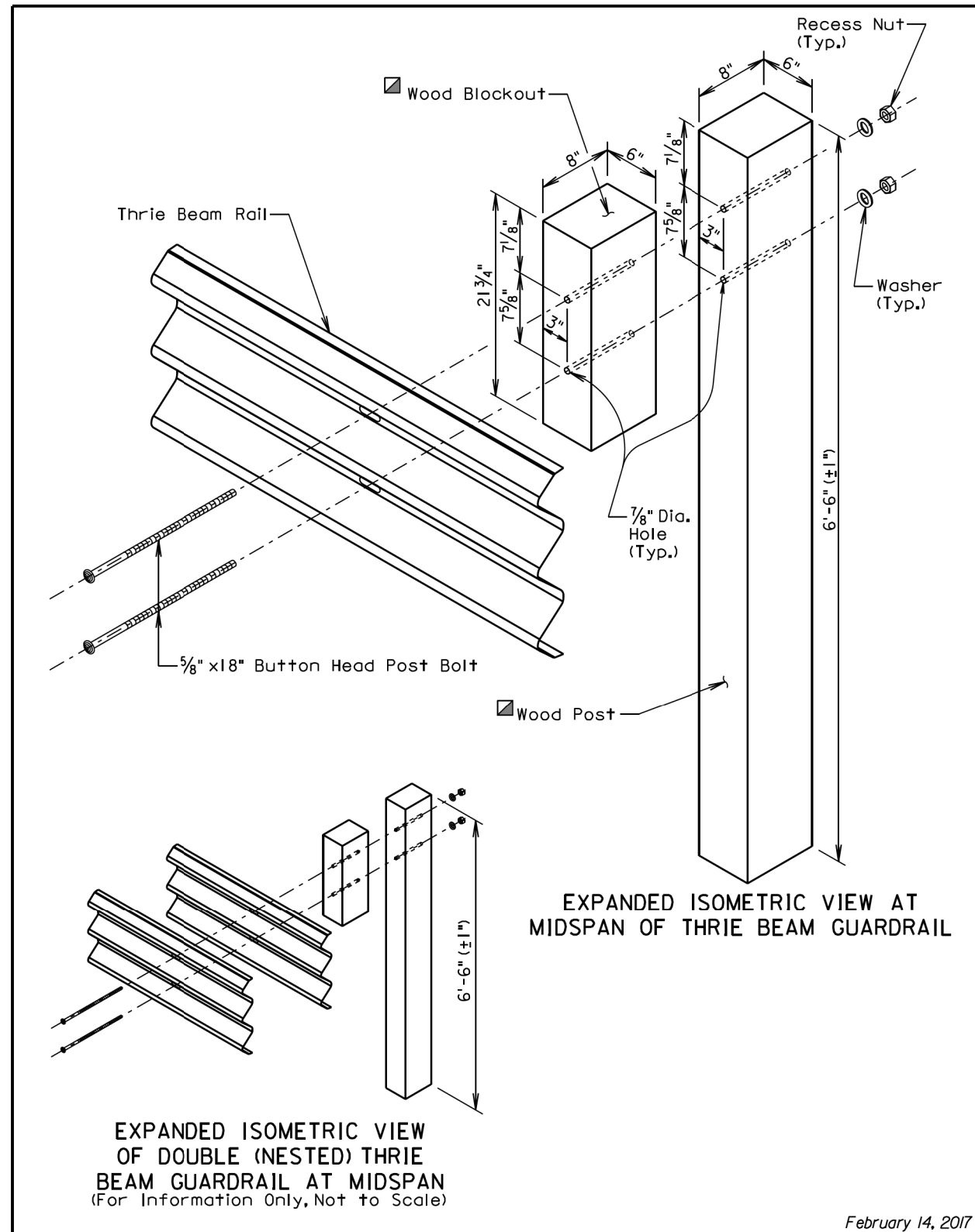
Slots in the rails shall be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges shall be smooth and free of burrs or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

The top of post and top of block shall have a true square cut. The top of block shall be a maximum of ±1/2 inch from the top of the post.

