

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 014A(17)34	1	23

Plotting Date: 04/30/2014

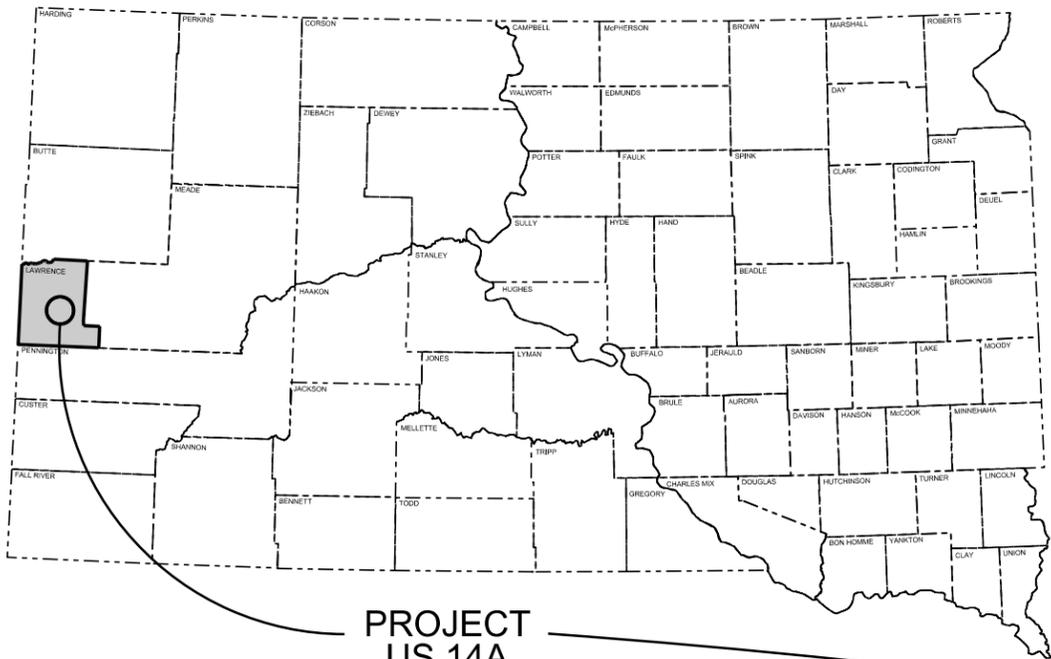
INDEX OF SHEETS

Sheet No. 1:	Title and Index
Sheets No. 2 - 6:	Estimate, Notes, & Tables
Sheets No. 7 - 16:	Signing Details
Sheets No. 17 - 19:	Striping Details
Sheet No. 20:	Traffic Control Details
Sheets No. 21 - 23:	Standard Plates

PROJECT PH 014A(17)34
US HIGHWAY 14A
LAWRENCE COUNTY

HIGH FRICTION SURFACE TREATMENT
PCN 04U1

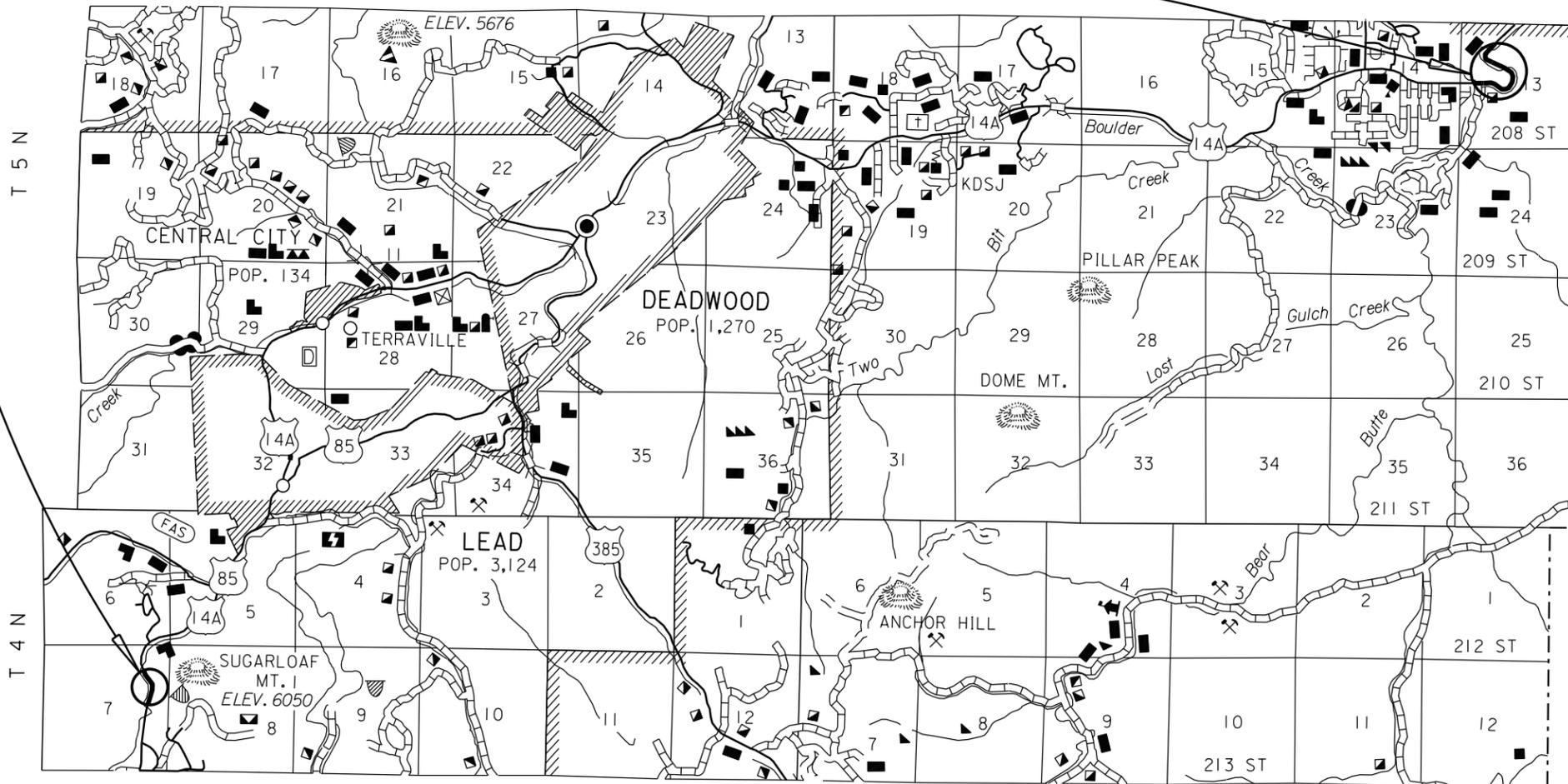
Plot Scale - 1:200



PROJECT
US 14A

MRM 49.2

MRM 34.6



8

DESIGN DESIGNATION - MRM 34.618

ADT (2013)	1045
ADT (2033)	1414
DHV	319.6
D	50%
T DHV	2%
T ADT	4.5%
V	35 mph

DESIGN DESIGNATION - MRM 49.219

ADT (2013)	4505
ADT (2033)	6095
DHV	1377.5
D	50%
T DHV	3.3%
T ADT	7.2%
V	30 mph

STORM WATER PERMIT

No Storm Water Permit required

Plotted From - trc:12608

File - ...apj\Lawr04u1\Title.dgn

ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E5020	Salvage Traffic Sign	17	Each
320E7032	Grind 12" Centerline Rumble Stripe in Asphalt Concrete	0.2	Mile
632E1320	2.0"x2.0" Perforated Tube Post	406.0	Ft
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	289.0	SqFt
632E3520	Remove, Salvage, Relocate, and Reset Traffic Sign	4	Each
633E0020	Cold Applied Plastic Pavement Marking, 8"	6,376	Ft
633E1200	Waterborne Pavement Marking Paint with High Grade Polymer, White	13.7	Gal
633E5005	Grooving for Cold Applied Plastic Pavement Marking, 8"	6,376	Ft
633E6015	Pavement Marking Masking, 13"	1,710	Ft
634E0010	Flagging	200	Hour
634E0100	Traffic Control	646	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0640	Temporary Pavement Marking	2,610	Ft
634E0806	Groove 4" Wide Rumble Strip	1,292	Ft
900E1250	High Friction Surface Treatment	10,560.0	SqYd

SPECIFICATIONS

Standard Specifications for Roads & Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

UTILITIES

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.

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

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

SEQUENCE OF OPERATIONS

1. Set up traffic control to close one lane.
2. Place Masking material where needed.
3. Place High Friction Surface Treatment.
4. Install Temporary Pavement Marking.
5. Repeat steps 1-4 for additional lanes.
6. Grind in new Rumble Strips as specified.
7. Install Permanent Pavement Marking.
8. Remove traffic control

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 State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway 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 State 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 State 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 designated option borrow 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: staging areas, borrow sites, waste disposal sites, and all material processing sites.

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 staging areas, borrow sites, waste disposal sites, or material processing sites 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.

COMMITMENT R: FIRE PREVENTION IN THE BLACK HILLS AREA

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

Action Taken/Required:

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

HIGH FRICTION SURFACE TREATMENT

High Friction Surface Treatment shall be provided in accordance with the Special Provision for High Friction Surface Treatment.

High Friction Surface Treatment shall be applied at the following locations:

Table of High Friction Surface Treatment				
				High Friction Surface Treatment
Station to	Station	Length Ft	Width Ft	Treatment (SqYd)
299+00	308+00	900	41	4100
414+40	431+50	1710	34	6460
			Total	10560

CENTERLINE RUMBLE STRIP

Where new Centerline Rumble Strips are specified they shall be ground in after the placement of the High Friction Surface treatment.

All costs for grinding new Centerline Rumble Strips shall be paid for at the contract unit price per mile for "Grind 12" Centerline Rumble Stripe in Asphalt Concrete".

TRANSVERSE RUMBLE STRIPS

The Contractor shall install transverse lane rumble strips at the locations provided in the table below and as per the details provided in these plans.

The rumble strips shall be grooved into the pavement..

Plans quantity shall be the basis of payment and no field measurement will be required. The length was determined laterally.

All costs associated with this work shall be incidental to the contract unit price per foot for "Groove 4" Wide Rumble Strip".

Table of Transverse Rumble Strips		
Description	Station	Groove 4" Wide Rumble Strip (Ft)
Eastbound Highway 14A	292+00	209
	299+50	209
Westbound Highway 14A	308+60	437
	314+00	437
Total		1292

RUMBLE STRIP/STRIPE ROADWAY CLEANING

The Contractor shall be required to remove loose material from the driving surface and/or asphalt shoulders of the roadway. Loose material may be broomed to the edge of the shoulders.

All costs associated with this work shall be incidental to the contract unit price per mile for Installing Rumble Strips or Stripes.

PAVEMENT MASKING

Just prior to beginning the High Friction Surface Treatment from Station 414+40 to Station 431+50, all centerline rumble stripes shall be covered with an approved pavement marking masking material to protect the rumble stripes from the High Friction Surface Treatment. Masking material shall be a durable material resistant to puncture from the traffic traveling on the cover aggregate. Tabs shall be placed at the beginning of each masking line to provide a guide for locating the masking material after the seal has been applied.

The masking material shall be placed to the length of that day's High Friction Surface Treatment. Upon the completion of that surface treatment, all pavement markings must be in full compliance, either by removing the pavement marking masking or utilizing temporary pavement markings.

All cost for furnishing, installing, removing, and disposing of the masking materials shall be incidental to the contract unit price for the Pavement Marking Masking contract bid items. Pavement Marking Masking shall be paid once prior to the installation of the High Friction Surface Treatment.

PAVEMENT MARKING PAINT WITH HIGH GRADE POLYMER

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

This material shall be comprised of a durable high build, low VOC, fast drying, waterborne traffic paint with an acrylic polymer emulsion and with reflective media adhered to the paint. The reflective media shall consist of glass beads as well as bonded bore reflective elements.

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.

The Department will take retro-reflectivity readings on the pavement marking lines no sooner than 3 days and no later than 30 days after the completion of all line applications required for an individual highway route using a portable retro-reflectometer conforming to 30-meter geometry. Retro-reflectivity readings will be taken on a test location with cleaning being limited to light hand brooming.

Pavement markings not conforming to the Retro-reflectivity requirements shall be removed and replaced. If replacement of markings cannot be applied within the same year, the contractor shall schedule subject work to be completed no later than June 15th in the following year. Upon replacement, the retro-reflectivity testing process will be done again requiring new readings.

PAVEMENT MARKING PAINT WITH HIGH GRADE POLYMER (CONTINUED)

The Department will randomly select one test location per mile of each edge line including ramps and one test location per mile of centerline (solid and/or skip line will be considered as one centerline). Three retro-reflectivity readings will be taken at each test location. The three readings will be averaged and become the reading for that test location.

Initial Readings (within 3 - 30 days of the line application):

<u>Pavement Marking Color</u>	<u>Minimum Value</u>
White	350 mcd/m2/lux
Yellow	275 mcd/m2/lux

All pavement markings not conforming to the requirements provided in these plans will be considered deficient and may be required to be removed. Additional retro-reflectivity readings will be taken by the Department to determine the limits of removal. The removal shall be accomplished using suitable sand blasting or grinding equipment unless the Engineer authorizes other means. The removal process shall remove at least 90% of the deficient line, with no excessive scarring of the existing pavement. The removal width shall be one inch wider all around the nominal width of the pavement marking to be removed. Removal and replacement of the pavement markings shall be at Contractor's expense, with no cost incurred by the State.

RATES OF MATERIALS FOR HIGH GRADE POLYMER PAINT

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 gallon for Waterborne Pavement Marking Paint with High Grade Polymer, White.

COLD APPLIED PLASTIC PAVEMENT MARKING

The Contractor shall apply the cold applied plastic pavement marking material as per manufacturer's instructions.

Cold applied plastic pavement markings shall be grooved into the surface on either side of the centerline rumble stripes.

Exact locations of markings will be determined by Engineer.

GROOVE PAVEMENT FOR COLD APPLIED PLASTIC MARKINGS

The grooving shall be completed within the following tolerance:

Depth of Groove: 100 mils, ± 10 mils.

The bottom of the groove shall be uniform and free of loose material. The groove shall be flat and of uniform depth for the entire width of the groove.

Existing grooves that do not meet the 100 mil depth requirement shall be re-grooved. The grooving process shall remove the existing marking that falls within the width of the new groove. In areas where the existing groove depth meets the 100 mil depth requirement and portions of the existing markings are still in place, the existing markings shall be removed.

The Contractor shall establish a positive means for the removal of the grinding and/or grooving residue. Solid residue shall be removed from the pavement surfaces before being blown by traffic action or wind. Residue shall not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, shall be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state.

If damage to joints, joint sealant material, backer rod, etc. occurs, the grooving operation shall be stopped and modifications shall be made to the grooving operation to prevent further damage. The Contractor may be required to use specially prepared circular diamond blade cutting heads to prevent damage at the joints. Damage caused to joints, the joint sealant material, backer rod, etc. shall be repaired or replaced by the Contractor, as directed by the Engineer. No additional payment will be made for the repair work or any reapplication of the pavement marking in the area of the repair.

