

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	1	19

Plotting Date: 04/05/2017

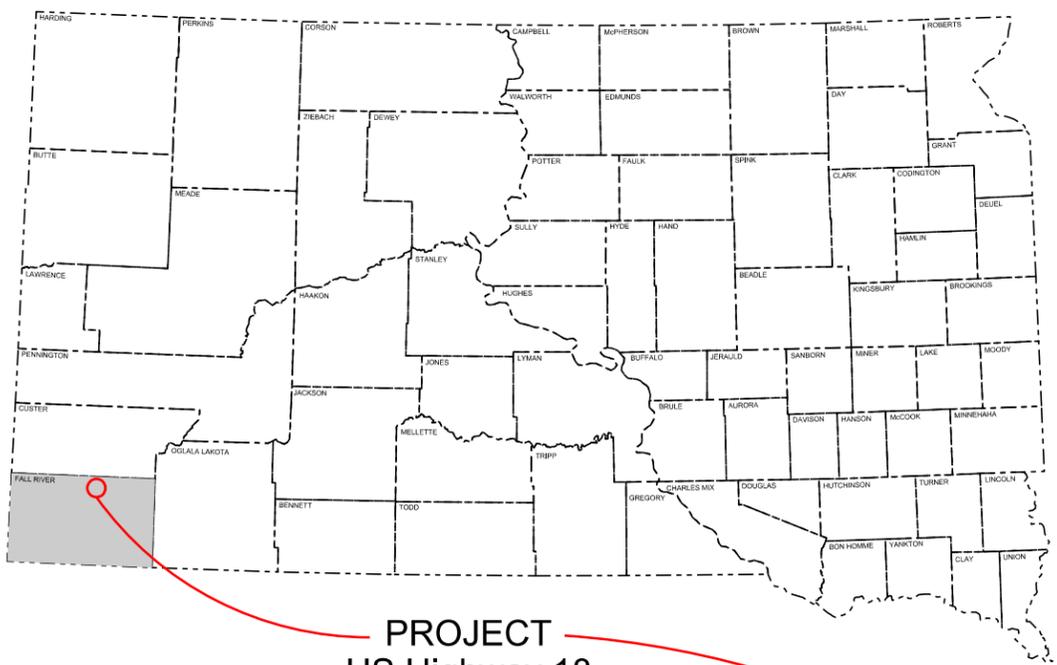
PROJECT 018-492
US HIGHWAY 18
FALL RIVER COUNTY

EROSION REPAIR
 PCN i4h4

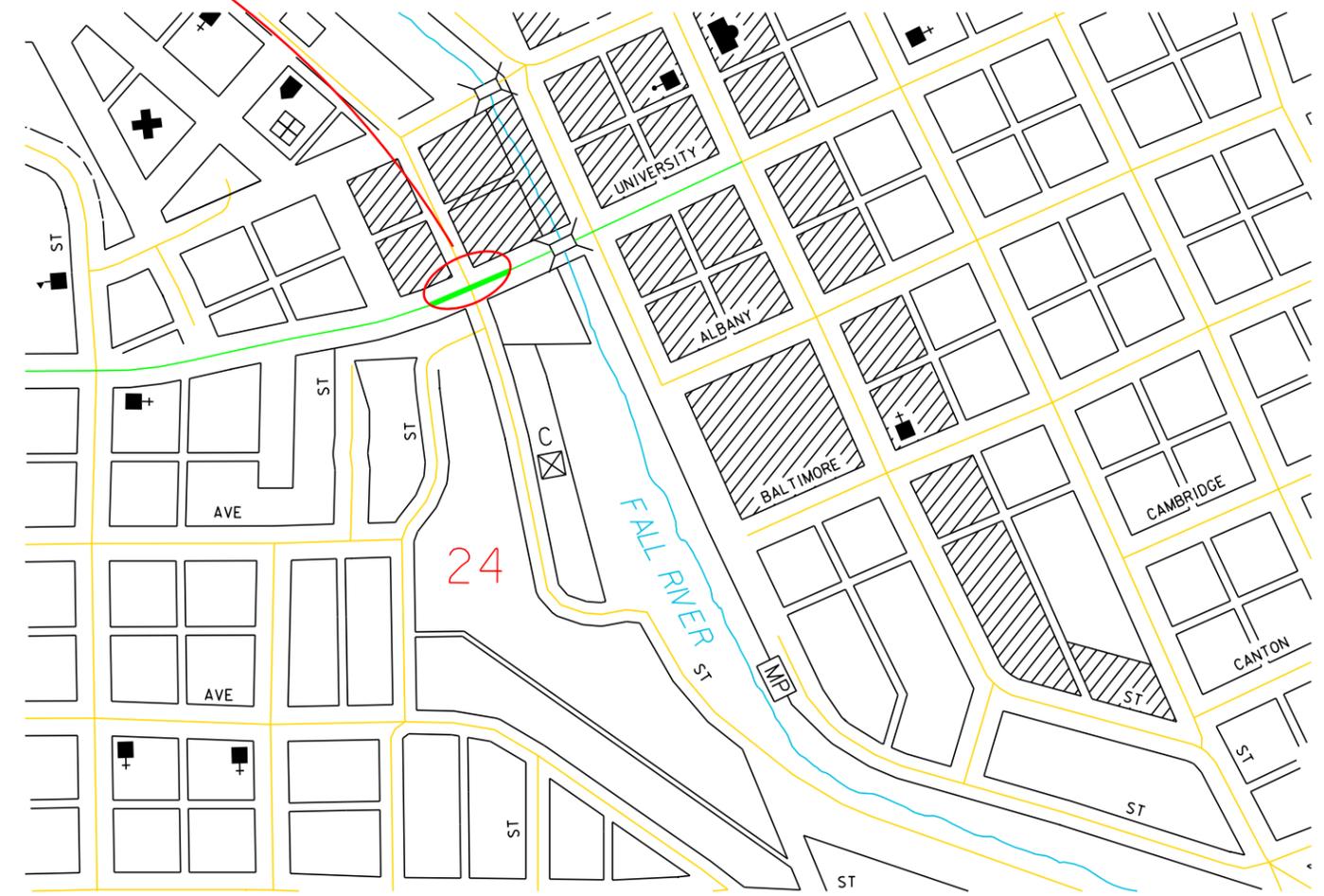
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Plot Scale - 1:200



PROJECT
US Highway 18
MRM 39.46 to MRM 39.68



DESIGN DESIGNATION

ADT (2015)	3500
ADT (2035)	4434
DHV	1126
D	51%
T DHV	1.4%
T ADT	2.0%
V	25 mph

STORM WATER PERMIT
 None Required

Plotted From - irrs12608

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ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT	REMARKS
009E0010	Mobilization	Lump Sum	LS	
110E0300	Remove Concrete Curb and/or Gutter	43	Ft	
110E0605	Remove Chain Link Fence	31	Ft	
110E0730	Remove Beam Guardrail	25.0	Ft	
110E0760	Remove Beam Guardrail Trailing End Terminal	2	Each	
110E1100	Remove Concrete Pavement	12.6	SqYd	
120E0600	Contractor Furnished Borrow Excavation	26	CuYd	
230E0020	Contractor Furnished Topsoil	20	CuYd	
230E0100	Remove and Replace Topsoil	Lump Sum	LS	
462E0100	Class M6 Concrete	21.6	CuYd	
621E0040	4' Chain Link Fence with Top Rail	34	Ft	
630E0200	Straight Class A Thrie Beam Rail	25.0	Ft	
630E2050	Beam Guardrail Trailing End Terminal	2	Each	
630E2110	Beam Guardrail Post and Block	9	Each	
634E0110	Traffic Control Signs	99.0	SqFt	
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS	
634E0420	Type C Advance Warning Arrow Board	1	Each	
650E0060	Type B66 Concrete Curb and Gutter	43	Ft	
650E4660	Type P6 Concrete Gutter	3	Ft	
730E0206	Type D Permanent Seed Mixture	12	Lb	
731E0100	Fertilizing	80	Lb	
732E0250	Fiber Mulching	180	Lb	

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 C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	2	19

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.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 20 gallons of water per cubic yard of Embankment minus Waste.

Costs for Water for Embankment shall be incidental to the price per cubic yard of Contractor Furnished Borrow, Excavation.

UTILITIES

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

CONTRACTOR FURNISHED TOPSOIL

It is anticipated that a larger volume of topsoil will be needed for the new grade than can be salvaged from the existing project. The Contractor will be required to furnish and place 4 inches of topsoil on areas at station 19+42.6 left.

Contractor furnished topsoil shall be free from clay lumps, stones, coarse gravel, or similar objects larger than 1/2 inch in diameter. Brush, stumps, roots, wood, objectionable weeds, litter, or any other material which may be harmful to plant growth will not be allowed. Organic material shall be decomposed.

All costs to furnish and place the Contractor furnished topsoil shall be incidental to the contract unit price per cubic yard for Contractor Furnished Topsoil.

TABLE OF REMOVE CONCRETE PAVEMENT

Station	to Station	L/R	Remove Concrete Pavement (SqYd)
18+00.0	18+30.1	L	12.6

TABLE OF CONCRETE CURB AND GUTTER REMOVAL

Station	to Station	L/R	Remove Concrete Curb and Gutter (Ft)
18+00.0	18+30.1	L	37.0
18+29.4	18+33.2	L	6.0
Total:			43.0

FALLEN CONCRETE FENCE FOUNDATION

The concrete fence foundation leaning against the rock wall adjacent to the concrete wall panels shall be removed. The concrete foundation slab shall be removed as per section 110 of the Standard Specifications. All costs for removing this concrete section shall be incidental to the contract unit price per foot for Remove Concrete Curb and/or Gutter.

CONTRACTOR FURNISHED BORROW EXCAVATION

Contractor Furnished Borrow Excavation is provided for the construction of berms.

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

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

TABLE OF CONTRACTOR FURNISHED BORROW EXCAVATION

Station	to Station	L/R	Contractor Furnished Borrow, Excavation (CuYd)
18+00.0	18+44.9	L	25.0
19+42.6		L	1.0
Total			26.0

SAWING EXISTING ASPHALT CONCRETE OR PCCP

Where new asphalt concrete or PCCP is placed adjacent to existing asphalt concrete or Portland Cement Concrete the existing asphalt concrete or portland cement concrete shall be sawed full depth to a true line with a vertical face. Saw cutting will not be required at locations where cold milling is used to match existing surfacing elevations.

The existing surfacing shall be cut straight so that form work will not be required for the new curb and gutter. Re-sawing may be required if the alignment specifications for the new curb and gutter are not met.

No separate payment shall be made for sawing and shall be incidental to the various asphalt concrete bid items on the project.

CLASS M6 CONCRETE

Class M6 Concrete shall be used to fill the erosion hole at station 19+42.60 and to fill any voids near the edge of the concrete wall that ties into the rock backslope.

Formwork shall be placed 5" behind the shadow line of the rock wall face.

A Commercial Texture Finish Type B shall be used to finish the exposed vertical surface of the M6 concrete. The Commercial Texture Finish shall be colored to match the existing rock face as approved by the Engineer. The Commercial Texture Finish shall be installed as per section 460.3.L.1.c of the Standard Specifications. All costs for the Commercial Texture Finish shall be incidental to the contract unit price per CuYd of Class M6 Concrete

If sidewalk is damaged, or if removal of sidewalk is required for construction

TABLE OF CLASS M6 CONCRETE

Station	L/R	Location	Class M6 Concrete (CuYd)
18+00.0	L	Wall	0.1
19+42.6	L	Hole in ROW	17.8
19+42.6	L	Hole in Yard	3.7
Total:			21.6

TABLE OF TYPE P6 CONCRETE GUTTER

			Type P6 Gutter
Station to	Station	L/R	(Ft)
18+29.4	18+33.2	L	3.0
Total:			3.0

TABLE OF TYPE B66 CONCRETE CURB AND GUTTER

			Type B66 Curb and Gutter
Station to	Station	L/R	(Ft)
18+00.0	18+30.1	L	30.0
18+34.3	18+44.9	L	13.0
Total:			43.0

TABLE OF CHAIN LINK FENCE

Table of Chain Link Fence	
Remove Chain Link Fence (Ft)	4' Chain Link Fence with Top Rail (Ft)
31	34

STEEL BEAM GUARDRAIL

The guardrail at the end of the street above the wall shall be removed and replaced with Thrie Beam and two Thrie Beam Training End Terminals.

			Remove Beam Guardrail	Remove Beam Guardrail Trailing End Terminal	Straight Class A Thrie Beam Rail	Beam Guardrail Trailing End Terminal	Beam Guardrail Post and Block
Station to	Station	L/R	(Ft)	(Each)	(Ft)	(Each)	(Each)
18+32.7	18+59.0	L	25	2	25	2	9

TRAFFIC CONTROL – GENERAL NOTES

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

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

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage of the vegetation, surfacing, embankment, delineators, and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

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

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.

INVENTORY OF TRAFFIC CONTROL DEVICES

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R9-9	SIDEWALK CLOSED	2	24" x 12"	2.0	4.0
R9-11	SIDEWALK CLOSED AHEAD with ARROW (L or R) CROSS HERE	2	24" x 18"	3.0	6.0
W4-2	LEFT or RIGHT LANE ENDS (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 or RIGHT LANE CLOSED AHEAD	1	48" x 48"	16.0	16.0
W21-5	SHOULDER WORK	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
				CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT	99.0

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

REMOVE AND REPLACE TOPSOIL

Prior to beginning construction operations, a 4" depth of topsoil shall be bladed down the berm and wall installation areas and left in a windrow adjacent to construction limits. Following completion of construction operations, topsoil shall be bladed back up over the berm and the wall area.