February 14, 2017

S D D O T	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
		Sheet 1 of 5

Published Date: 2nd Qtr. 2017



S D D O T	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
		Sheet 2 of 5

Published Date: 2nd Qtr. 2017

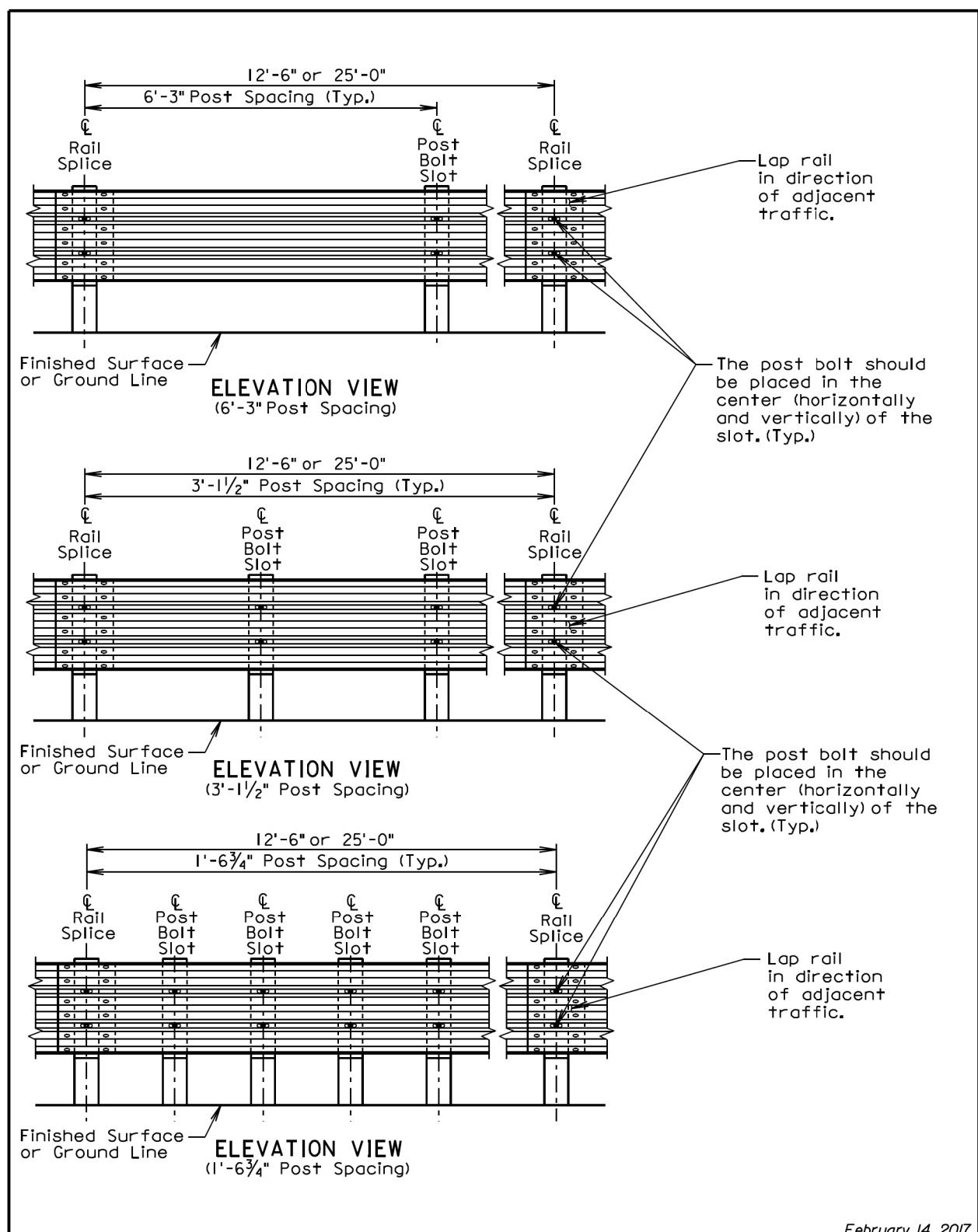
February 14, 2017

Plot Scale - 1:200

- Plotted From - trc11626