Table of Pavement Marking						
		Grind 12" Centerline Rumble Strip In Asphalt Concrete	Cold Applied Plastic Pavement Marking, 8"	Waterborne Pavement Marking, High Grade Polymer, White	Grooving for Cold Applied Plastic Pavement Marking, 8"	Pavement Marking, 13"
Station to Station	(Mile)	(Ft)	(Gal)	(Ft)	(Ft)	(Ft)
299+00	308+00	0.17	1800.0	4.7	1800.0	
414+40	431+50		3420.0	9.0	3420.0	1710.0
437+77	443+55		1156.0		1156.0	
	Total	0.17	6376	13.7	6376	1710

PERMANENT SIGNING

The Contractor shall furnish all signs, posts, stiffeners, bases, hardware, and labor for installation of permanent signs in size, type, and quantity as shown in these plans and/or as required by the Engineer.

The Contractor shall provide all labor and equipment necessary to install permanent signing, remove existing signs, and reset existing signs as detailed in these plans and/or as required by the Engineer. Payment for furnishing and installing permanent signs will be paid for the contract unit price for each type of sign based on sheeting requirements per square foot of sign. All signs shall have ASTM D4956 Type XI (Super/Very High Intensity) sheeting as noted on the sign detail sheets. Payment for new signposts, hardware, bases, and labor will be made at the contract unit price per foot for 2.0" x 2.0" perforated tube post. Breakaway post details regarding posts, hardware, and bases shall be followed as per the manufactures recommendations. The sign post contract items shall include post bases and all hardware. The lengths of the posts in the sign tables are approximate lengths only. The post lengths shall be verified by the Contractor. The Contractor is urged to cut posts to length on job site after site by site verification of post length.

The Contractor shall use Telespar brand (or equivalent) posts and bases on all new standard highway signs as approved by the Engineer. All post materials shall conform to Section 982 of the Standard Specifications, and be in accordance with ASTM specifications. The height of the post shall not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign shall be cut off. No separate payment will be made for cutting the post or for that length cut off. All posts and bases shall be accompanied by Certificates of Compliance and shall meet all safety standards as set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

The Contractor shall stake the signs and the Engineer will verify the location prior to installation. The lateral distance from the roadway and the height of the sign shall be established by the Contractor according to the Permanent Signing Typical, as well as the Standard Plates in the plans and the MUTCD.

The Contractor shall coordinate the removal of signs with Traffic Control operations. Existing signing shall be replaced, left in place, or temporarily covered as needed to safely direct traffic through the project or as directed by the Engineer.

HARDWARE

Aluminum U-Channel stiffeners shall be used on all standard highway signs greater than or equal to 36" in width and shall conform to Alloy 6063-T6 or 6061-T6. The U-Channel shall be 2 inches in width and free of holes. The U-Channel stiffeners shall also be used to connect various signs and perforated tube posts together so that an entire sign can be erected as a single installation. Stiffeners may be fastened to signs by use of 1/4" drive rivets with a minimum of one on each end and one centered between each post. Installation of the stiffeners shall be incidental to other contract items.

A 3/8" diameter straight bolt (Grade 8) shall be used in all breakaway shear bases for the 2.5" perforated tube posts. All other perforated tube signpost base material shall be fastened with 5/16" diameter corner bolts (Grade 2).

All perforated tube signposts shall have a soil stabilizer attached to the base. Soil stabilizers shall be MPJ sign wedge style or equivalent.

DATE DECAL

The Contractor shall affix a state furnished date decal to each new sign installed. Each decal is an approximately 2" X 2" self-adhesive sticker with removable paper backing and black numerals on a white background. The date decal displays the last two digits of the year the sign was manufactured (as illustrated).



One decal shall be placed in the extreme lower left corner of the back of flat aluminum signs. Sign supports or other obstructions shall not block the view of the date decal upon completion of the sign installation. Cost for installing of date decal on new signs shall be incidental to the contract unit price for the various signing bid items.

PERFORATED TUBE POST

Payment for 2.0" x 2.0" perforated tube post shall include all cost for labor, equipment, and materials necessary to complete the following work:

1. Furnish all posts, stiffeners, breakaway bases, soil stabilizers, and hardware.
2. Assembly and installation of breakaway base sign supports as per details shown in these plans.
3. Assembly of sign(s) to sign post as per erection details for Highway Signs as shown in these plans.
4. Installation of signpost and sign(s).

REMOVE, SALVAGE, RELOCATE & RESET TRAFFIC SIGN

The Contractor shall remove signs, posts, and bases for remove and stockpile as shown in the table for Permanent Signing. All existing signs, posts, and hardware removed as per these plans remain property of the State of South Dakota and shall be transported to the SDDOT Deadwood maintenance yard by the Contractor. The Contractor shall notify the Engineer two days prior to time of delivery to the maintenance yard so correct placement for storage and inventory of materials can be made upon receipt.

All bolts, nuts, and washers shall be placed in individual 5-gallon pails. Backing materials shall be separated from the signs and may be reused at the Contractor's discretion. Non-threaded connections (rivets) shall be cut when necessary to reduce sign sections to a 4' x 6' maximum size.

Any post assembly including sign, post, or bases that call for being removed, relocated or reset in the remarks column in the Table of Permanent Signing shall be included in the contract unit price per each for "Remove, Salvage, Relocate & Reset Traffic sign". All other signs, posts, and bases that call for removal and stockpile shall be included in the contract unit price per each for "Salvage Traffic Sign". These payments shall include all cost for labor and equipment necessary to remove, dismantle, backfill holes (wooden posts only) and deliver signs to the SDDOT Deadwood maintenance yard.

FURNISH & INSTALL FLAT ALUMINUM SIGNS / NON-REMOVABLE COPY HIGH INTENSITY & SUPER/VERY HIGH INTENSITY

Measurement of sign areas will include payment for the entire sign blank before trimming for rounded corners. The square unit measurement for each sign shall be as shown in the table of permanent signing. The payment shall include all labor (including installing date decals), equipment, and materials to complete the work, and shall be paid for at the contract unit price per square foot for Flat Aluminum Sign/Non-Removable Copy Super/Very High Intensity.

SHEETING REQUIREMENTS

All legend and border utilizing the color black shall be vinyl or screen printed black, non-reflectorized material. All other legend and border shall be of same type of sheeting as the background of the same sign. All signs shall have micro-cube corner prismatic reflectorized background, Type XI as per AASHTO designation M 268 (ASTM D4956).

SIGN LEGEND, BORDER, BACKGROUND, AND MOUNTING

All sign material shall comply with Section 982 of the Standard Specifications for Roads & Bridges, 2004 Edition.

All W-series warning signs and plaques shall be fluorescent yellow.

All other sign colors shall be as stipulated in the MUTCD.

When signs are vertically mounted in succession, they shall be 1-2 inches apart. Lateral placement of signs shall be determined by the Engineer.

TRAFFIC CONTROL – GENERAL NOTES

1. 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.
2. Unless otherwise stated in these plans, no work will be allowed during hours of darkness. Hours of darkness are defined as ½ hour after sunset until ½ hour before sunrise.
3. Storage of vehicles and equipment shall be as near the right-of-way as possible. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. 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.

4. Existing guide, route, informational logo, regulatory, and warning signs shall be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including but not limited to, traffic signal heads, delineation, and signing shall be the responsibility of the Contractor. Non-applicable signing and all traffic control devices shall be covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 48 hours. The cost of removing or covering non-applicable signs shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".
5. Construction signing mounted on portable supports shall not be used for a duration of more than 3 days, unless approved by the Engineer. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports.
6. The quantity of traffic control units paid for will be for the greatest number of installations per sign in place at any one time regardless of the number of set-ups on the project.
7. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.
8. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.
9. The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.
10. The Contractor shall be required to have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.
11. The Contractor or designated traffic control subcontractor shall make night inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".
12. Vehicles working in traffic or alongside traffic shall be equipped with a flashing amber light visible from all directions. The amber light shall be mounted on the uppermost part of the Contractor's vehicle. Lights must have peak intensity within the range of 40 to 400 candelas and must flash at 75 ± 15 flashes per minute. Vehicle flasher/hazard lights are not acceptable. 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.

TRAFFIC CONTROL – GENERAL NOTES (CONTINUED)

13. All construction operations shall be conducted in the general direction of traffic movement.
14. 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.
15. Temporary Road 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".
16. Drums are required in all lane closure tapers.

INVENTORY OF TRAFFIC CONTROL DEVICES

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNIT S PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	6	17	102
W1-4	48" x 48"	REVERSE CURVE SIGN (LEFT OR RIGHT)	2	34	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	1	34	34
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	6	34	204
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	1	34	34
W20-7a	48" x 48"	FLAGGER	4	34	136
TOTAL UNITS					646

TEMPORARY PAVEMENT MARKING

Temporary Road Markers shall be used for temporary pavement marking.

The Contractor shall be responsible for maintaining a visible and reflective centerline throughout the project. Any marking covered or damaged shall be replaced prior to the end of the day. All costs associated with this work shall be incidental to the contract unit price per foot "Temporary Pavement Marking".

All costs for temporary pavement marking including furnishing, applying, maintenance, removal and disposing of tabs shall be incidental to the contract unit price per foot for Temporary Pavement Marking.

Temporary Pavement Marking as per standard plates shall be incidental to the contract unit price per lump sum "Traffic Control, Miscellaneous".

US HWY 14A - Near MRM 34.548

EXISTING STA. (Approx.)	NEW STA. (Approx.)	SIGN								POST					SIGN DESCRIPTION	WORK TO BE DONE
		Number	Width (in)	Height (in)	Facing Traffic	New Sign	Remove Existing	Square Footage	Sheeting Type	New Post	Length (ft)	Size (in)	# of Posts	Shear Slip Base		
Eastbound																
291+00		W1-4	30	30	EASTBOUND	NO	YES		-	-	-	-	-	-	REVERSE CURVE	SALVAGE EXISTING SIGN & POST
291+00		W13-1P	18	18	EASTBOUND	NO	YES		-	-	-	-	-	-	ADVISORY SPEED 35 MPH	SALVAGE EXISTING SIGN
297+00		W1-2L	36	36	EASTBOUND	YES	NO	9.0	XI	YES	12	2.0	2	-	LEFT CURVE (FLOURESCENT YELLOW)	INSTALL NEW SIGN & POSTS
297+00		W13-1P	24	24	EASTBOUND	YES	NO	4.0	XI	NO	-	-	-	-	ADVISORY SPEED 35 MPH (FLOURESCENT YELLOW)	INSTALL NEW SIGN UNDER LEFT CURVE
297+73		W1-2L	36	36	EASTBOUND	NO	YES		-	-	-	-	-	-	LEFT CURVE	SALVAGE EXISTING SIGN & POST
297+73		W13-1P	18	18	EASTBOUND	NO	YES		-	-	-	-	-	-	ADVISORY SPEED 35 MPH (FLOURESCENT YELLOW)	SALVAGE EXISTING SIGN
301+92		W1-2AL	48	48	EASTBOUND	YES	NO	16.0	XI	YES	14	2.0	2	-	LEFT CURVE SPEED ADVISORY 35 MPH (FLOURESCENT YELLOW)	INSTALL NEW SIGN & POSTS
303+32		W1-8	18	24	WESTBOUND	YES	NO	3.0	XI	NO	-	-	-	-	CHEVRON (FLOURESCENT YELLOW)	INSTALL ON BACK SIDE OF EASTBOUND CHEVRON
304+59		W1-8	18	24	WESTBOUND	YES	NO	3.0	XI	NO	-	-	-	-	CHEVRON (FLOURESCENT YELLOW)	INSTALL ON BACK SIDE OF EASTBOUND CHEVRON
305+91		W1-8	18	24	WESTBOUND	YES	NO	3.0	XI	NO	-	-	-	-	CHEVRON (FLOURESCENT YELLOW)	INSTALL ON BACK SIDE OF EASTBOUND CHEVRON
306+17		W1-8	18	24	WESTBOUND	YES	NO	3.0	XI	NO	-	-	-	-	CHEVRON (FLOURESCENT YELLOW)	INSTALL ON BACK SIDE OF EASTBOUND CHEVRON
Westbound																
309+00		W1-2R	36	36	WESTBOUND	YES	NO	9.0	XI	YES	12	2.0	2	-	RIGHT CURVE (FLOURESCENT YELLOW)	INSTALL NEW SIGN & POSTS
309+00		W13-1P	24	24	WESTBOUND	YES	NO	4.0	XI	NO	-	-	-	-	ADVISORY SPEED 35 MPH (FLOURESCENT YELLOW)	INSTALL NEW SIGN UNDER RIGHT CURVE
307+28		W1-2R	30	30	WESTBOUND	NO	YES		-	-	-	-	-	-	RIGHT CURVE	SALVAGE EXISTING SIGN & POST
307+28		W13-1P	18	18	WESTBOUND	NO	YES		-	-	-	-	-	-	ADVISORY SPEED 35 MPH	SALVAGE EXISTING SIGN
307+00 LT		W1-2AR	48	48	WESTBOUND	YES	NO	16.0	XI	YES	14	2.0	2	-	RIGHT CURVE SPEED ADVISORY 35 MPH (FLOURESCENT YELLOW)	INSTALL NEW SIGN & POSTS

