STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	1	43

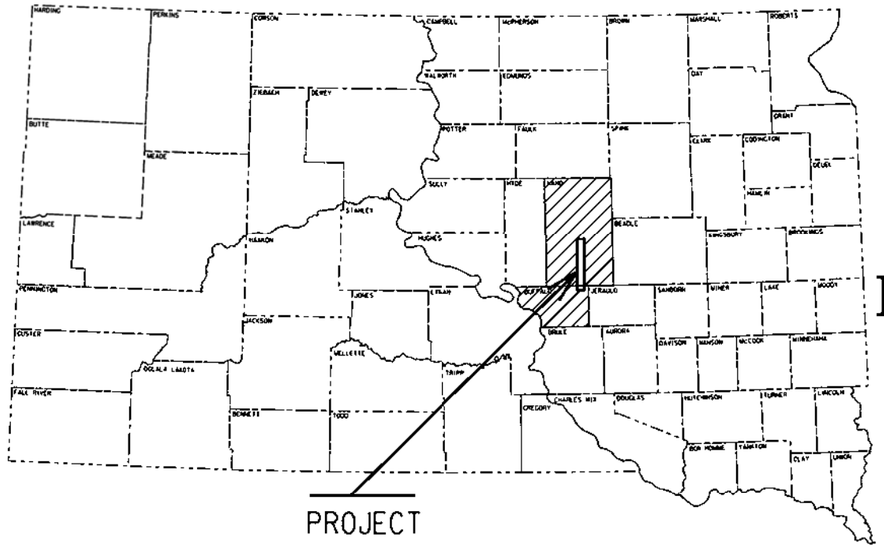
Plotting Date: 09/30/2016

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

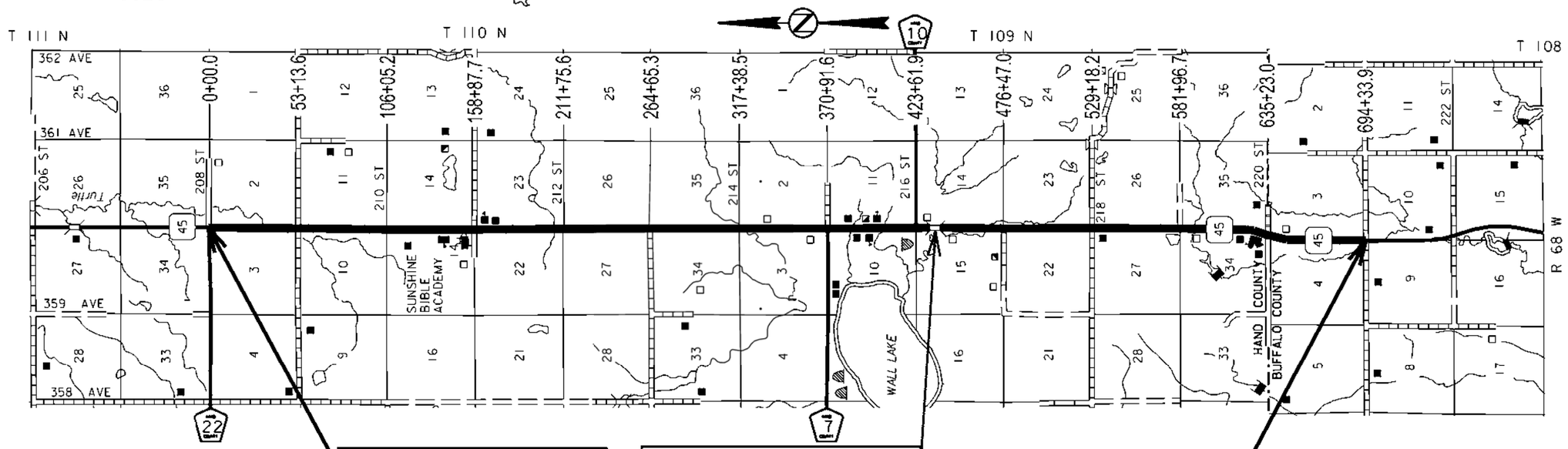
PROJECT P 0045(56)88
S.D. HIGHWAY 45
BUFFALO & HAND COUNTIES