The estimated amount of topsoil to be removed and replaced is 20 CuYd.

All costs associated with removing and replacing the top soil along areas to be resurfaced shall be incidental to the contract lump sum price for Remove and Replace Topsoil.

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:

<i>Glomus intraradices</i>	25%
<i>Glomus aggregatu</i>	25%
<i>Glomus mosseae</i>	25%
<i>Glomus etunicatum</i>	25%

All seed shall 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 shall be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

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

Product	Manufacturer
MycApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com

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 fertilizer shall be applied at a rate of 2000 pounds per acre in accordance with the manufacturer's recommended method of application. The all-natural slow release fertilizer shall be as shown below or an approved equal:

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

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

Type D Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/1000 SqFt)
Kentucky Bluegrass	Avalanche, Appalachian, Wildhorse, Blue Bonnet	1.4
Perennial Ryegrass	Turf Type Varieties	1.4
Creeping Red Fescue	Epic, Boreal	1.4
Chewings Fescue	Ambrose, K2, VNS, Zodiac	1.4
Alkali Grass	Fults, Fults II, Quill, Salty	1.4
Total:		7

FIBER MULCHING

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

An additional 2% by weight of tackifier shall 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 shall be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier shall be synthetic.

Fiber mulch shall be applied at the rate of 2,000 pounds per acre.

The Contractor shall 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 shall be incidental to the contract unit price per pound for "Fiber Mulching".

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

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

Station to	Station	L/R	Fertilizing (Lb)	Type D Permanent Seed Mixture (Lb)	Fiber Mulching (Lb)
18+00.0	18+59.5	L	70	6	90
19+55.0		L	10	6	90
Total			80	12	180

Station 18+37.4 - 38.26' L
to Station 18+67.6 - 42.25' L
Remove 31' Chain Link Fence

Station 18+00.0 - 47.76' L
to Station 18+30.1 - 50.52' L
Remove Curb and Gutter (37 Ft)

Station 18+29.4 - 57.66' L
to Station 18+33.2 - 55.70' L
Remove Curb and Gutter (6 Ft)

Station 18+32.7 - 55.366' L
to Station 18+ 59.0 - 58.79' L
Remove Beam Guardrail

Station 18+00.0 - L
to Station 18+59.5 - L
Install 1' earthen berm against
back of curb as shown in
cross sections.

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Plotting Date: 04/05/2017

Station 18+37.4 - 38.26' L
to Station 18+67.6 - 42.25' L
Install 34' Chain Link Fence
with Top Rail

Station 18+00.0 - 47.76' L
to Station 18+30.1 - 50.52' L
Install Type B66 Curb and Gutter
(31.0 Ft) Match Existing

Station 18+00.0 - L
to Station 18+30.1 - L
Remove Concrete (12.6 SqYd)
Station 18+29.4 - 54.21L
to Station 18+33.2 - 58.32L
Install Type P6 Gutter (3 Ft)

Station 18+34.3 - 53.00' L
to Station 18+57.8 - 74.96' L
Install Type B66 Curb and Gutter
(32.5 Ft) Match Existing

Station 19+42.60 - 40.85L
Install Class M6 Concrete
In hole in yard and (3.7 CuYd)
and in hole in POW (17.8 CuYd)

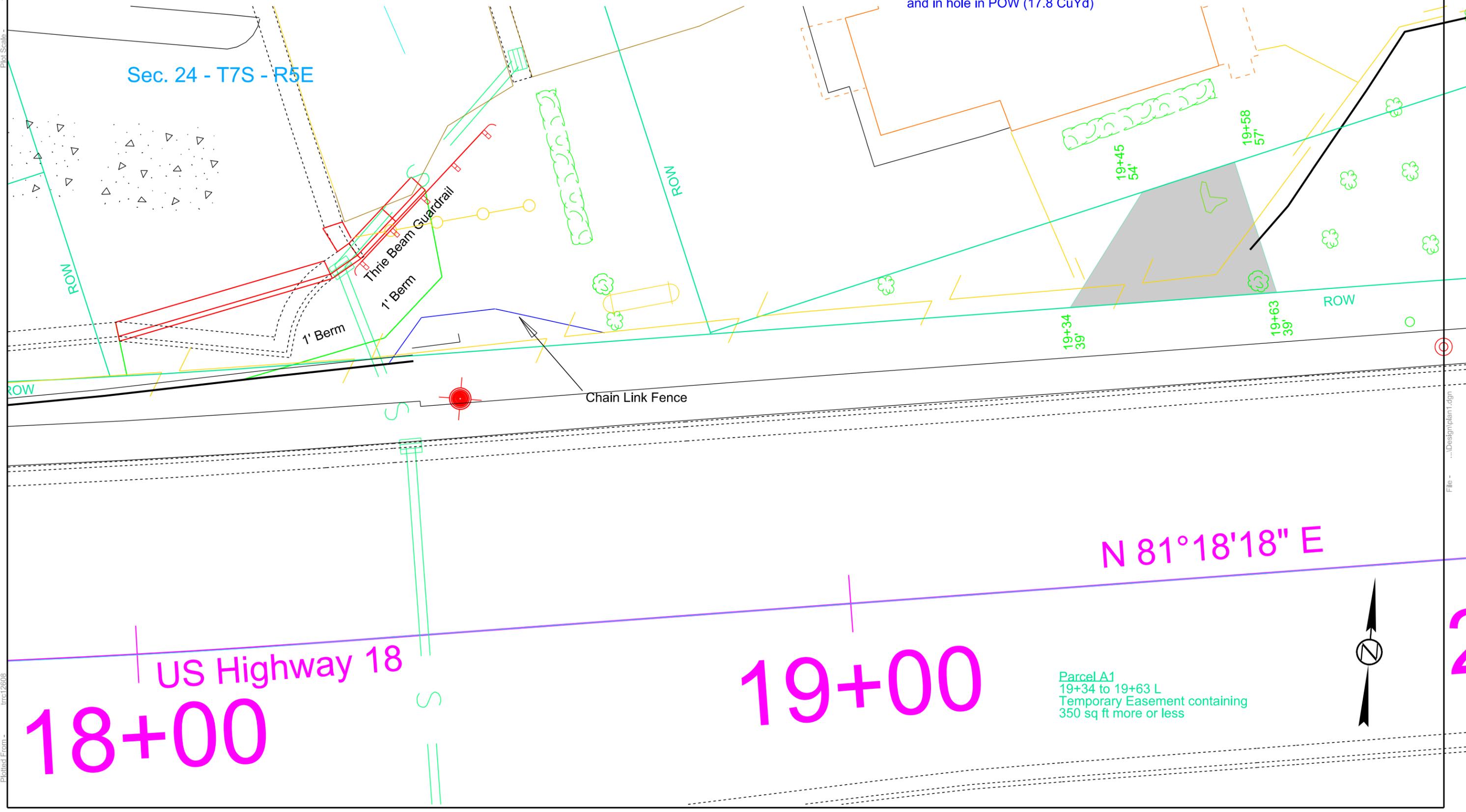
Station 18+32.7 - 55.366' L
to Station 18+ 59.0 - 58.79' L
Install Thrie Beam Guardrail
& 2 Thrie Beam Guardrail
Trailing End terminal.

Plot Scale - 1:12,5524

Plotted From - Irr:12608

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Sec. 24 - T7S - R5E



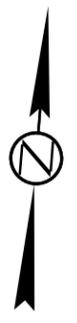
18+00

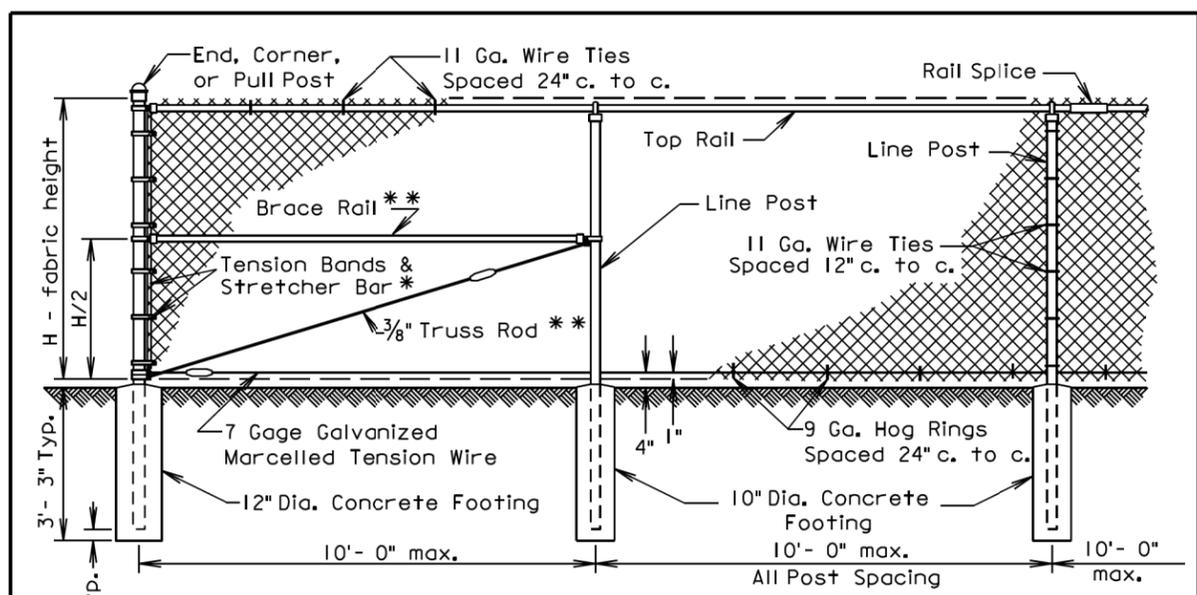
19+00

US Highway 18

N 81°18'18" E

Parcel A1
19+34 to 19+63 L
Temporary Easement containing
350 sq ft more or less





* Tension Bands shall be spaced 12" c. to c.
 ** Are not required for 3' thru 5' fences.
 ○ Tightening Device such as shown on Plate No. 621.03

Component	End, Corner & Pull Post		Line Post			Top & Brace Rail	
	Round Pipe Nominal	Roll Formed Steel	Round Pipe Nominal	"C" Section	H-Beam Steel	Round Pipe Nominal	Roll Formed Steel
Size	3.00" O. D.	3.5" x 3.5"	2.50" O. D.	1.875"x1.625"	2.25"x1.70"	1.625" O. D.	1.625"x1.25"
Weight (lb. / ft.)	5.79 or 4.64	5.14	3.65 or 3.12	2.34	3.43	2.27 or 1.84	1.35

GENERAL NOTES:

Specific details of manufacture of component parts of the complete fence construction shall be subject to the approval of the Engineer. Commercially available items produced specifically for the use intended shall be used wherever possible in the construction of the fence.

"H" (Height of Fabric) shall be as shown on the Plans. Fabric is available in the the following heights; 36", 42", 48", 60", 72", 84", 96", 108", 120", & 144". Fabric heights 60 inches and under shall be knuckled at both selvages. Fabric heights 72 inches and over shall be knuckled at one selvage and twisted at the other selvage.

Chain Link Fabric shall be 2" mesh, No. 9 gage galvanized wire securely fastened to Tension Wire, Line Post, Rails, Braces and Stretcher Bars spaced as shown hereon.

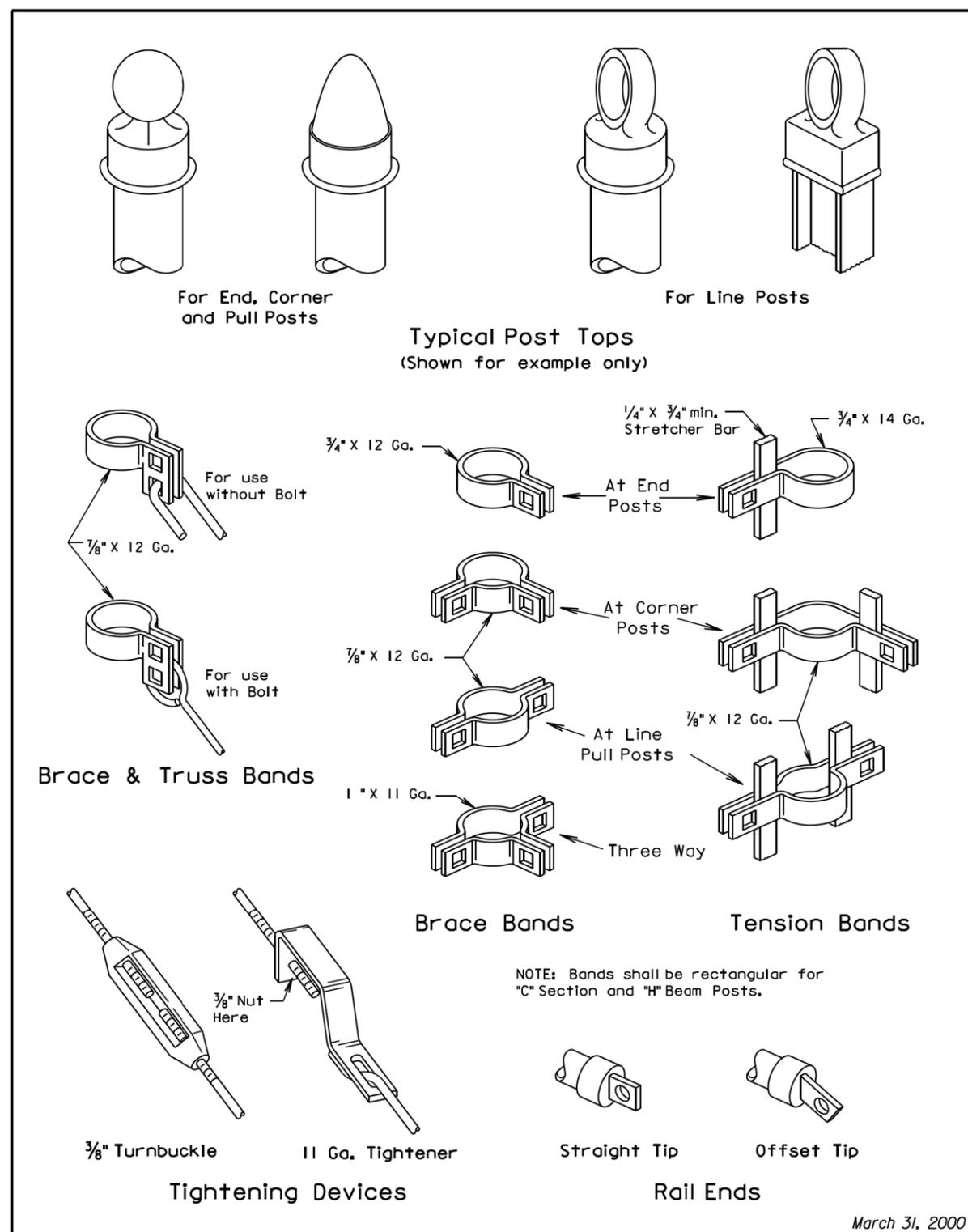
Fence may be constructed with either Round Pipe, "C" Section, "H" Beam, or roll Formed Steel components as shown in the table above. Line post may be Round Pipe, "C" Section, or "H" Beam. The Corner Post and Rails shall be either Round Pipe or Roll Formed Steel. The type of components used shall have prior approval by the Engineer before construction.