US HWY 14A - Boulder Canyon

EXISTING STA. (Approx.)	NEW STA. (Approx.)	SIGN								POST				SIGN DESCRIPTION	WORK TO BE DONE	
		Number	Width (in)	Height (in)	Facing Traffic	New Sign	Remove Existing	Square Footage	Sheeting Type	New Post	Length (ft)	Size (in)	# of Posts			Shear Slip Base
Eastbound																
400+40		W1-5	36	36	EASTBOUND	YES	NO	9.0	XI	NO	-	-	-	-	WINDING ROAD (FLUORESCENT YELLOW)	SALVAGE EXISTING SIGN & INSTALL NEW ON EXISTING POSTS
400+40	436+00	W7-3AP	30	24	EASTBOUND	YES	NO	5.0	XI	NO	-	-	-	-	NEXT 1.6 MILES (FLUORESCENT YELLOW)	RELOCATE EXISTING 30 MPH SPEED ADVISORY & INSTALL NEW SIGN UNDER WINDING ROAD
410+50	447+00 WB	W13-3	24	30	EASTBOUND	NO	YES	5.0	-	-	-	-	-	-	CURVES 35 MPH	RELOCATE EXISTING CURVES 30 MPH TO STA. 447 WB & INSTALL CURVES 35 MPH FROM STA. 461+80 WB
410+50		SPECIAL	18	26	EASTBOUND	NO	NO	3.3	-	-	-	-	-	-	DYNAMIC SPEED DISPLAY ASSEMBLY	LEAVE AS IS
414+00		W1-11L	36	36	EASTBOUND	YES	NO	9.0	XI	YES	12	2.0	2	-	HAIR PIN (FLUORESCENT YELLOW)	INSTALL NEW SIGN & POSTS
414+00		W13-1P	24	24	EASTBOUND	YES	NO	4.0	XI	NO	-	-	-	-	ADVISORY SPEED 35 MPH (FLUORESCENT YELLOW)	INSTALL NEW SIGN UNDER HAIR PIN CURVE
416+00		W1-11AL	48	48	EASTBOUND	YES	NO	16.0	XI	YES	14	2.0	2	-	HAIR PIN WITH ADVISORY SPEED 35 MPH (FLUORESCENT YELLOW)	INSTALL NEW SIGN & POSTS
436+00		W1-2R	36	36	EASTBOUND	YES	NO	9.0	XI	YES	10	2.0	1	-	RIGHT CURVE (FLUORESCENT YELLOW)	INSTALL NEW SIGN & POST
436+00		W13-1P	24	24	EASTBOUND	YES	NO	4.0	XI	NO	-	-	-	-	ADVISORY SPEED 30 MPH (FLUORESCENT YELLOW)	INSTALL SIGN FROM 400+40 & PLACE UNDER LEFT CURVE
438+00 LT		W1-2AR	48	48	EASTBOUND	YES	NO	16.0	XI	YES	14	2.0	2	-	RIGHT CURVE SPEED ADVISORY 30 MPH (FLOURSECENT YELLOW)	INSTALL NEW SIGN & POSTS
445+92		W1-5	30	30	EASTBOUND	NO	YES	-	-	-	-	-	-	-	WINDING ROAD	SALVAGE EXISTING SIGN & POST
445+92		W13-1P	18	18	EASTBOUND	NO	YES	-	-	-	-	-	-	-	ADVISORY SPEED 35 MPH	SALVAGE EXISTING SIGN
457+00		W1-2R	30	30	EASTBOUND	YES	NO	6.3	XI	YES	10	2.0	1	-	RIGHT CURVE (FLUORESCENT YELLOW)	INSTALL NEW SIGN & POST
457+00		W13-1P	18	18	EASTBOUND	YES	NO	2.3	XI	NO	-	-	-	-	ADVISORY SPEED 40 MPH (FLUORESCENT YELLOW)	INSTALL NEW SIGN UNDER LEFT CURVE
468+50		W1-4	30	30	EASTBOUND	NO	YES	-	-	-	-	-	-	-	REVERSE CURVE	SALVAGE EXISTING SIGN
468+50		W13-1P	18	18	EASTBOUND	NO	YES	-	-	-	-	-	-	-	ADVISORY SPEED 35 MPH	SALVAGE EXISTING SIGN
468+50		W14-3	30	30	WESTBOUND	NO	NO	-	-	-	-	-	-	-	NO PASS ZONE	LEAVE AS IS & ADJUST SIGN HEIGHT. IF NECESSARY CUT OFF EXCESS TELESPAR FROM ABOVE SIGN
473+00		W1-2L	36	36	EASTBOUND	YES	NO	9.0	XI	YES	10	2.0	1	-	LEFT CURVE (FLUORESCENT YELLOW)	INSTALL NEW SIGN & POST
473+00		W13-1P	24	24	EASTBOUND	YES	NO	4.0	XI	NO	-	-	-	-	ADVISORY SPEED 35 MPH (FLUORESCENT YELLOW)	INSTALL NEW SIGN UNDER LEFT CURVE SIGN
475+00		W1-2AL	48	48	EASTBOUND	YES	NO	16.0	XI	YES	14	2.0	2	-	LEFT CURVE SPEED ADVISORY 35 MPH (FLOURSECENT YELLOW)	INSTALL NEW SIGN & POSTS
Westbound																
490+00		W1-4	30	30	WESTBOUND	NO	YES	-	-	NO	-	-	-	-	REVERSE CURVE	SALVAGE EXISTING SIGN
490+00		W13-1P	18	18	WESTBOUND	NO	YES	-	-	NO	-	-	-	-	ADVISORY SPEED 35 MPH	SALVAGE EXISTING SIGN
490+00		W14-3	30	30	EASTBOUND	NO	NO	-	-	NO	-	-	-	-	NO PASS ZONE	LEAVE AS IS & ADJUST SIGN HEIGHT. IF NECESSARY CUT OFF EXCESS TELESPAR FROM ABOVE SIGN
486+00		W1-5	36	36	WESTBOUND	YES	NO	9.0	XI	YES	12	2.0	2	-	WINDING ROAD (FLUORESCENT YELLOW)	INSTALL NEW SIGN ON NEW POSTS
486+00		W7-3AP	30	24	WESTBOUND	YES	NO	5.0	XI	NO	-	-	-	-	NEXT 1.6 MILES (FLUORESCENT YELLOW)	INSTALL NEW SIGN UNDER WINDING ROAD
481+00		W1-2R	36	36	WESTBOUND	YES	NO	9.0	XI	YES	12	2.0	1	-	RIGHT CURVE (FLUORESCENT YELLOW)	INSTALL NEW SIGN ON NEW POST
481+00		W13-1P	24	24	WESTBOUND	YES	NO	4.0	XI	NO	-	-	-	-	ADVISORY SPEED 35 MPH (FLUORESCENT YELLOW)	INSTALL NEW SIGN UNDER RIGHT CURVE
479+00 LT		W1-2AR	48	48	EASTBOUND	YES	NO	16.0	XI	YES	14	2.0	2	-	RIGHT CURVE SPEED ADVISORY 35 MPH (FLOURSECENT YELLOW)	INSTALL NEW SIGN & POSTS
466+00		W1-5	30	30	WESTBOUND	NO	YES	-	-	-	-	-	-	-	WINDING ROAD	SALVAGE EXISTING SIGN & POST
466+00		W13-1P	18	18	WESTBOUND	NO	YES	-	-	-	-	-	-	-	ADVISORY SPEED 35 MPH	SALVAGE EXISTING SIGN
463+00		W1-2L	30	30	WESTBOUND	YES	NO	6.3	XI	YES	10	2.0	1	-	LEFT CURVE (FLUORESCENT YELLOW)	INSTALL NEW SIGN & POST
463+00		W13-1P	18	18	WESTBOUND	YES	NO	2.3	XI	NO	-	-	-	-	ADVISORY SPEED 40 MPH (FLUORESCENT YELLOW)	INSTALL NEW SIGN UNDER LEFT CURVE SIGN
461+80	410+50 EB	W13-3	24	30	WESTBOUND	NO	YES	-	-	-	-	-	-	-	CURVES 35 MPH	RELOCATE EXISTING SIGN TO STATION 410+50 EB
461+80	447+50	SPECIAL	18	26	WESTBOUND	NO	YES	-	-	-	-	-	-	-	DYNAMIC SPEED DISPLAY ASSEMBLY	REMOVE & RELOCATE DYNAMIC SIGN ASSEMBLY & POSTS
449+58		W1-5	30	30	WESTBOUND	NO	YES	-	-	-	-	-	-	-	WINDING ROAD	SALVAGE EXISTING SIGN & POSTS
449+58		W13-1P	18	18	WESTBOUND	NO	YES	-	-	-	-	-	-	-	ADVISORY SPEED 30 MPH	SALVAGE EXISTING SIGN
447+50		SPECIAL	18	26	WESTBOUND	NO	YES	-	-	-	-	-	-	-	DYNAMIC SPEED DISPLAY ASSEMBLY	INSTALL FROM STATION 461+80
447+50		W13-3	24	30	WESTBOUND	NO	NO	-	-	-	-	-	-	-	CURVES 30 MPH (FLUORESCENT YELLOW)	INSTALL EXISTING CURVES 30 MPH SIGN FROM STATION 410+50 EB AND PLACE ABOVE DYNAMIC SIGN
445+00		W1-2L	36	36	WESTBOUND	YES	NO	9.0	XI	YES	10	2.0	1	-	LEFT CURVE (FLUORESCENT YELLOW)	INSTALL NEW SIGN & POST
445+00		W13-1P	24	24	WESTBOUND	YES	NO	4.0	XI	NO	-	-	-	-	ADVISORY SPEED 30 MPH (FLUORESCENT YELLOW)	INSTALL NEW SIGN UNDER LEFT CURVE SIGN
443+00		W1-2AL	48	48	EASTBOUND	YES	NO	16.0	XI	YES	14	2.0	2	-	LEFT CURVE SPEED ADVISORY 30 MPH (FLOURSECENT YELLOW)	INSTALL NEW SIGN & POSTS
432+00		W1-11R	36	36	WESTBOUND	YES	NO	9.0	XI	YES	12	2.0	2	-	HAIR PIN (FLUORESCENT YELLOW)	INSTALL NEW SIGN ON NEW POSTS
432+00		W13-1P	24	24	WESTBOUND	YES	NO	4.0	XI	NO	-	-	-	-	ADVISORY SPEED 35 MPH (FLUORESCENT YELLOW)	INSTALL NEW SIGN UNDER HAIR PIN CURVE
430+00 LT		W1-11AR	48	48	WESTBOUND	YES	NO	16.0	XI	YES	14	2.0	2	-	HAIR PIN WITH ADVISORY SPEED 35 MPH (FLUORESCENT YELLOW)	INSTALL NEW SIGN ON NEW POSTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 014A(17)34	9	23

Plotting Date: 04/30/2014

Plot Scale - 1:200

Plotted From - trcs12608



Install Transverse Rumble Strips the Full Width of the Driving and the Passing Lanes at stations 314+00 and 308+60 Westbound. Use the TYPICAL CURVE WARNING SIGN LAYOUT WITH RUMBLE STRIPS as a guide for locating the rumble strips.

Advisory Speed = 35 MPH
Curve Radius = 409.3'

PC = MRM 34.548 = Station 301+92.7

PT = MRM 34.635 = Station 306+52.5

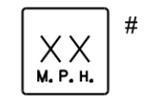
Equation
Station 298+69.93 Bk =
Station 298+70.58 Ahd

US Highway 14A

Speed Advisory as specified in plans.



W1-2R



W13-1



W1-2L



W13-1



W1-2AR



W1-2AL

Install Transverse Rumble Strips as per TYPICAL CURVE WARNING SIGN LAYOUT WITH RUMBLE STRIPS at stations 299+50 and 292+00 Eastbound

W1-2L
W13-1P
(Place in Current Location)

W1-2AL

W1-2R
W13-1P

W1-2AR

314+00
313+00
312+00
311+00
310+00
309+00
308+00
307+00
306+00
305+00
304+00
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299+00
298+00
297+00
296+00
295+00
294+00
293+00

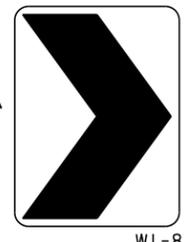
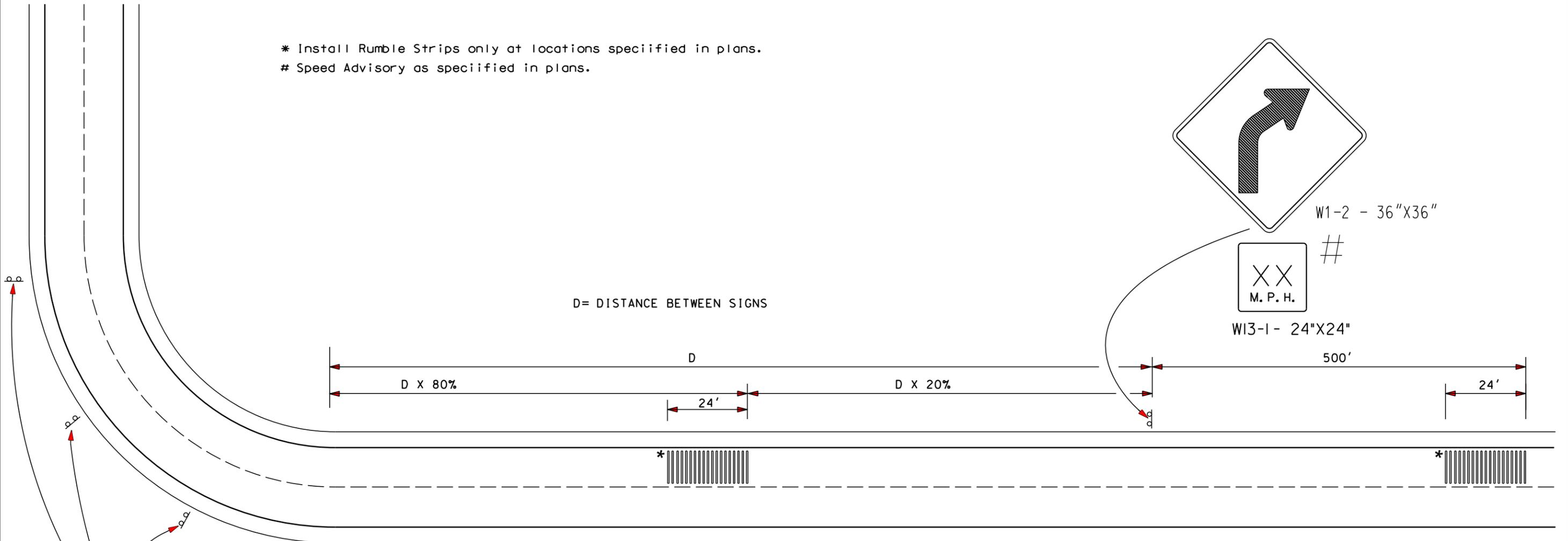
TYPICAL CURVE WARNING SIGN LAYOUT WITH RUMBLE STRIPS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 014A(17)34	11	23
Plotting Date: 04/30/2014			

- * Install Rumble Strips only at locations specified in plans.
- # Speed Advisory as specified in plans.

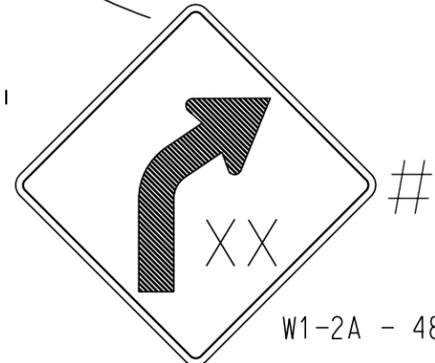
Plot Scale - 1:200

Plotted From - trrs12608



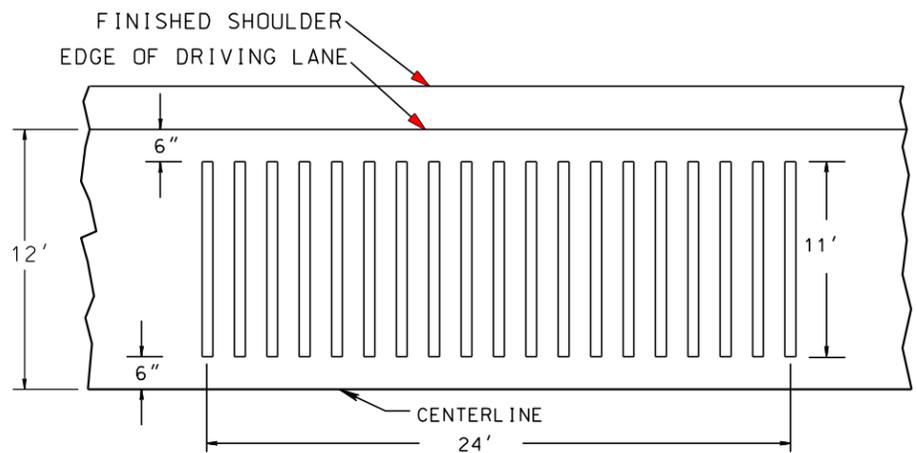
W1-8

Chevron Alignment Signs shall be spaced in accordance with Table 2C-6, MUTCD

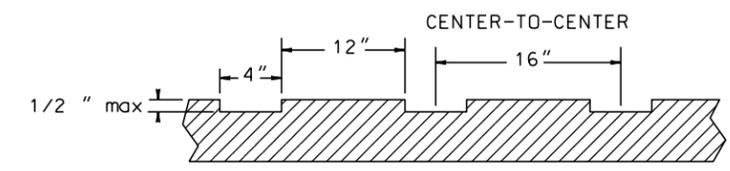


W1-2A - 48"X48"

RUMBLE STRIP PLAN VIEW



RUMBLE STRIP PROFILE (TYPICAL)



THE RUMBLE STRIPS SHALL BE GROOVED INTO THE ASPHALT CONCRETE SURFACE.