ASPHALT CONCRETE RESURFACING
& PERMANENT SIGNING

PCN 05EY



INDEX OF SHEETS



DESIGN DESIGNATION

ADT (2015)	492
ADT (2035)	568
DHV	69
D	52%
T DHV	10.2%
T ADT	22.5%
V	65

STORM WATER PERMIT
PERMIT NOT REQUIRED

GROSS LENGTH	69433.90 FEET	13.150 MILES
LENGTH OF EXCEPTIONS	97.5 FEET	0.018 MILES
NET LENGTH	69336.4 FEET	13.132 MILES

6

PLOT SCALE = 116999.55

PLOT NAME = T

PLOTTED FROM - TRHJINT04

FILE = ...\DESIGN\05EY_TITLE SHEET.DGN

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0130	Remove Traffic Sign	69	Each
110E6200	Remove Double Thrie Beam Guardrail for Reset	50.0	Ft
110E6230	Remove W Beam Guardrail for Reset	100.0	Ft
110E6240	Remove W Beam to Thrie Beam Guardrail Transition for Reset	4	Each
110E6270	Remove W Beam Guardrail Flared End Terminal for Reset	4	Each
110E7150	Remove Sign for Reset	1	Each
120E0100	Unclassified Excavation, Digouts	657	CuYd
260E1010	Base Course	3,134.2	Ton
320E0007	PG 64-28 Asphalt Binder	2,271.6	Ton
320E1002	Class Q2 Hot Mixed Asphalt Concrete	37,568.8	Ton
320E4000	Hydrated Lime	371.7	Ton
320E7008	Grind 8" Rumble Strip or Stripe in Asphalt Concrete	25.5	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	162.5	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	57.9	Ton
330E2000	Sand for Flush Seal	693.0	Ton
332E0010	Cold Milling Asphalt Concrete	2,335	SqYd
600E0300	Type III Field Laboratory	1	Each
630E5110	Reset Double Thrie Beam Guardrail with Wood Posts	50.0	Ft
630E5140	Reset W Beam Guardrail with Wood Posts	100.0	Ft
630E5190	Reset W Beam to Thrie Beam Guardrail Transition	4	Each
630E5207	Reset W Beam Guardrail Flared End Terminal	4	Each
632E1320	2.0"x2.0" Perforated Tube Post	808.0	Ft
632E2220	Guardrail Delineator	32	Each
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	76.0	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	318.3	SqFt
632E3500	Reset Sign	1	Each
633E1300	Pavement Marking Paint, White	444	Gal
633E1305	Pavement Marking Paint, Yellow	160	Gal
634E0010	Flagging	450.0	Hour
634E0020	Pilot Car	225.0	Hour
634E0110	Traffic Control Signs	565.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	1	Each
634E0600	4" Temporary Pavement Marking Tape Type I	144	Ft
634E0630	Temporary Pavement Marking	39.9	Mile
831E0300	Reinforcement Fabric (MSE)	530	SqYd
900E0010	Refurbish Single Mailbox	6	Each
900E1980	Storage Unit	1	Each

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

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 H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project.

Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

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

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

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

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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

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

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

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

SEQUENCE OF OPERATIONS

Traffic shall be maintained through the project at all times.

The Contractor shall submit a proposed sequence of operations for the Engineer's review and approval at least two weeks prior to the preconstruction meeting.

Once work starts to inconveniences traffic, work shall be pursued in a near continuous, expeditious manner to its completion. Any work that restricts the motorist from driving the posted speed limit, reduces existing roadway width, or causes a potentially unsafe condition due to Contractor operations such as frequent movement of equipment or materials on or through the project, is considered to be an inconvenience to traffic.

The Contractor shall maintain access on and off the highway for local residences, local businesses, and county roads.

PROJECT WORK HOURS

The Contractor may perform work on the roadway during daylight hours only, unless additional hours are approved by the Engineer. Traffic shall be returned to normal driving lanes during non-working hours.

GENERAL NOTES

The Contractor shall be required to mow the inslopes with a rotary mower to a height of 6 inches for a distance of 14 feet from the edge of the roadway (or shoulder) for the length of the project. This work will be completed to the satisfaction of the Engineer after all construction activities are completed. All costs associated with this work shall be incidental to the various contract items.

The Contractor shall have two weeks from the date of completion of all construction activities to complete this work. Failure to complete this work within the allotted time will be assessed liquidated damages at the rate $250.00 per day.

The liquidated damages shall apply up to the expiration of the contract time requirement in which the mowing is required to be completed, including any formally approved time extensions. Following the expiration of the contract time requirement in which the mowing is required to be completed, including any formally approved time extensions, liquidated damages will be assessed in accordance with Section 8.8 of the specifications.

TRAFFIC CONTROL

All traffic control sign locations shall be set in the field by the Contractor and verified by the Engineer prior to installation.

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost of this work shall be incidental to the various contract items unless otherwise specified in the plans. Delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Work zones for asphalt paving operation and pilot car operation shall not exceed 3 miles in length.

An advisory Speed Plate displaying 30 M.P.H. shall be attached to all "Bump" signs used on the project. These speed plates are included in the Itemized List for Traffic Control table in these plans. If "Bump" signs are utilized on city streets with speed limits less than 30 M.P.H. the speed plates shall be removed or covered.

Traffic Control signs, as shown in the Estimate of Quantities, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

TEMPORARY AND PERMANENT PAVEMENT MARKINGS

Maintaining size, shape, and dimension of existing pavement markings shall be the responsibility of the Contractor for both temporary and permanent pavement marking applications.

Temporary Flexible Vertical Markers (Tabs) shall be used to mark dashed centerline, No Passing Zones and applicable lane lines. Paint will not be allowed for Temporary Pavement Marking on the Asphalt Concrete Class Q2 Hot Mixed Asphalt Concrete wear course or after application of the Flush Seal.

TEMPORARY PAVEMENT MARKINGS

The total length of no passing zone on this project is estimated to be **0.3** miles. There are **7** no passing zones on this project.

Quantities of Temporary Pavement Markings consist of:

One pass on top of the 1st Class Q2 Hot Mixed Asphalt Concrete.
One pass on top of the 2nd Class Q2 Hot Mixed Asphalt Concrete.
One pass on top of the Flush Seal.

If the Flush Seal is eliminated, the application of the Temporary Pavement Marking on top of the Flush Seal will be eliminated. No adjustment in the contract unit price for Temporary Pavement Marking will be made because of a variation in quantities.

Temporary Flexible Vertical Markers (Tabs) may be used as detailed in the specifications. Covers on the tabs shall be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers shall be properly disposed. The Contractor shall remove and properly dispose of the tabs after Permanent Pavement Marking is applied. Method of removal shall be nondestructive to the road surface and shall be accomplished within one week of completion of the Permanent Pavement Marking.

Any Temporary Flexible Vertical Markers (Tabs) with covers removed before the flush seal shall be replaced prior to Flush Seal application.

Cost for furnishing, applying, removing and disposing of the Temporary Flexible Vertical Markers (Tabs) shall be included in the contract unit price per mile for TEMPORARY PAVEMENT MARKING.

Flagger symbol signs (W20-7) and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights shall be positioned on the roadway shoulder in advance of workers for both directions of traffic during the installation of temporary road markers. The traffic control device used shall be moved to provide proper warning of the work operation. A Workers symbol sign (W21-1) shall be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work shall be approved by the Engineer.

