

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH-B 0385()87	1	18

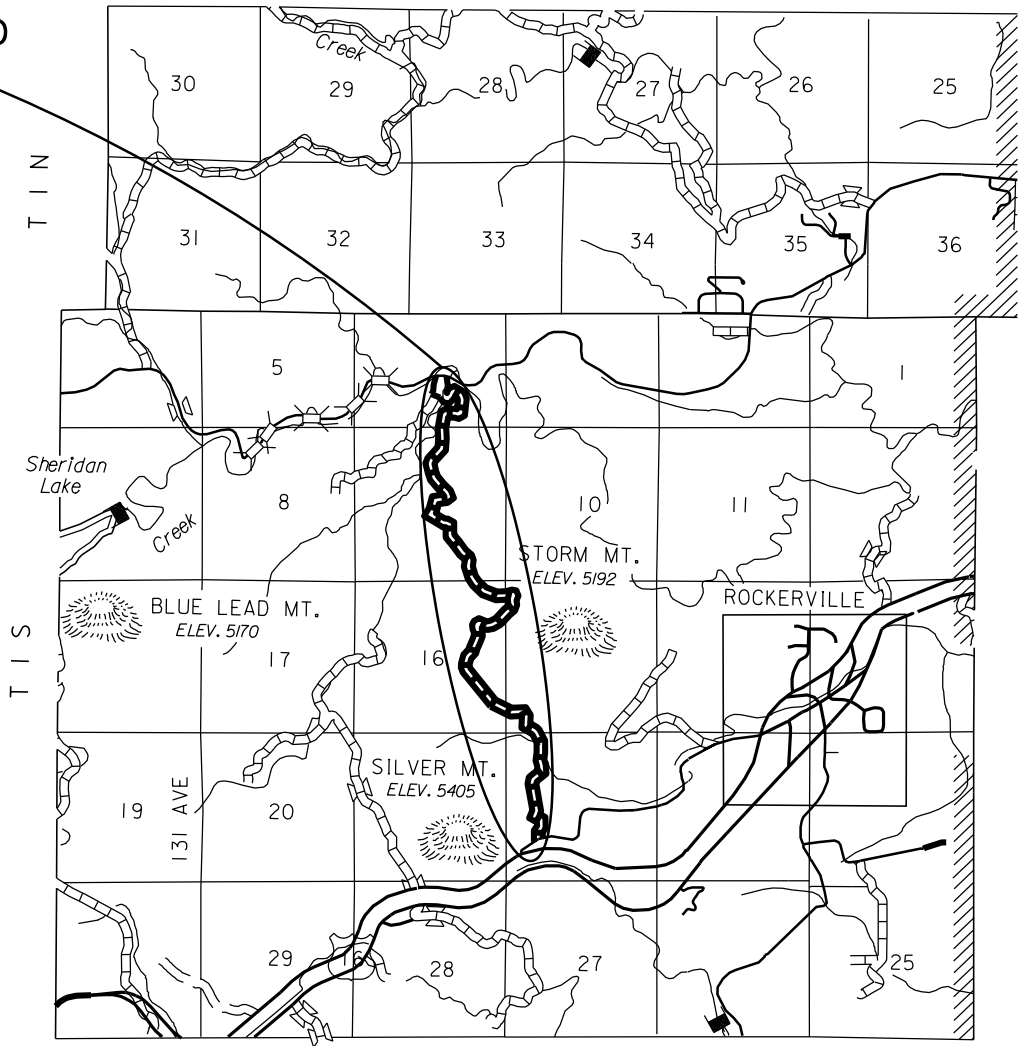
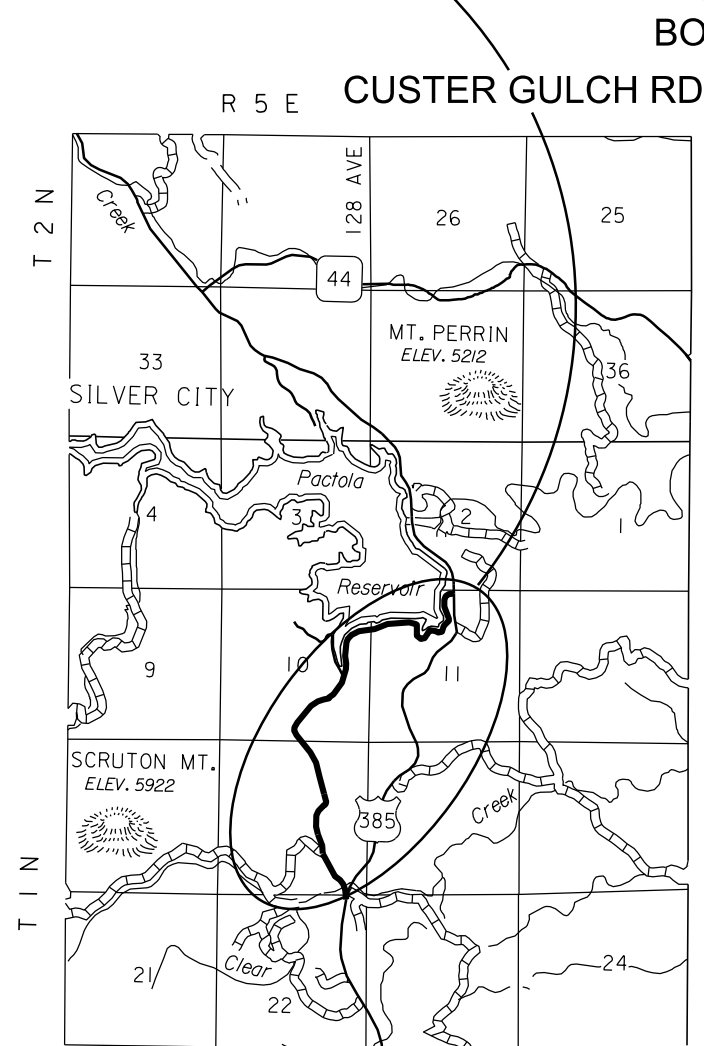
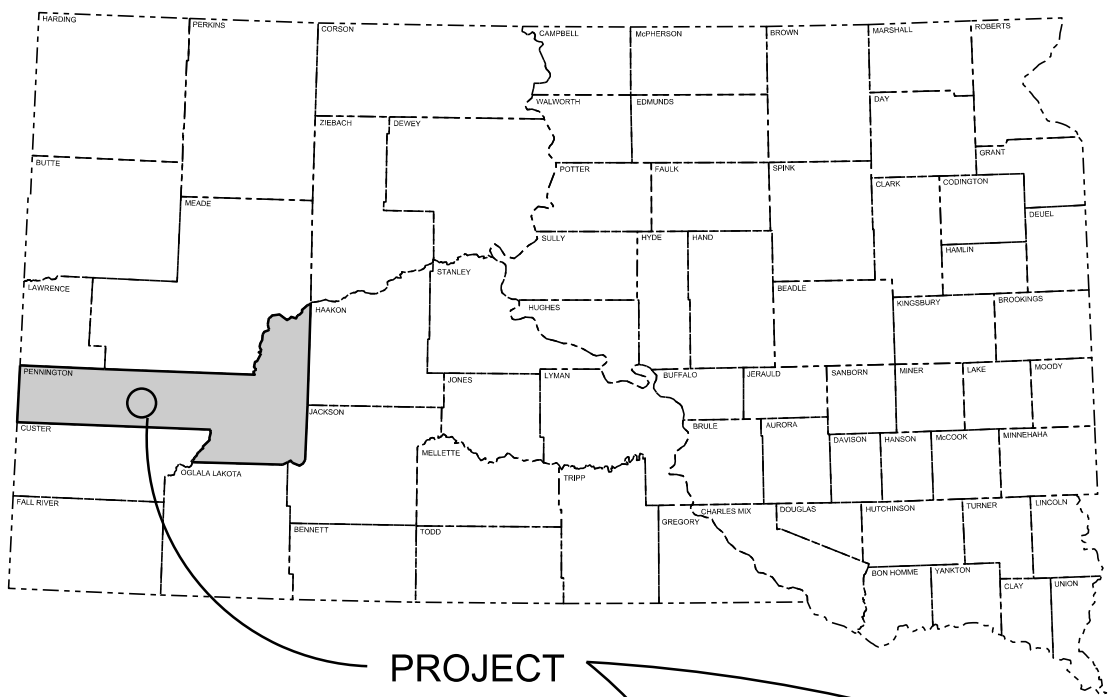
Plotting Date: 05/13/2024 Revised 5/13/24 GDS

PROJECT NH-PH-B 0385()87
BOULDER HILL ROAD
& CUSTER GULCH RD
PENNINGTON COUNTY
 GRAVEL SURFACING & CATTLE GUARD REPLACEMENT
 PCN 09KE

INDEX OF SHEETS

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Plot Scale - 1:200



4

June 26, 2024

Plotted From - TRRC12608

STORM WATER PERMIT
 None Required

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ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0550	Remove Cattle Guard	1	Each
120E6200	Water for Granular Material	45.0	MGal
210E1005	Surface Preparation	4.500	Mile
210E3500	Heavy Roadway Shaping	0.340	Mile
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	1,006.7	Ton
260E3010	Gravel Surfacing	4,158.0	Ton
610E0200	Forest Service Cattle Guard	1	Each
620E0020	Type 2 Right-of-Way Fence	30	Ft
620E0520	Type 2 Temporary Fence	60	Ft
620E1020	2 Post Panel	3	Each
632E2002	4"x4" Amber Delineator Back to Back with 1.12 Lb/Ft Post	7	Each
632E2020	4"x4" White Delineator with 1.12 Lb/Ft Post	99	Each
632E2510	Type 2 Object Marker Back to Back	14	Each
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	48.0	SqFt
634E0010	Flagging	100.0	Hour
634E0020	Pilot Car	50.0	Hour
634E0110	Traffic Control Signs	428.8	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

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

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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 C: WATER SOURCE

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

Action Taken/Required:

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

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:

< <https://sdleastwanted.sd.gov/maps/default.aspx> >

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

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH-PH-B 0385()87	3	18

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historic 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 a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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

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

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this 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 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

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

COMMITMENT S: FIRE PREVENTION IN THE BLACK HILLS AREA

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

Action Taken/Required:

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

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.

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 Project Engineer to determine modifications that will be necessary to avoid utility impacts.

Any damage done to a utility will be the Contractor's responsibility to repair.

Utilities within the limits of the proposed construction will be adjusted by the owner as addressed in SDCL 31-26-23 unless otherwise indicated in these plans.

HEAVY ROADWAY SHAPING

Heavy Roadway Shaping is provided for flattening and restoration of rolling dips as directed by the Engineer.

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Gravel Surfacing spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor will compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts.

The station-to-station spread will be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor will verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each day's ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item will be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor will correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor will be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/4" of the plan shown depth, the Contractor will correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer.

All costs for providing the Contractor furnished checker and performing all related duties will be incidental to the contract lump sum price for the CHECKER. No allowances will be made to the contract lump sum price for CHECKER due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25%. Payment for the CHECKER will then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

RATES OF MATERIALS

Gravel Surfacing will be placed for 4.5 miles at 15' x 2" at a rate of 140 lbs/CuFt.

Mile 0.00 to Mile 4.50

The Estimate of Quantities is based upon the following quantities of materials per mile.

Gravel Surfacing at a rate of 924 Tons per mile placed at a thickness of 2 inches.

Water for Granular Material at a rate of 10 Gal per CuYd of Gravel Surfacing and Base Course.

GRAVEL SURFACING

Gravel Surfacing will be furnished by the Contractor. Standard Specifications for Gravel Surfacing will apply except for the following:

Sieve Requirements

Gradation	Percent Passing
2"	100%
1 1/2"	95%-100%
3/4"	80%-95%
#4	40%-80%
#8	37%-67%
#200	5%-15%

Plasticity Index = 0-12
LA Abrasion Loss = 50% Maximum

All other requirements of the Standard Specifications for Gravel Surfacing will apply.

The Contractor's operations will be such that all materials hauled to the roadway will be bladed into place and compacted prior to darkness.

To avoid an abrupt transition, at the end of daily operations the Contractor will blend a ramp of the gravel material to 3 feet for every inch of elevation change between the new and existing surface levels.

CLEARING

Clearing will be completed to 8' on each side of the gravel and as detailed in the materials table. Clearing will exclude anything with greater than a 3" diameter stem/trunk at 3" above ground level.

FOREST SERVICE CATTLE GUARD

The Forest Service Cattle Guard will be constructed according to the special details provided in these plans. The cattle guard will require 2 – 8' panels and 4 bases. No wings will be required for this installation.

INCIDENTAL WORK, GRADING

Mile	L/R	Remarks
0.0	R	Ditch Shaping
0.3	L	Ditch Shaping
3.2 – 3.3	R	Ditch Shaping
4.2 – 4.3	L	Ditch Shaping

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 construction operations will 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 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.