File - ...TransverseRumbleStrips.dgn

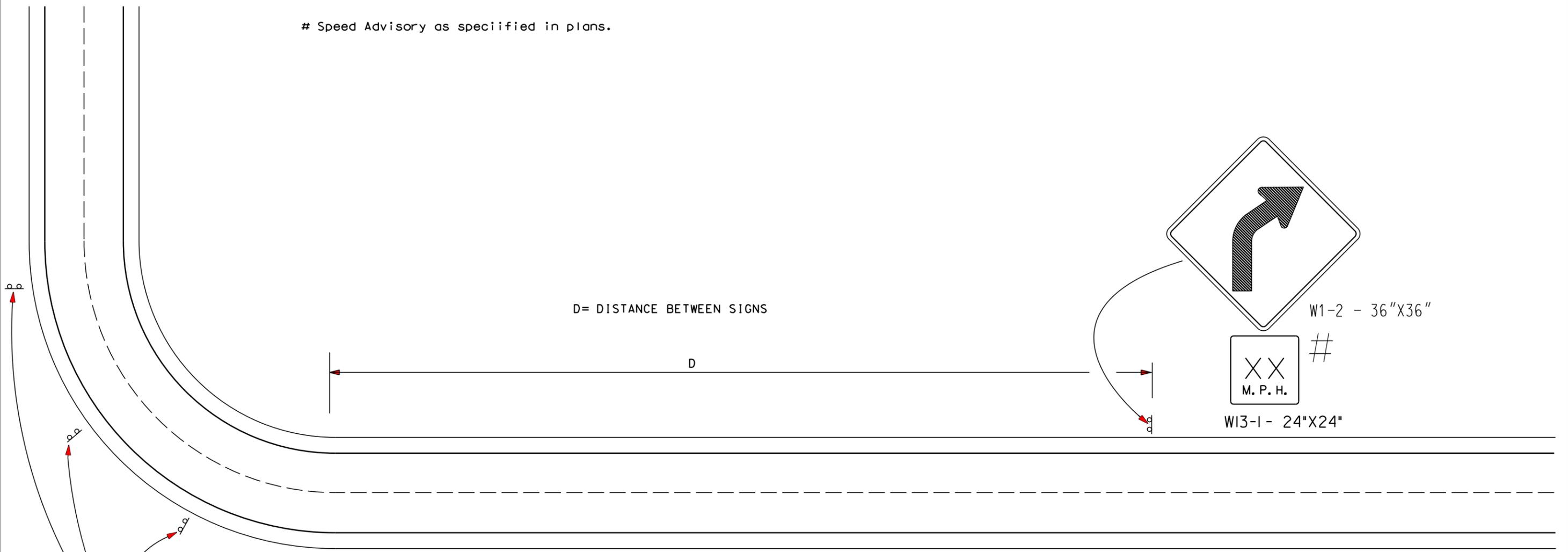
TYPICAL CURVE WARNING SIGN LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 014A(17)34	12	23

Plotting Date: 04/30/2014

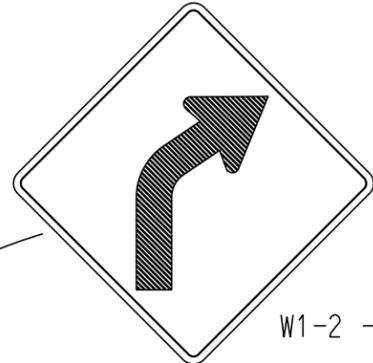
Speed Advisory as specified in plans.

Plot Scale - 1:200



D= DISTANCE BETWEEN SIGNS

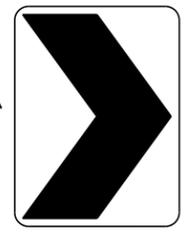
D



W1-2 - 36"X36"



W13-1 - 24"X24"



W1-8

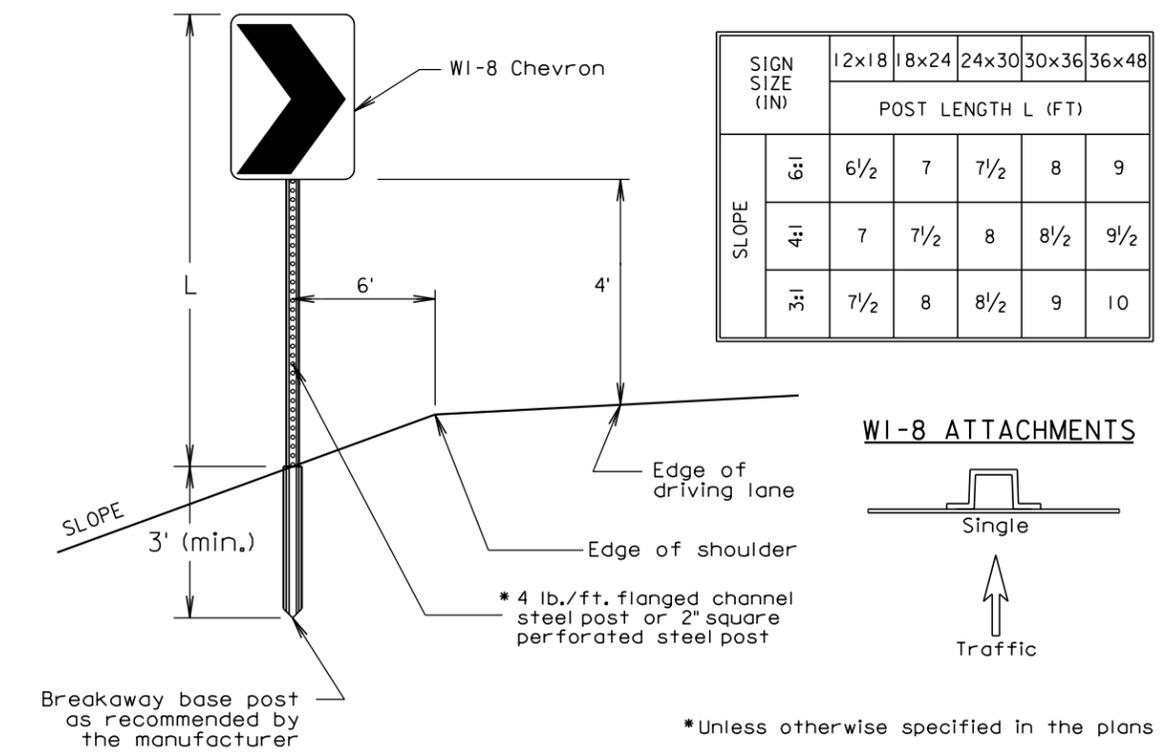
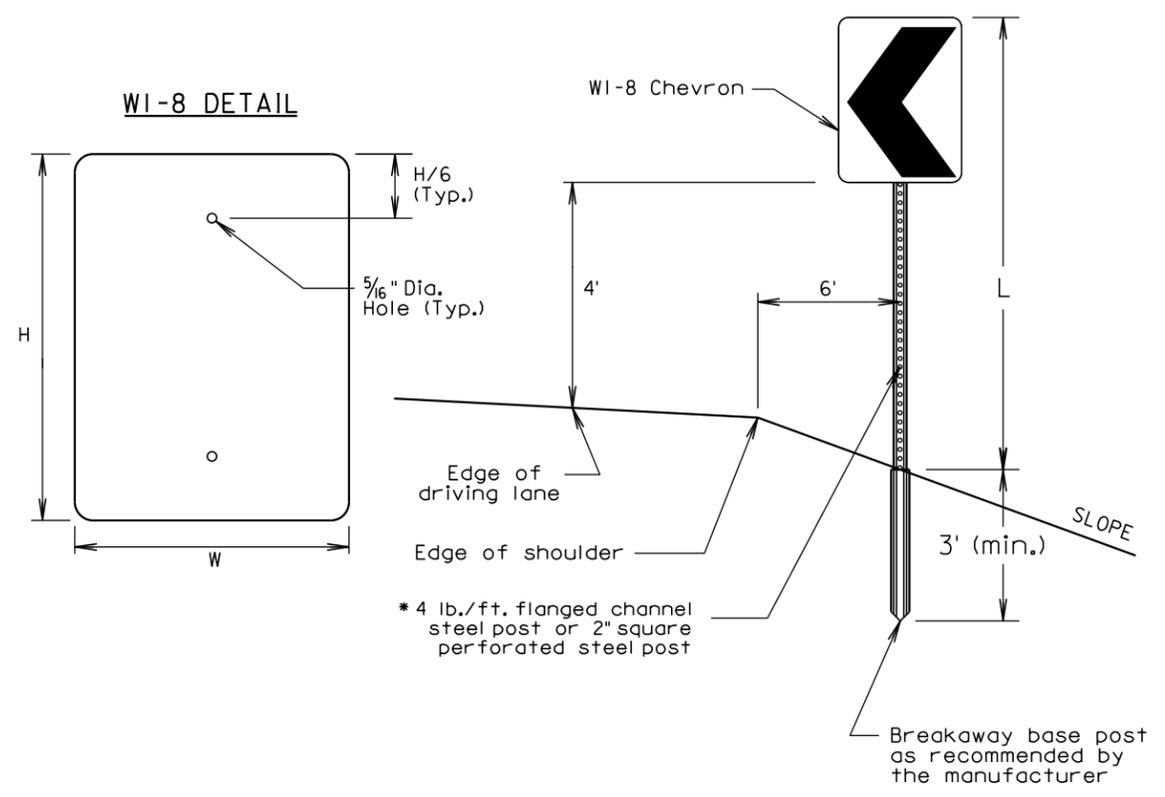
Chevron Alignment Signs shall be spaced in accordance with Table 2C-6. MUTCD



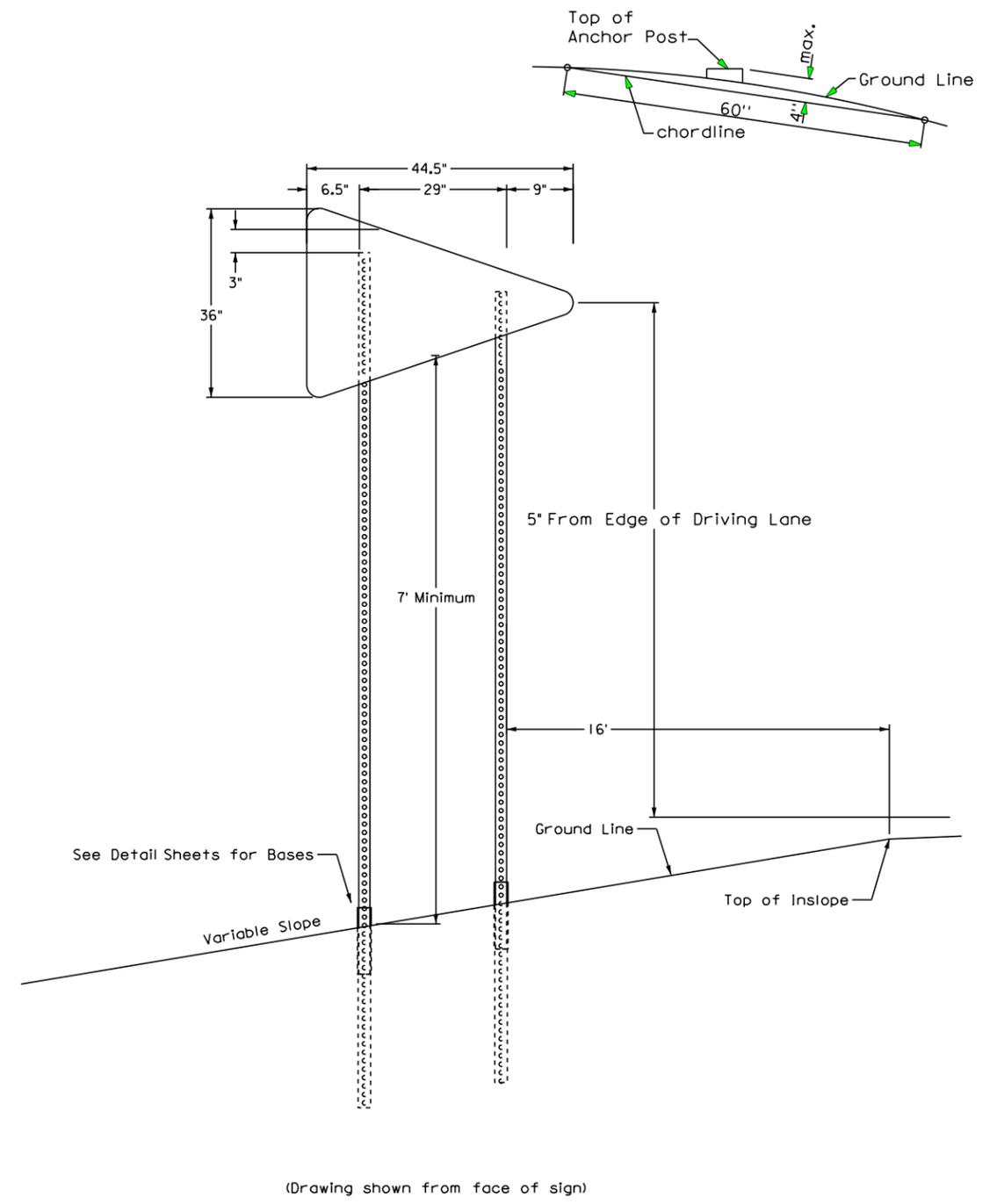
W1-2A - 48"X48"