RETRORFELECTIVITY FOR PAVEMENT MARKING PAINT

The Department may take retroreflectivity readings on the pavement marking lines after 2 days and within 30 days of the line application using either a portable or mobile retroreflectometer that conforms to a 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

If the Department chooses to take retroreflectivity readings, three readings will be taken on the edge lines and lane lines in the direction of application. For combination solid yellow and skip yellow lines for turn lanes and for centerline markings on two-way roadways, three readings will be taken in one direction, the reflectometer will be turned 180 degrees and three more readings will be taken. The six readings for the centerline markings will be averaged and become the test reading for that test location.

If the Department chooses to take readings, the minimum retroreflectivity values shall be 275 mc/m^2/lux for white and 170 mc/m^2/lux for yellow.

PERMANENT PAVEMENT MARKING

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

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

The Contractor shall advise the Engineer a minimum of 2 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones. All materials shall be applied as per manufacturer's recommendations.

The application of Permanent Pavement Marking paint may not begin until 7 calendar days following completion of final surfacing (including Flush Seal if applied) and shall be completed within 14 calendar days following completion of the final surfacing.

For each working day the application of permanent pavement marking paint remains uncompleted beyond the time limits described in the preceding paragraph, the Contractor will be assessed liquidated damages at the rate of $250.00 per day.

The liquidated damages shall apply up to the expiration of the contract time requirement in which the permanent pavement markings are required to be completed, including any formally approved time extensions. Following the expiration of the contract time requirement in which the permanent pavement markings are required to be completed, including any formally approved time extensions, liquidated damages will be assessed in accordance with Section 8.8 of the specifications.

COLD WEATHER, WATERBORNE PAINT

Waterborne paint applied after October 15 shall be formulated as cold weather, waterborne paint, and shall be applied in accordance with manufacturer's recommendations, including minimum temperature requirements.

There shall be no adjustment in the contract unit prices should cold weather formulated paint be required.

Cold weather, waterborne paint shall conform to section 980 of the specifications except for the following:

980.1 A - Resin Binder shall be Fastrack XSR manufactured by Dow, or approved equal.

980.1.1 Quantitative Requirements:

The Pigment, Percent By Weight for white: 60.0 – 63.0 and for yellow: 58.5-61.5.

The Pigment, Percent By Weight when tested in accordance with ASTM D3723 for white: 60.0-63.0 and for yellow: 56.1-59.2.

The Non-volatile Vehicle, percent by weight, min. for white: 41.5 and yellow: 41.5 when tested in accordance with FTMS 141c (method 4051.1)

ITEMIZED LIST FOR TRAFFIC CONTROL

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30" x 30"	6	12
W1-4	REVERSE CURVE (L or R)	1	48" x 48"	16	16
W3-1	STOP AHEAD (symbol)	2	48" x 48"	16	32
W8-1	BUMP	8	48" x 48"	16	128
W8-11	UNEVEN LANES	4	48" x 48"	16	64
W13-1P	ADVISORY SPEED (plaque)	10	30" x 30"	6	60
W20-1	ROAD WORK AHEAD	7	48" x 48"	16	112
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-5	SHOULDER WORK	2	48" x 48"	16	32
G20-1	ROAD WORK NEXT __ MILES	4	36" x 18"	5	20
G20-2	END ROAD WORK	5	36" x 18"	5	25
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			565

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	1 Each

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

TYPE III FIELD LABORATORY

The lab shall be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection shall be provided with a multi-port wireless router. The internet connection shall be a minimum speed of 512 Kb unless limited by job location and approved by the wireless router's technical data to the Area Office to check for compatibility with the state's computer equ-ipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. These items shall be incidental to the contract unit price per each for TYPE III FIELD LABORATORY.

The lab shall be centrally located on the project at a location approved by the Engineer

STORAGE UNIT

The Contractor shall provide a storage unit such as a portable storage container or a semi-trailer meeting the minimum size requirements from the table below:

Project Total Asphalt Concrete Tonnage	Minimum Internal Size (Cu Ft)	Minimum External Size (L x W x H)
Less than 50,000 ton	1,116	20' x 8' x 8.6' std
More than 50,000 ton	2,360	40' x 8' x 8.6 std
All Gyratory Controlled QC/QA Projects	2,360	40' x 8' x8.6' std

The storage unit is intended for use only by the Engineer for the duration of the project. The QC lab personnel or the Contractor will not be allowed to use the storage container while it is on the project, without permission of the Engineer.

The storage unit shall be on site and operational prior to asphalt concrete production. Upon completion of asphalt concrete production, the Engineer will notify the Contractor when the storage unit can be removed from the project. The storage unit use will not exceed 30 calendar days from the completion of asphalt concrete production. The storage unit will remain the property of the Contractor.

The storage unit shall be weather proof and shall be set in a level position. The storage unit shall be able to be locked with a padlock.

The storage unit shall be placed adjacent to the QA lab, as approved by the Engineer.

The following shall apply when the storage unit provided on the project is a portable storage container:

1. The portable storage container shall be constructed of steel.
2. The portable storage container shall be set such that it is raised above the surrounding ground level to keep water from ponding under or around the storage container.

The following shall apply when the storage unit provided on the project is a semi-trailer:

1. A set of steps and hand railing shall be provided at the exterior door.
2. If the floor of the semi-trailer is 18 inches or more above the ground, a landing shall be constructed at the exterior door. The minimum dimensions for the landing shall be 4 feet by 5 feet. Top of this landing shall be level with the threshold or opening of the doorway.
3. The semi-trailer may be connected to the QA lab by a stable elevated walkway. The walkway shall be a minimum of 48 inches wide and contain handrails installed at 32 inches above the deck of the walkway. The walkway shall be constructed such that it is stable and the deck does not deform during use and allows for proper door operation. Walkway construction shall be approved by the Engineer.

All cost for furnishing, maintaining, and removing the storage unit including labor, equipment, and materials including any necessary walkways, landings, stairways, and handrails shall be included in the contract unit price per each for STORAGE UNIT.