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for Traffic Control Signs.

MAINTENANCE OF APPROACHES DURING OPERATIONS

Operations will be conducted such that access to individual entrances will be maintained at all times throughout the project.

INVENTORY OF TRAFFIC CONTROL DEVICES

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R4-7	KEEP RIGHT (symbol)	2	24" x 30"	5.0	10.0
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	2	48" x 48"	16.0	32.0
SPECIAL	WINDROW	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	6	48" x 48"	16.0	96.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
W21-3	ROAD MACHINERY AHEAD	2	48" x 48"	16.0	32.0
W21-5a	LEFT or RIGHT SHOULDER CLOSED	2	48" x 48"	16.0	32.0
SPECIAL	WAIT FOR PILOT CAR	1	18" x 30"	3.8	3.8
G20-1	ROAD WORK NEXT 2 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 3 MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	10	36" x 18"	4.5	45.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					428.8

FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours. Also included in the Estimate of Quantities are WAIT FOLLOW PILOT CAR signs for use on low volume intersecting roads as determined by the Engineer. WAIT FOLLOW PILOT CAR signs will not block the view of the stop sign.



It is required that the flaggers and pilot car operators be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for Flagging.

DELINEATORS

Three white Delineators will be placed on the outsides of curves. White Delineators will be placed at the PC, PI, and PT of the curves on Boulder Hill Road and on Custer Gulch Road as directed by the Engineer.

Amber Delineators will be placed at pipe locations as designated in these plans and as directed by the Engineer.

Table of Material Quantities

Mile	Description of work	Surface Preparation	Heavy Roadway Shaping	Gravel Surfacing	Base Course	Water for Granular Material	Remove Cattle Guard	Forest Service Cattle Guard	2 Post Panel	Type 2 Temporary Fence	Type 2 Right-of-Way Fence	Type 2 Object Marker Back to Back	4"x4" Amber Delineator Back to Back with 1.12 Lb/Ft Post
Mile	Description of work	Mile	Mile	Ton	Ton	Mgal	Each	Each	Each	Ft	Ft	Each	Each
0.0- 4.5	Gravel Surfacing	4.5		4158		45							
0.1	Delineate Pipe											2	1
0.2	Additional Base Course 2" x 200' x 18'				42.8								
0.5	Clear small trees Rt.												
0.8	Delineate Pipe											2	1
0.9	Delineate Pipe											2	1
0.9-1.3	Additional Base Course 2" x 2200' x 15'				392.7								
1	Flatten Rolling Dip 100'		0.02										
1.1	Flatten Rolling Dip 100'		0.02										
1.4	Flatten Rolling Dip 100'		0.02										
1.4-1.8	Additional Base Course 2" x 2200' x 15'				392.7								
1.6	Flatten Rolling Dip 100'		0.02										
1.7	Flatten Rolling Dip 100'		0.02										
1.8	Flatten Rolling Dip 100'		0.02										
1.8	Clear small trees Rt												
1.95	Delineate Pipe											2	1
2.0	Flatten Rolling Dip 100'		0.02										
2.1	Flatten Rolling Dip 100'		0.02										
2.1-2.3	Additional Base Course 2" x 1000' x 15'				178.5								
2.2	Replace Switchback sign												
2.3	Flatten Rolling Dip 100'		0.02										
2.4	Flatten Rolling Dip 100'		0.02										
2.6	Flatten Rolling Dip 100'		0.02										
2.9	Flatten Rolling Dip 100'		0.02										
3	Delineate Pipe											2	1
3.1	Cattle Guard Remove/Replace						1	1	3	60	30		
3.3	Delineate Pipe											2	1
3.4	Flatten Rolling Dip 100'		0.02										
3.8	Flatten Rolling Dip 100'		0.02										
3.9	Clear small trees Rt												
3.9	Flatten Rolling Dip 100'		0.02										
4.0 - 4.2	Additional Base Course												
4.2	Clear small trees Lt												
4.3	Add Stop Ahead Sign												
4.26	Flaten Rolling Dip 100'		0.02										
4.26	Flatten Rolling Dip 100'		0.02										
4.3	Delineate Pipe											2	1
4.5	End												
Total		4.5	0.34	4158	1006.7	45	1	1	3	60	30	14	7

Roadway Delineators							
Boulder Hill Road			4"x4" White Delineator with 1.12 Lb/Ft Post	Custer Gulch Road			4"x4" White Delineator with 1.12 Lb/Ft Post
Mile	Side	Each		Mile	Side	Each	
0.05	Rt	3		0.65	Rt	3	
0.12	Lt	3		1.21	Lt	3	
0.18	Rt	3		2.03	Lt	3	
0.23	Rt	3		2.06	Rt	3	
0.27	Lt	3		2.09	Lt	3	
0.53	Lt	3		2.18	Rt	3	
0.62	Rt	3		2.49	Lt	3	
0.96	Lt	3		2.57	Rt	3	
1.05	Rt	3		2.6	Rt	3	
1.90	Lt	3		2.69	Lt	3	
2.27	Rt	3		2.74	Rt	3	
3.00	Rt	3		2.79	Lt	3	
3.14	Lt	3		2.85	Rt	3	
3.27	Lt	3		3.04	Lt	3	
3.33	Rt	3			Subtotal	42	
3.94	Lt	3					
4.05	Rt	3					
4.23	Rt	3					
4.30	Lt	3					
	Subtotal	57					
					Grand Total	99	

PERMANENT SIGN TABLE

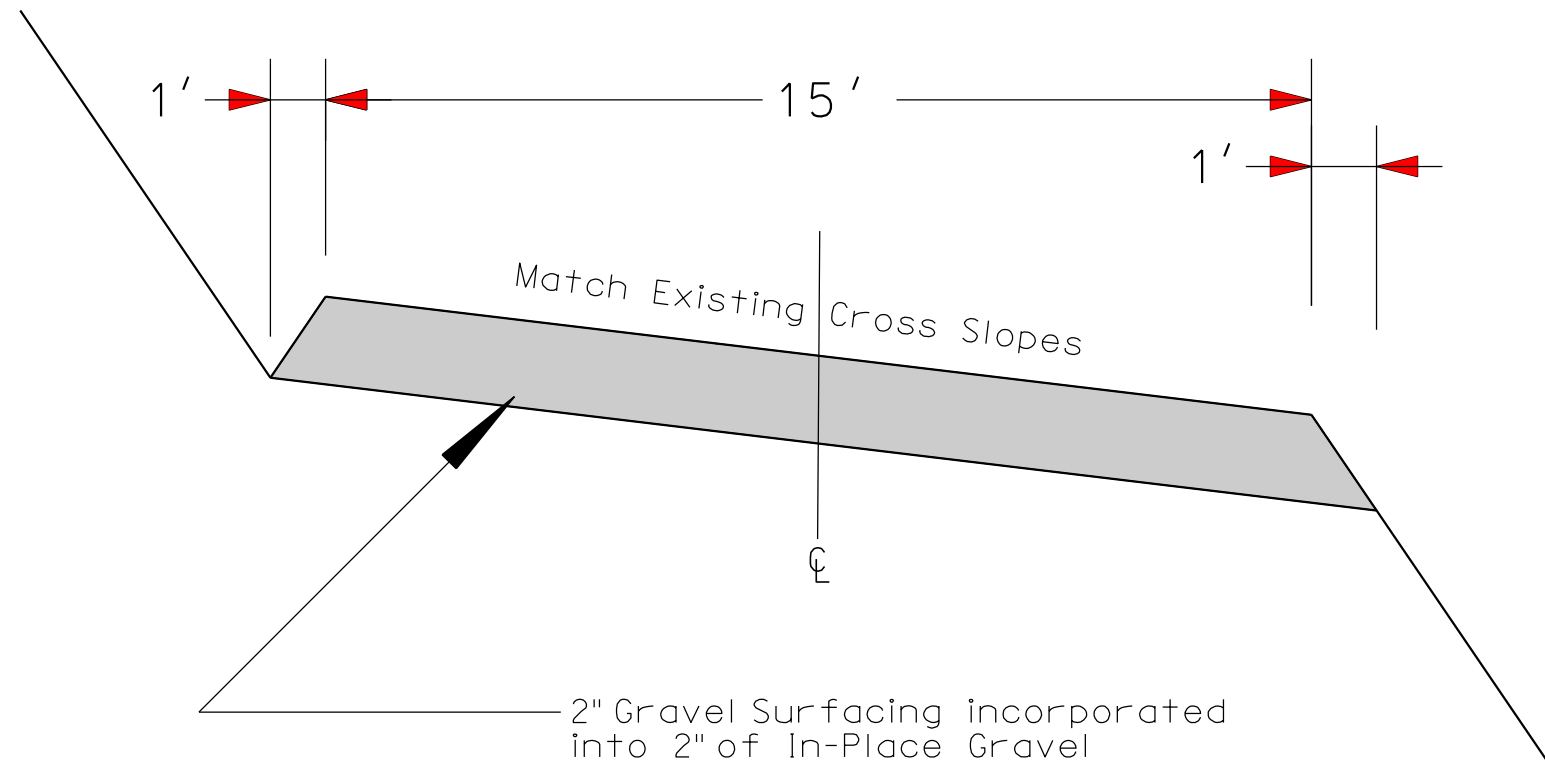
EXISTING Mile	NEW MRM	SIGN								POST					DESCRIPTION	REMARKS
		Width (in)	Height (in)	Number	Facing Traffic	New Sign	Remove Existing	Square Footage	Sheeting Type	New Post	Length (ft)	Size (in)	#	Shear Slip Base		
2.2	2.2	48	48	W1-11	NORTHBOUND	Flat Alum.	Yes	16.0	XI	Yes	?	2	2	No	Hairpin Curve Left	Install New Sign on New Post @ New Location (As directed)
2.2	2.2	48	48	W1-11	SOUTHBOUND	Flat Alum.	Yes	16.0	XI	Yes	?	2	2	No	Hairpin Curve Right	Install New Sign on New Post @ New Location (As directed)
None	4.3	48	48	W3-1	NORTHBOUND	Flat Alum.	No	16.0	XI	Yes	?	2	2	No	Stop Ahead	Install New Sign on New Post @ New Location (As directed)