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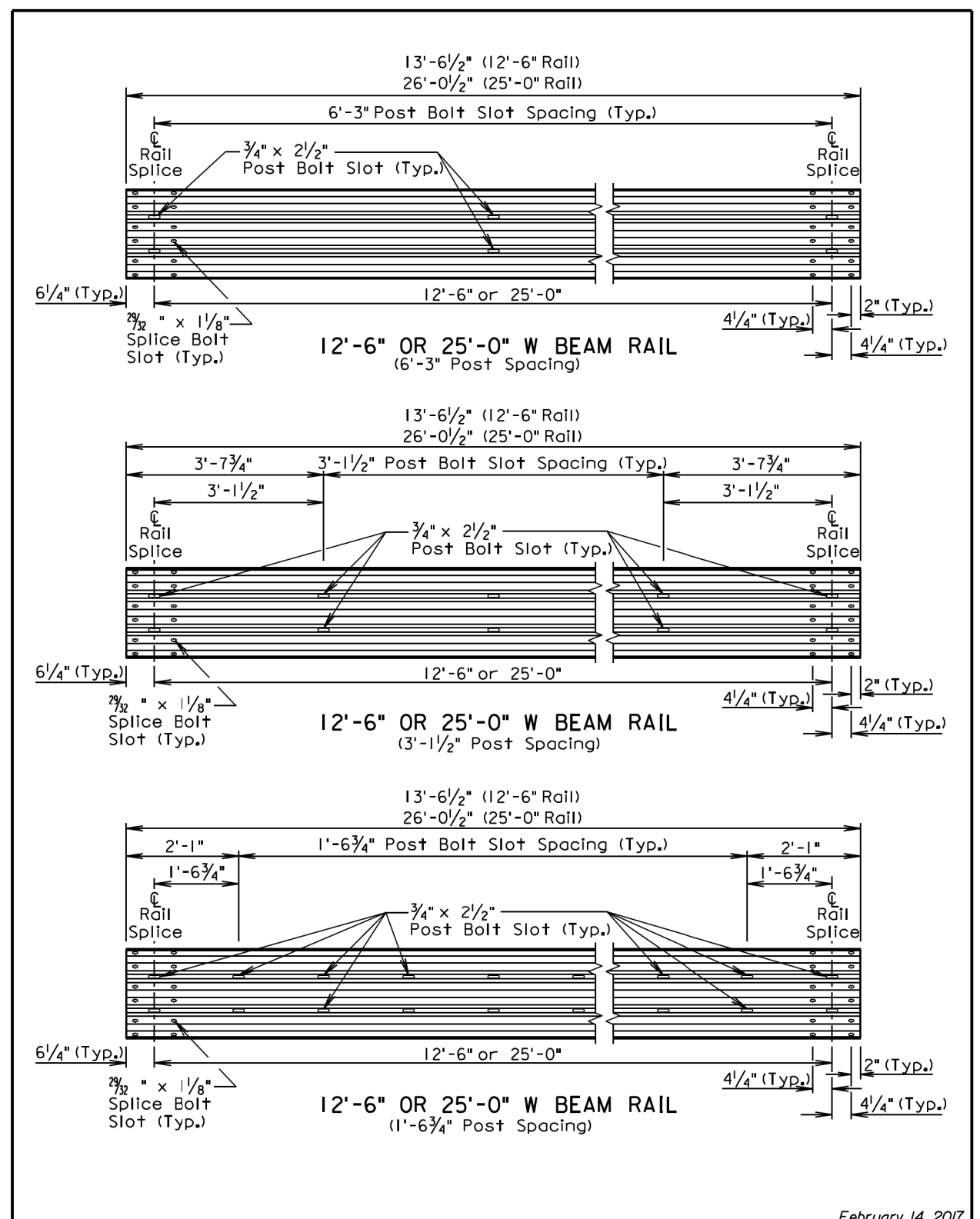
Plot Scale - 1:200



February 14, 2017

S D D O T	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
		Sheet 3 of 5

Published Date: 2nd Qtr. 2017



February 14, 2017

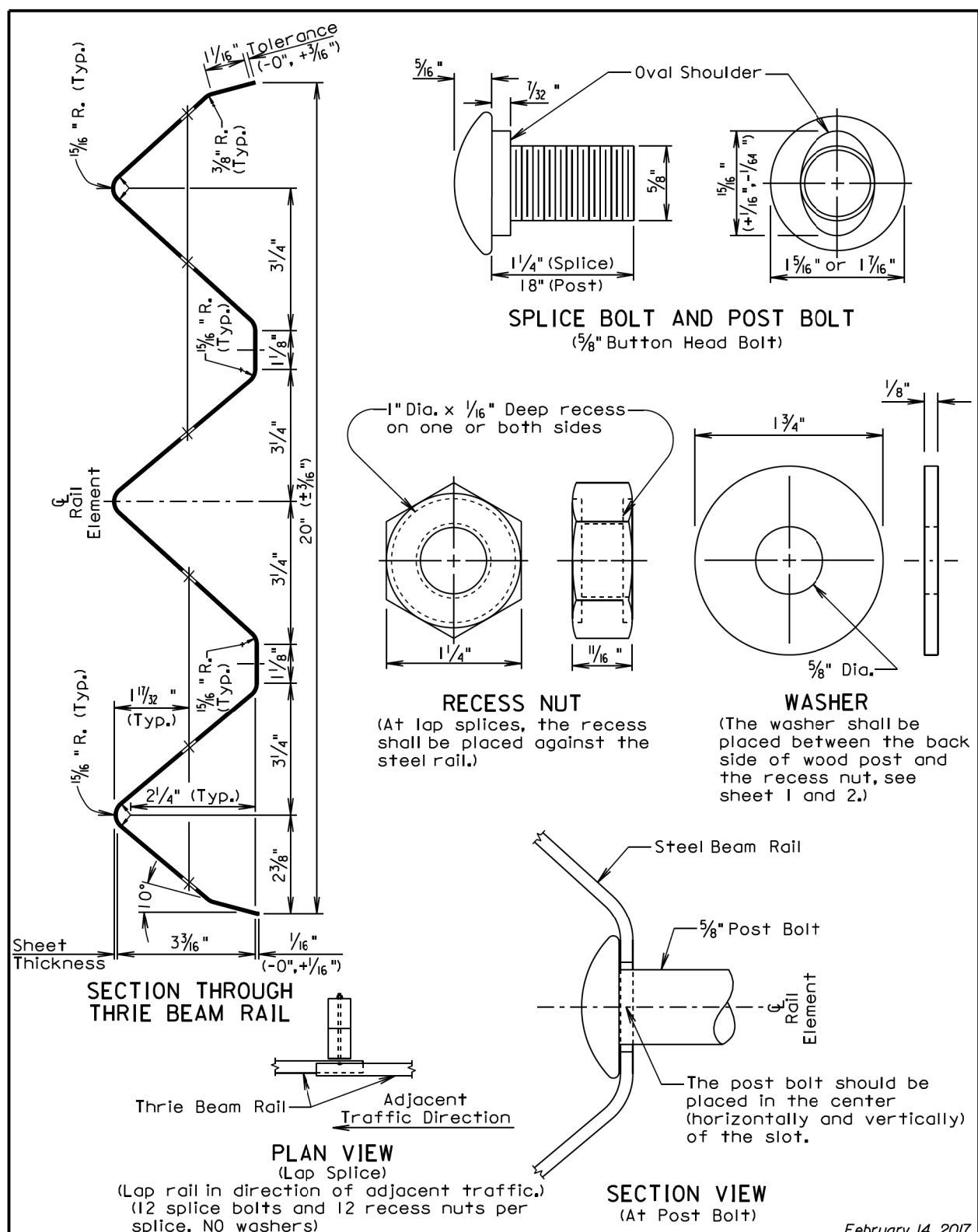
S D D O T	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
		Sheet 4 of 5