Where fence must cross small bodies of water (such as drainage areas or ponds) that could freeze during the winter, use 11 gage Hog Rings. Provide only two ties per Tension Wire and Top Rail between line posts.

A suitable method of rail splicing shall be used to allow for expansion and contraction while maintaining proper position of the Top Rail.

March 31, 2000

S D D O T	CHAIN LINK FENCE WITH TOP RAIL	PLATE NUMBER 621.01
	Published Date: 1st Qtr. 2017	Sheet 1 of 1



NOTE: Bands shall be rectangular for "C" Section and "H" Beam Posts.

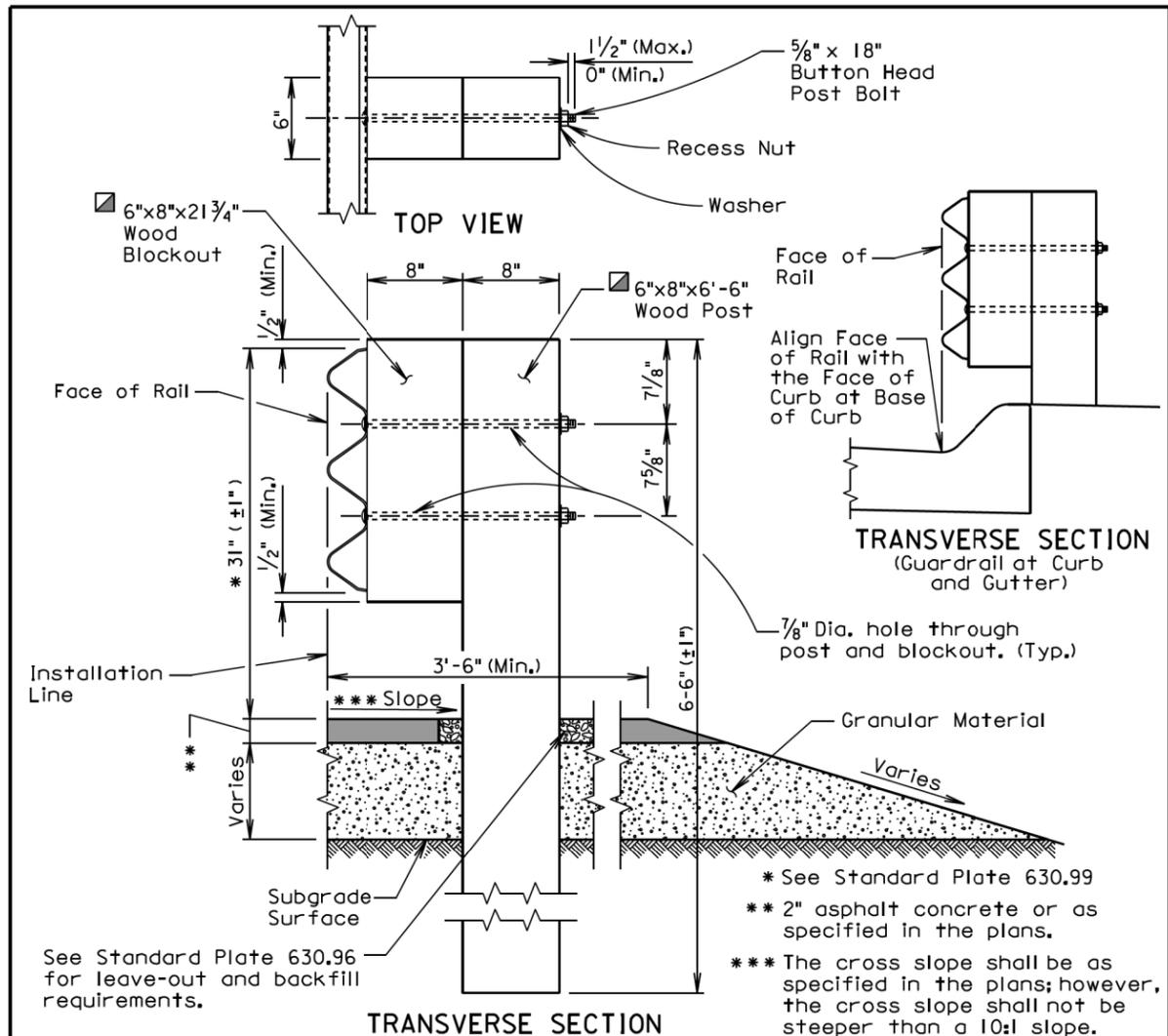
S D D O T	HARDWARE FOR CHAIN LINK FENCE	PLATE NUMBER 621.03
	Published Date: 1st Qtr. 2017	Sheet 1 of 1

Plot Scale - 1:200

- Plotted From - trcs12608

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Plot Scale - 1:200



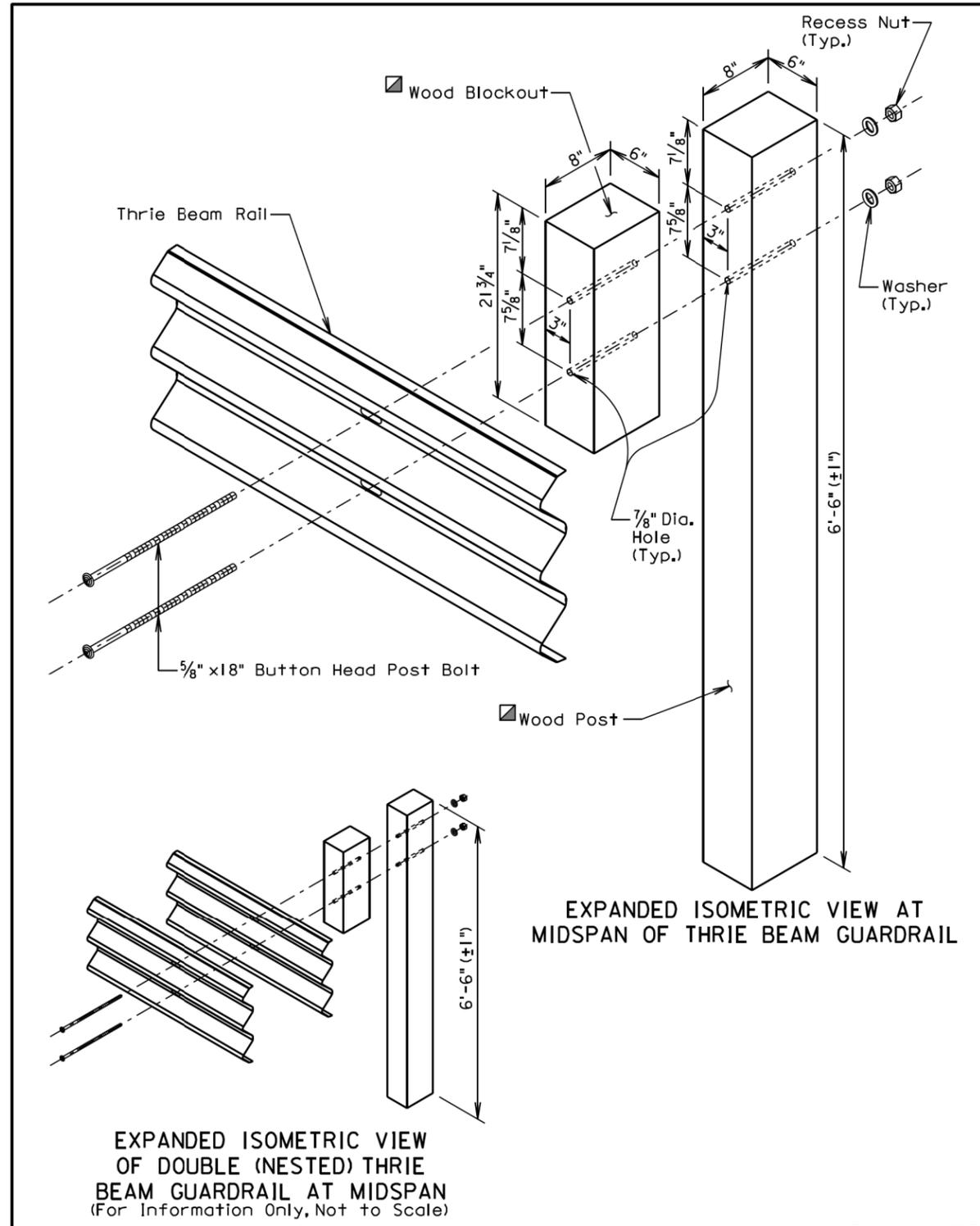
See Standard Plate 630.96 for leave-out and backfill requirements.

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 $\pm 1/2$ inch from the top of the post.

February 14, 2017

S D D O T	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
	Published Date: 2nd Qtr. 2017	Sheet 1 of 5



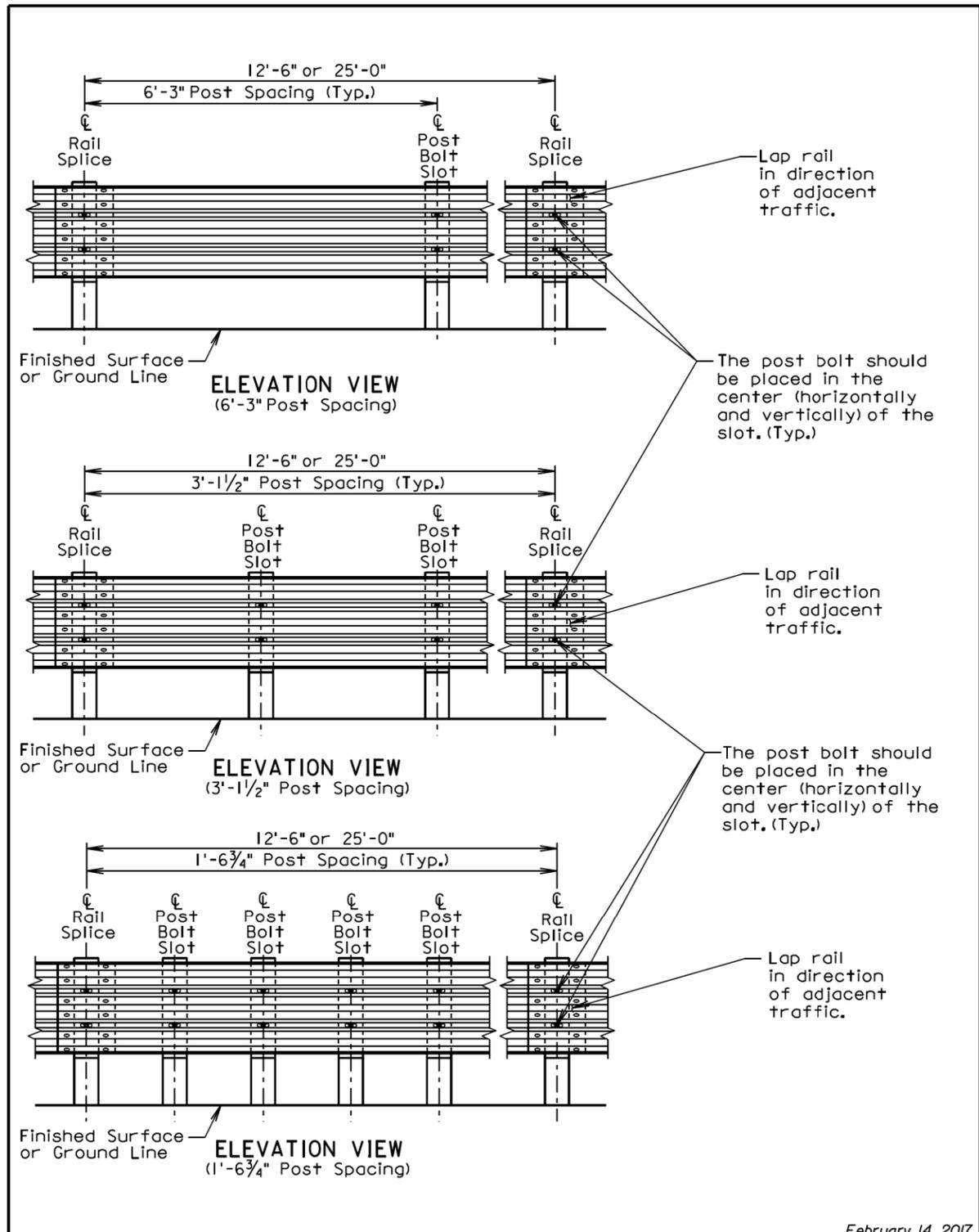
EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) THRIE BEAM GUARDRAIL AT MIDSPAN
(For Information Only, Not to Scale)