TYPICAL SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH-B 0385()87	7	18

Plotting Date: 04/22/2024

Typical Surface Preparation
& Gravel Surfacing Section
Mile 0.00 to Mile 4.50



Plot Scale - 1:2.92

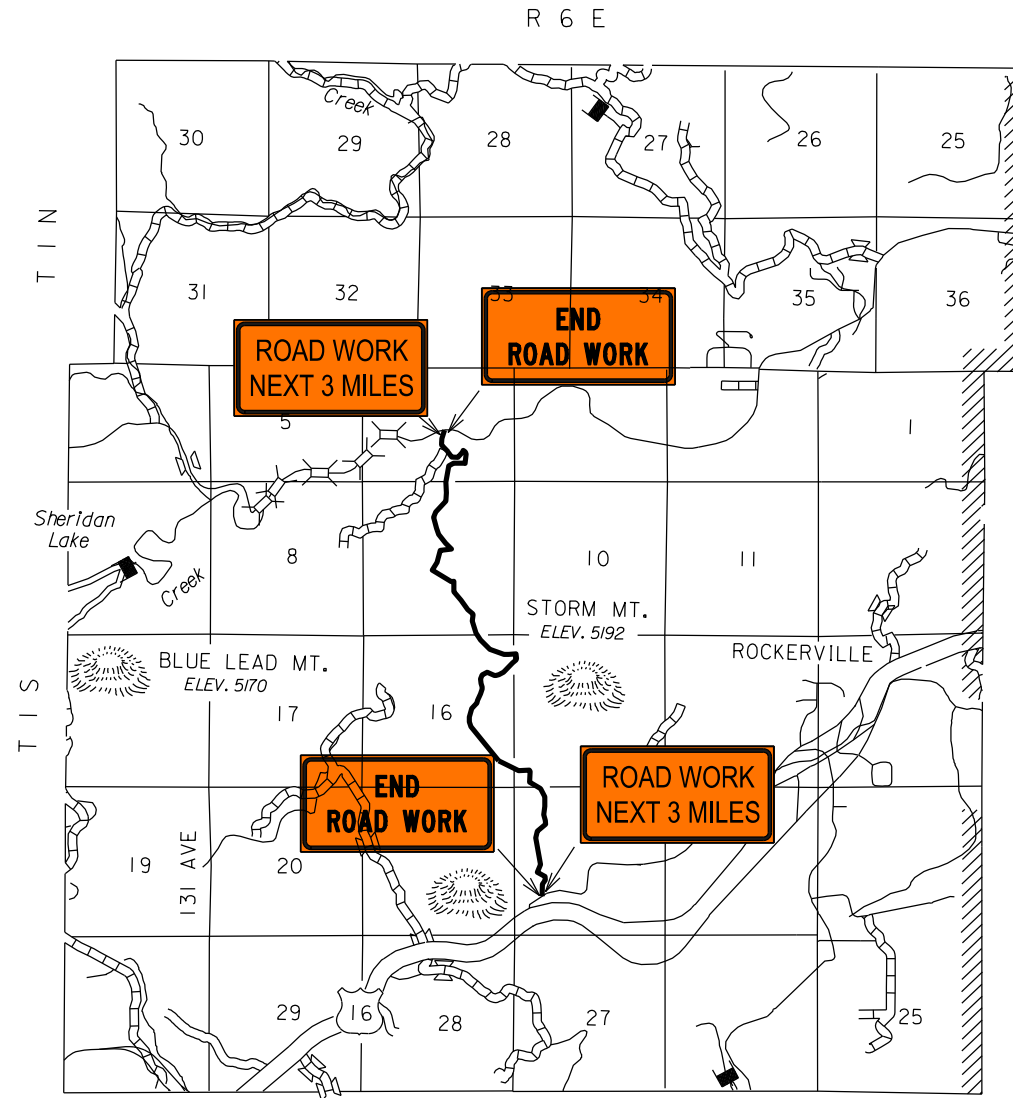
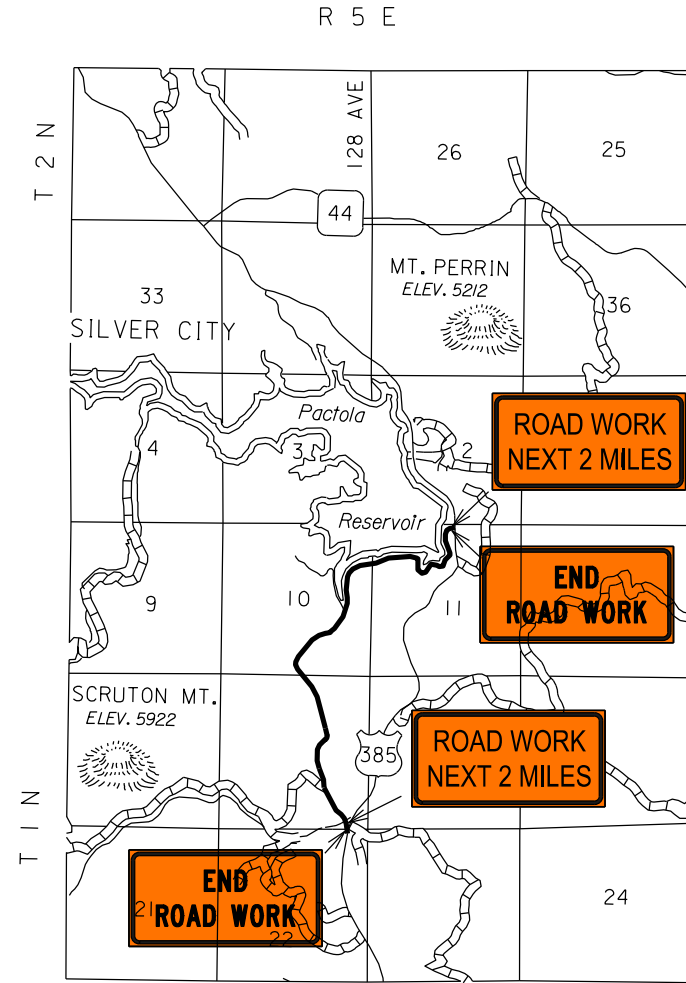
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH-B 0385()87	8	18

Plotting Date: 04/16/2024

FIXED LOCATION SIGNS

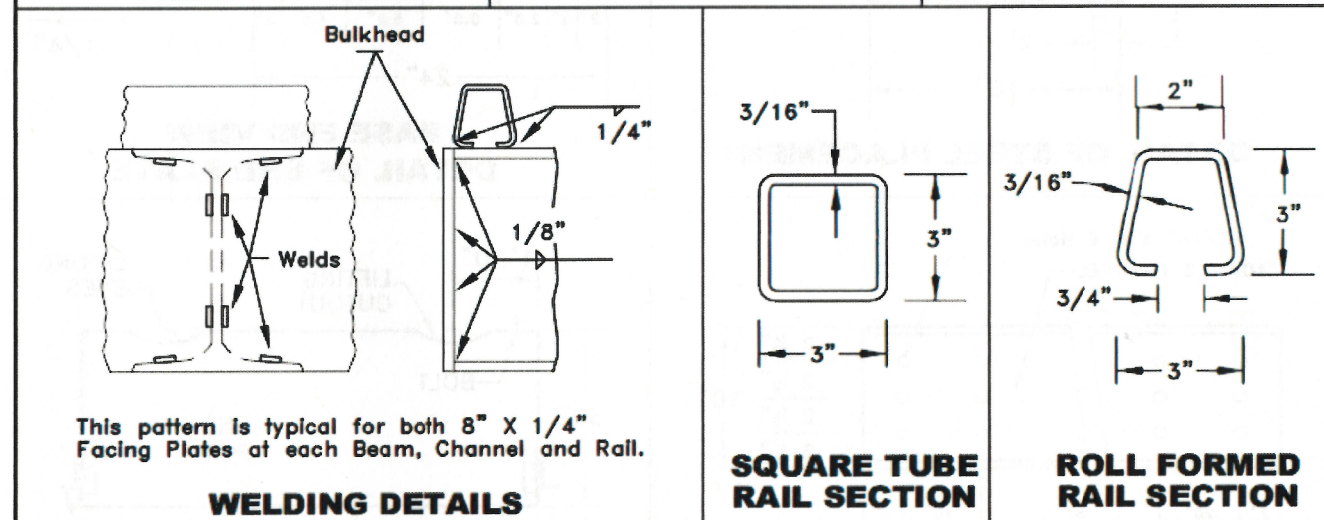
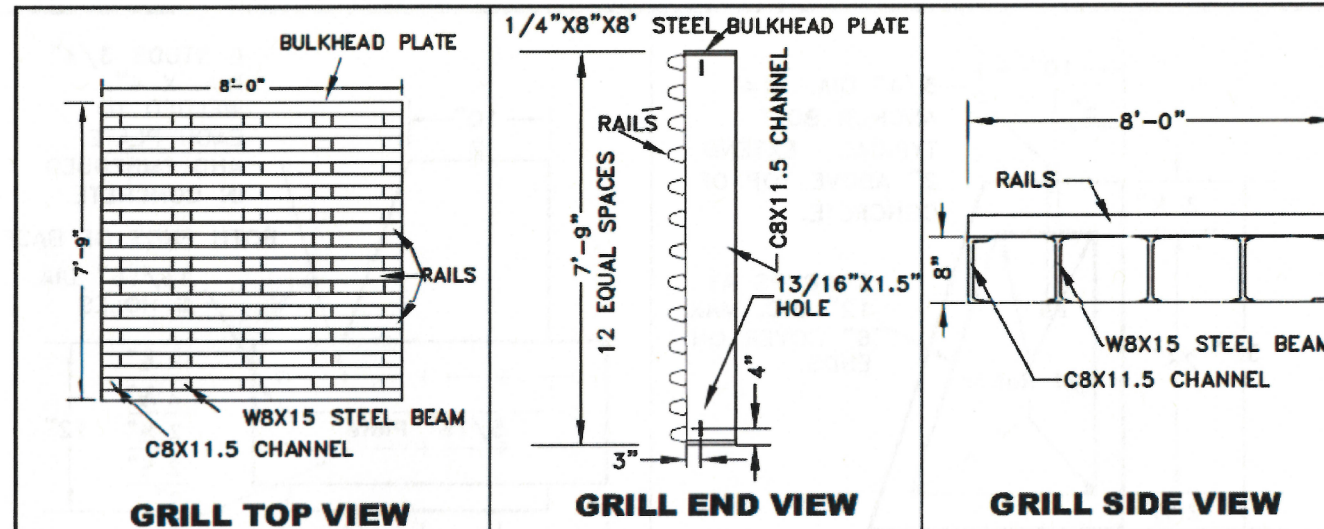


PLOT SCALE - 1:200

PLOTTED FROM - TRRC12508

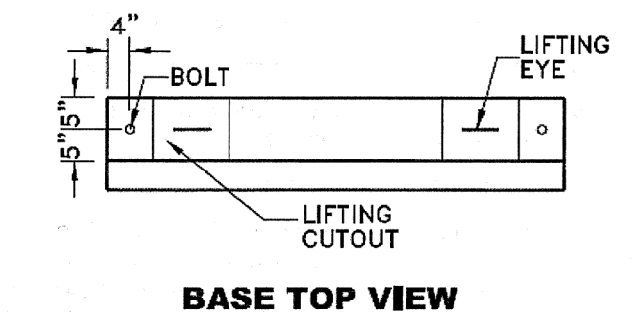
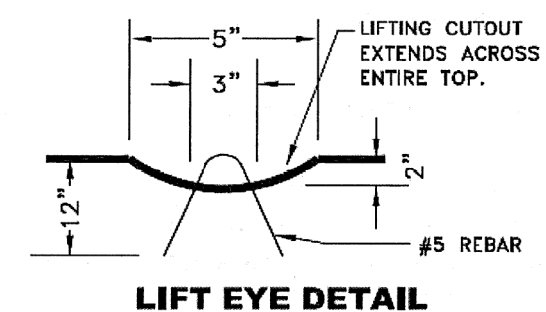
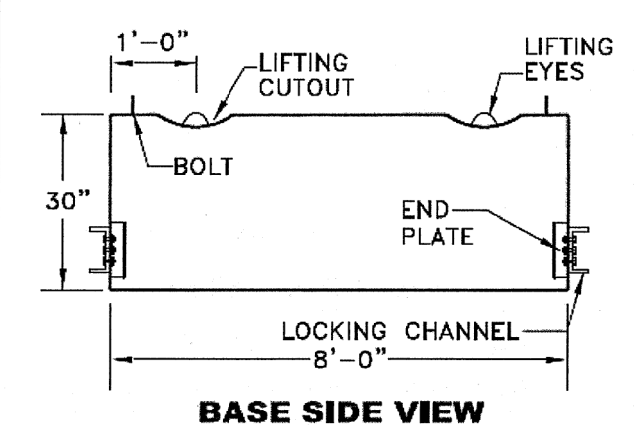
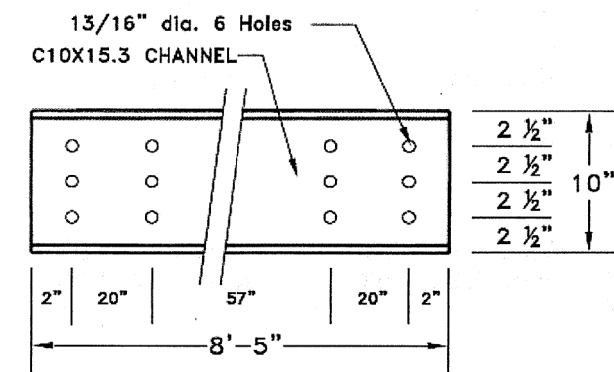
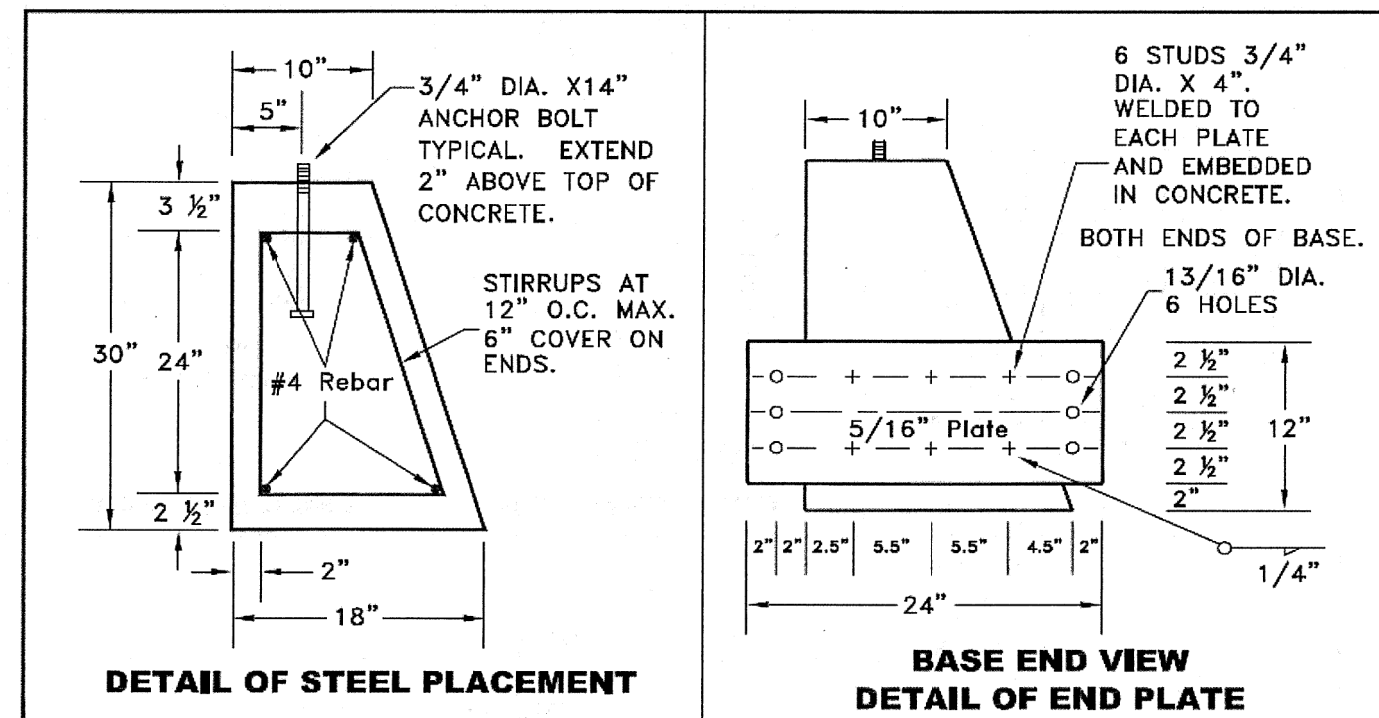
PLOT NAME - 3