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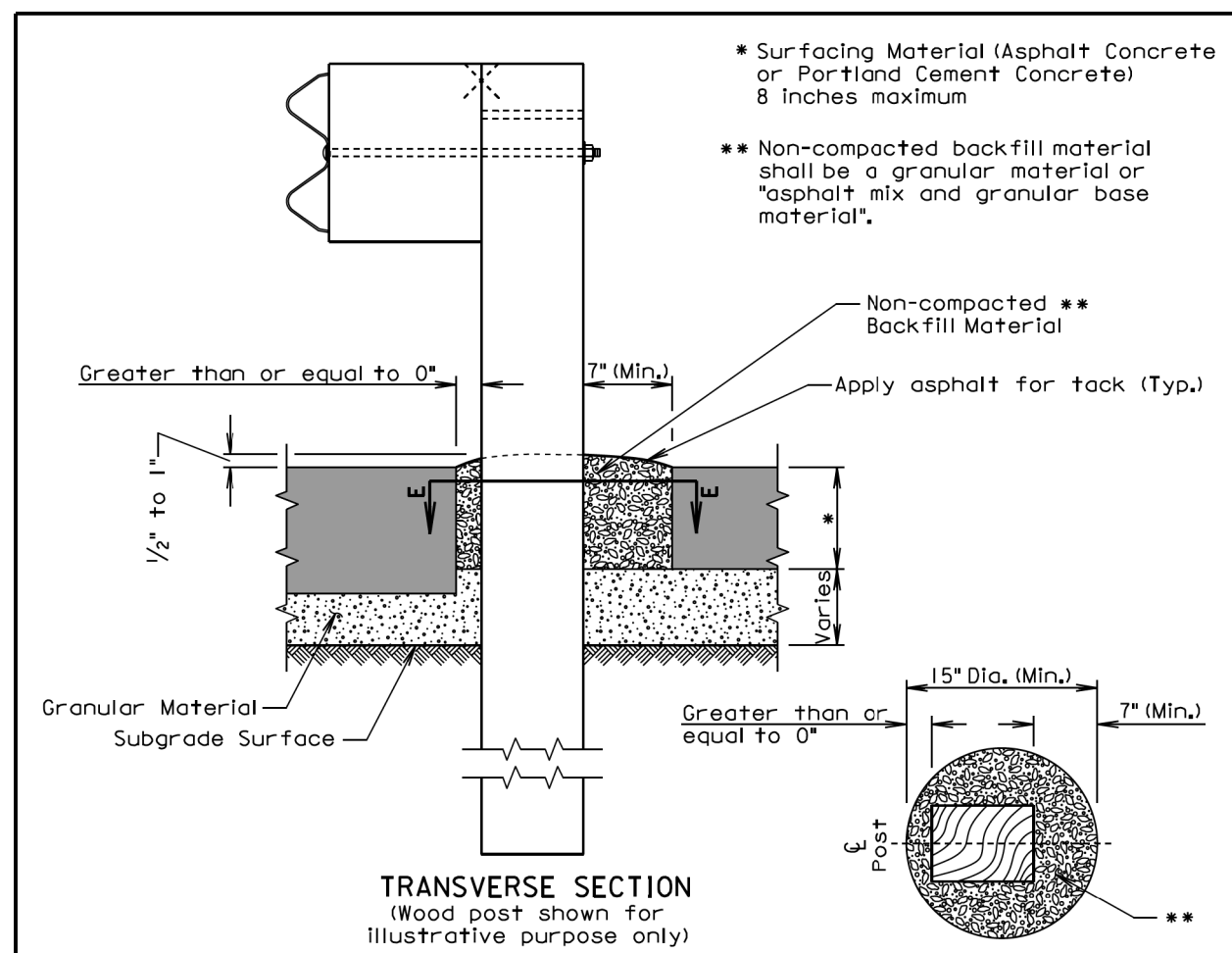
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Plot Scale - 1:200