Plotted From - trcs12608

File - ...TransverseRumbleStrip.dgn

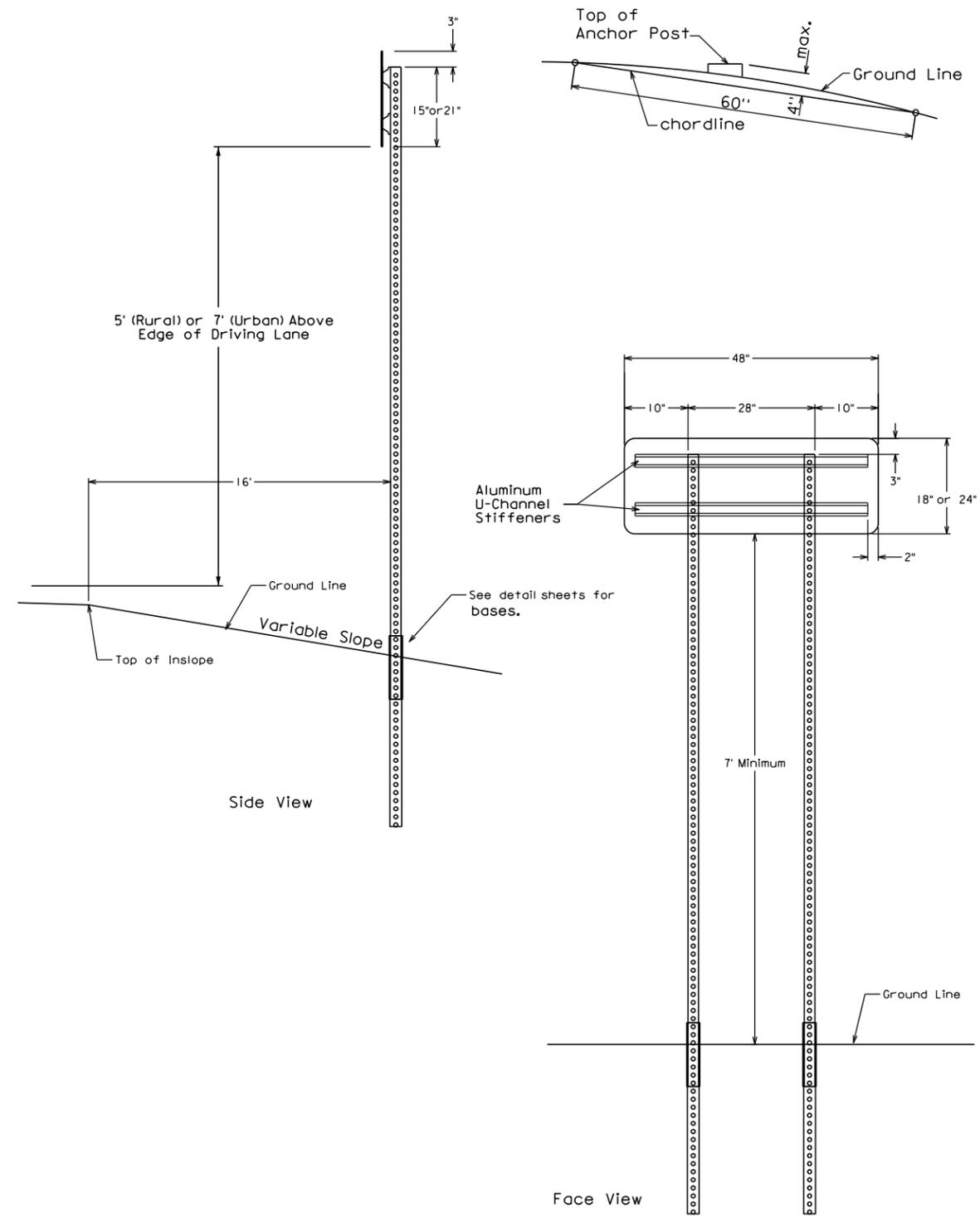


**WI-8 CHEVRON INSTALLATION
(BREAKAWAY SIGN SUPPORT)**

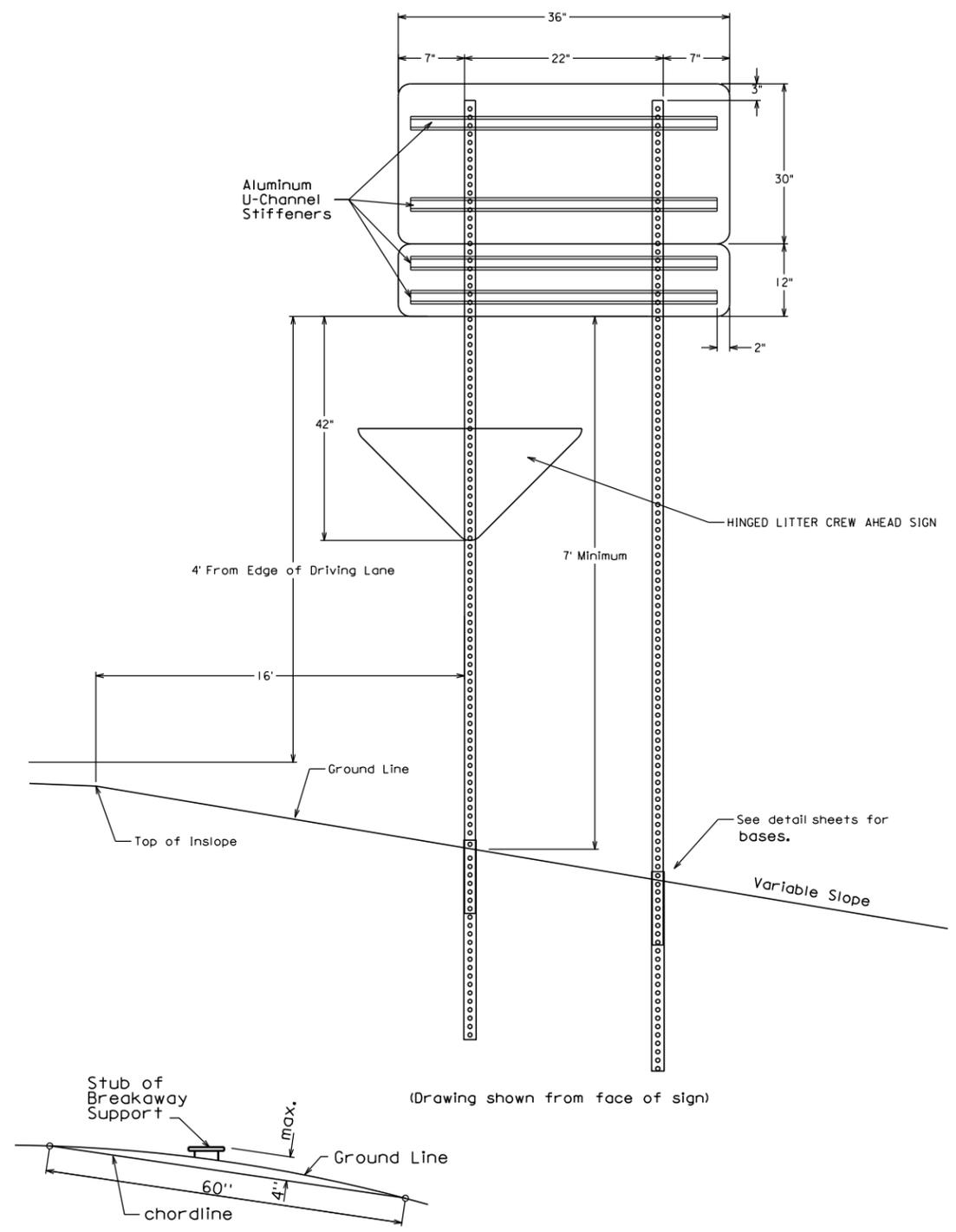


**TYPICAL ERECTION DETAILS FOR
NO PASSING ZONE PENNANT**

Plot Scale - 1:200



**TYPICAL ERECTION DETAILS FOR
ONE WAY SIGN OR LARGE ARROW SIGN**



**TYPICAL ERECTION DETAILS FOR
ADOPT-A-HIGHWAY SIGN WITH CLUB SIGN
AND LITTER CREW SIGN**

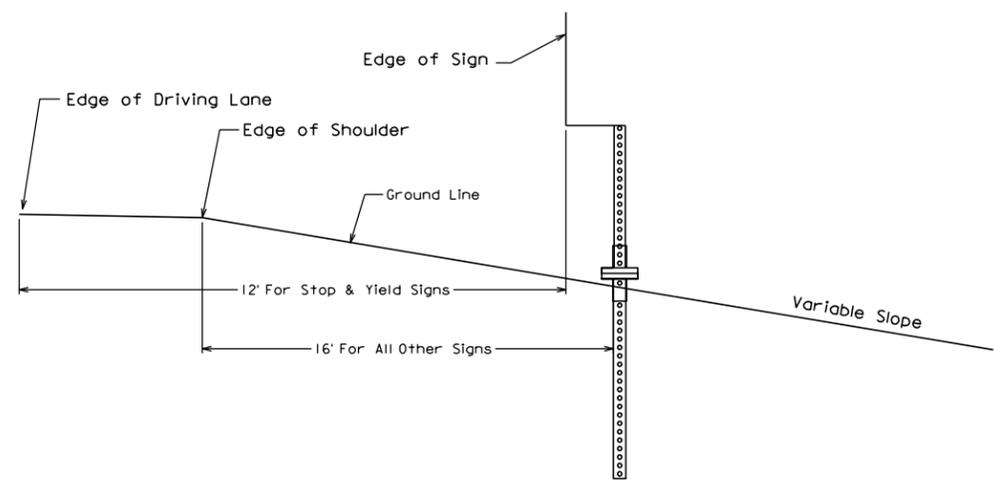
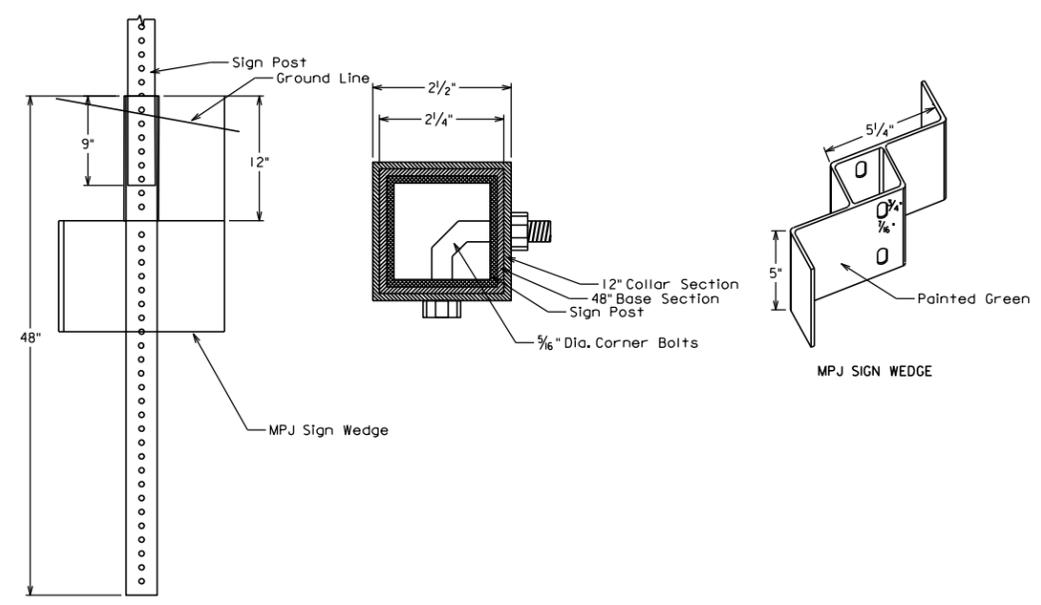
Plotted From - trcs12608

File - ...100LD_SignSupportStandards.dgn

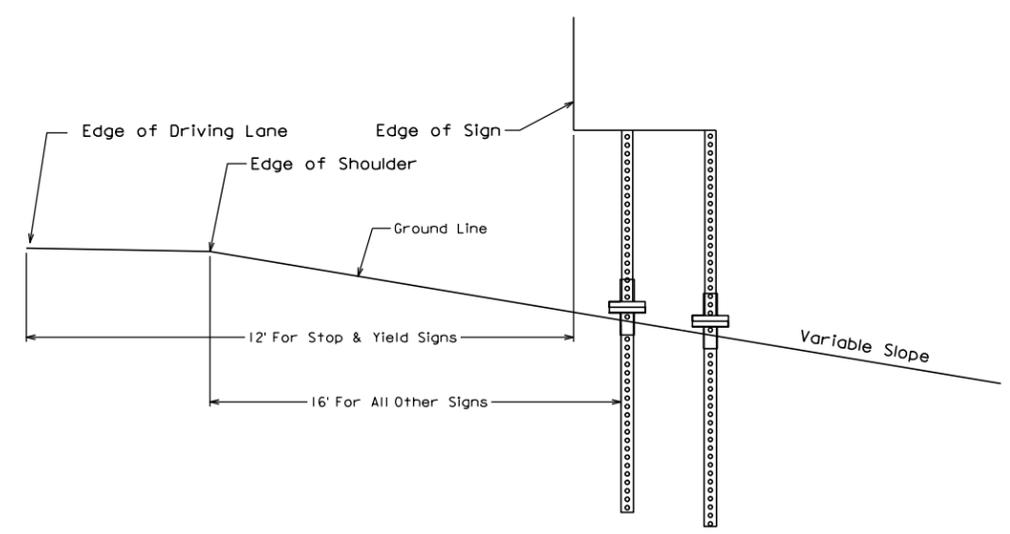
Plot Scale - 1:200

Plotted From - trcs12608

SIGN BASE DETAILS FOR A 2" SIGN POST



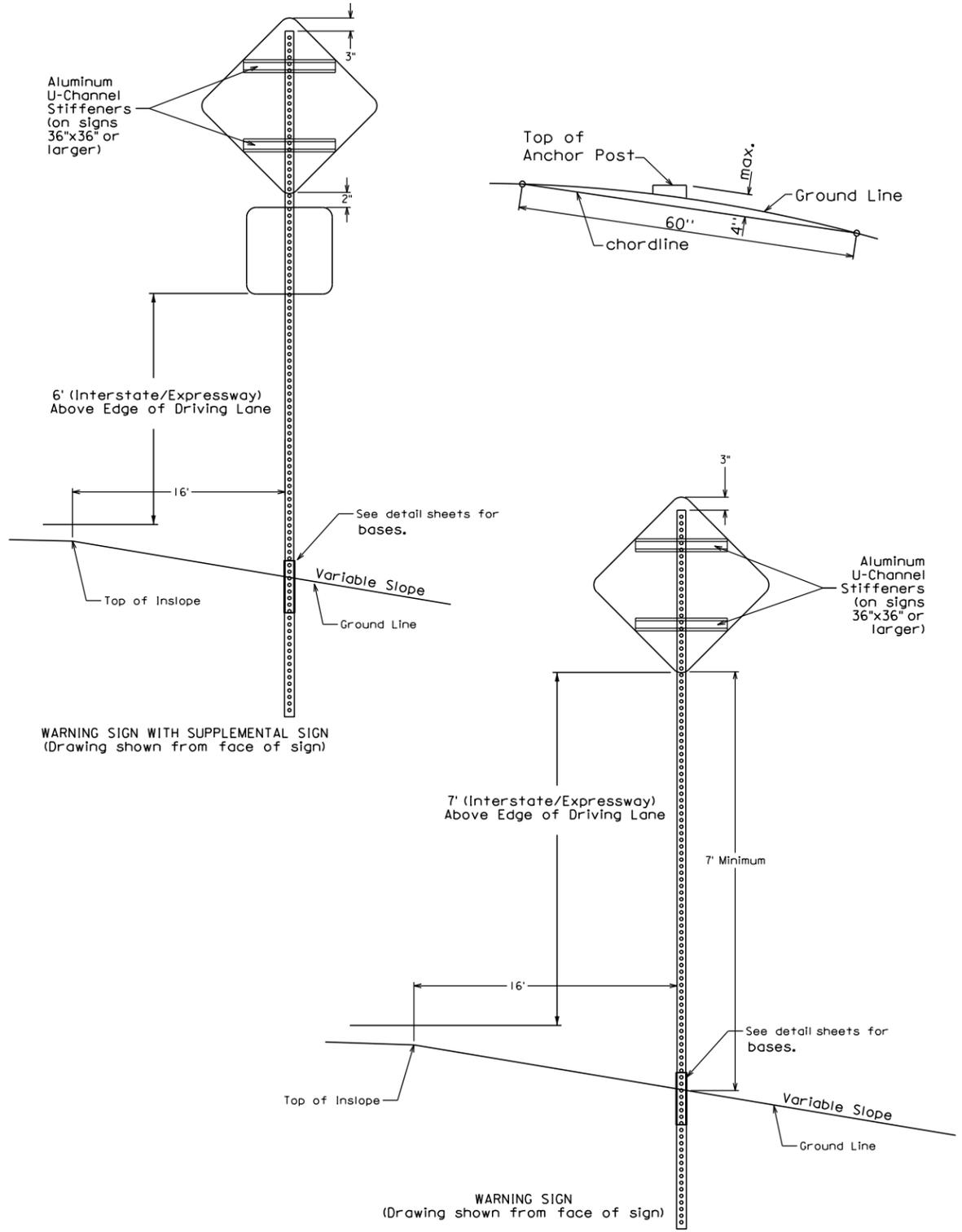
RURAL LOCATION WITH 1 POST
(Drawing shown from face of sign)