FILE - ... \PENNDOT\FIXED SIGNS 30.DGN



1. Design Live Load - AASHTO-HL-93.
2. Structural Steel Rails shall be formed from high-strength, low-alloy structural steel conforming to subsection 717.01(b). All other structural steel shall conform to subsection 717.01(a). Bolts and Nuts shall conform to subsection 717.01(d).
3. Painting shall conform to Section 563. Color is Federal Standard Color 24325.
4. All welding shall conform to subsection 555.18.
5. Concrete shall be air entrained Portland Cement Concrete using Type 1 cement in accordance with Section 601.03, method A.
6. Standard manufactured units may be substituted with approval of the CO.
7. Grill top can be constructed of square tube or roll formed steel. Roll formed is preferred.
8. These notes refer to Federal Highway Administration Standard Specification for Construction of Roads and Bridges on Federal Highway Projects (FP_03) these specifications are available at: <http://www.wfl.fhwa.dot.gov/design/specs/fp03.htm>

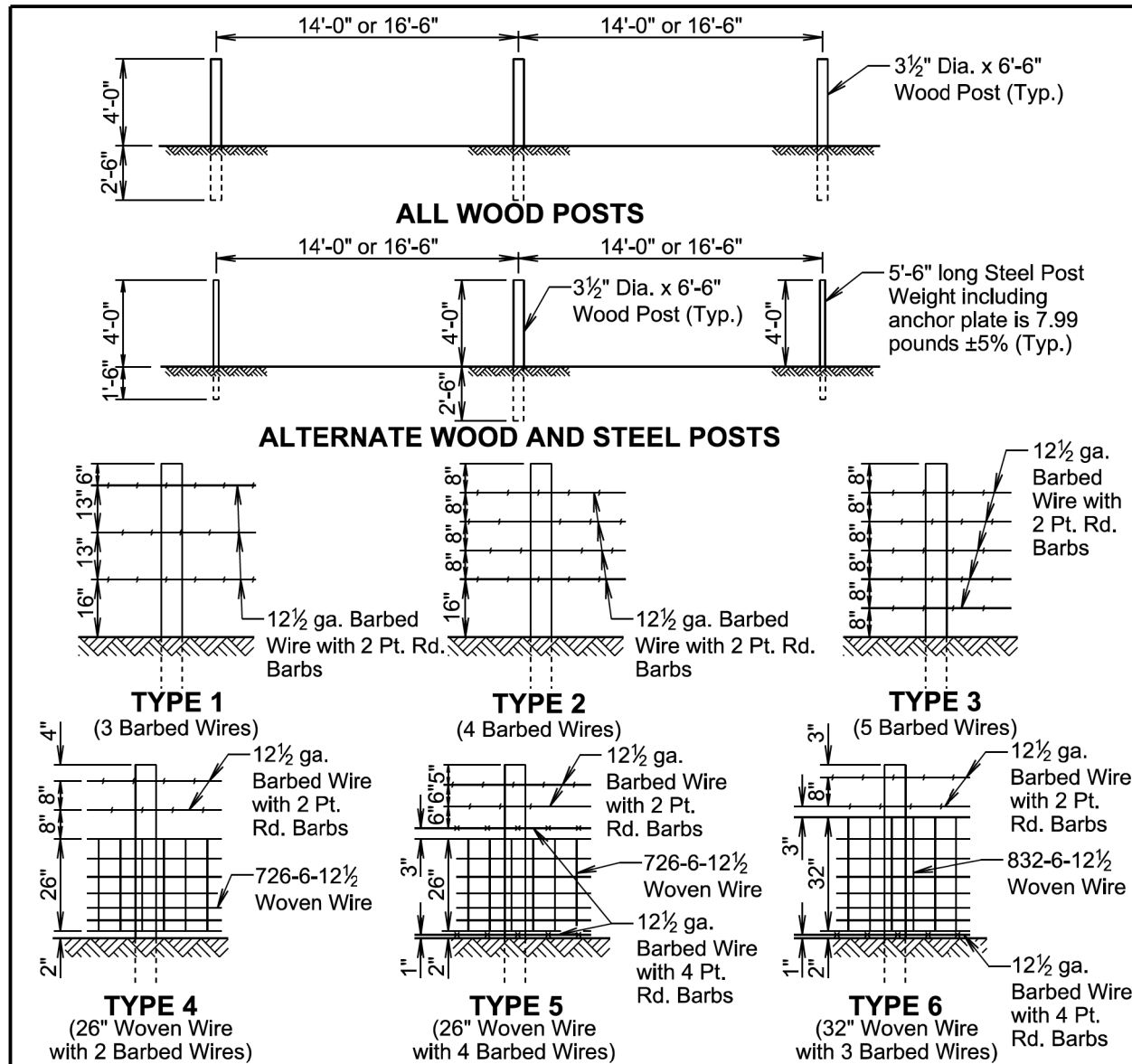
NOT TO SCALE



1. WITH EACH 2 BASES INCLUDE 1 LOCKING CHANNEL AND 18 EACH ASTM A307 3/4"X2" BOLTS WITH LOCK WASHERS.
2. SEE STEEL NOTES ON DRAWING 619-05-01.

NOT TO SCALE

Plot Scale - 1:200



TYPE OF FENCE		LINE POST SPACING	WIRE GAGE	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION			NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.	
1	3 Barbed Wires	16'-6"	12 1/2	2 Point Round	—	—
2	4 Barbed Wires	16'-6"	12 1/2	2 Point Round	—	—
3	5 Barbed Wires	16'-6"	12 1/2	2 Point Round	—	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12 1/2	2 Point Round	726-6-12 1/2	—
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12 1/2	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12 1/2	—
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12 1/2	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	832-6-12 1/2	—

GENERAL NOTES:

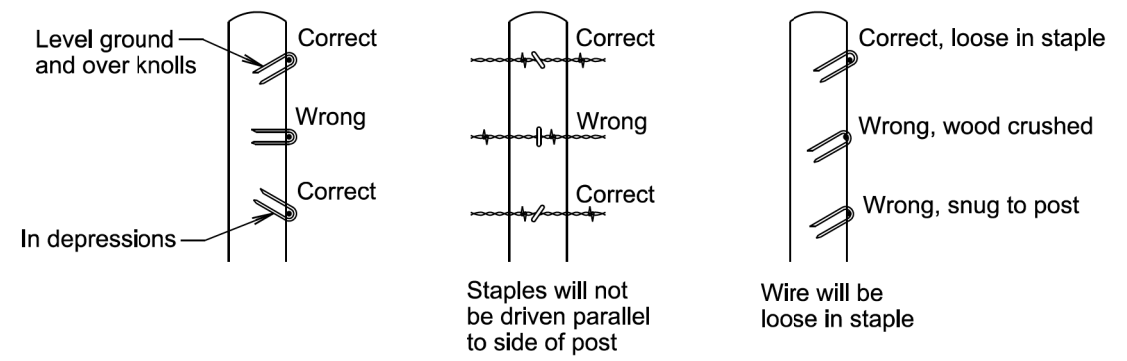
Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All degrees of curvature stated for fence are at centerline of roadway.

June 26, 2019

S D D O T	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01
	Published Date: 2024	Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence will consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire will be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts will be used for brace panels. Gates will be of the type designated in the plans or as otherwise directed by the Engineer. Fence will be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects will be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs will be fabricated from zinc coated 14 ga. wire. Two point barbs will be wrapped twice around one main strand at four-inch spacings and the four point barbs will be interlocked and wrapped around both main strands at five-inch spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

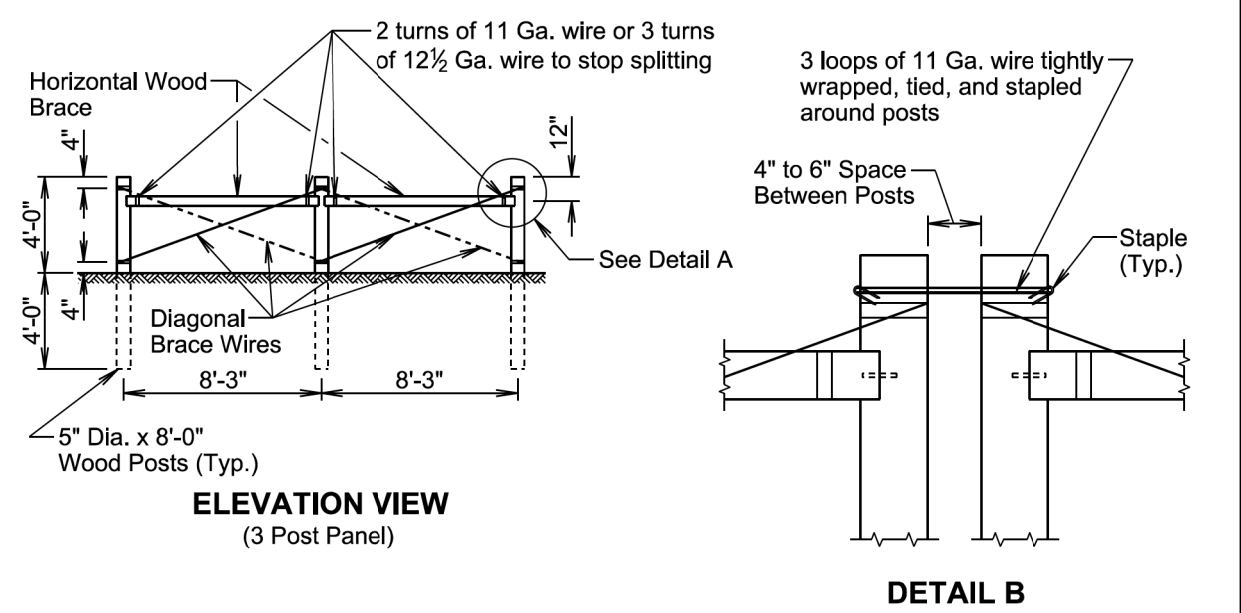
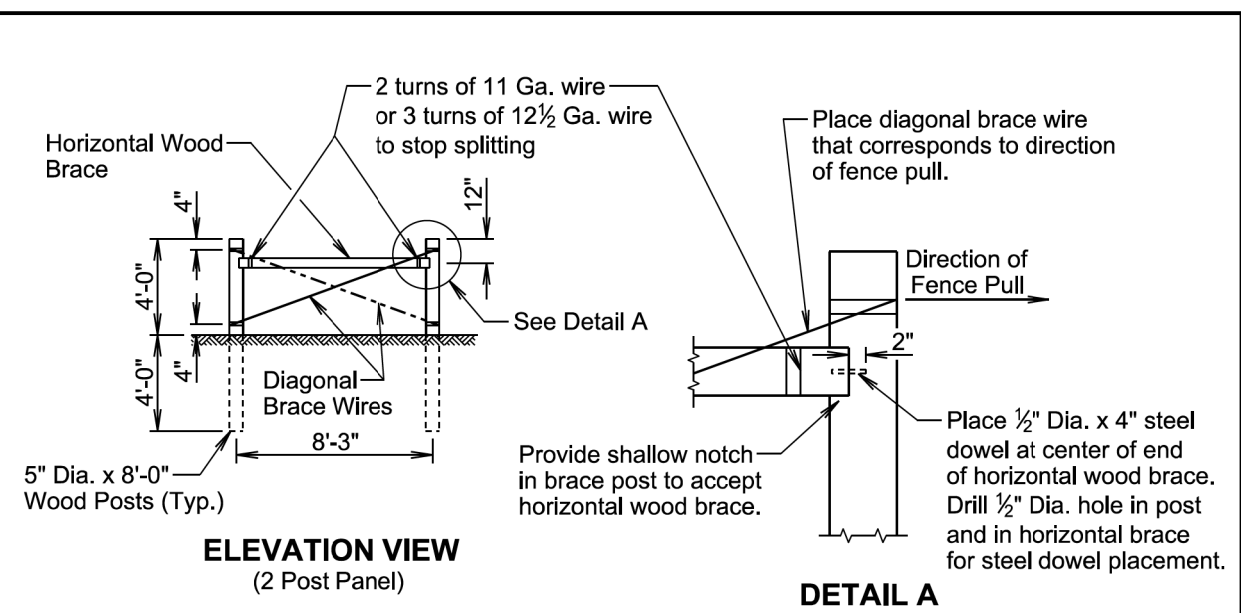
June 26, 2019

S D D O T	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02
	Published Date: 2024	Sheet 1 of 1

- Plotted From - TRRC12608

File - ...Standard Plates\620_1.dgn

Plot Scale - 1:200



GENERAL NOTES:

Two Post Panels will be installed at least every 1320' between corners.