S D D O T	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
	Published Date: 2nd Qtr. 2017	Sheet 5 of 5



GENERAL NOTES:

The leave-out limits may be increased to accommodate construction equipment and tolerances.

The backfill material shall be mounded 1/2 inch to 1 inch above the top of the adjacent surfacing as illustrated above.

Asphalt for tack shall be applied to the surface of the backfill material at the rate of .15 to .20 gallons per square yard.

All costs for constructing the leave-out including labor, equipment, and materials which includes the backfill material and tack coat shall be incidental to the contract unit price for the respective guardrail bid item.

S D D O T	GUARDRAIL POST INSTALLED IN ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE	PLATE NUMBER 630.96
	Published Date: 2nd Qtr. 2017	Sheet 1 of 1

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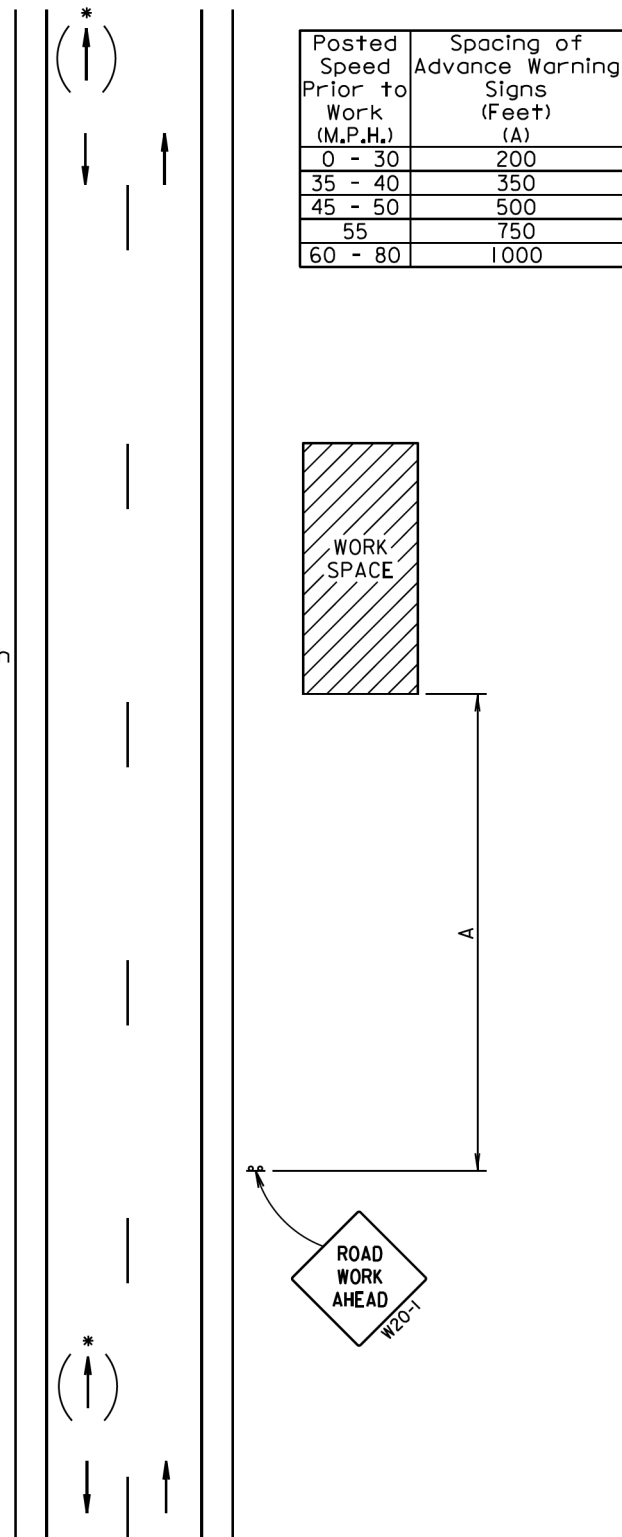
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated shall 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.