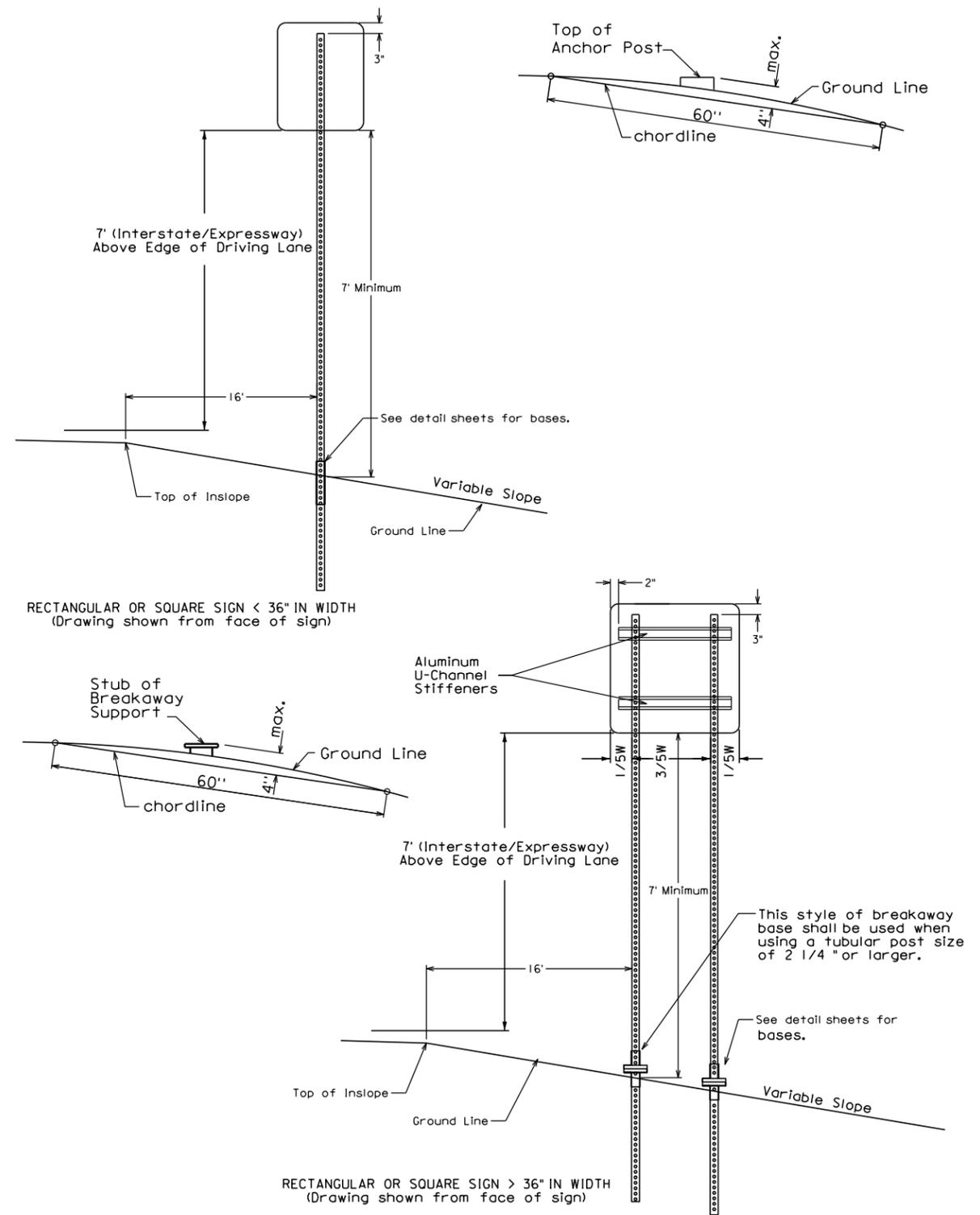
RURAL LOCATION WITH 2 POSTS
(Drawing shown from face of sign)

**LATERAL LOCATION FOR
RURAL SIGNS**

Plot Scale - 1:200



TYPICAL ERECTION DETAILS FOR WARNING SIGNS



TYPICAL ERECTION DETAILS FOR SQUARE OR RECTANGULAR SIGNS

Plotted From - trrs12608

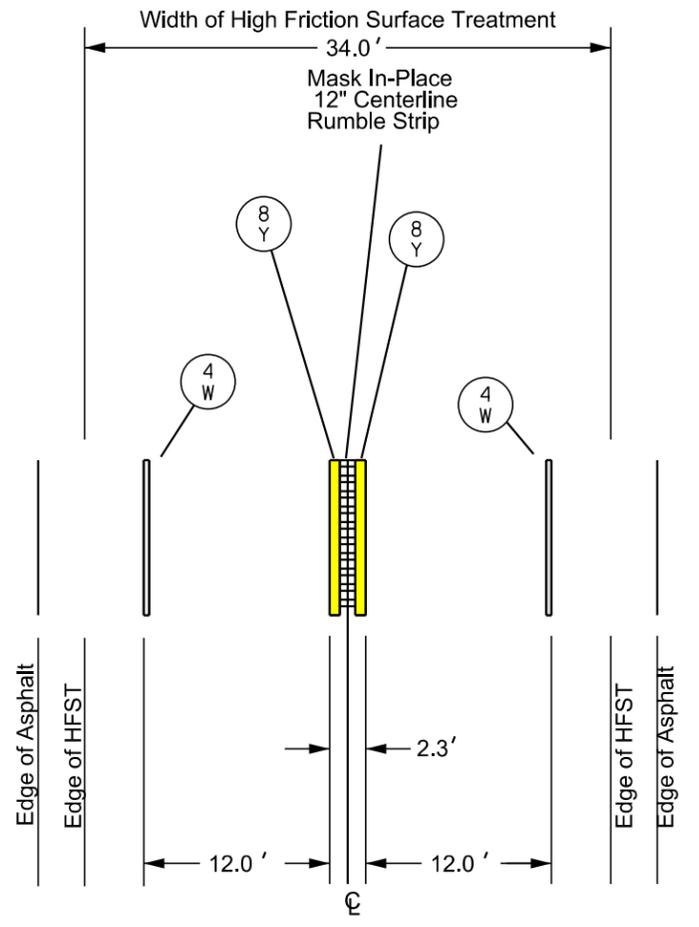
File - ...100LD_SignSupportStandards.dgn

Plotting Date: 04/30/2014

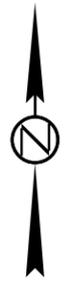
Typical Striping Details

Station 414+40 to Station 431+50 - Replace all pavement markings as shown

Station 437+77 to Station 443+55 - No High Friction Surface Treatment or Masking required - Centerline pavement marking only



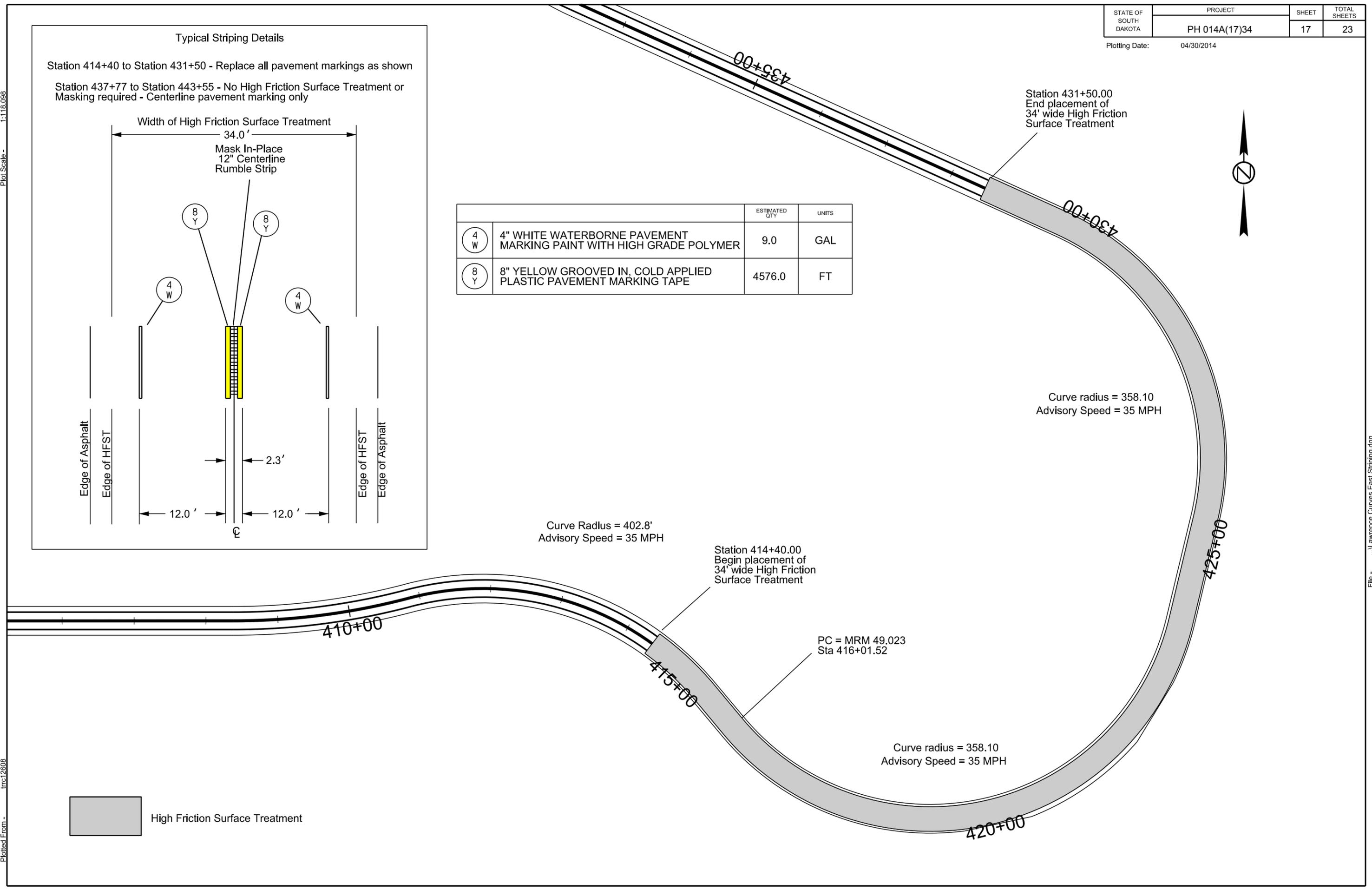
		ESTIMATED QTY	UNITS
(4 W)	4" WHITE WATERBORNE PAVEMENT MARKING PAINT WITH HIGH GRADE POLYMER	9.0	GAL
(8 Y)	8" YELLOW GROOVED IN, COLD APPLIED PLASTIC PAVEMENT MARKING TAPE	4576.0	FT