February 14, 2017

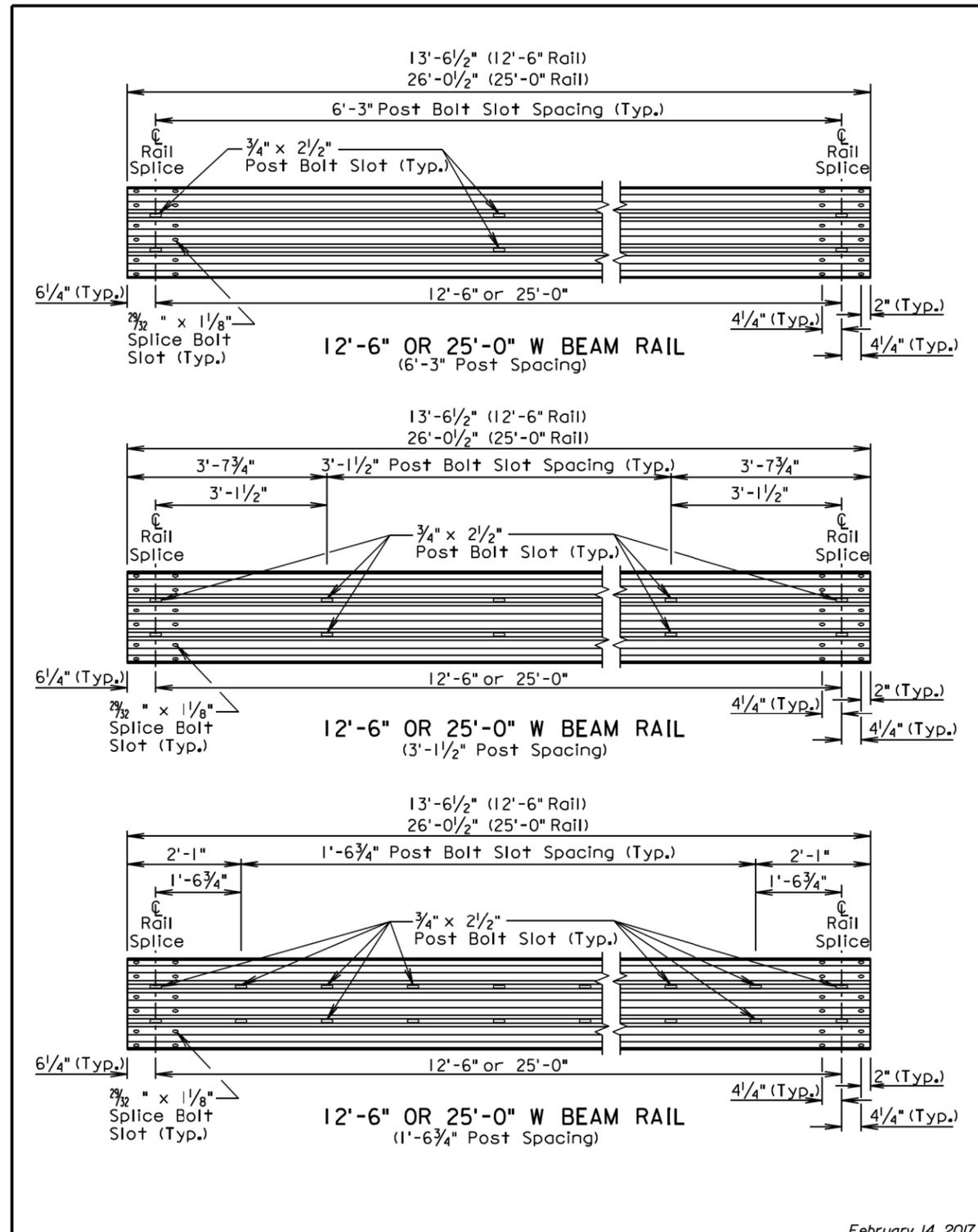
S D D O T	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
	Published Date: 2nd Qtr. 2017	Sheet 2 of 5

- Plotted From - trcs12608

File - ...design\630_1.dgn



S D D O T	THRIE BEAM GUARDRAIL	February 14, 2017
		PLATE NUMBER 630.01
Published Date: 2nd Qtr. 2017		Sheet 3 of 5



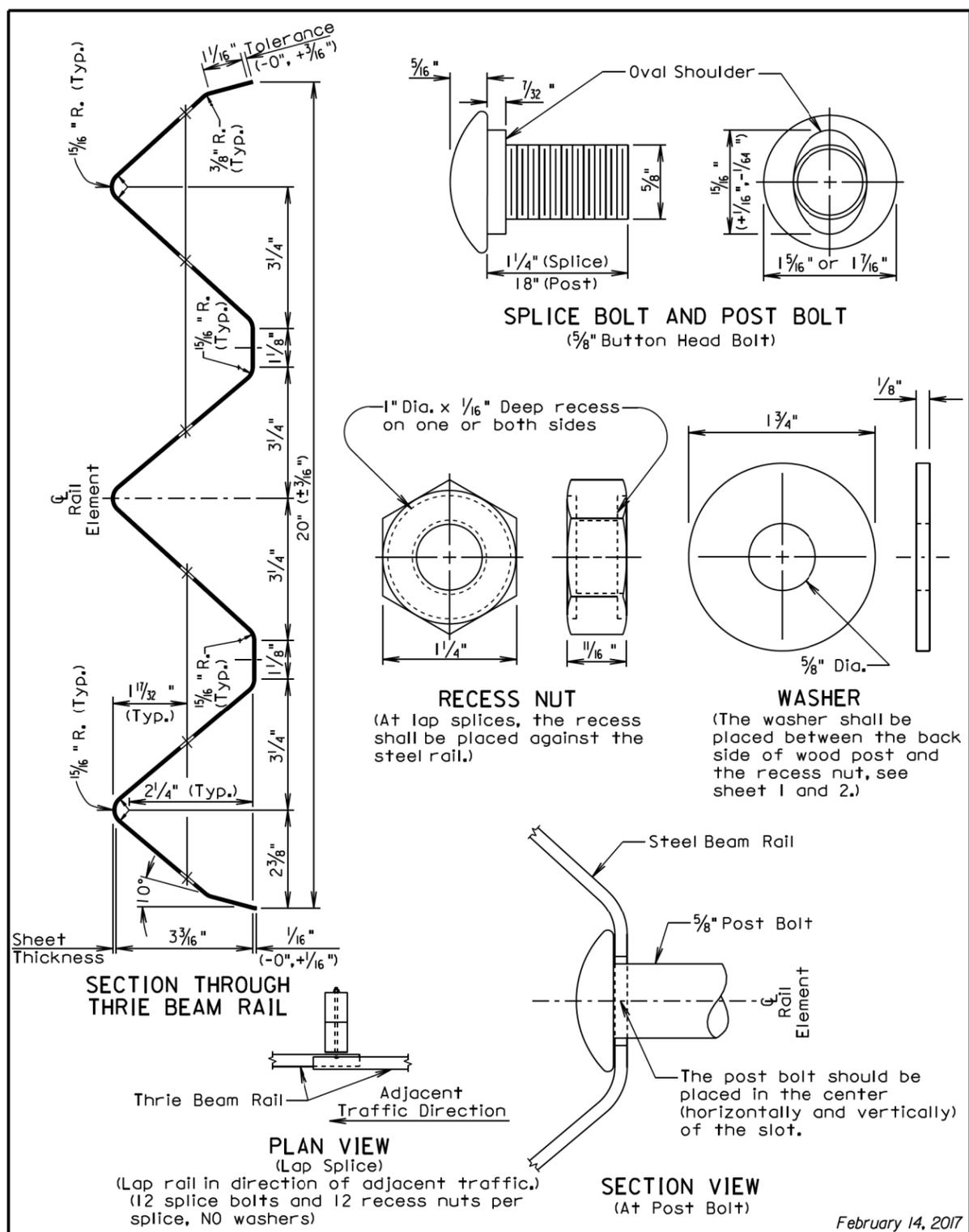
S D D O T	THRIE BEAM GUARDRAIL	February 14, 2017
		PLATE NUMBER 630.01
Published Date: 2nd Qtr. 2017		Sheet 4 of 5