April 15, 2015

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
	Published Date: 2nd Qtr. 2017	Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (C)
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) shall 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.

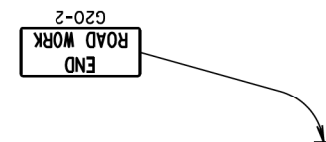
The channelizing devices shall be drums or 42" cones.

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

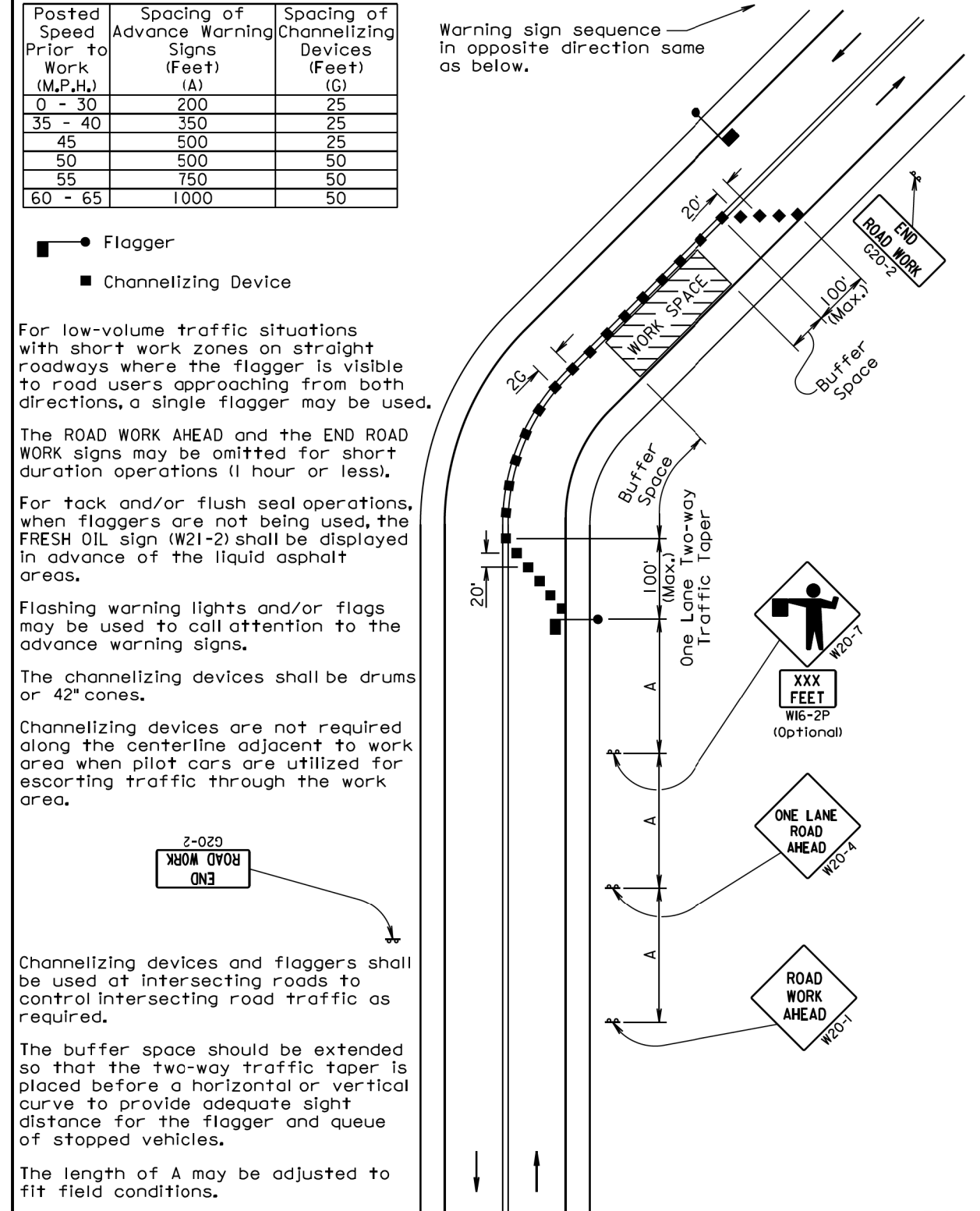
Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

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.



Warning sign sequence in opposite direction same as below.