Plot Scale - 1:118,098

Plotted From - trcs12608

File - ...Lawrence Curves East Striping.dgn



High Friction Surface Treatment

Curve Radius = 402.8'
Advisory Speed = 35 MPH

Curve radius = 358.10
Advisory Speed = 35 MPH

Station 414+40.00
Begin placement of
34' wide High Friction
Surface Treatment

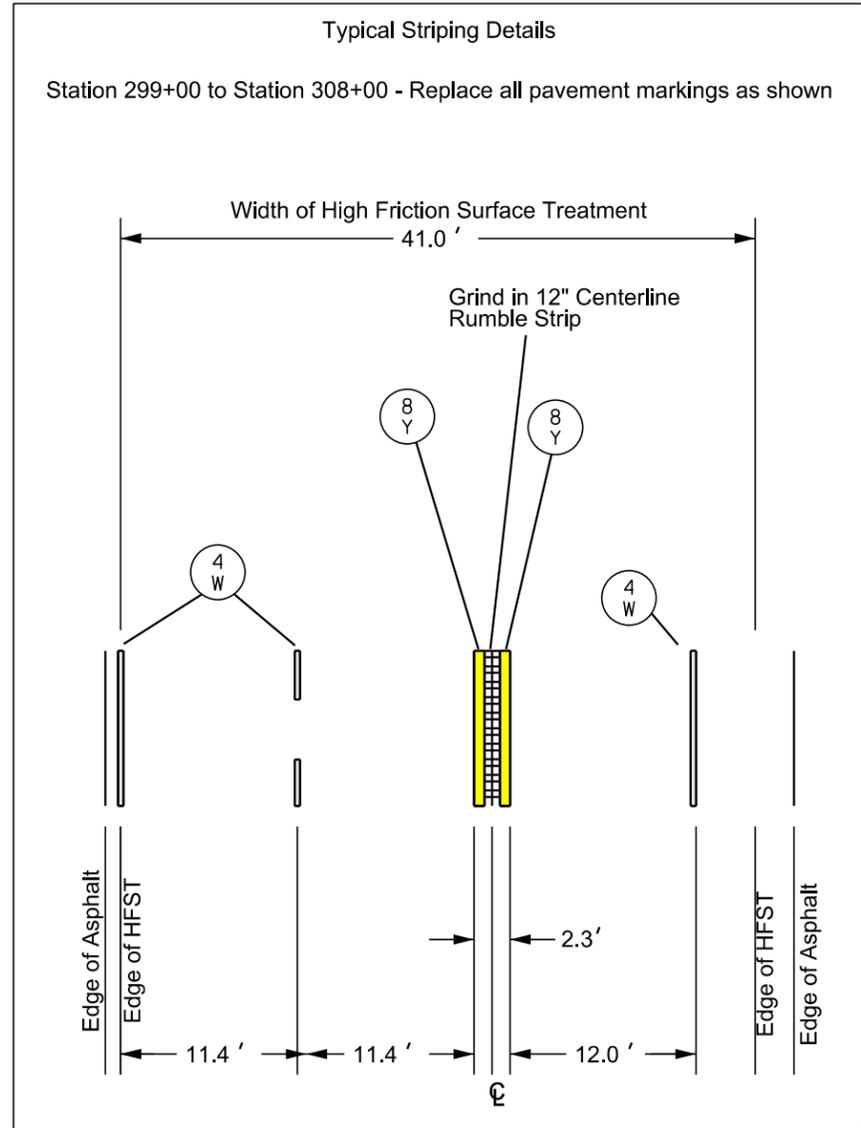
PC = MRM 49.023
Sta 416+01.52

Curve radius = 358.10
Advisory Speed = 35 MPH

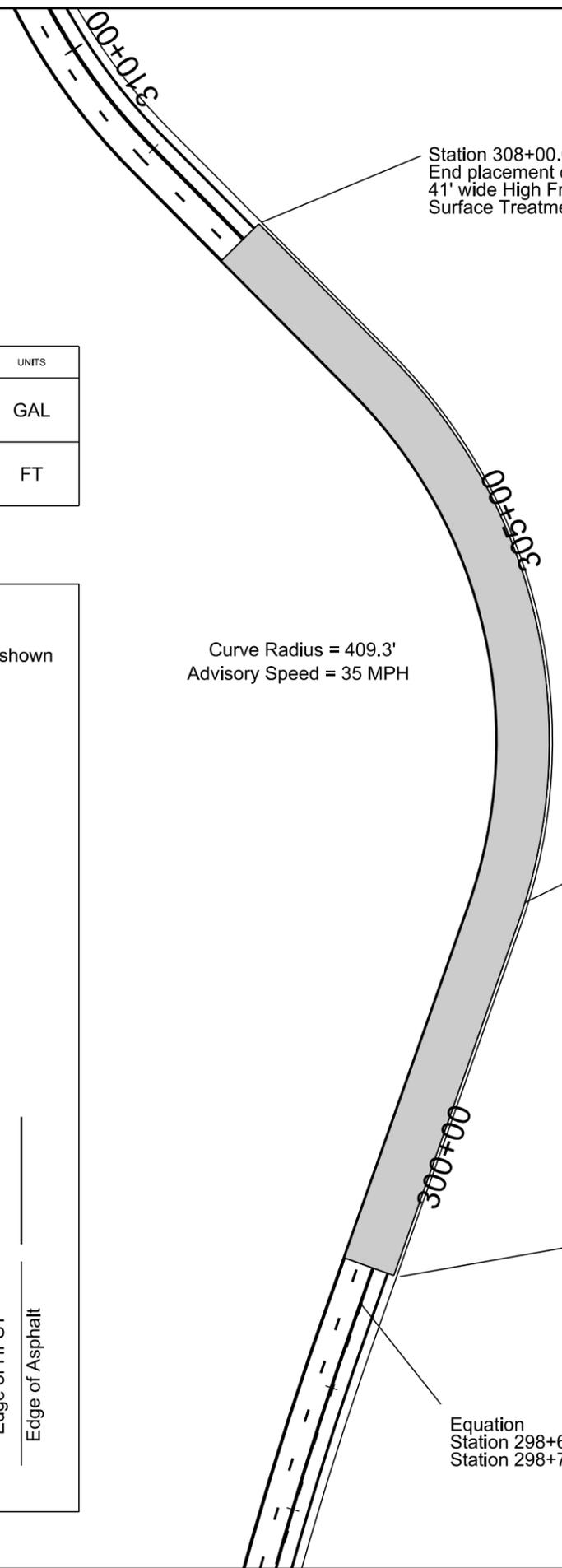
Plotting Date: 04/30/2014



		ESTIMATED QTY	UNITS
(4) W	4" WHITE WATERBORNE PAVEMENT MARKING PAINT WITH HIGH GRADE POLYMER	4.7	GAL
(8) Y	8" YELLOW GROOVED IN, COLD APPLIED PLASTIC PAVEMENT MARKING TAPE	1800.0	FT



Curve Radius = 409.3'
Advisory Speed = 35 MPH



PC = MRM 34.548
Sta 301+92.7

Station 299+00.00
Begin placement of
42' wide High Friction
Surface Treatment

Equation
Station 298+69.93 Bk =
Station 298+70.58 Ahd



High Friction Surface Treatment

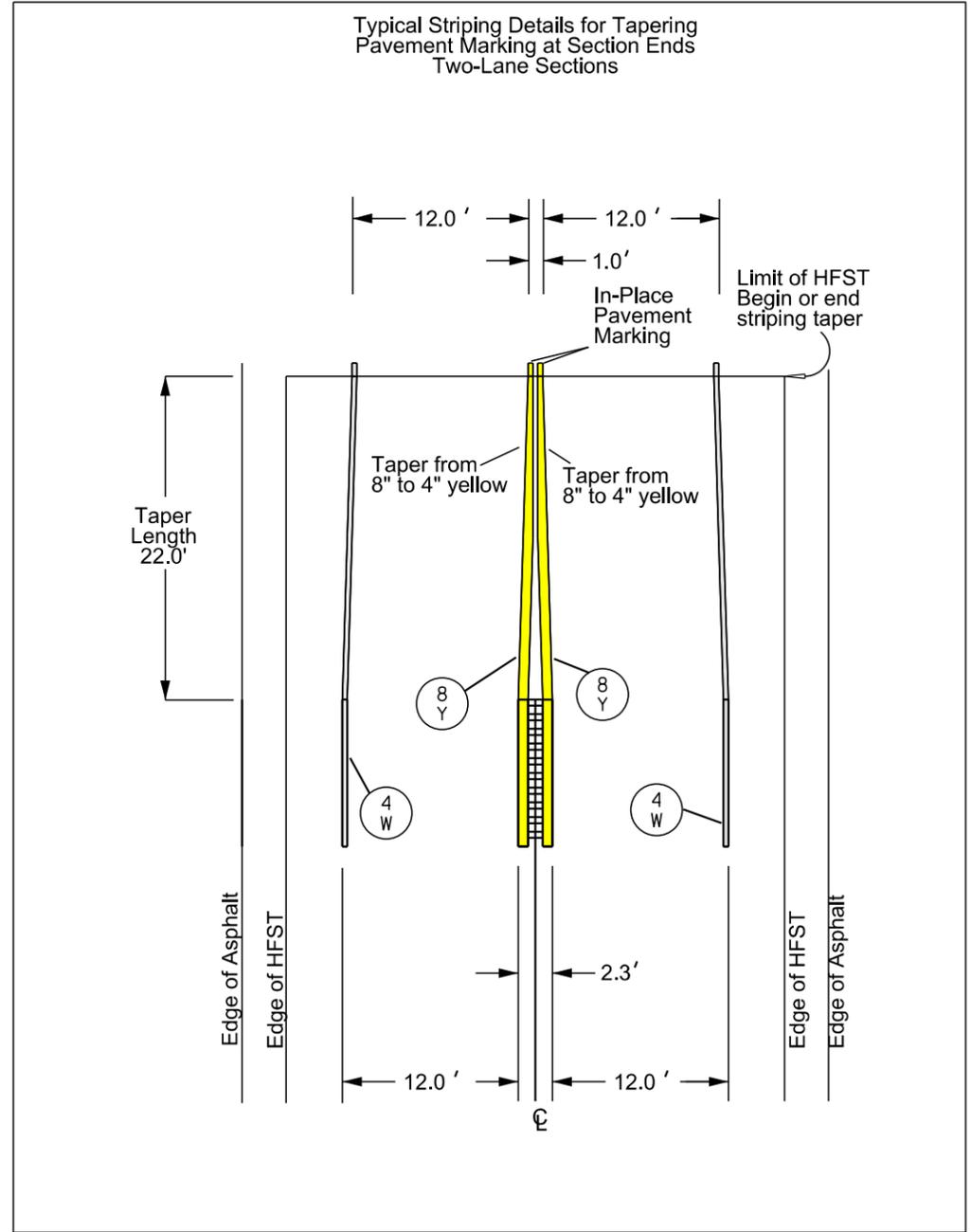
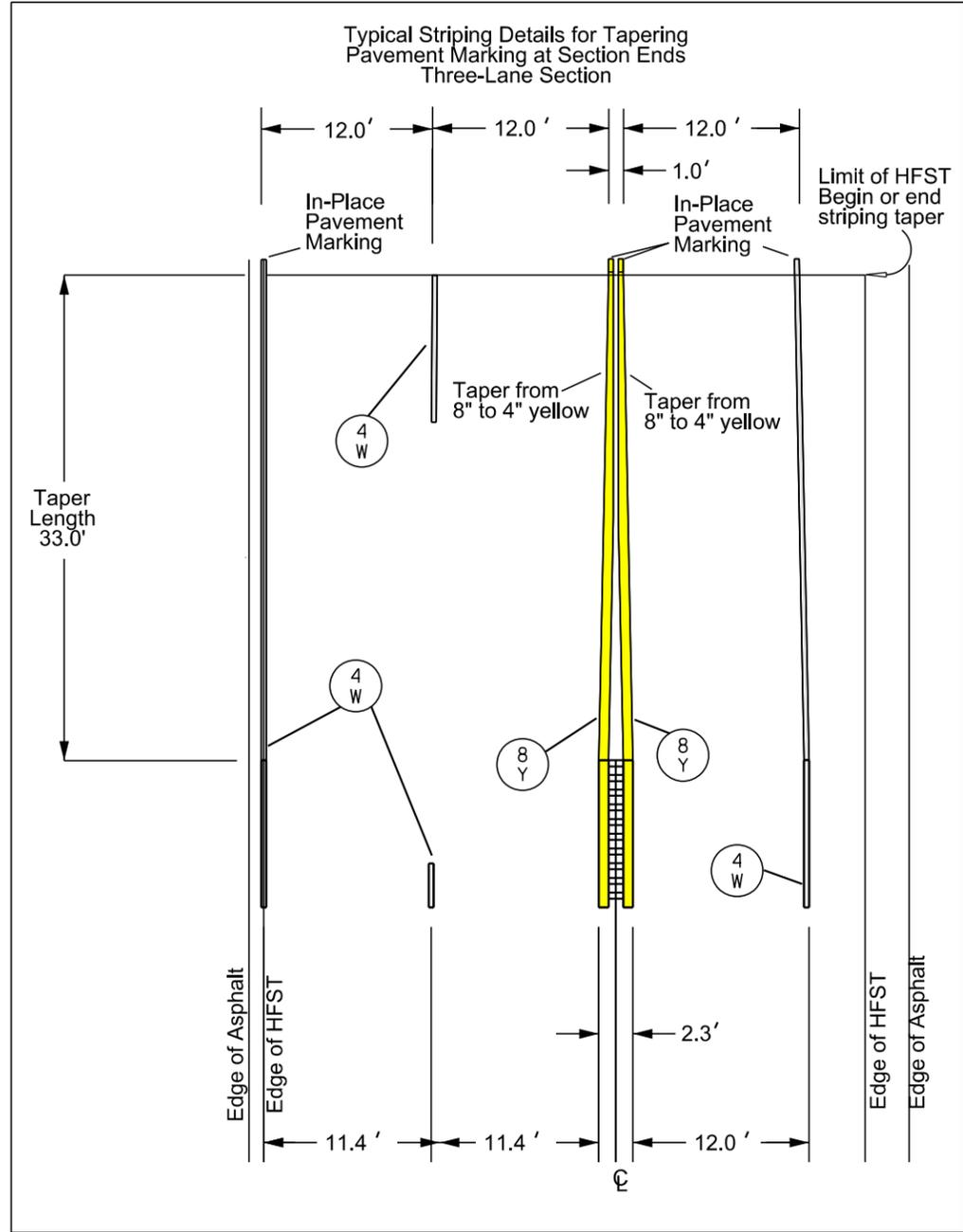
Plot Scale - 1:118,098

Plotted From - trcs12608

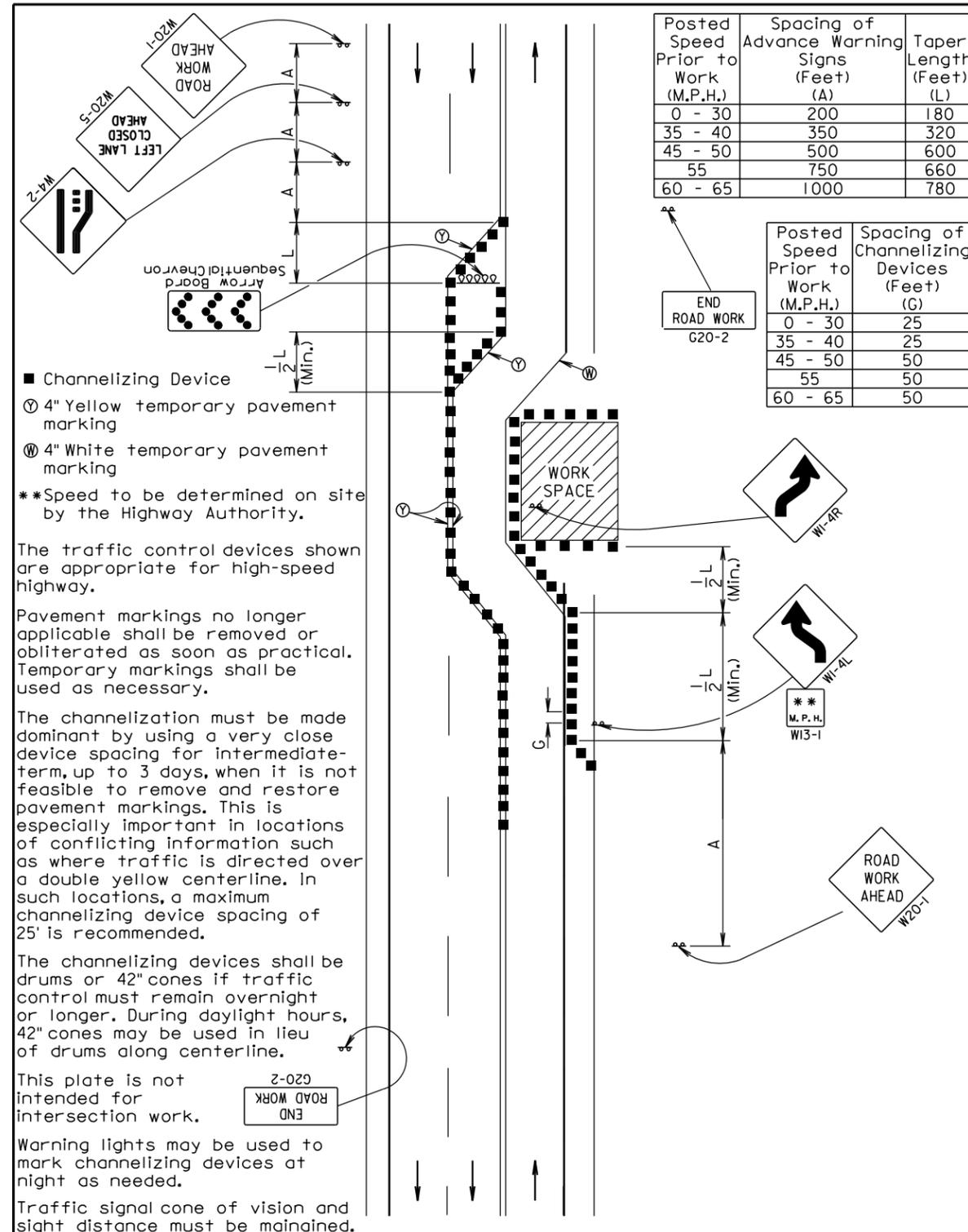
File - ...Lawrence Curves West Striping.dgn