SHOULDER PREPARATION

Vegetation and accumulated material adjacent to the existing surface edge shall be removed to the satisfaction of the Engineer prior to placement of mainline surfacing. Any remaining windrow of accumulated material shall be re-spread evenly on the inslope adjacent to the asphalt shoulder to the satisfaction of the Engineer prior to the application of the flush seal.

The contractor shall be required to blade the shoulder throughout the entire project both before and after the mainline paving. The final blading shall create a smooth transition to the inslope from the new pavement eliminating any dropoff.

Any vegetation damaged outside of the asphalt concrete limits shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

This shoulder work shall be incidental to other contract items. Separate measurement and payment will not be made.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances shall be satisfactorily cleared of vegetation, shaped, and compacted prior to placement of mainline surfacing. This work will be considered incidental to other contract items. Separate measurement and payment will not be made

SURFACING THICKNESS DIMENSIONS

Plants tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

UNCLASSIFIED EXCAVATION, DIGOUTS

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts per mile for the necessary removal of unstable material.

Backfill shall be Base Course paid for at the contract unit price per ton.

The digout shall be extended to the shoulder and the granular material backfill shall daylight to the inslope to allow water to escape the subgrade.

A copy of the surfacing/subgrade investigation for this project is available from the Huron Area and Aberdeen Region offices.

WATER FOR COMPACTION OF GRANULAR MATERIALS

Cost of water for compaction of the granular material shall be incidental to the contract unit price for the various contract items. Six percent, plus or minus moisture will be required at the time of compaction unless otherwise directed by the Engineer.

BASE COURSE

Granular material used for placement above the reinforcement fabric at the bridge approaches shall be base course material.

Included in the Estimate of Quantities are 100 tons of Base Course per mile for backfill of Unclassified Excavations, Digouts.

COLD MILLING ASPHALT CONCRETE

In order to construct the new surfacing flush with the asphalt concrete at the beginning and end of work it will be necessary to mill the existing asphalt concrete at the beginning and end of work.

Intersecting road with asphalt concrete beyond Right of Way and the approach areas of the Str. 30-160-442 shall be milled back for approximately 100 feet from edge of shoulder so that additional surfacing may be placed at these locations.

The cold milled asphalt concrete material will become the property of the Contractor for disposal.

Any additional cold milling as directed by the Engineer shall be incidental to the contract unit price per square yard for Cold Milling Asphalt Concrete.

ASPHALT FOR TACK

Included in the Estimate of Quantities are 5 tons of SS-1h or CSS-1h Asphalt for Tack for surface repair, strengthening, and spot leveling areas throughout the project.

Certified weight tickets for the distributor shall be received prior and subsequent to anytime SS-1h or CSS-1h is used of the project. If the contractor fails to provide the Engineer with weight tickets, the amount of SS-1h or cSS-1h used on the project will be determined by the Engineer via shot Records.

SPOT LEVELING

Included in the Estimate of Quantities are 100 tons of Class Q2 Hot Mixed Asphalt Concrete, 1.0 tons of Hydrated Lime, and 6.1 ton of PG 64-28 Asphalt Binder per mile for surface repair, strengthening, and spot leveling areas throughout the project.

CLASS Q2 HOT MIXED ASPHALT CONCRETE

Any additional class Q2 hot mixed asphalt concrete used as directed by the Engineer shall be incidental to the contract unit price per ton for Class Q2 Hot Mix Asphalt Concrete.

FLUSH SEAL

Application of Flush Seal shall be completed within 10 working days following completion of the asphalt concrete surfacing.

For each working day that Flush Seal remains uncompleted after the 10 working day limitation, the Contractor will be assessed liquidated damages at the rate of $250.00 per day.

Application of Flush Seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer shall notify the Contractor as soon as possible that the Flush Seal is unnecessary.

SAND FOR FLUSH SEAL

The sand application shall be placed 11' wide in each lane, leaving 12" on center and 6" on edge line free of sand.

ASPHALT CONCRETE RUMBLE STRIPE

Asphalt Concrete Rumble Stripes shall be constructed on both shoulders from MRM 88.12 to MRM 101.0. Construction of Asphalt Concrete Rumble Stripes shall be paid for at the contract unit price per mile for Grind 8" Rumble Strip or Stripe in Asphalt Concrete. It is estimated that 25.5 miles of asphalt concrete rumble stripe will be required for both shoulders. Rumble stripes must receive an application of flush seal even if mainline flush seal is eliminated. Rumble strips shall not be installed on bridge decks.

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 shoulders and it shall be the Contractor's responsibility to ensure the loose material does not enter any vegetated areas and/or waterways.

Rumble strips shall not be installed on bridge decks.

Rumble stripes shall not be installed from the intersection of 211th street North for 2000 feet (Sta. 138+87.7 to Sta. 158+87.7)

REINFORCEMENT FABRIC (MSE)

The geotextile to be used will conform to Reinforcement Fabric (MSE) as per Section 831. The geotextile will be on the Approved Products List for this material or will be certified by the supplier to meet this specification prior to installation.

Seams in the geotextile shall be overlapped a minimum of 2 feet and shingled to prevent granular material being forced under the fabric. No equipment will be allowed on the geotextile until the granular material has been placed. Granular material shall be dumped, pushed into place, and compacted to specified density.

Geotextile will be paid for at the contract unit price per square yard for Reinforcement Fabric (MSE). Payment quantities will be based on area covered plus15%. Overlaps are accounted for by the additional 15%. Payment will be full compensation for furnishing and installing the geotextile.

REFURBISH MAILBOXES

Existing mailboxes shall be removed, turnouts constructed, and mailboxes reset on new posts with the necessary support hardware for single or double mailbox assemblies (See Standard Plate No's. 900.01, 900.02 and 900.03). The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor shall coordinate with the Engineer on the proper postal representative to contact.