Two Post Panels will be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces will consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires will be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires will be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

January 22, 2023

S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
		Sheet 1 of 3

Published Date: 2024

RADIUS OF CURVE	SPACING OF 2 POST PANEL
Greater than 1800 Ft.	** 1320'
Less than 1800 Ft.	** At P.C., P.T., and at every 1320' between P.C. and P.T.

GENERAL NOTE:

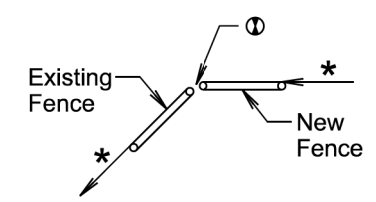
All degrees of curvature stated for fence are at centerline of roadway.

If fence length is less than 600' to next corner use a 2 post panel.

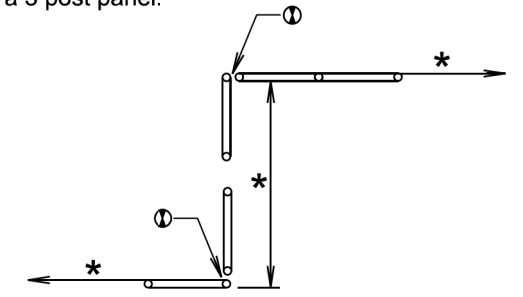
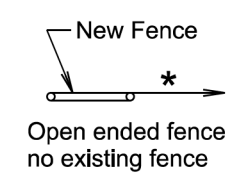
If fence length is greater than 600' to next corner use a 3 post panel.

** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

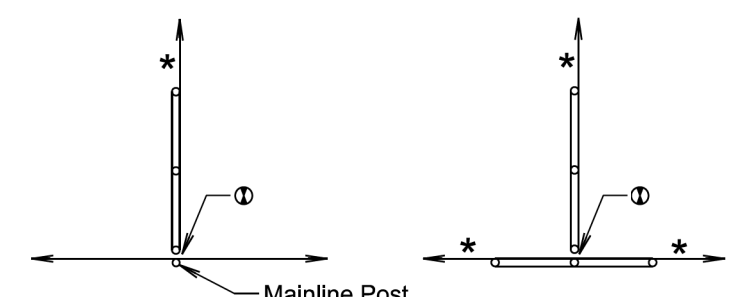
① See Detail B on Sheet 1 of 3.



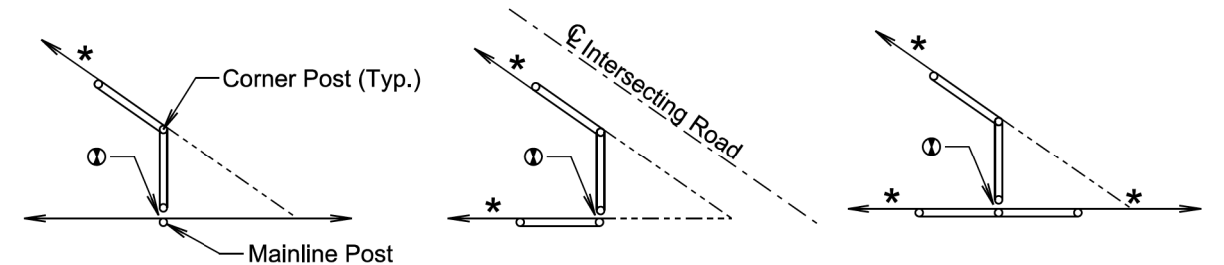
BEGIN OR END FENCE
(Where new fence ties into existing fence)



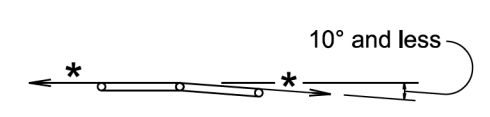
SHORT JOGS IN FENCE



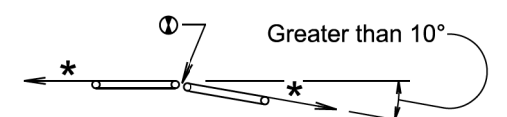
CROSS FENCE



SHARP ANGLES IN CROSS FENCE



Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.



Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

January 22, 2023

S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
		Sheet 2 of 3

Published Date: 2024

- Plotted From - TRRC12608

File - ...Standard Plates\620_2.dgn

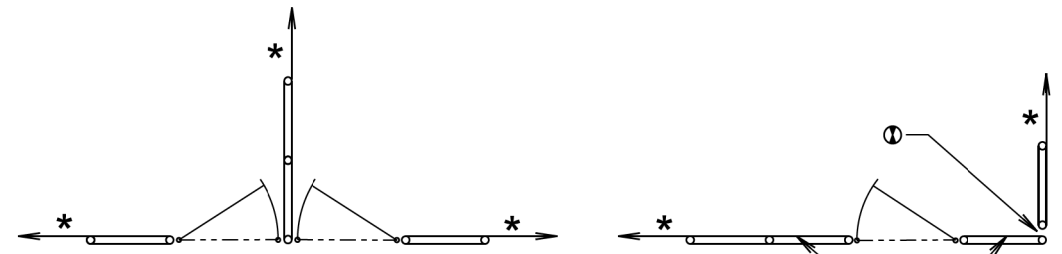
Plot Scale - 1:200

- Plotted From - TRRC12608

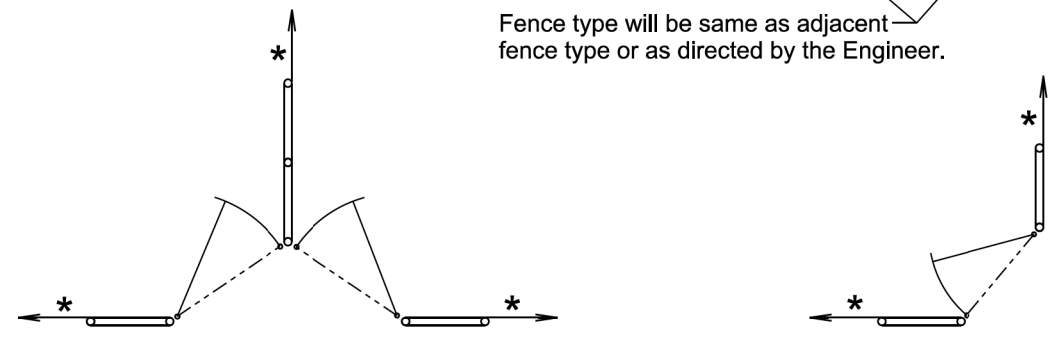
File - ...Standard Plates1620_3.dgn



ENTRANCE
(Not on corner)



Fence type will be same as adjacent fence type or as directed by the Engineer.



Fence type will be same as adjacent fence type or as directed by the Engineer.

DOUBLE ENTRANCES

ENTRANCES AT CORNERS

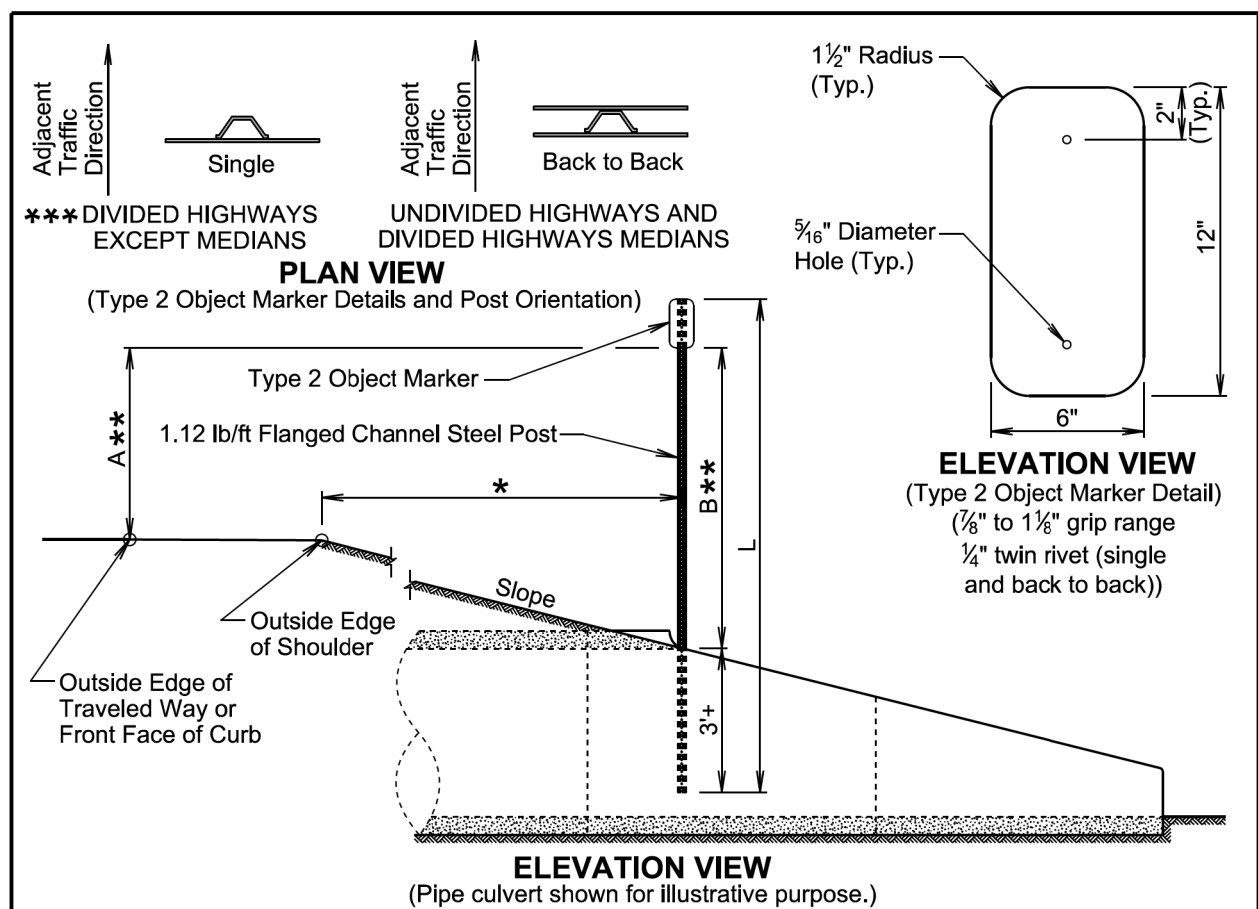
GATES

- * If fence length is less than 600' to next corner use a 2 post panel.
- * If fence length is greater than 600' to next corner use a 3 post panel.

① See Detail B on Sheet 1 of 3.