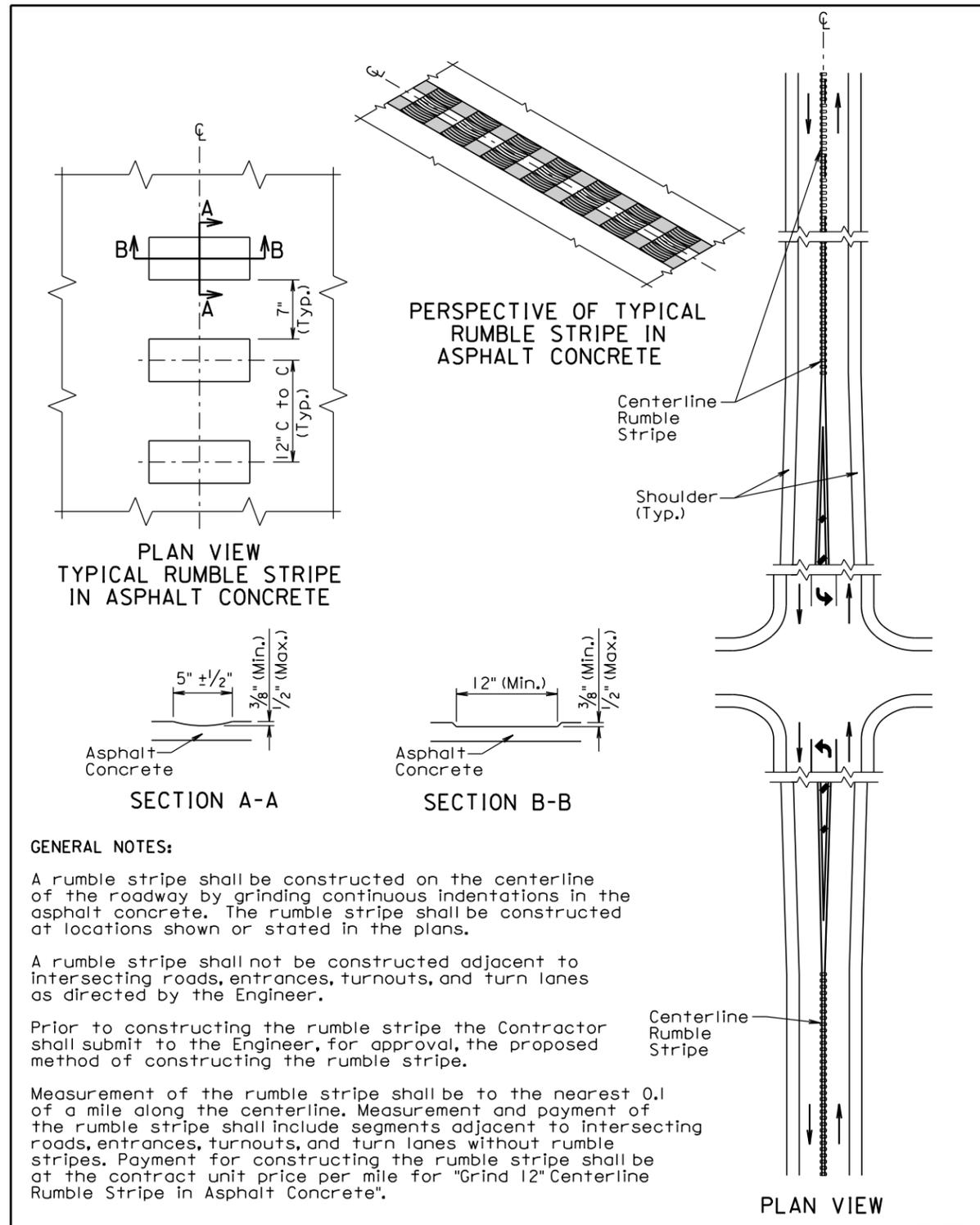
Plot Scale - 1:118,098

Plotted From - trcs12608



US 14A TRAFFIC CONTROL DEVICES LANE CLOSURE ON CLIMBING LANE SECTION OF HIGHWAY





GENERAL NOTES:

A rumble stripe shall be constructed on the centerline of the roadway by grinding continuous indentations in the asphalt concrete. The rumble stripe shall be constructed at locations shown or stated in the plans.

A rumble stripe shall not be constructed adjacent to intersecting roads, entrances, turnouts, and turn lanes as directed by the Engineer.

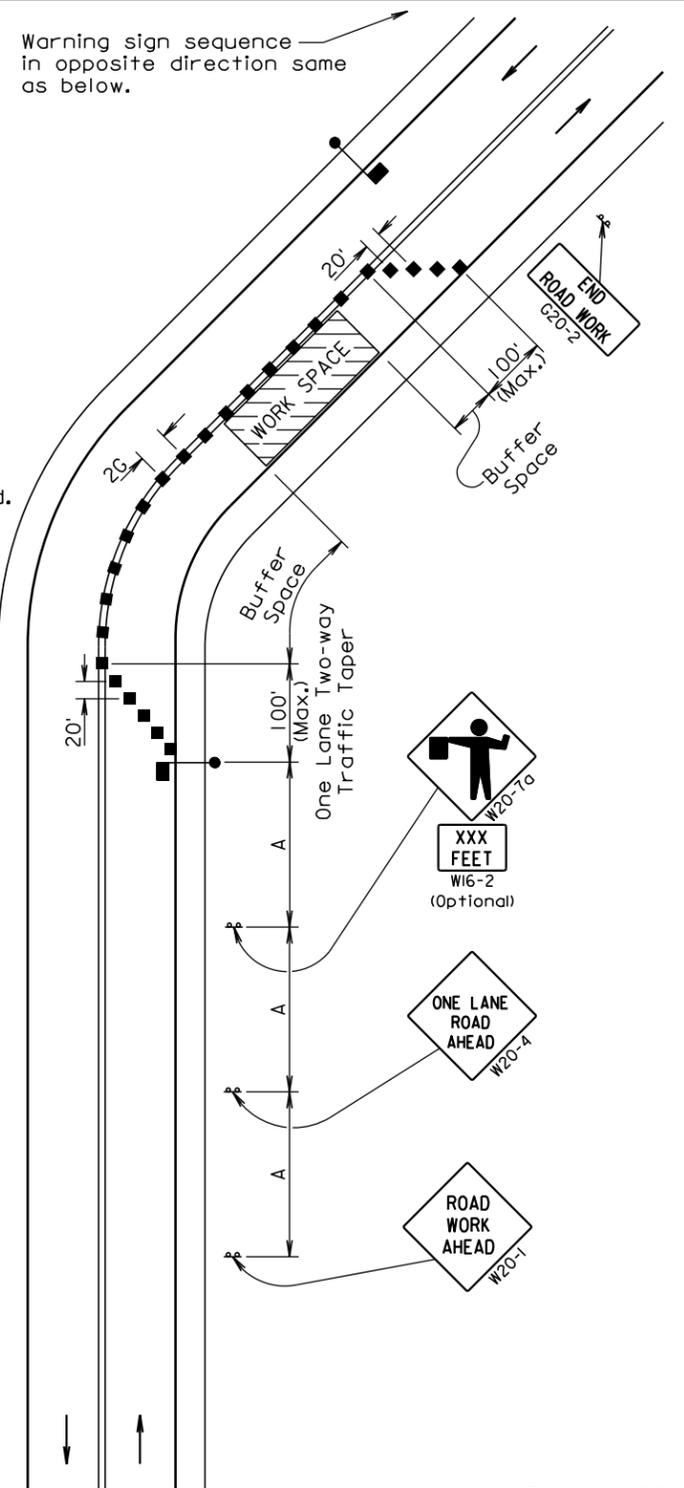
Prior to constructing the rumble stripe the Contractor shall submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

Measurement of the rumble stripe shall be to the nearest 0.1 of a mile along the centerline. Measurement and payment of the rumble stripe shall include segments adjacent to intersecting roads, entrances, turnouts, and turn lanes without rumble stripes. Payment for constructing the rumble stripe shall be at the contract unit price per mile for "Grind 12" Centerline Rumble Stripe in Asphalt Concrete".

June 26, 2011

Published Date: 1st Qtr. 2014	S D D O T	12" CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.18
			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 - 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.

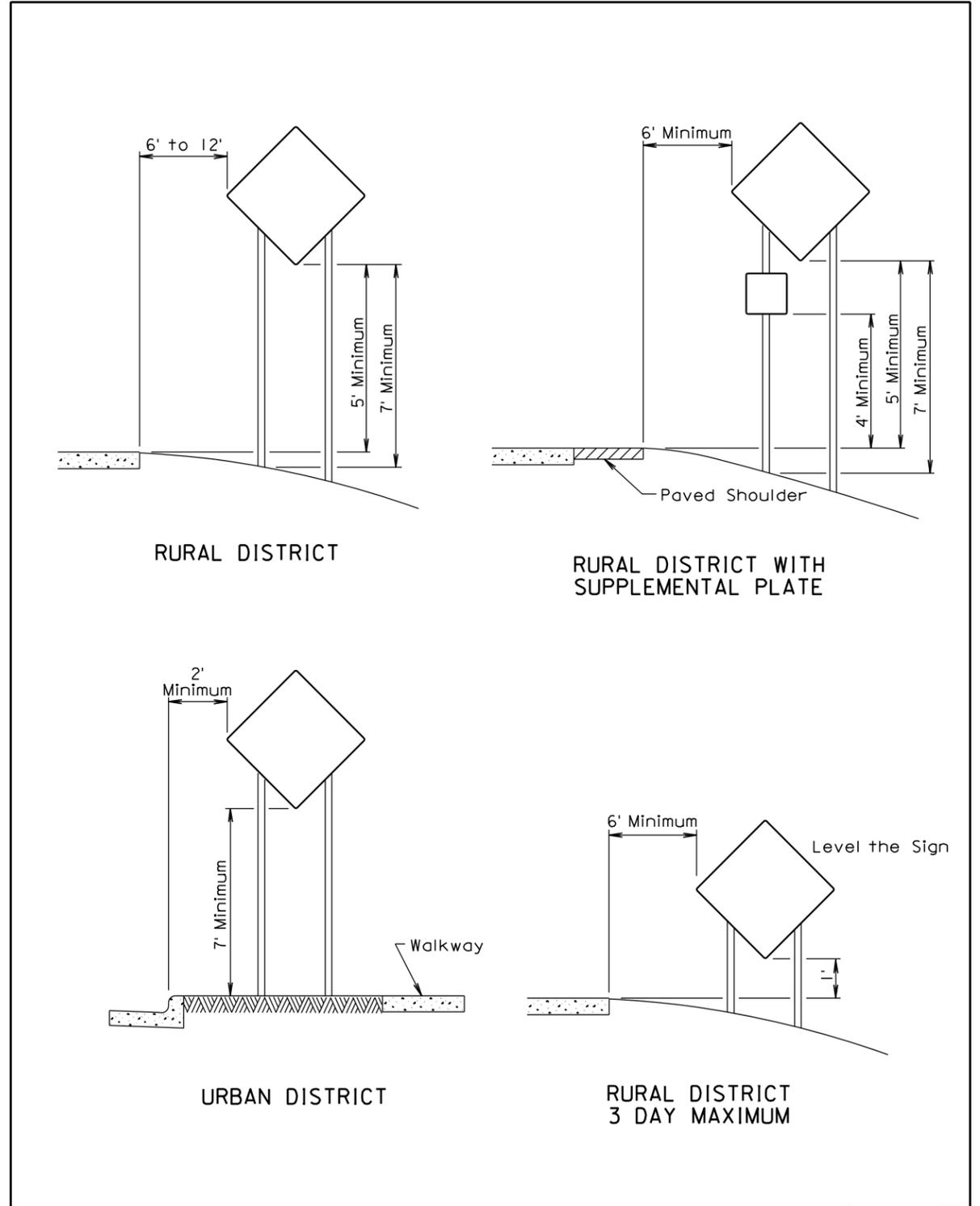
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

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.

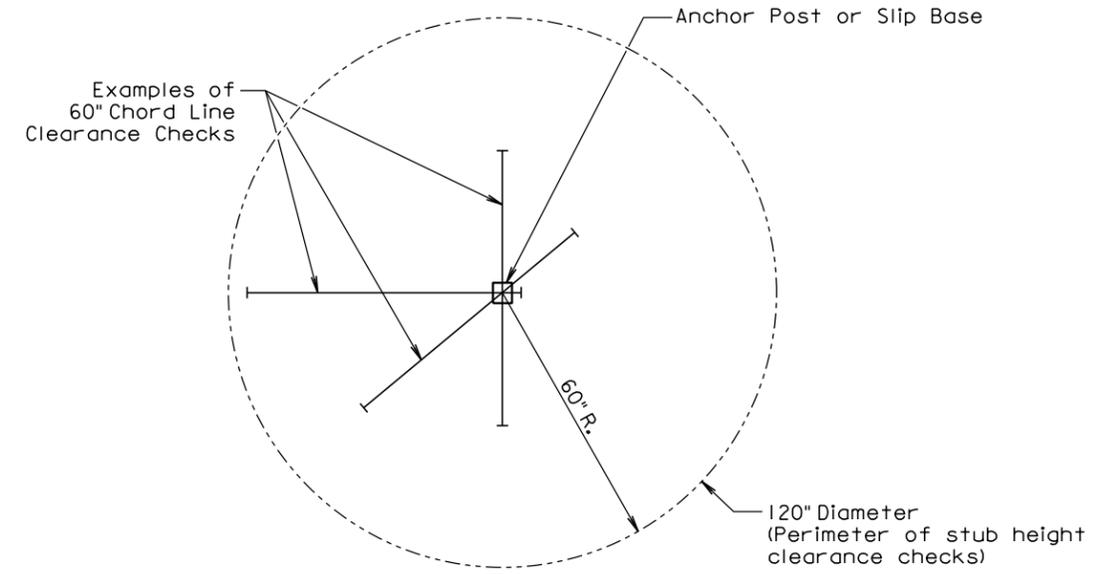
February 14, 2011

Published Date: 1st Qtr. 2014 SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
		Sheet 1 of 1

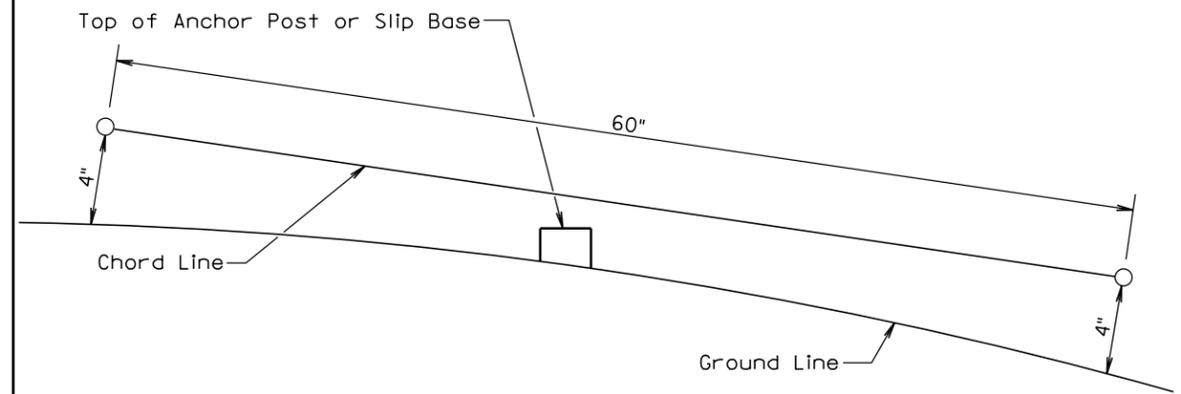


February 14, 2011

Published Date: 1st Qtr. 2014 SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
		Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases 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

<i>Published Date: 1st Qtr. 2014</i>	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1