Plot Scale - 1:200

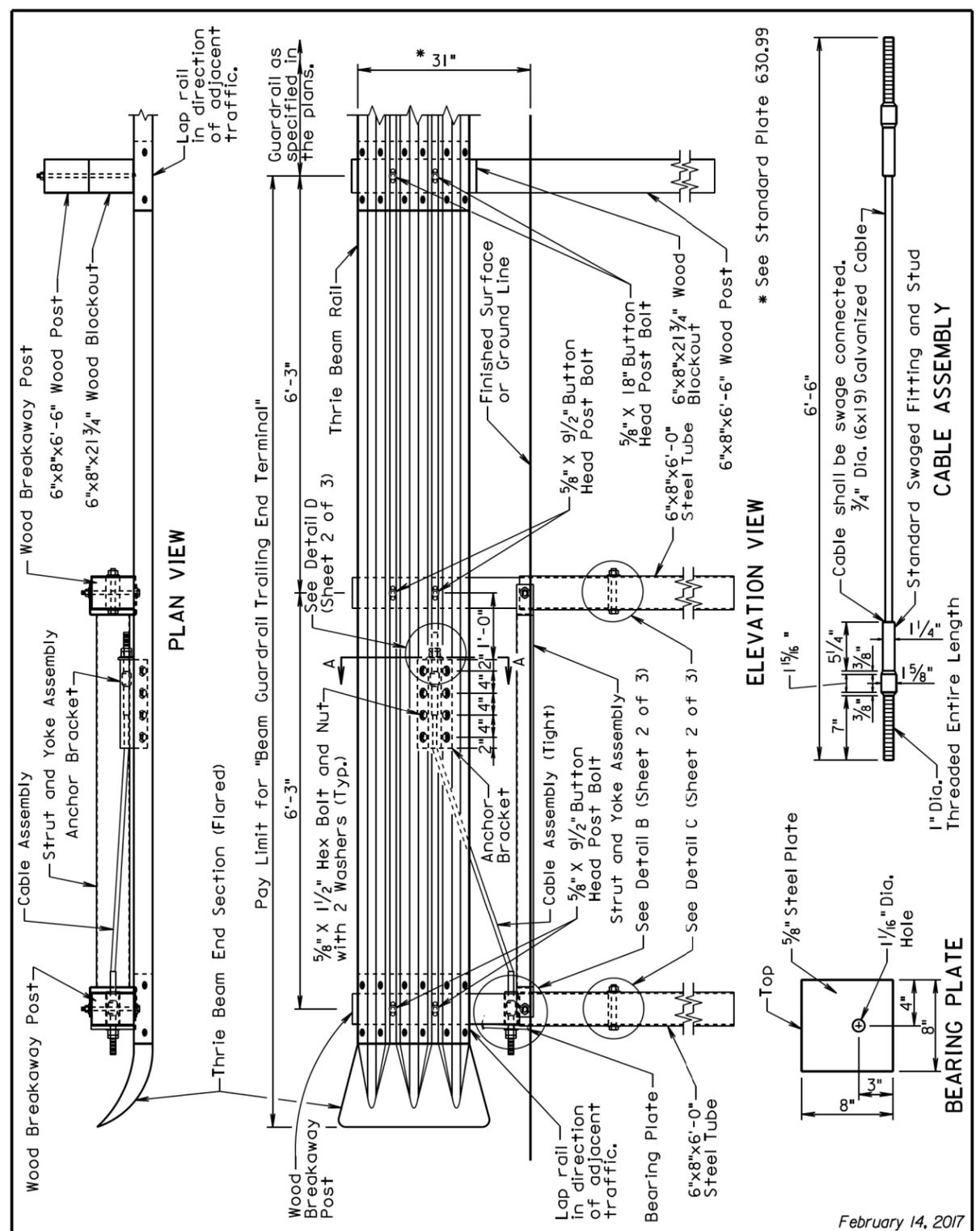
- Plotted From - trcs12608

File - ...Design\630_2.dgn

Plot Scale - 1:200



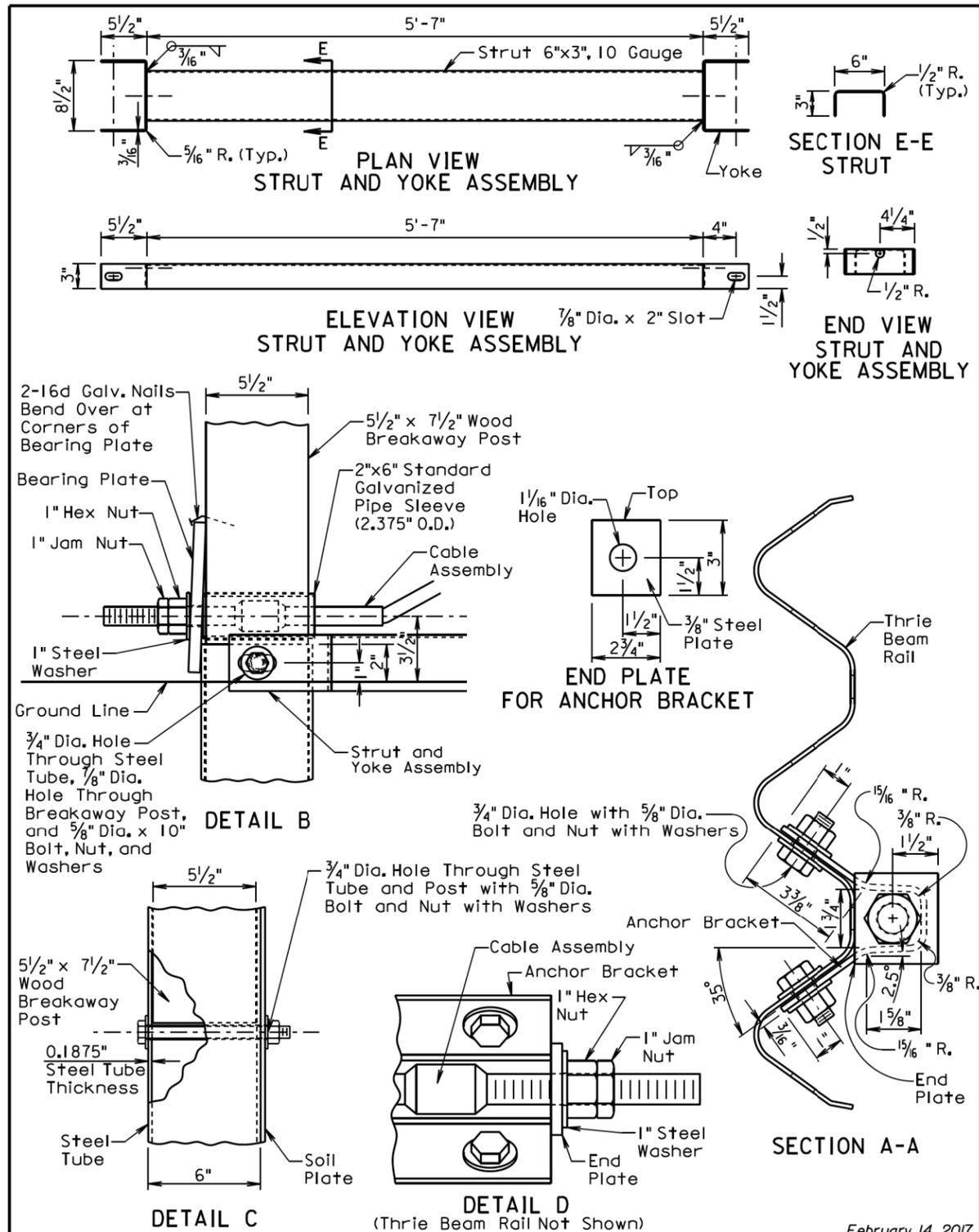
S D D O T	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
	Published Date: 2nd Qtr. 2017	Sheet 5 of 5



S D D O T	THRIE BEAM GUARDRAIL TRAILING END TERMINAL	PLATE NUMBER 630.80
	Published Date: 2nd Qtr. 2017	Sheet 1 of 3

Plotted From - trc:12608

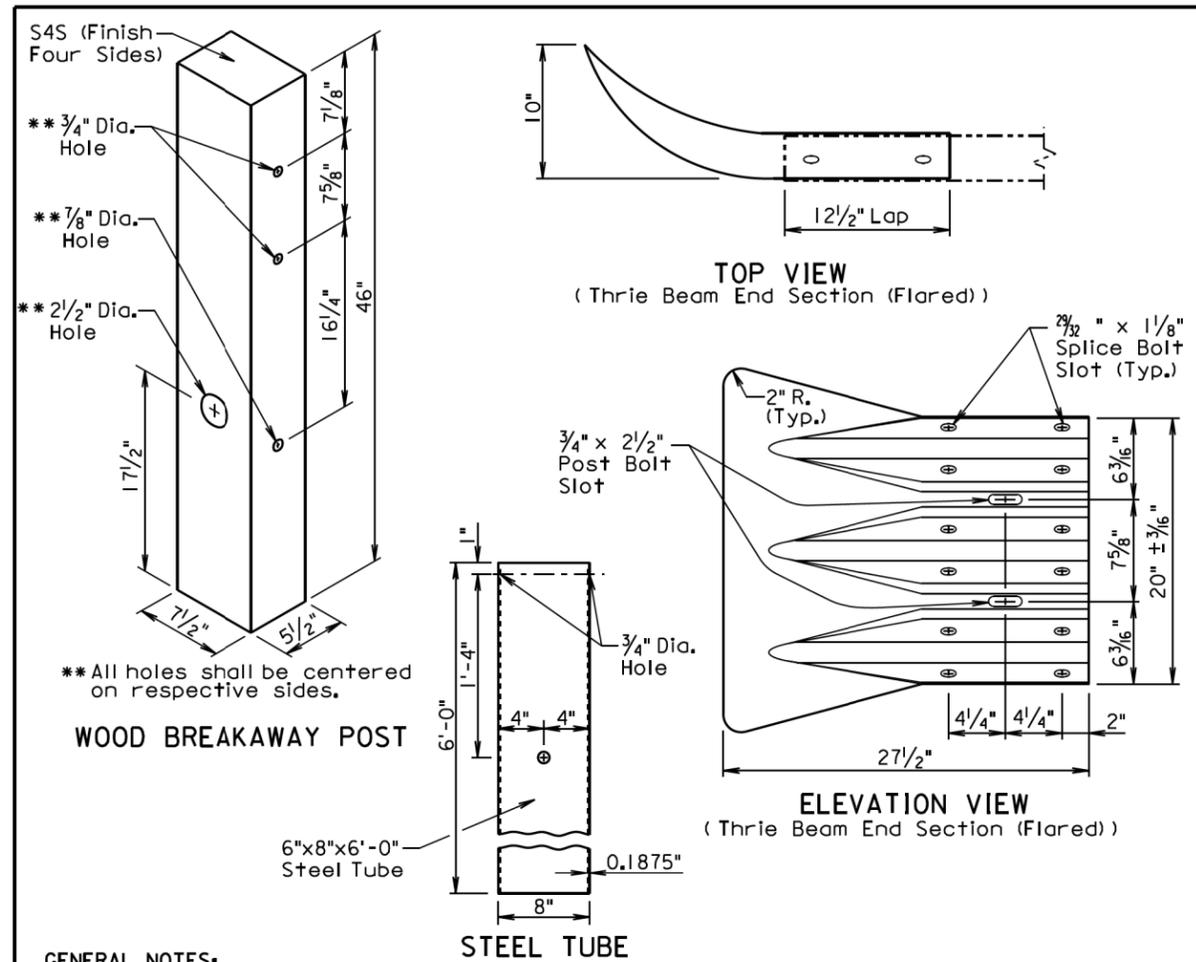
File - ...design\630_3.dgn



February 14, 2017

S D D O T	THRIE BEAM GUARDRAIL TRAILING END TERMINAL	PLATE NUMBER 630.80
		Sheet 2 of 3

Published Date: 2nd Qtr. 2017



GENERAL NOTES:

- The thrie beam guardrail trailing end terminal shall only be used in a one-way traffic situation.
- Thrie beam end sections (flared) shall be 12 gauge.
- The cable shall be 3/4", Type II, with Class A coating in conformance with AASHTO M30.
- The steel tube shall meet the requirements of ASTM Specification A500, Grade B, and shall be galvanized after fabrication in accordance with the requirements of AASHTO Specification M111.
- All hardware shall be galvanized in accordance with ASTM A153.
- The anchor bracket, soil plate, and bearing plate shall be fabricated from steel that meets ASTM A36 Specifications. They shall be galvanized after fabrication in accordance with ASTM A123.
- 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.
- All costs for furnishing and constructing the thrie beam guardrail trailing end terminal including labor, equipment, materials which includes thrie beam rail section, post and blockout, wood breakaway posts, steel tubes, cable assembly, bearing plate, anchor bracket, strut and yoke assembly, thrie beam end section (flared), hardware, and incidentals shall be included in the contract unit price per each for "Thrie Beam Guardrail Trailing End Terminal".