January 22, 2023

S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
	Published Date: 2024	Sheet 3 of 3



ELEVATION VIEW
(Type 2 Object Marker Detail)
($\frac{7}{8}$ " to $1\frac{1}{8}$ " grip range
 $\frac{1}{4}$ " twin rivet (single and back to back))

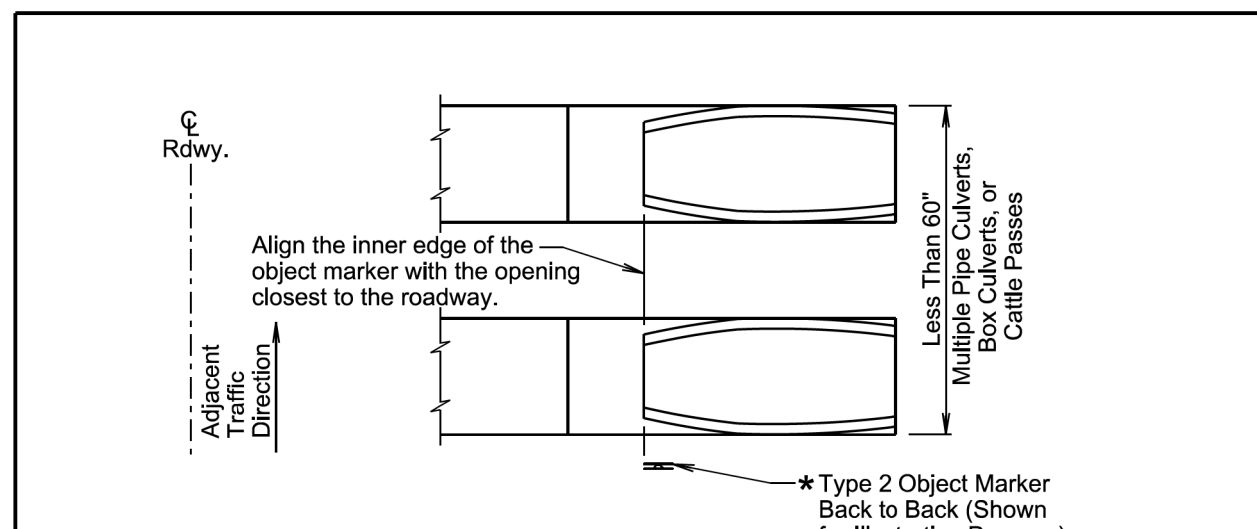
TYPE 2 OBJECT MARKER POST LENGTHS										
OFFSET (*)	1'	2'	3'	4'	5'	6'	7'	8'	Greater Than 8'	
POST LENGTH (L)										
SLOPE	3:1	8'-6"	8'-9"	9'-3"	9'-6"	9'-9"	10'-3"	10'-6"	10'-9"	8'-0"
	4:1	8'-6"	8'-9"	9'-0"	9'-3"	9'-9"	9'-9"	10'-0"	10'-3"	8'-0"
	5:1	8'-3"	8'-6"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	9'-9"	8'-0"
	6:1	8'-3"	8'-6"	8'-9"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	8'-0"

GENERAL NOTES:

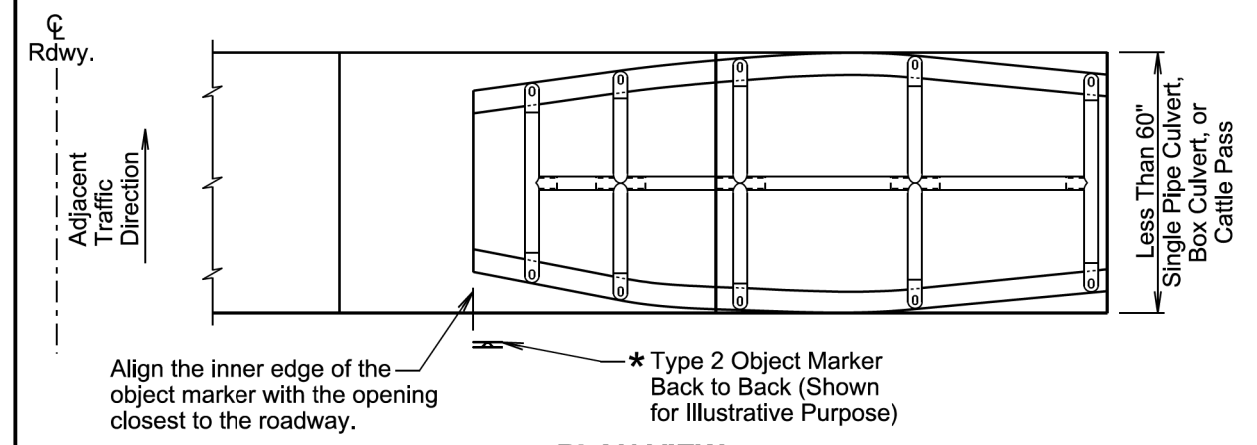
- *** The type 2 object marker may be installed back to back when specified in the plans. Post Length L was calculated based on a shoulder width of 6 feet at a crossslope of 4 percent and L was rounded up to the nearest 3 inches.
- ** Dimension A is 4 feet when the Offset * is 8 feet and less. Dimension B is 4 feet when Offset * is greater than 8 feet.
- The type 2 object marker and the 1.12 lb/ft flanged channel steel post will be in conformance with Specifications Section 982.2 J.
- Payment for the type 2 object marker will be in conformance with Specification Section 632.5 B.

December 23, 2019

S D D O T	TYPE 2 OBJECT MARKER (DIRECT DRIVE)	PLATE NUMBER 632.01
	Published Date: 2024	Sheet 1 of 1



PLAN VIEW
(For Multiple Pipe Culverts, Box Culverts, and Cattle Passes)
(Pipe culverts shown for illustrative purpose.)
(Embankment is not shown.)



PLAN VIEW
(For Single Pipe Culvert, Box Culvert, and Cattle Pass)
(Pipe culvert shown for illustrative purpose.)
(Embankment is not shown.)

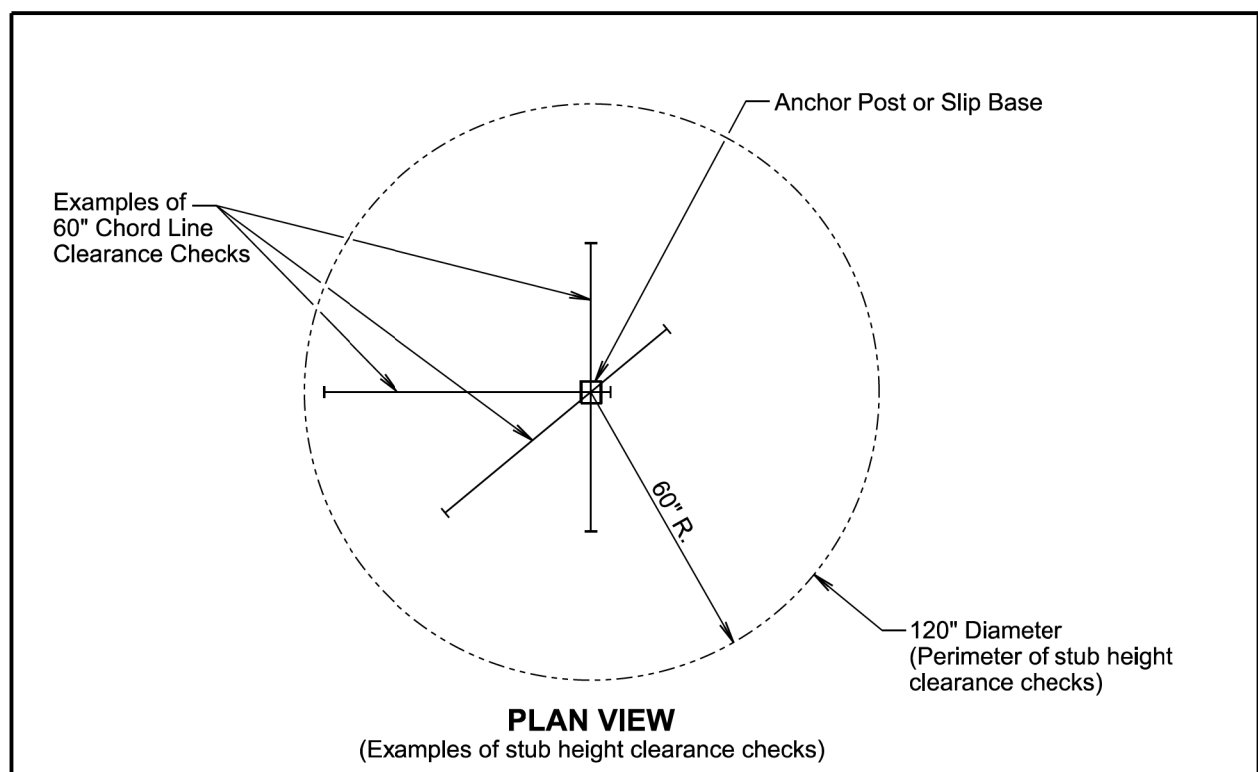
GENERAL NOTES:

- This standard plate will be used in conjunction with standard plate 632.01.
- * The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

S D D O T	TYPE 2 OBJECT MARKER AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES (Less than 60" Overall Width)	PLATE NUMBER 632.03
	Published Date: 2024	Sheet 1 of 1

Plot Scale - 1:200



GENERAL NOTES:

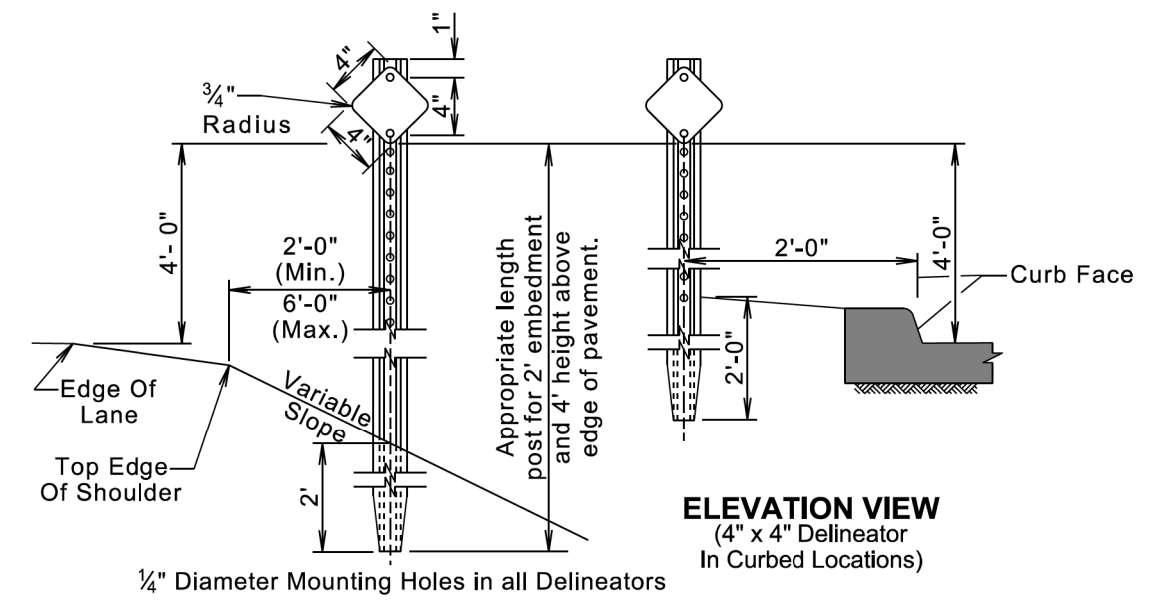
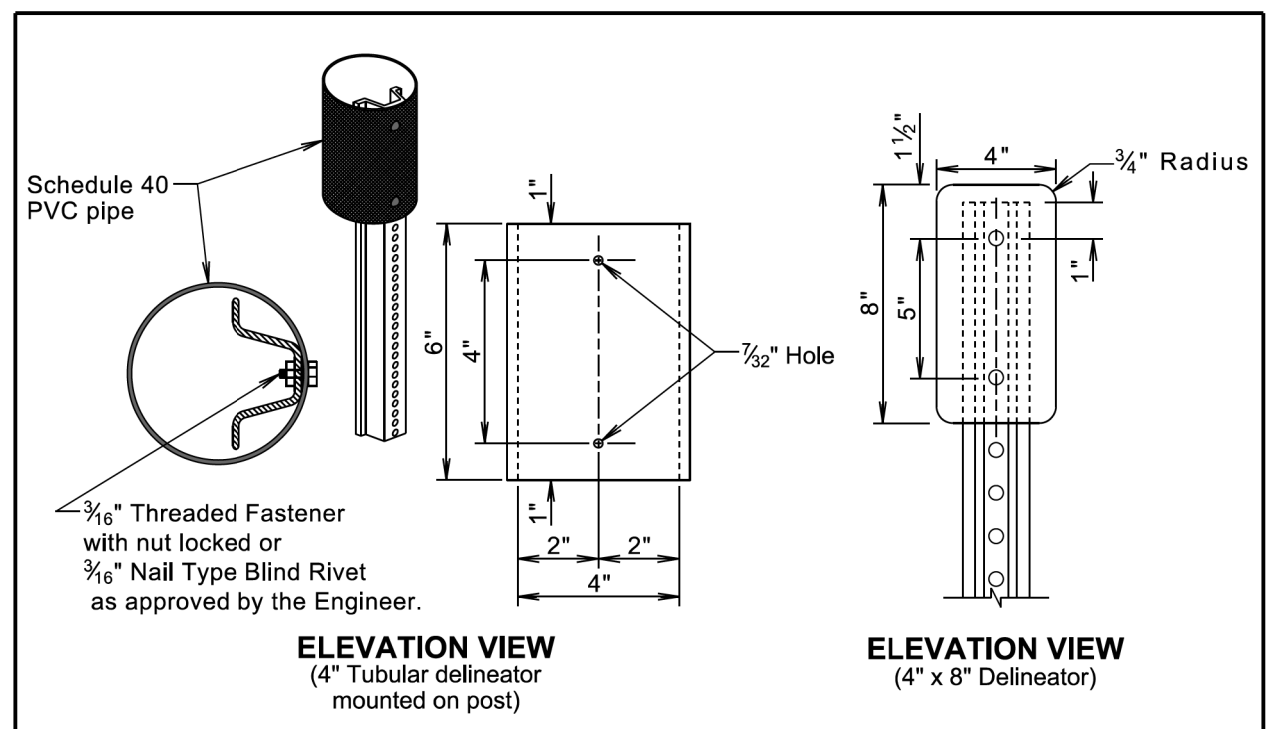
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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.