Table of Refurbish Mailboxes

Station	Side	Single Mailbox (Each)
393+10	R	1
397+57	R	1
423+34	R	1
476+30	R	1
528+94	R	1
535+02	R	1
	Total	**6**

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware shall be incidental to the contract unit price per each for REFURBISH SINGLE MAILBOX

EXISTING GUARDRAIL

Existing guardrail shall be removed and reset. All cost for removing guardrail shall be incidental to the contract unit price for the various bid items related to removing guardrail. All cost for installing guardrail shall be incidental to the contract unit price for the various bid items related to resetting guardrail.

RATES OF MATERIALS – 1st Lift

The Estimate of Quantities is based on the following quantities of material per mile.

STA. 0+00.00 to 649+33.9

CLASS Q2 HOT MIXED ASPHALT CONCRETE – 1" LIFT

Crushed Aggregate……	795	Tons
PG 64-28 Asphalt Binder ……	52	Tons
Total without Lime	**847**	**Tons**
Hydrated Lime……	8	Tons
Total with Lime	**855**	**Tons**

The exact proportion of these materials will determined on construction.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **6.5** tons applied **29** feet wide. (Rate = 0.09 Gal./Sq. Yd.)

RATES OF MATERIALS – 2nd Lift

The Estimate of Quantities is based on the following quantities of material per mile.

STA. 0+00.00 to 649+33.9

CLASS Q2 HOT MIXED ASPHALT CONCRETE – 1.5" LIFT

Crushed Aggregate……	1743	Tons
PG 64-28 Asphalt Binder ……	113	Tons
Total without Lime	**1856**	**Tons**
Hydrated Lime……	19	Tons
Total with Lime	**1875**	**Tons**

The exact proportion of these materials will determined on construction.

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of **5.3** tons applied **35** feet wide. (Rate = 0.06 Gal./Sq. Yd.)

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of **4.0** tons applied **32** feet wide. (Rate = 0.05 Gal./Sq. Yd.)

Sand for Flush Seal at rate of **52** tons applied **22** feet wide. (Rate = 8 Lb./Sq.Yd.).

GENERAL PERMANENT SIGNING NOTES

Signs that are to be installed shall be staked in the field by the Contractor and checked by the Engineer. The Contractor shall give the Engineer a minimum of one week to check staked locations prior to sign/post installation.

The Contractor shall be responsible for contacting South Dakota One Call to locate the utilities at the staked sign installation locations.

Prior to ordering sign posts, the Contractor shall verify post lengths. 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.

Prior to ordering signs, the Contractor shall verify dimensions, background, border, and legend of the signs.

REMOVE EXISTING SIGNS

Existing signs within the project limits are summarized in the Permanent Sign Installation Table. This table provides the approximate Station or MRM location for each sign. Existing signs in the table are indicated to be removed and not reused.

All existing signs and hardware listed to be removed shall become the property of the Contractor.

Holes remaining from the removal of 4”x6” wood posts shall be backfilled and compacted with material placed in layers not to exceed 6 inches in depth.

All costs associated with the removal of existing signs, posts, hardware, and backfilled holes shall be incidental to the contract unit price per each for Remove Traffic Sign.

All existing sign posts and/or sign bases shall be removed in their entirety.

NEW PERMANENT SIGNING

New signs for installation are summarized in the Permanent Sign Installation Table.

Sign Design

Signs shall be constructed as required per the Manual on Uniform Traffic Control Devices (MUTCD), the latest edition of "Standard Highway Signs", and as specified on the Special Sign Design sheets.

All upper/lower case letters and numerals shall be as required per the MUTCD, the latest edition of "Standard Highway Signs”, and as illustrated on the Special Sign Design sheets.

The Contractor shall furnish the Aberdeen Region Traffic Engineer (P.O. Box 1767; Aberdeen, SD 57402) with a detailed sign layout sheet for each sign shown. These detailed sign layouts shall be approved by the Region Traffic Engineer prior to ordering the signs.

Sign Sheeting

Signs shall be constructed using High Intensity (ASTM D4956 Type IV) or Super/Very High Intensity (ASTM D4956 Type XI) reflective sheeting as summarized in the SD 45 Permanent Sign Installation Tables.

All signs shall be manufactured in accordance with the sheeting manufacturer’s recommendations utilizing a matched component system, including inks, electronic cuttable films, and protective overlay films. Digitally printed signs will not be accepted.

Sign Installation Hardware

Aluminum U-Channel stiffeners shall be used on all standard highway signs greater than 36 inches 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 together so that an entire sign assembly can be erected on a single installation.

Stiffeners may be fastened to signs by use of ¼ inch diameter drive rivets.

Refer to the Breakaway Sign Supports diagram for typical sign and stiffener details.

The Contractor shall use 3/8 inch diameter rust proof machine sign bolts, flat metal washers, neoprene washers (against the sign sheeting), lock washers, and nuts to fasten the sign to the channel aluminum and posts. A minimum of two bolts shall extend through each post.

All costs associated with furnishing and installing the new permanent signs, and with furnishing and installing stiffeners and hardware shall be incidental to the contract unit price per square foot for Flat Aluminum Sign, Nonremovable Copy High Intensity, or Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity.