February 14, 2017

S D D O T	THRIE BEAM GUARDRAIL TRAILING END TERMINAL	PLATE NUMBER 630.80
		Sheet 3 of 3

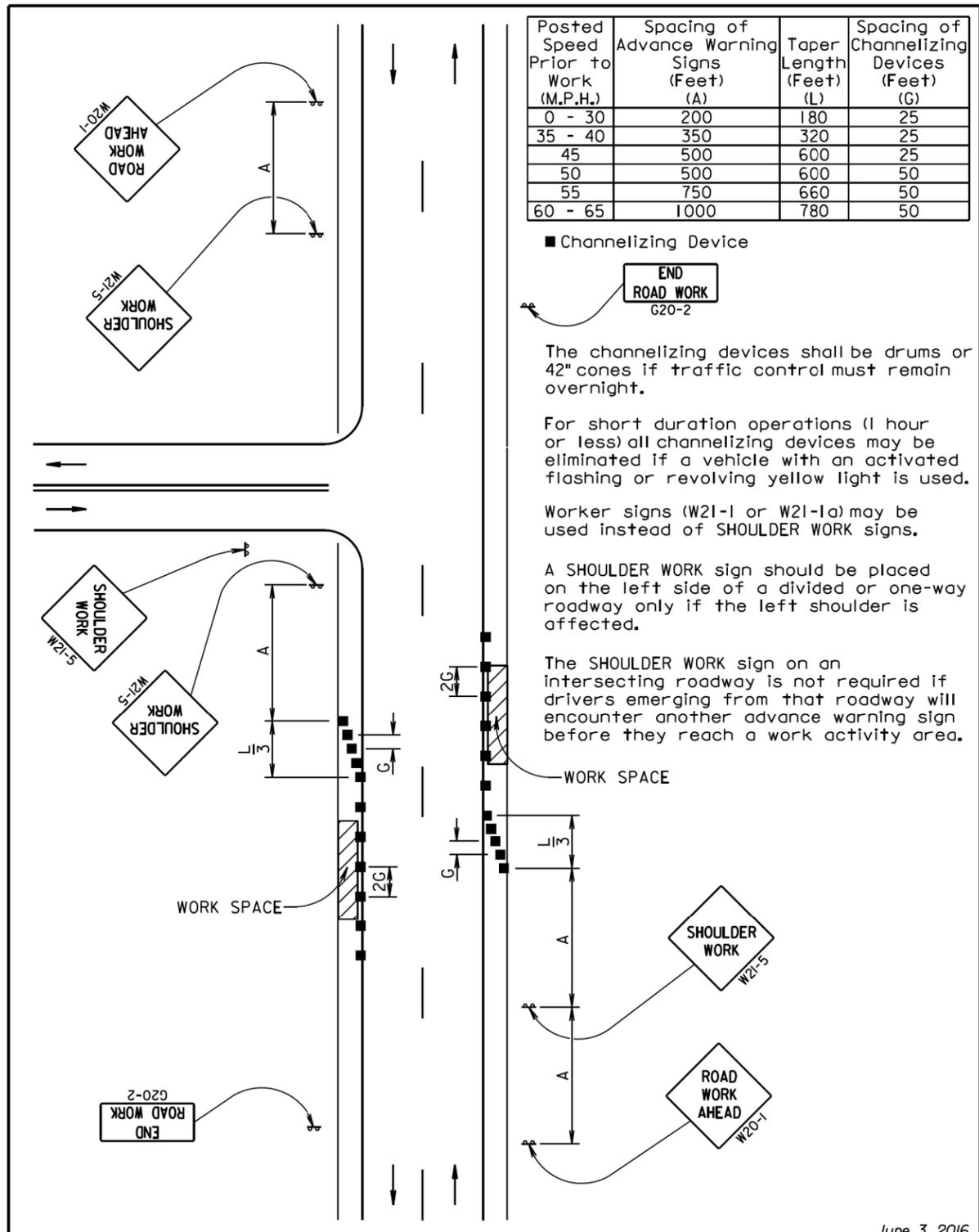
Published Date: 2nd Qtr. 2017

Plot Scale - 1:200

- Plotted From - trc:12608

File - ...design\630_4.dgn

Plot Scale - 1:200



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

■ Channelizing Device

END ROAD WORK G20-2

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

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

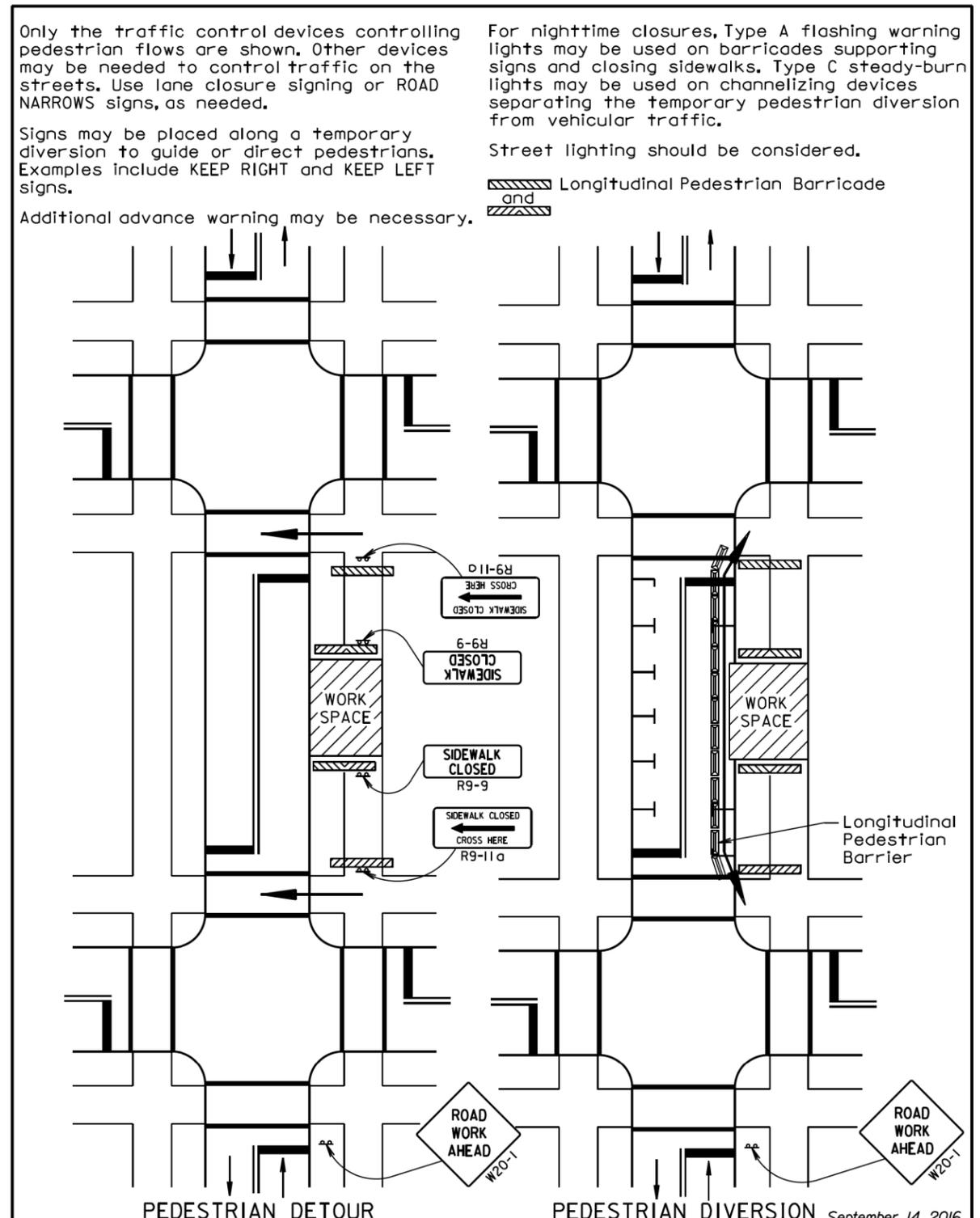
Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

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

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

June 3, 2016

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
	Published Date: 1st Qtr. 2017	Sheet 1 of 1



Only the traffic control devices controlling pedestrian flows are shown. Other devices may be needed to control traffic on the streets. Use lane closure signing or ROAD NARROWS signs, as needed.

Signs may be placed along a temporary diversion to guide or direct pedestrians. Examples include KEEP RIGHT and KEEP LEFT signs.

Additional advance warning may be necessary.

For nighttime closures, Type A flashing warning lights may be used on barricades supporting signs and closing sidewalks. Type C steady-burn lights may be used on channelizing devices separating the temporary pedestrian diversion from vehicular traffic.

Street lighting should be considered.

Longitudinal Pedestrian Barricade and

September 14, 2016

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES PEDESTRIAN DETOUR AND PEDESTRIAN DIVERSION	PLATE NUMBER 634.34
	Published Date: 1st Qtr. 2017	Sheet 1 of 1

- Plotted From - trcs12608

File - ...design1634_1.dgn

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

* Spacing is 40' for 42" cones.

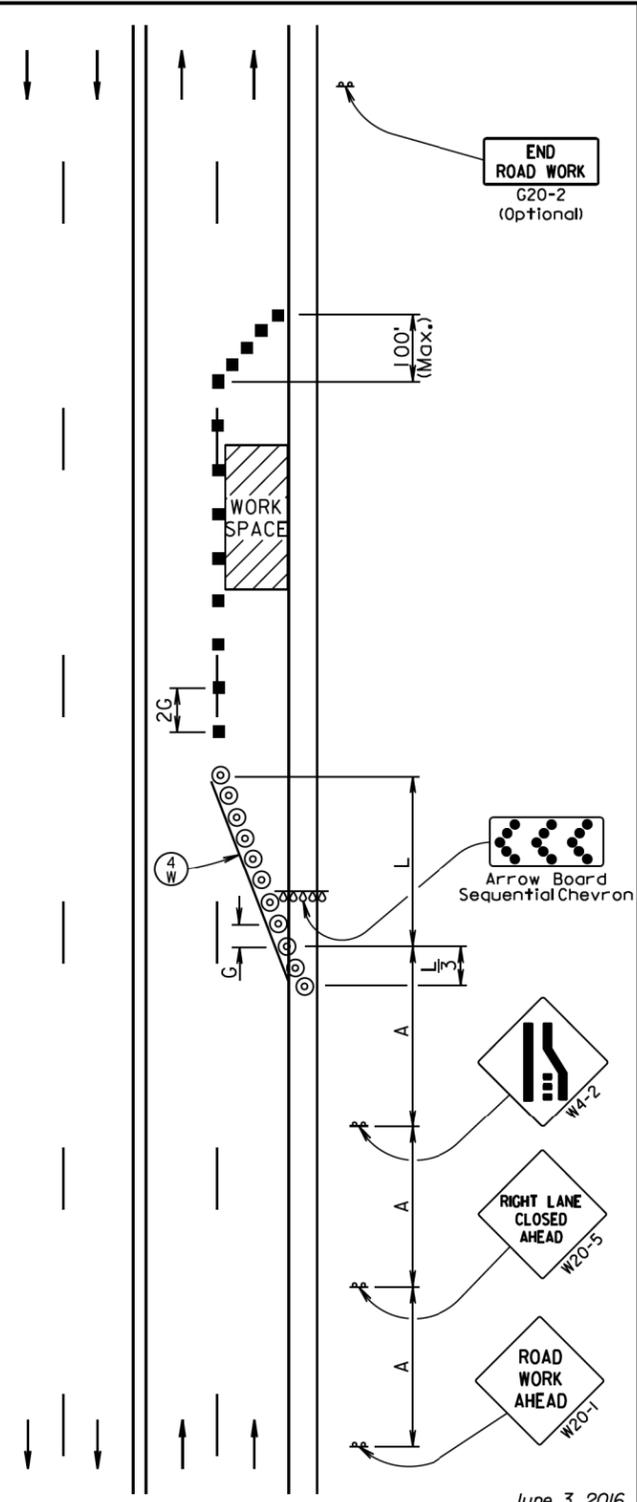
- ⊙ Reflectorized Drum
- Channelizing Device
- ④ 4" White Temporary Pavement Marking

The channelizing devices shall 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.

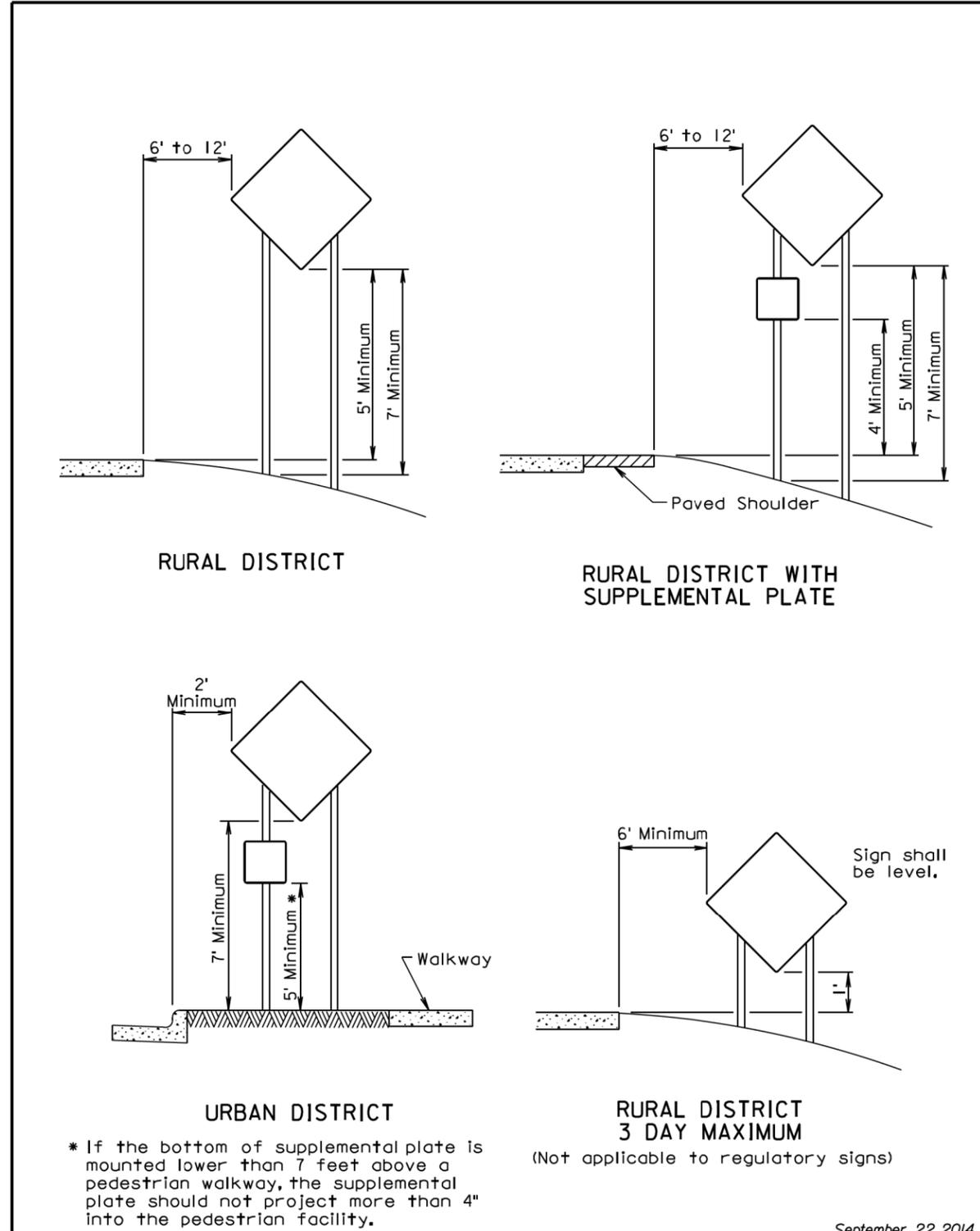
Temporary pavement markings shall be used if traffic control must remain overnight.

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



June 3, 2016

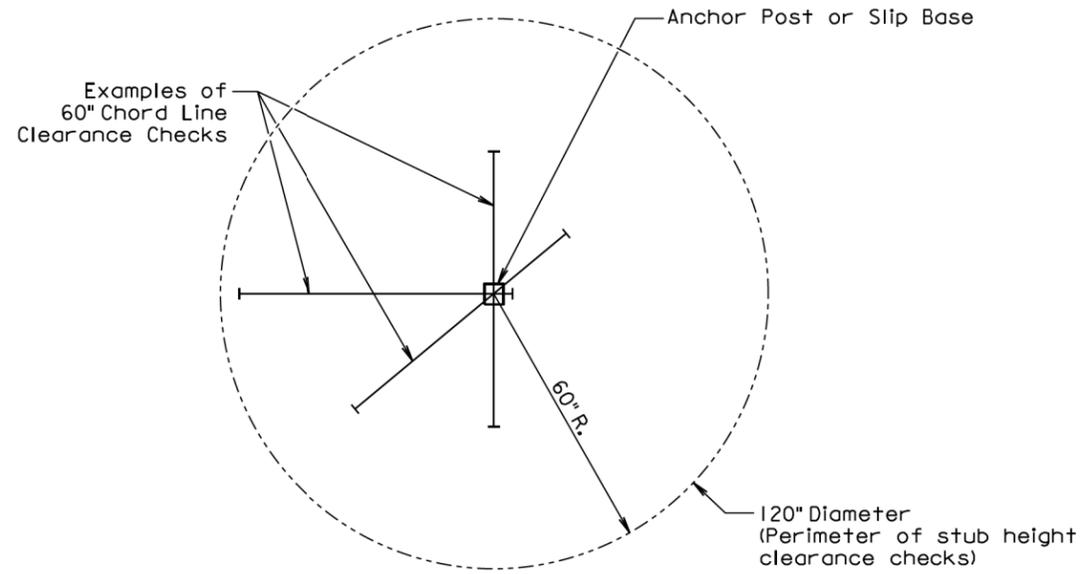
SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE UNDIVIDED, RIGHT LANE CLOSED	PLATE NUMBER 634.47
	Published Date: 1st Qtr. 2017	Sheet 1 of 1