January 22, 2021

S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 632.18
		Sheet 1 of 1

Published Date: 2024



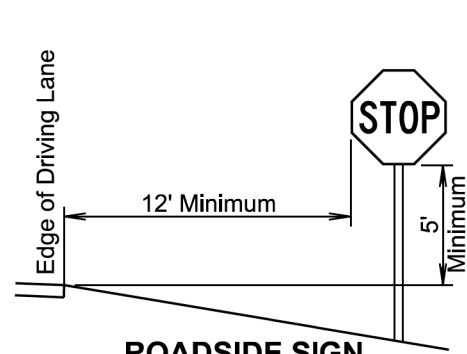
November 19, 2020

S D D O T	DELINEATOR INSTALLATION DETAIL	PLATE NUMBER 632.42
		Sheet 1 of 1

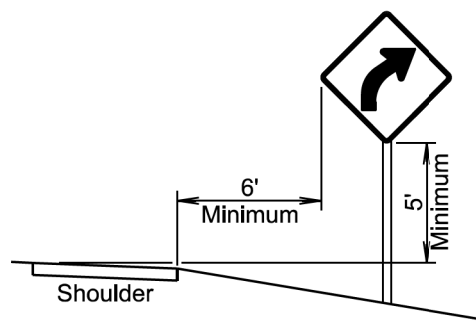
Published Date: 2024

- Plotted From - TRRC12608

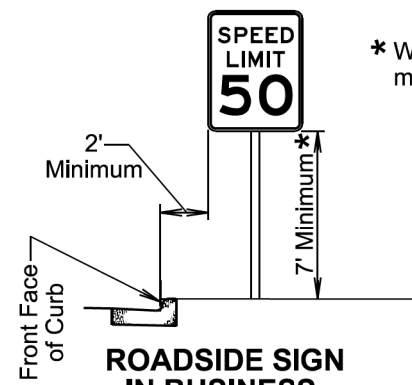
File - ...Standard Plates1632_2.dgn



ROADSIDE SIGN IN RURAL AREA

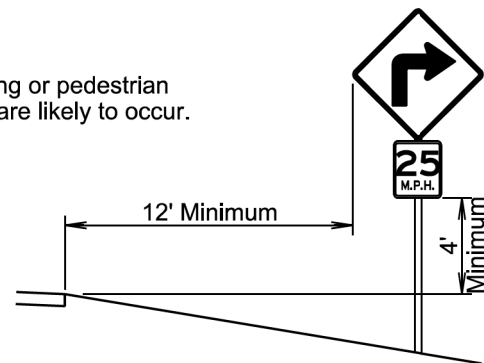


ROADSIDE SIGN IN RURAL AREA
(If shoulder width is greater than 6 foot)

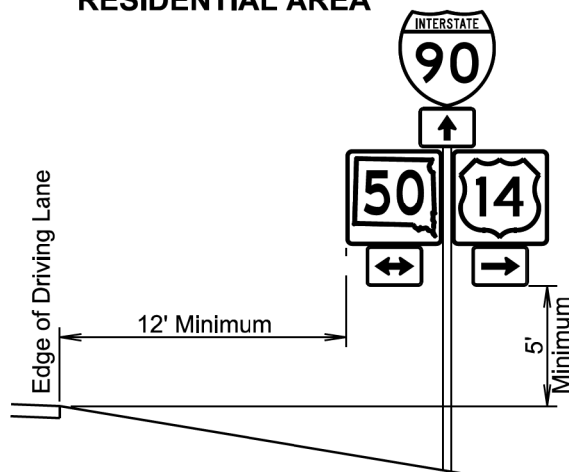


ROADSIDE SIGN IN BUSINESS, COMMERCIAL, OR RESIDENTIAL AREA

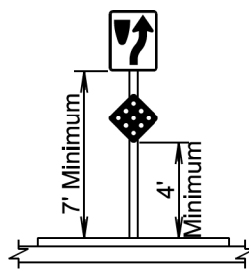
* Where parking or pedestrian movements are likely to occur.



WARNING SIGN ADVISORY SPEED PLAQUE IN RURAL AREA



ROADSIDE SIGN IN RURAL AREA



SIGN ON NOSE OF MEDIAN

November 19, 2020

Published Date: 2024

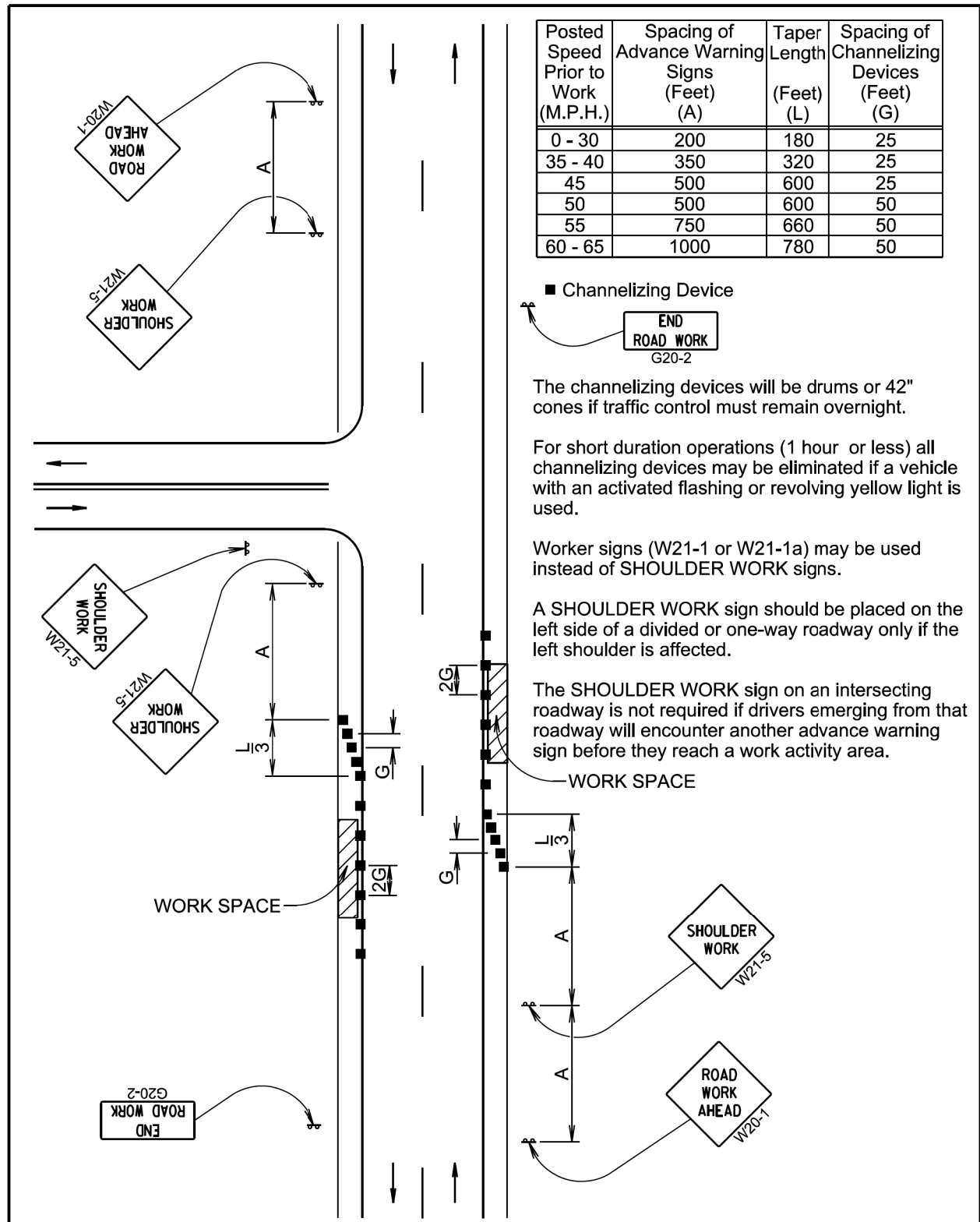
**S
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OFFSETS FOR SIGN INSTALLATION