SQUARE TUBE ANCHOR SLEEVE

The Contractor shall furnish and install new square tube anchor sleeve as follows:

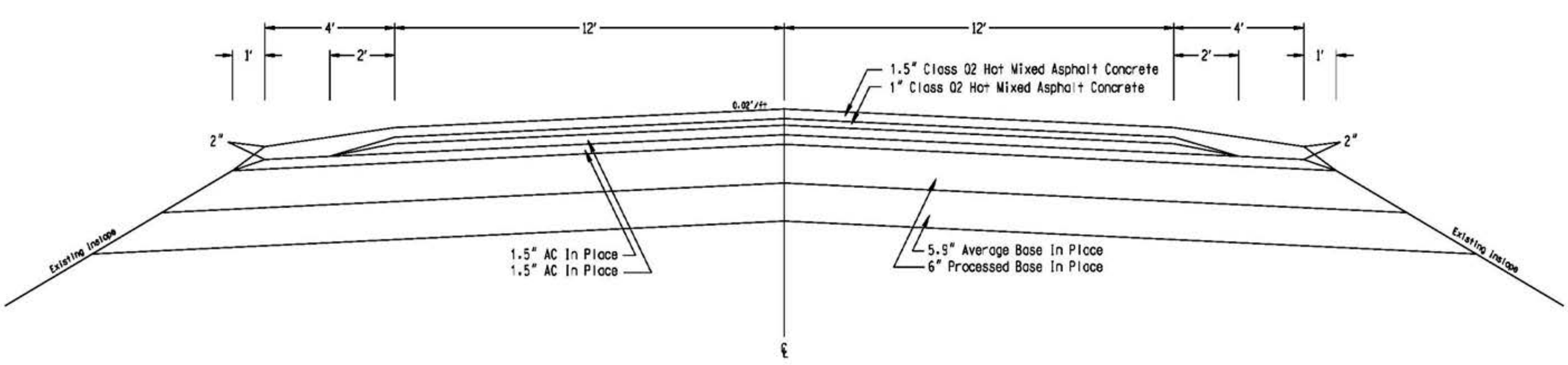
2.5” x 18”, 12 Gauge square tube anchor sleeve (or equivalent components as approved by the Engineer).

A 2.25” x 2.25” x 4’ perforated tube post (12 Gauge) shall be used as the anchor post for installation with the square tube anchor sleeve.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0045(56)88	9	43

Typical Resurfacing Section

Section 1
Sta 0+00 to Sta 694+33.9
In Place & Resurfacing Section



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0045(56)88	10	43

Revised: 10-17-2016

TABLE OF MATERIAL QUANTITIES

	UNCL. EXC.-DIG OUTS	BASE COURSE	COLD MILLING ASPHALT CONCRETE	CLASS Q2 HOT MIX ASPHALT CONCRETE	HYDRATED LIME	PG 64-28 ASPHALT BINDER	CRUSHED AGGREGATE NABI	SS-1h/ CSS-1h ASPHALT FOR TACK	CLASS Q2 HOT MIXED ASPHALT CONCRETE	HYDRATED LIME	PG 64-28 ASPHALT BINDER	CRUSHED AGGREGATE NABI	SS-1h/ CSS-1h ASPHALT FOR TACK	CLASS Q2 HOT MIX ASPHALT CONCRETE	PG 64-28 ASPHALT BINDER	HYDRATED LIME	CRUSHED AGGREGATE NABI	SS-1h/ CSS-1h ASPHALT FOR TACK	SS-1h/ CSS-1h ASPHALT FOR FLUSH SEAL	SAND FOR FLUSH SEAL
				----------Spot Leveling----------					<----------Main Line 1.0" Lift ---------->					<----------Main Line 1.5" Lift---------->						
Section	**CuYd**	**Ton**	**SqYd**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**	**Ton**
1	657	1,313.2	0.0	1,313.2	13.1	80.1	1,220.0	5.0	11,227.9	105.1	682.9	10,439.9	85.7	24,622.5	1,483.9	249.5	22,889.1	69.0	55.9	678.0
Additional Quantities	0.0	1,821.0	2,335.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	405.3	24.7	4.1	376.5	2.7	2.0	15.0
Totals	657	3,134.2	2,335.0	1,313.2	13.1	80.1	1,220.0	5.0	11,227.9	105.1	682.9	10,439.9	85.7	25,027.8	1,508.6	253.6	23,265.6	71.7	57.9	693.0

SUMMARY OF ASPHALT CONCRETE

LOCATIONS:	**Class Q2 Hot Mixed Asphalt Concrete with Specified Density Compaction**	**Class Q2 Hot Mixed Asphalt Concrete without Specified Density Compaction**
Units	**TONS**	**TONS**
1.0" Mainline Lift (28' wide)	-----	11227.9
1.5" Mainline Lift (24' wide)	15562.2	-----
1.5" Shoulder Lift (4' with 1' sluff)	-----	9060.3
Spot Leveling, strengthening, and repair of existing surface	-----	1313.2
Table of Additional Quantities	-----	405.3
Total	**15562.2**	**22006.6**
Total Class Q2 Hot Mixed Asphalt Concrete:	**37568.8**	

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0045(56)88	11	43

Revised: 10-17-2016

Summary of Additional Quantities

LOCATIONS:	BASE COURSE (Ton)	CLASS Q2 HOT MIXED ASPHALT CONCRETE (Ton)	PG 64-28 ASPHALT BINDER (Ton)	HYDRATED LIME (Ton)	CRUSHED AGGREGATE (NABI) (Ton)	SS-1H or CSS-1H for TACK (Ton)	COLD MILLING ASPHALT CONCRETE (SqYd)
Begin Project	0	14.5	0.9	0.1	13.5	0.07	267.0
End Project	0	14.5	0.9	0.1	13.5	0.07	267.0
Begin Structure 30-160-442	118.0	104.3	6.4	1.0	96.9	0.09	456.5
End Structure 30-160-442	118.0	104.3	6.4	1.0	96.9	0.09	456.5
Farm/Home Entrances	35.0	30.8	1.9	0.3	28.6	0.06	0.0
Field Entrances/Approaches	1,320.0	0.0	0.0	0.0	0.0	0.00	0.0
Intersecting Roads	195.0	132.0	8.0	1.3	122.6	0.30	888.0
Mailbox Turnouts	35.0	4.9	0.3	0.0	4.6	0.05	0.0
TOTALS	**1,821.0**	**405.3**	**24.7**	**4.1**	**376.5**	**0.7**	**2,335.0**

*The tonnage shown in the Table of Additional Quantities for Class Q2 Asphalt Concrete is based on an average compacted depth of 2 inches for approach pads, mailbox turnouts, field entrances, intersecting roads, and commercial entrances.