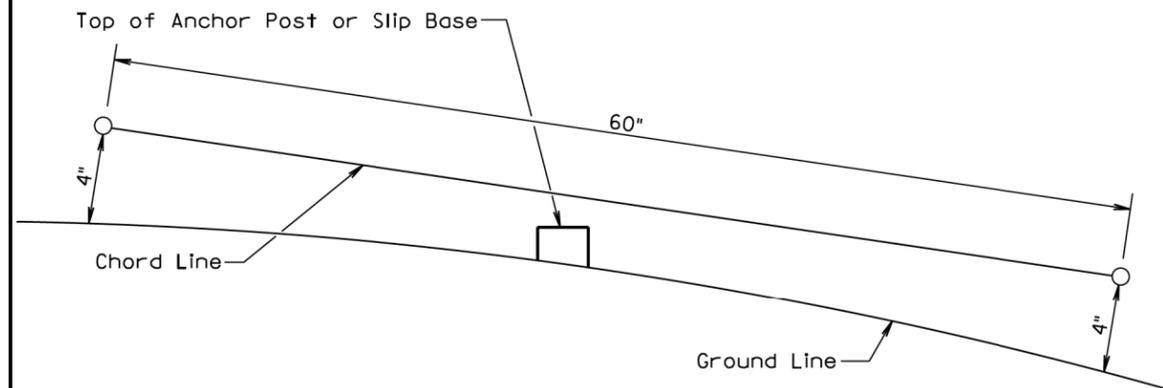
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

September 22, 2014

SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
	Published Date: 1st Qtr. 2017	Sheet 1 of 1



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

Published Date: 1st Qtr. 2017

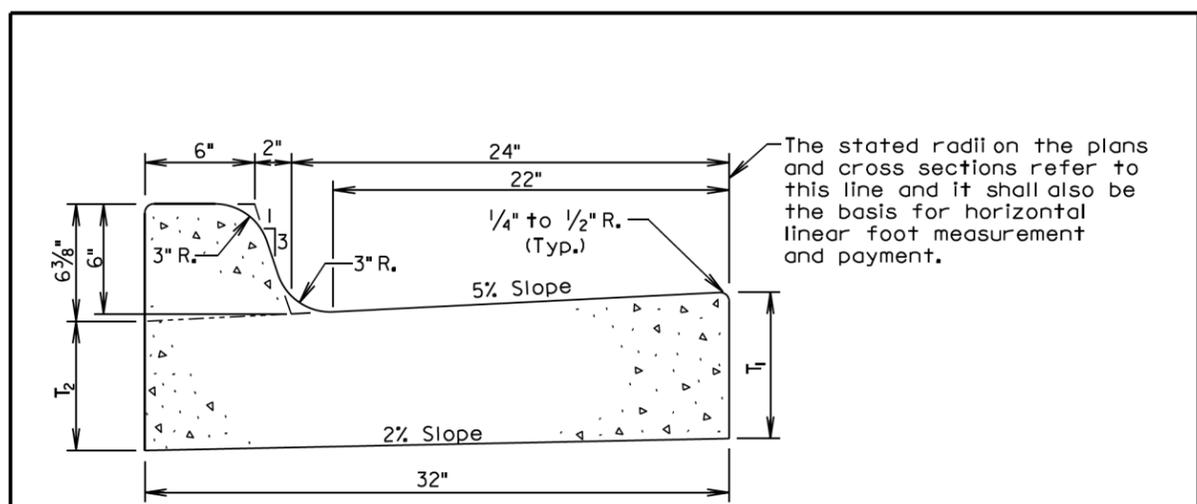
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BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER
634.99

Sheet 1 of 1

Plot Scale - 1:200



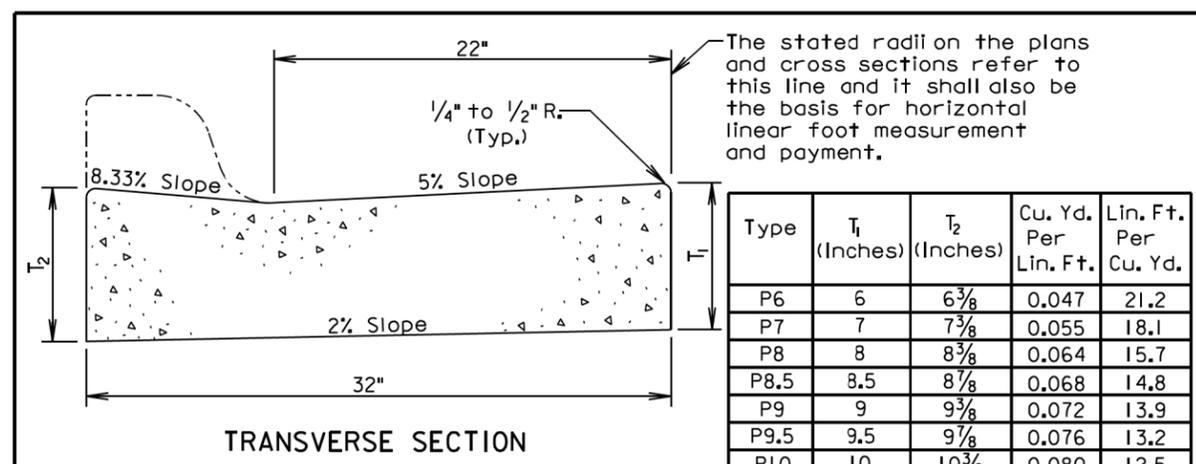
Type	T ₁ (Inches)	T ₂ (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5/16	0.057	17.7
B67	7	6/16	0.065	15.4
B68	8	7/16	0.073	13.7
B68.5	8.5	7 9/16	0.077	13.0
B69	9	8/16	0.081	12.3
B69.5	9.5	8 9/16	0.085	11.7
B610	10	9/16	0.090	11.2
B610.5	10.5	9 9/16	0.094	10.7
B611	11	10/16	0.098	10.2
B611.5	11.5	10 9/16	0.102	9.8
B612	12	11/16	0.106	9.4

GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.
See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

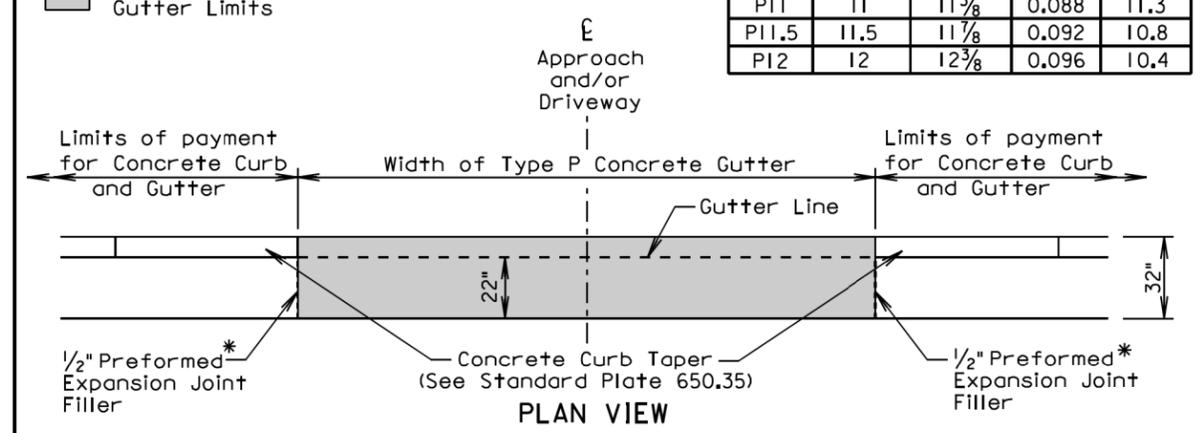
September 6, 2008

S D D O T	TYPE B CONCRETE CURB AND GUTTER	PLATE NUMBER 650.01
	Published Date: 1st Qtr. 2017	Sheet 1 of 1



Legend:
 Type P Concrete
 Gutter Limits

Type	T ₁ (Inches)	T ₂ (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
P6	6	6 3/8	0.047	21.2
P7	7	7 3/8	0.055	18.1
P8	8	8 3/8	0.064	15.7
P8.5	8.5	8 7/8	0.068	14.8
P9	9	9 3/8	0.072	13.9
P9.5	9.5	9 7/8	0.076	13.2
P10	10	10 3/8	0.080	12.5
P10.5	10.5	10 7/8	0.084	11.9
P11	11	11 3/8	0.088	11.3
P11.5	11.5	11 7/8	0.092	10.8
P12	12	12 3/8	0.096	10.4



* Joint will not be needed if concrete curb and gutter and type P concrete gutter is placed at the same time. If the 1/2" Preformed Expansion Joint Filler is provided, then the joint shall be sealed in accordance with Standard Plate 650.90.

GENERAL NOTES:

The concrete for the Type P Concrete Gutter shall comply with the requirements of the Specifications for Class M6 Concrete.
 When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.
 Transverse contraction joints shall be constructed at 10' intervals in the concrete gutter except when concrete gutter is constructed adjacent to mainline PCC pavement. When concrete gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete gutter at each mainline PCC pavement transverse contraction joint location.
 When concrete gutter is placed monolithically with mainline PCC pavement, the transverse contraction joints in the concrete gutter shall be sawed and sealed the same as the transverse contraction joints in the mainline PCC pavement.
 When concrete gutter is not placed monolithically with the mainline PCC pavement and when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete gutter shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete.

June 26, 2015

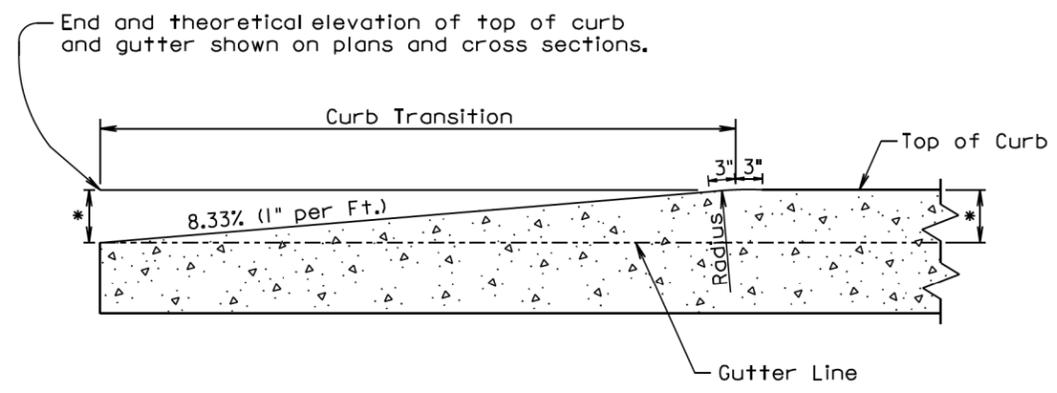
S D D O T	TYPE P CONCRETE GUTTER	PLATE NUMBER 650.30
	Published Date: 1st Qtr. 2017	Sheet 1 of 1

File - ...Design\650_1.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	17	19