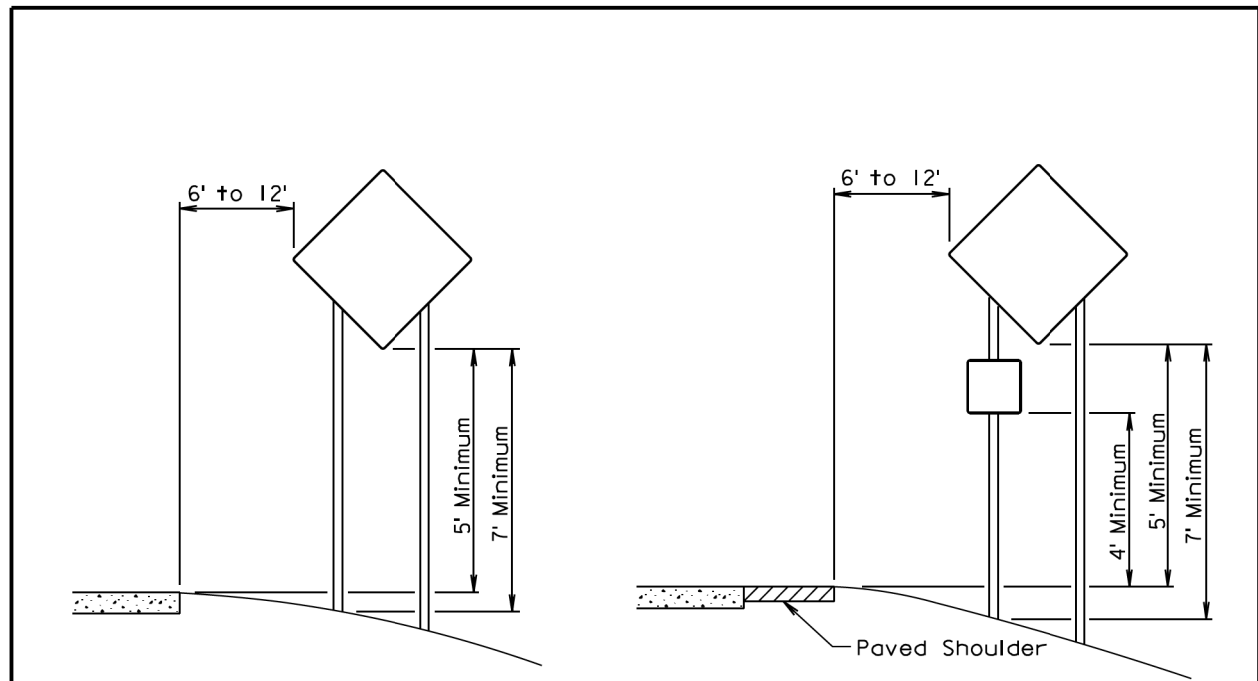
June 3, 2016

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
	Published Date: 2nd Qtr. 2017	Sheet 1 of 1

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- Plotted From -

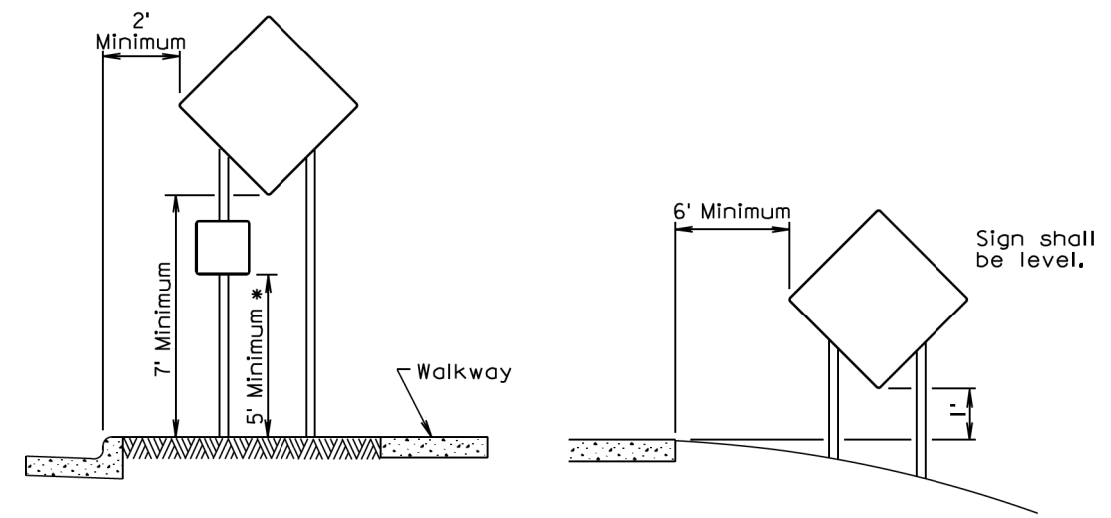
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RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