*Base Course to be place on farm/home/field entrances shall be spread and compacted to an even depth within the ROW and placed to match the new asphalt concrete surfacing to the satisfaction of the Engineer. base course not spread evenly shall be reshaped at the Contractor's expense.

*Also Included in the Estimate of Quantities is 2 tons of SS-1H of SS-1H or CSS-1H asphalt for tack and flush seal along with 15 tons of sand for flush seal due to rounding for, entrances, driveways, & other miscellaneous locations throughout the project, and shall be applied at the rate shown on the plans or as directed by the Engineer.

*The above quantities are included in the Estimate of Quantities.

Table of Additional Quantities

Approach #	Station	Left/Right	Description	Type of Surfacing	Work Required	Q2 Hot Mix Asphalt Concrete (Ton)	PG 64-28 Binder (Ton)	Hydrated Lime (Ton)	Crushed Aggregate (NABI) (Ton)	SS-1h or CSS-1h for Tack (Ton)	Cold Milling Asphalt Concrete (Sq Yd's)	Base Course (Ton)	Comments
	0+00 to 1+00		Begin Project Transition	Asphalt	Cold Mill Asphalt Concrete	14.5	0.9	0.15	13.5	0.07	267.0	0.0	Mill 2.0" to 0.0" Transition
1	18+75	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.0	0.0	15.0	
2	18+80	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.0	0.0	15.0	
3	26+66	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.0	0.0	15.0	
4	36+50	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.0	0.0	15.0	
5	47+48	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.0	0.0	15.0	
6	47+48	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.0	0.0	15.0	
7	53+15	Right	209th - Asphalt to radius point on both	Asphalt Around Radius	Resurface Existing Up To Radius With Q2 Hot Mix Asphalt Concrete & Place Base Course	9.3	0.6	0.09	8.6	0.02	0.0	5.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Base Course To Transition
8	53+15	Left				9.3	0.6	0.09	8.6	0.02	0.0	5.0	
9	63+20	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
10	63+20	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
11	72+52	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
12	72+52	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
13	79+27	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
14	79+27	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
15	87+53	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
16	87+53	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
17	99+52	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
18	99+52	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
19	106+05	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
20	116+81	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
21	116+81	Left	Ditch Block, Single Mailbox	None	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	Place Base Course to mailbox
22	125+07	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
23	125+07	Left	Ditch block	None	No Work Required	0.0	0.0	0.0	0.0	0.00	0.0	0.0	No Work Required
24	133+02	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
25	138+07	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.0	0.0	0.00	0.0	15.0	
26	138+07	Left	Ditch block	None	No Work Required	0.0	0.0	0.0	0.0	0.00	0.0	0.0	No Work Required
27	153+12	Right	Driveway - Sunshine Bible Academy	Asphalt Around Radius	Resurface Existing Up To Radius With Q2 Hot Mix Asphalt Concrete & Place Base Course	15.4	0.9	0.15	14.3	0.02	0.0	15.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Base Course To Transition
28	158+95	Right	211th - Asphalt to radius point	Asphalt Around Radius	Resurface Existing Up To Radius With Q2 Hot Mix Asphalt Concrete & Place Base Course	9.3	0.6	0.09	8.6	0.01	0.00	5.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Base Course To Transition
29	158+95	Left				12.3	0.8	0.12	11.5	0.02	0.0	5.0	
30	163+08	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
31	163+08	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
32	173+02	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
33	175+48	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
34	178+63	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
35	178+63	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
36	185+64	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
37	192+08	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
38	192+08	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
39	201+12	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
40	201+12	Left	Ditch block	None	No Work Required	0.0	0.0	0.00	0.0	0.00	0.0	0.0	No Work Required
41	211+83	Right	212th - Unimproved Section Line	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
42	211+83	Left		Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
43	215+31	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
44	215+61	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
45	227+98	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
46	227+98	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
47	235+13	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
48	240+46	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
49	254+14	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
50	254+14	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	