Plotting Date: 04/05/2017

Plot Scale - 1:200



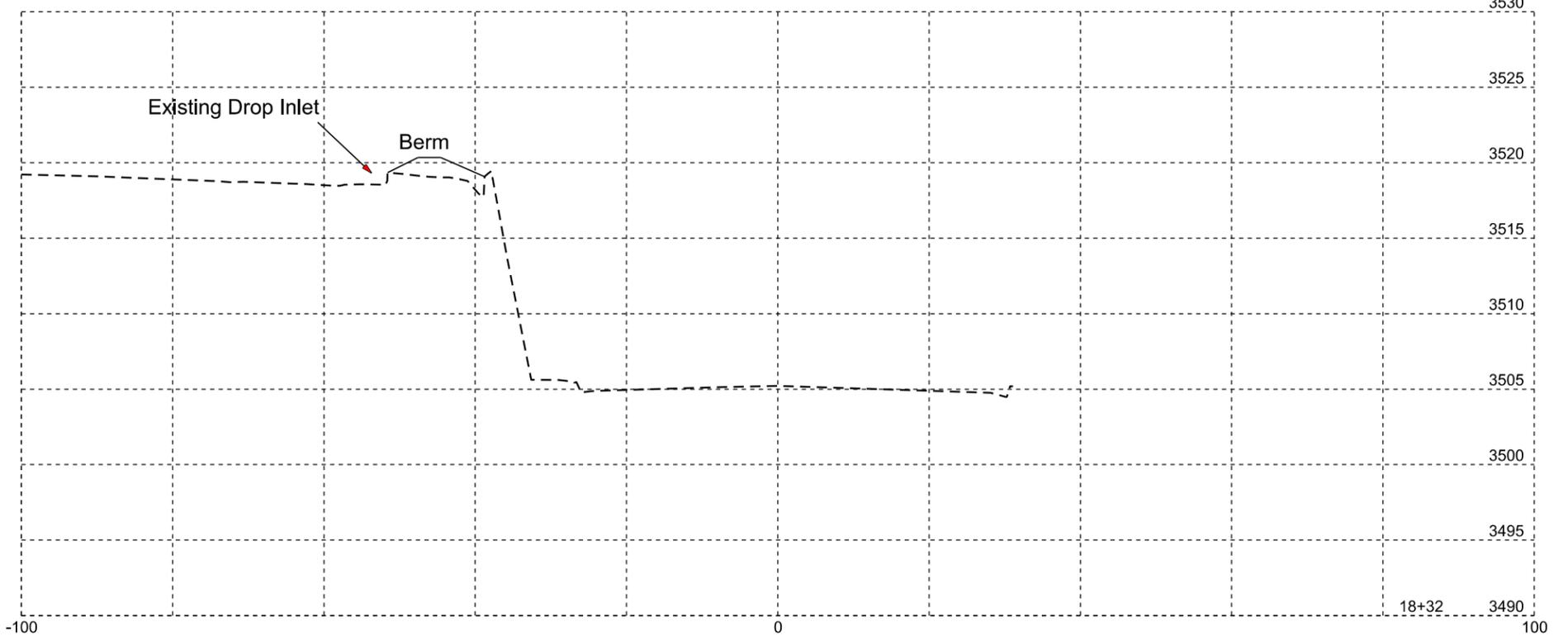
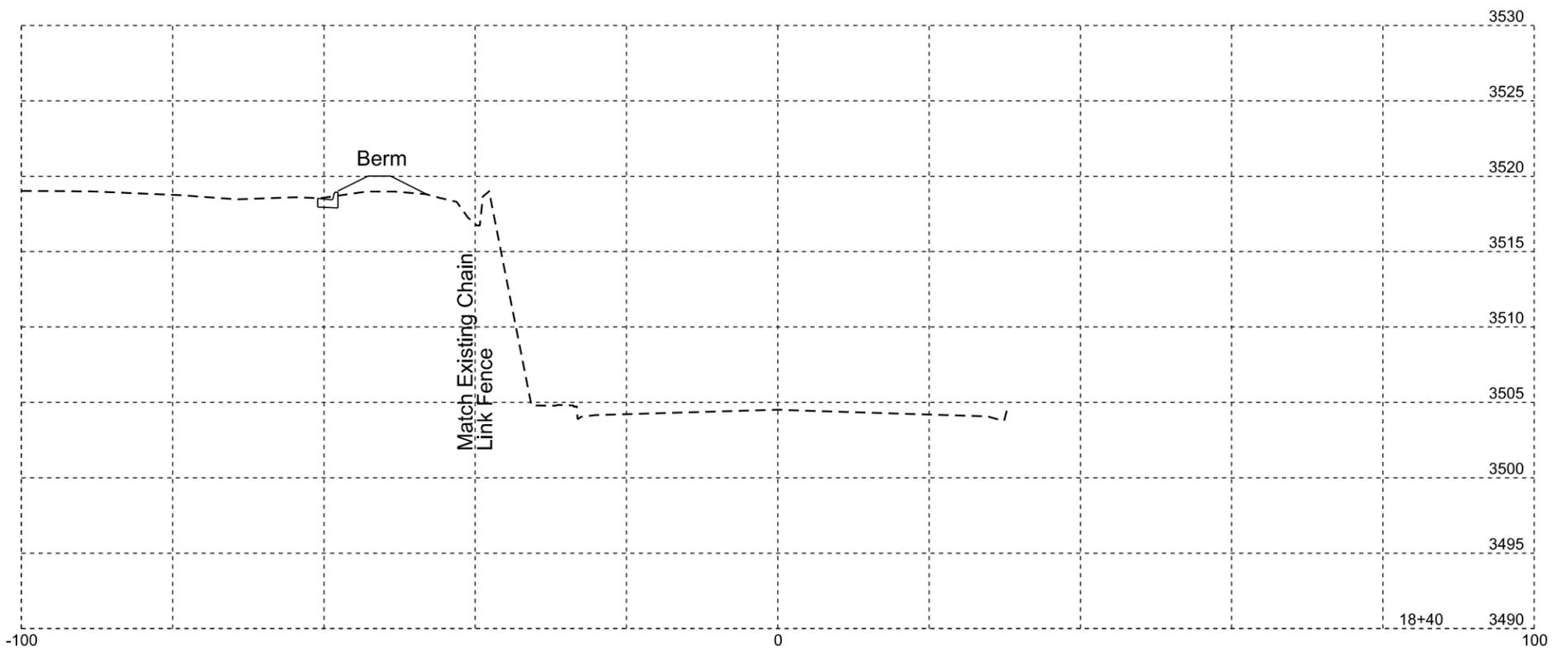
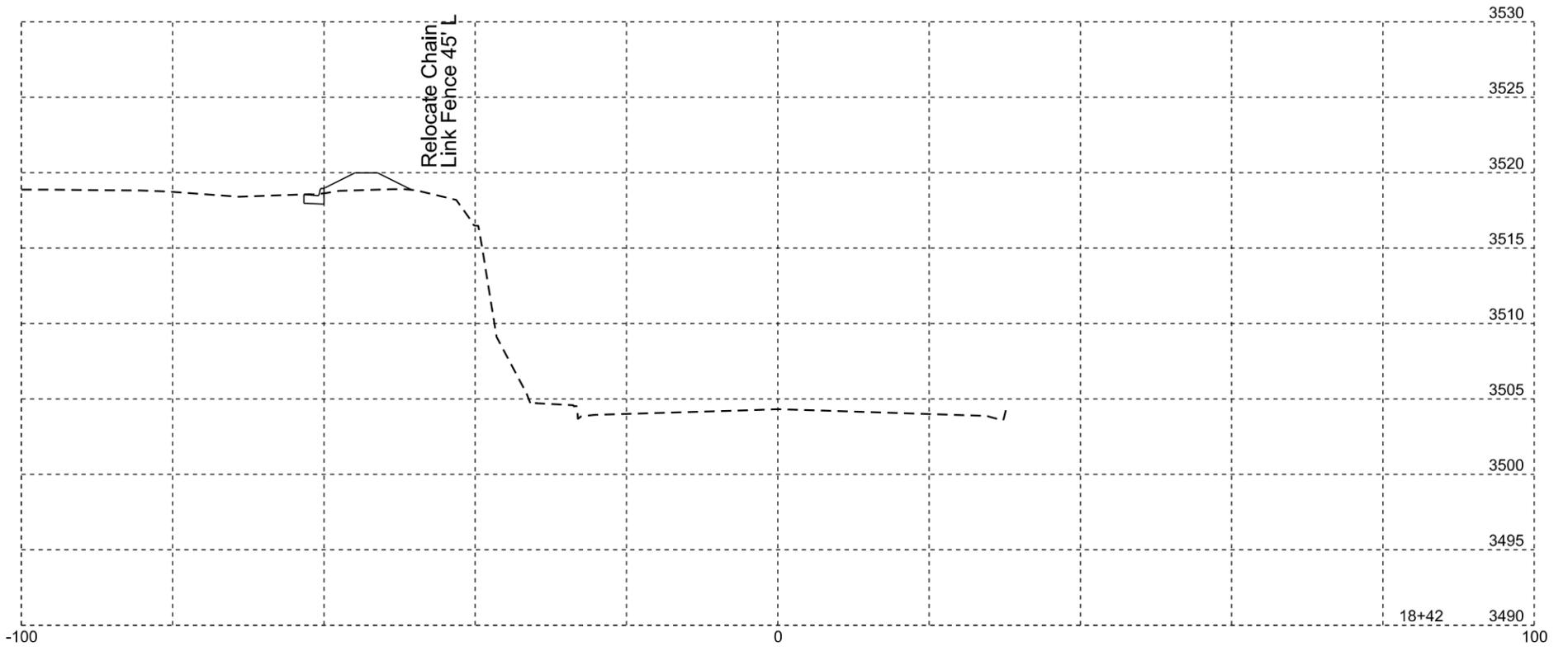
LONGITUDINAL SECTION OF CONCRETE CURB TAPER

September 14, 2005

<i>Published Date: 1st Qtr. 2017</i>	S D D O T	CONCRETE CURB TAPER	PLATE NUMBER 650.35
			Sheet 1 of 1

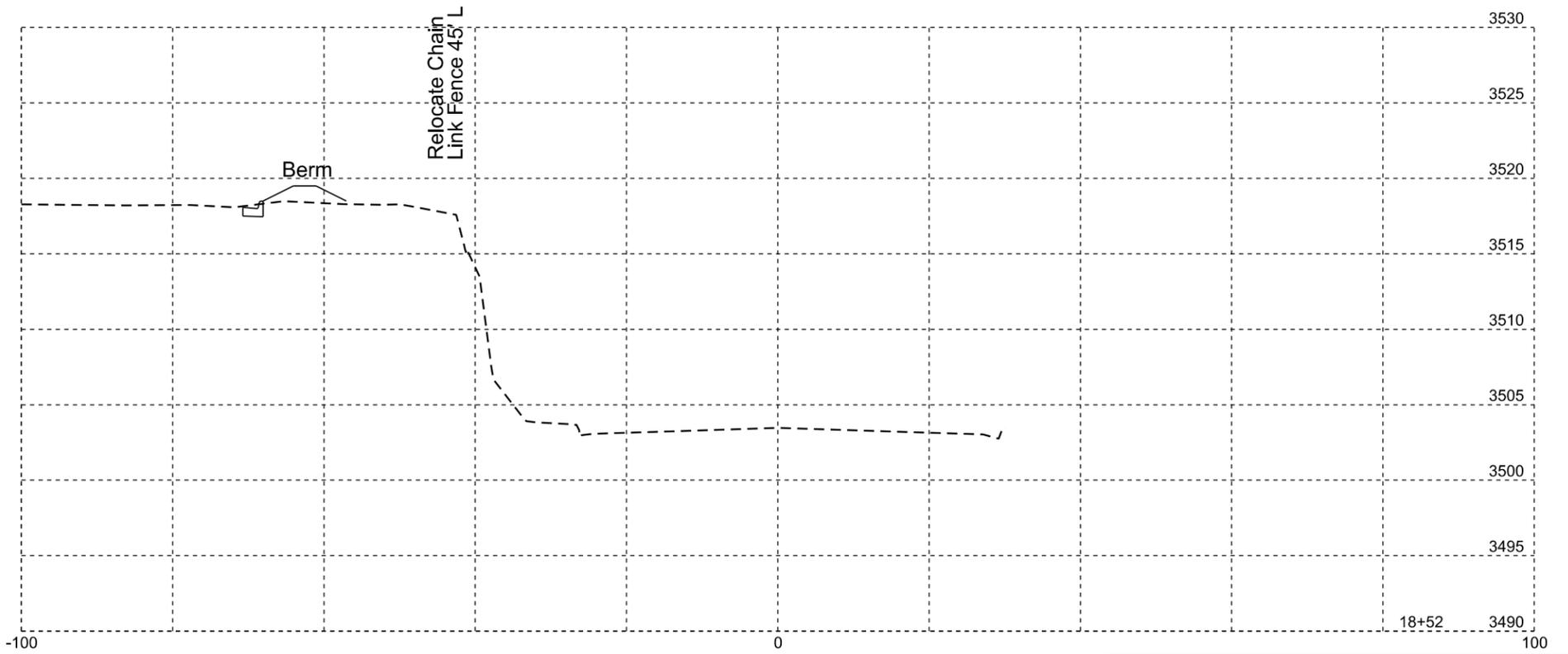
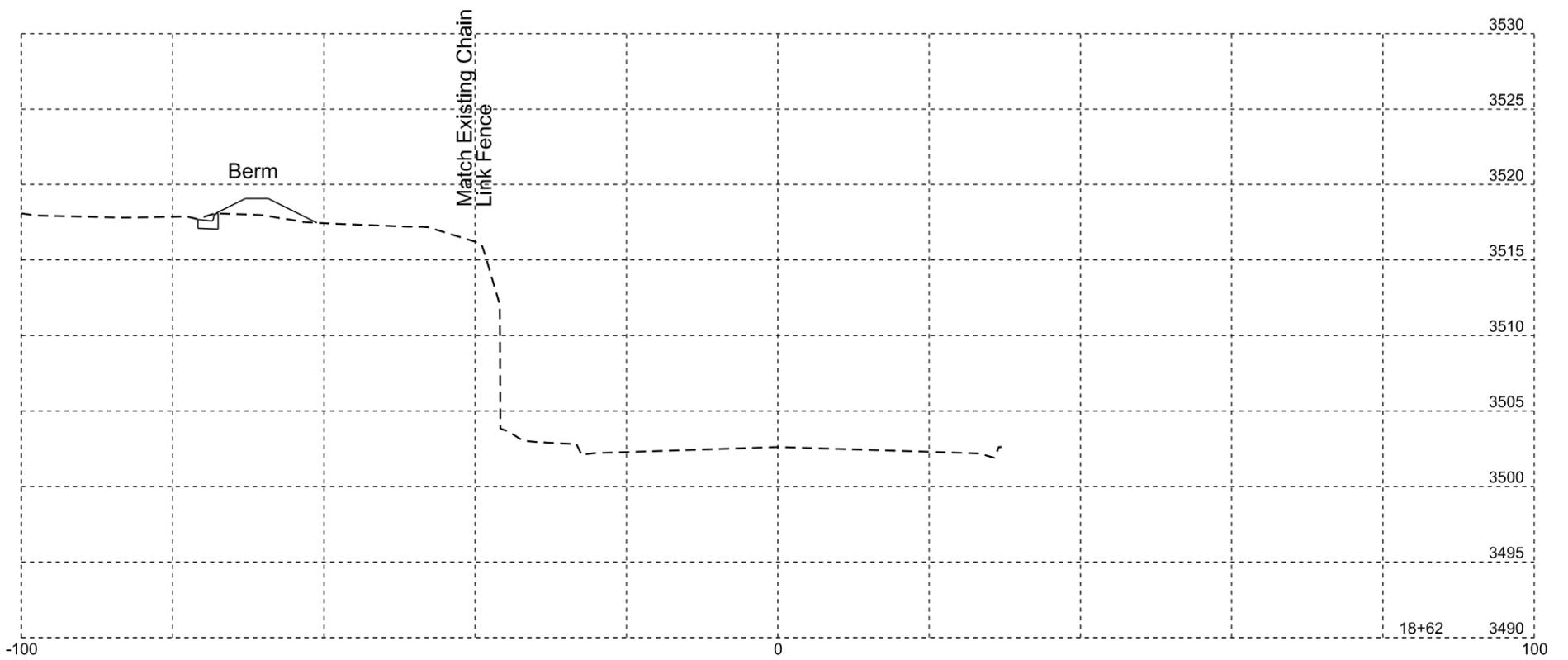
- Plotted From - trcs12608

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Plotting Date: 04/05/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	018-492	18	19



Plotting Date: 04/05/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	018-492	19	19