RURAL DISTRICT 3 DAY MAXIMUM

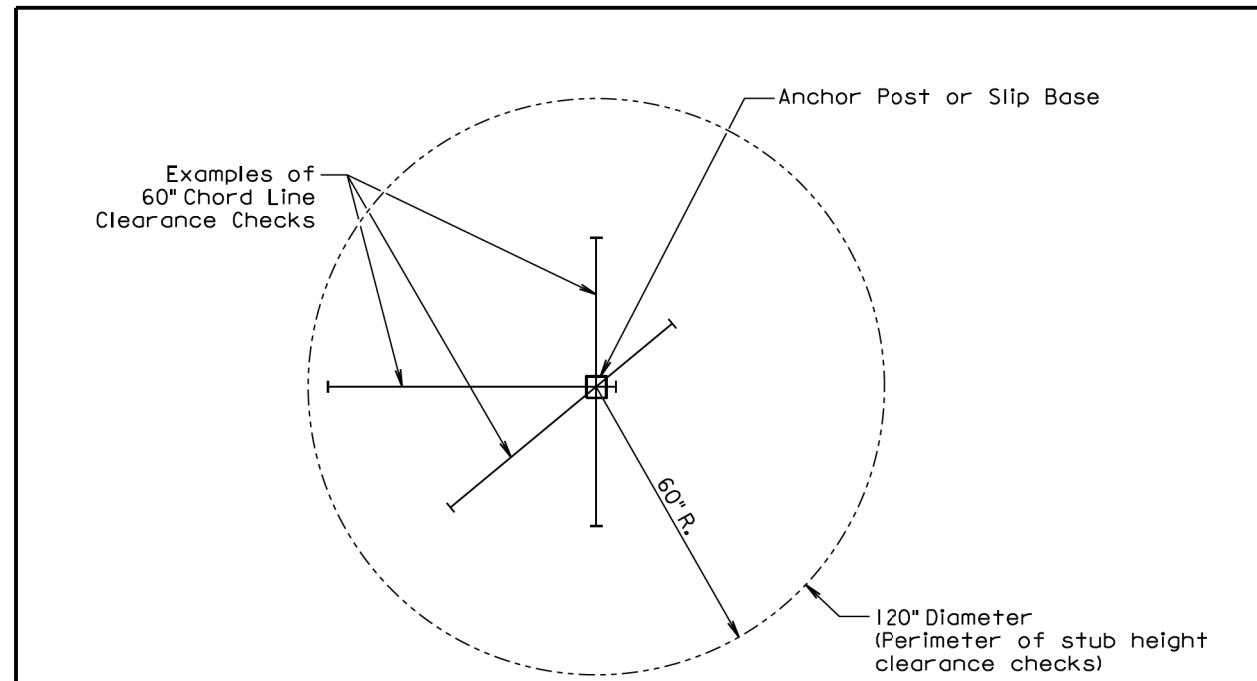
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

(Not applicable to regulatory signs)

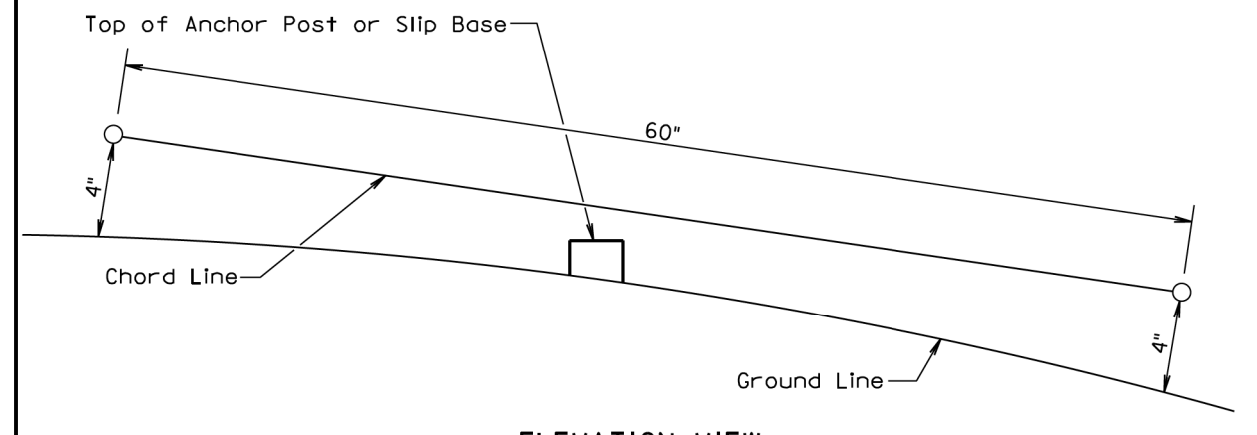
September 22, 2014

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

Published Date: 2nd Qtr. 2017



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL 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 shall 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.

July 1, 2005

S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
		Sheet 1 of 1

Published Date: 2nd Qtr. 2017

- Plotted From - tncs11626

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