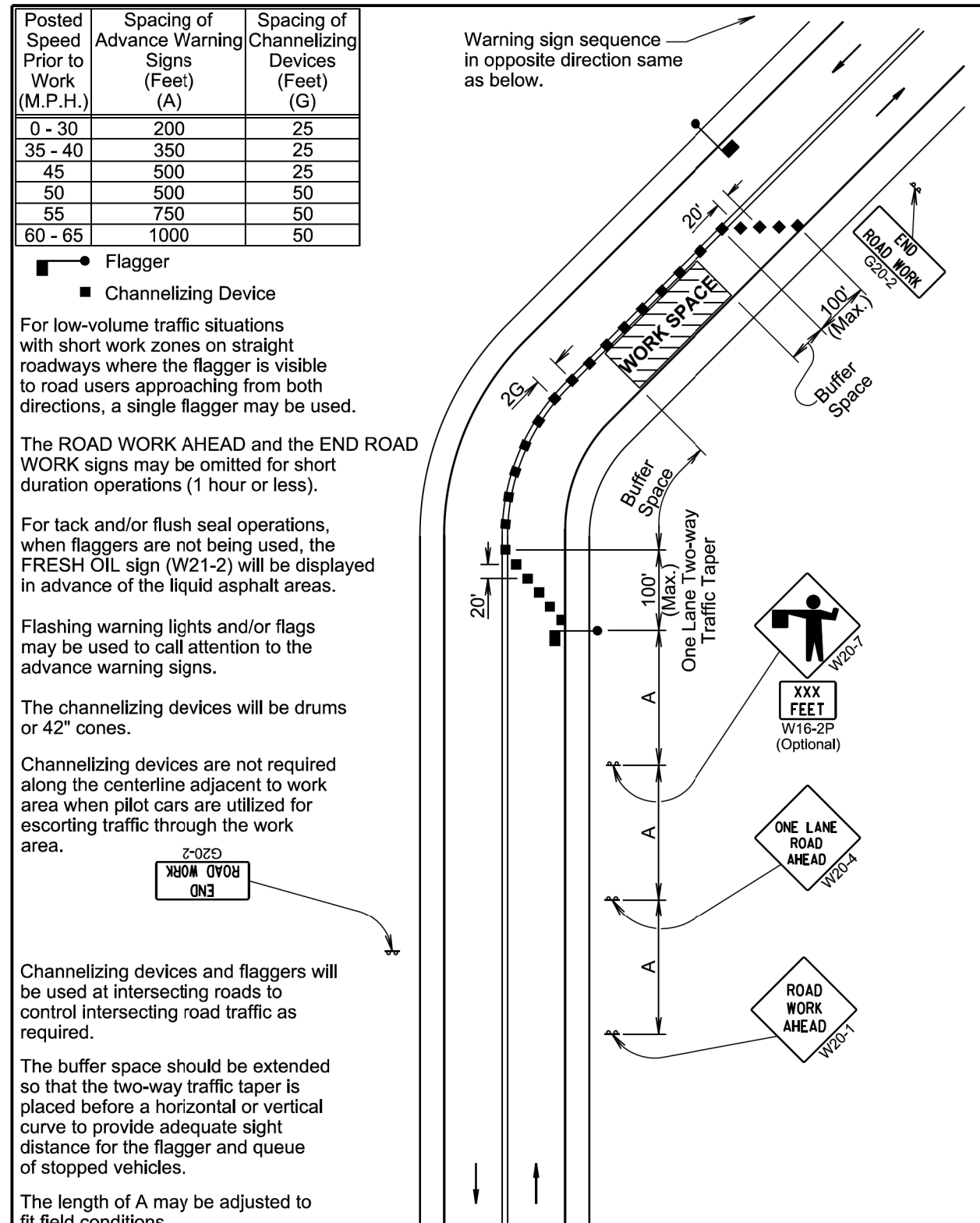
PLATE NUMBER
632.90

Sheet 1 of 1

Plot Scale - 1:200

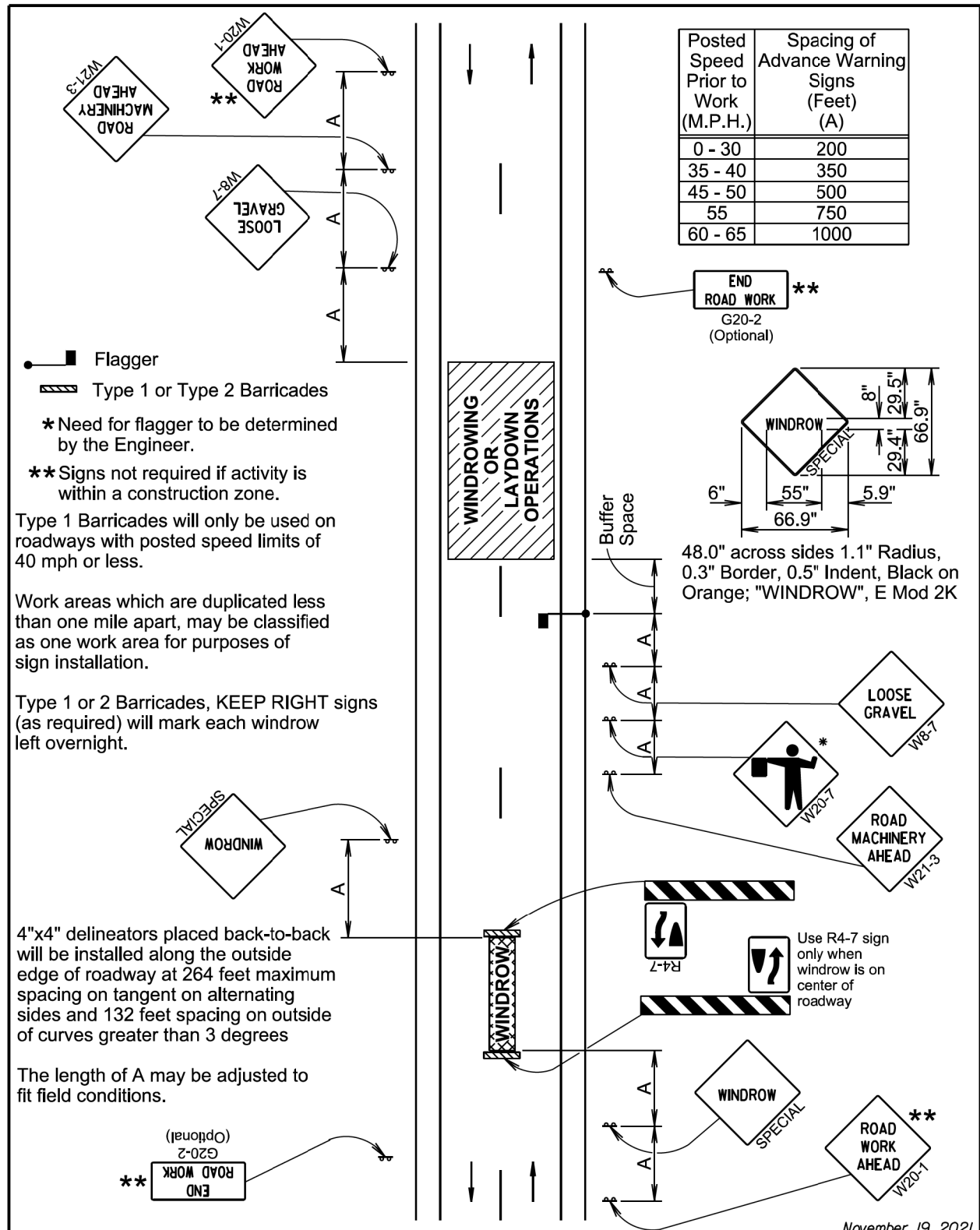


S D D O T	WORK ON SHOULDERS	PLATE NUMBER 634.03
	Published Date: 2024	Sheet 1 of 1



S D D O T	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
	Published Date: 2024	Sheet 1 of 1

File - ...Standard Plates634_1.dgn



November 19, 2021

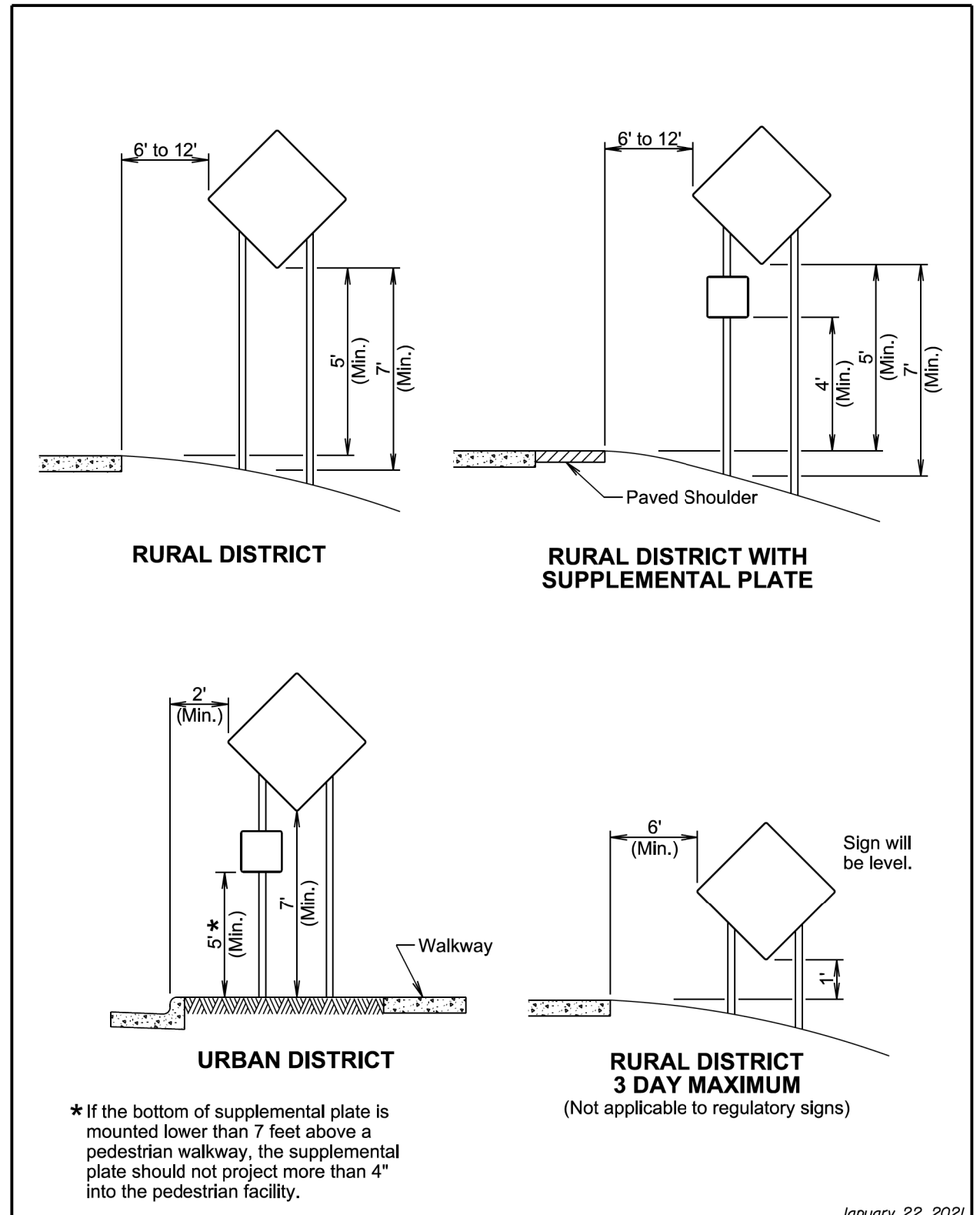
SDDOT

WINDROWING OR LAYDOWN OPERATION

PLATE NUMBER 634.27

Published Date: 2024

Sheet 1 of 1



January 22, 2021

SDDOT

CRASHWORTHY SIGN SUPPORTS
(Typical Construction Signing)

PLATE NUMBER 634.85

Published Date: 2024

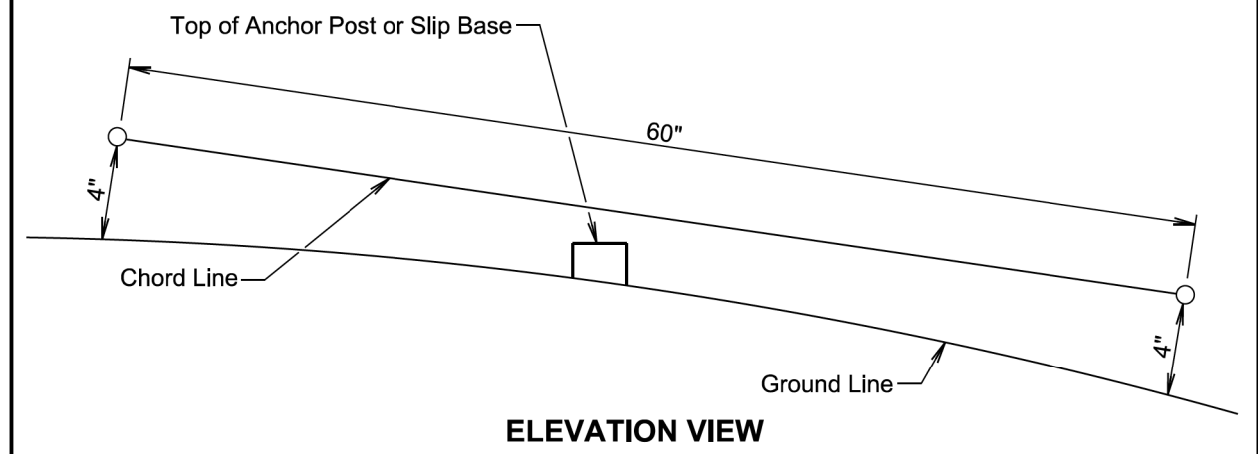
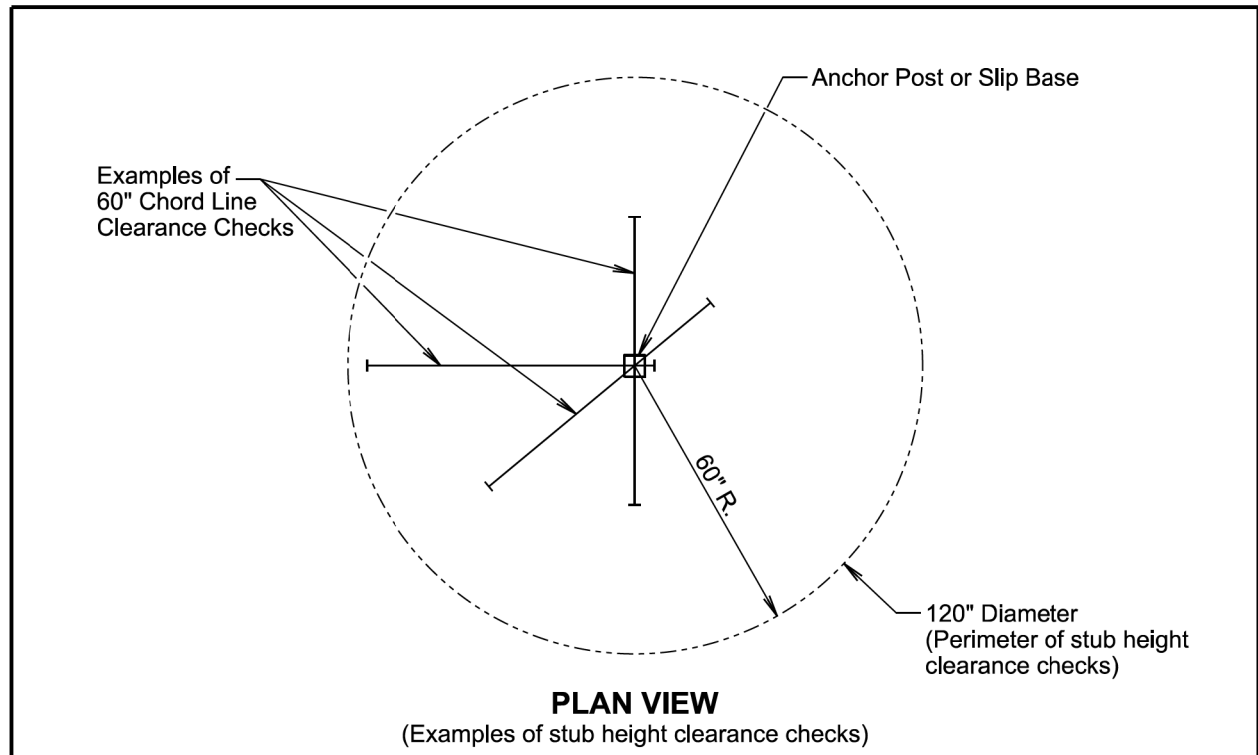
Sheet 1 of 1

Plot Scale - 1:200

Plotted From - TRRC12608

File - ...Standard Plates\634_2.dgn

Plot Scale - 1:200



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

Published Date: 2024

- Plotted From - TRRC12608

File - ...Standard Plates\634_3.dgn