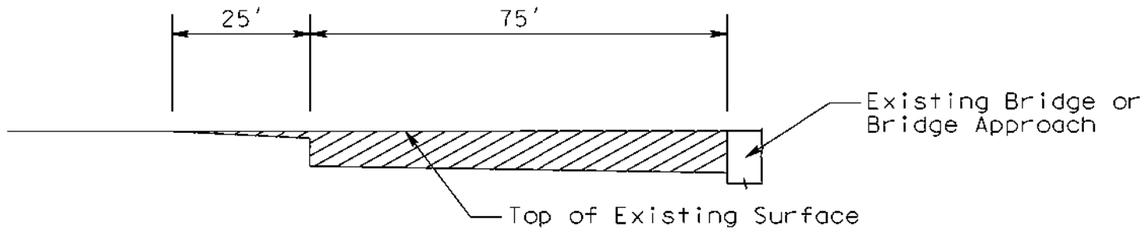
Table of Additional Quantities

Approach #	Station	Left/Right	Description	Type of Surfacing	Work Required	Q2 Hot Mix Asphalt Concrete (Ton)	PG 64-28 Binder (Ton)	Hydrated Lime (Ton)	Crushed Aggregate (NABI) (Ton)	SS-1h or CSS-1h for Tack (Ton)	Cold Milling Asphalt Concrete (Sq Yd's)	Base Course (Ton)	Comments
51	264+78	Right	213th - Asphalt to Radius Point	Asphalt Around Radius	Resurface Existing Up To Radius With Q2 Hot Mix Asphalt Concrete & Place Base Course	9.3	0.6	0.09	8.6	0.01	0.0	5.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Base Course To Transition
52	264+78	Left	213th - Unimproved Section Line	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
53	278+28	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
54	288+55	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
55	291+36	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
56	291+36	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
57	317+39	Right	214th - Unimproved Section Line	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
58	317+39	Left		Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
59	333+93	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
60	333+93	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
61	344+21	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
62	353+04	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
63	353+04	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
64	359+59	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
65	359+59	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
66	370+92	Right	215th St. - Asphalt to ROW	Asphalt To Right-of-Way	Resurface Existing Up To ROW With Q2 Hot Mix Asphalt; Mill transition 2" to 0"	15.4	0.9	0.15	14.3	0.04	222.0	0.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Mill Required
67	370+92	Left	215th St. - Asphalt to Radius Point	Asphalt Around Radius	Resurface Existing Up To Radius With Q2 Hot Mix Asphalt Concrete & Place Base Course	7.4	0.5	0.07	6.9	0.02	0.0	5.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Base Course To Transition
68	378+79	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
69	383+60	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
70	383+60	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
71	388+79	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
72	392+92	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
	393+10	Right	Single Mailbox	Asphalt	Mailbox Turnout	1.0	0.1	0.01	0.9	0.01	0.0	0.0	2.0" Compacted Depth of Q2 Asphalt Concrete
73	394+34	Left	Asphalt to ROW - Pleasant Valley Church	Asphalt To Right-of-Way; Gravel	Resurface Existing Up To ROW With Q2 Hot Mix Asphalt & Place Base Course	6.2	0.4	0.06	5.7	0.01	0.0	15.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Base Course To Transition
	397+57	Right	Single Mailbox	Asphalt & Gravel	Mailbox Turnout	1.0	0.1	0.01	0.9	0.01	0.0	15.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Base Course To Transition
74	397+57	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
75	397+57	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
76	399+24	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
77	410+05	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
78	410+05	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
	423+34	Right	Single Mailbox	Asphalt	Mailbox Turnout	1.0	0.1	0.01	0.9	0.01	0.0	0.0	
79	423+62	Right	216th st. - "unimproved"	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
80	423+62	Left	216th st. - Asphalt to ROW	Asphalt To Right-of-Way	Resurface Existing Up To ROW With Q2 Hot Mix Asphalt; Mill transition 2" to 0"	15.4	0.9	0.15	14.3	0.04	222.0	0.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Mill Required
81	431+92	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
	425+54.72 to 435+54.72	North End of Structure	Bridge Approach Structure # 30-160-442	Asphalt	Cold Mill Asphalt Concrete per plan layout sheet & surfacing for guardrail embankment flare prior to end terminal	104.3	6.4	1.04	96.9	0.09	456.5	118.0	
	436+52.22 to 436+52.22	South End of Structure	Bridge Approach Structure # 30-160-442	Asphalt	Cold Mill Asphalt Concrete per plan layout sheet & surfacing for guardrail embankment flare prior to end terminal	104.3	6.4	1.04	96.9	0.09	456.5	118.0	
82	438+65	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
83	445+38	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
84	461+62	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
85	462+56	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
86	462+56	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	

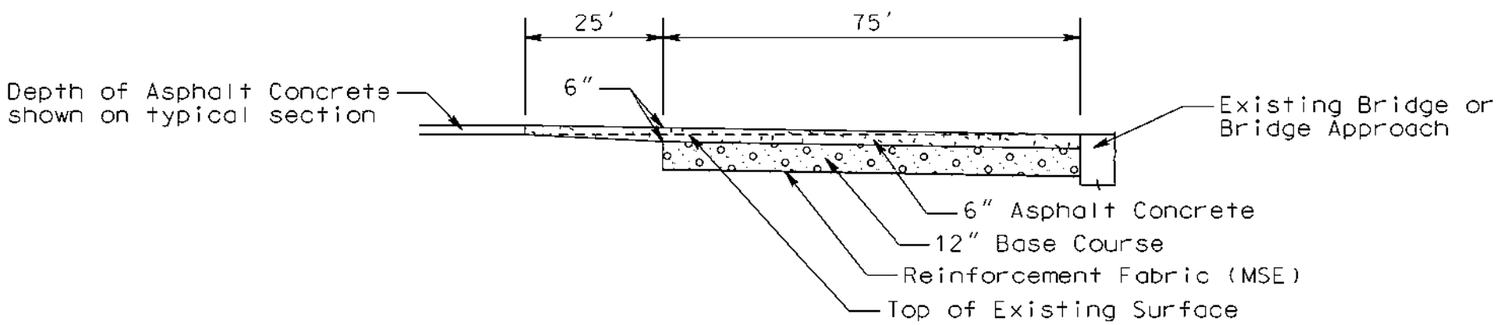
Table of Additional Quantities

Approach #	Station	Left/Right	Description	Type of Surfacing	Work Required	Q2 Hot Mix Asphalt Concrete (Ton)	PG 64-28 Binder (Ton)	Hydrated Lime (Ton)	Crushed Aggregate (NABI) (Ton)	SS-1h or CSS-1h for Tack (Ton)	Cold Milling Asphalt Concrete (Sq Yd's)	Base Course (Ton)	Comments
	476+30	Right	Single Mailbox	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	5.0	
87	476+47	Right	217th St.	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
88	476+47	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
89	488+70	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
90	500+01	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
91	519+10	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
92	519+10	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
	528+94	Right	Single Mailbox	Asphalt	Mailbox Turnout	1.0	0.1	0.01	0.9	0.01	0.0	0.0	
93	529+78	Right	218th st. Asphalt to Radius Point	Asphalt Around Radius	Resurface Existing Up To Radius With Q2 Hot Mix Asphalt Concrete & Place Base Course	7.4	0.5	0.07	6.9	0.02	0.0	5.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Base Course To Transition
94	529+78	Left				7.4	0.5	0.07	6.9	0.02	0.0	5.0	
95	534+62	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
	535+02	Right	Single Mailbox	Asphalt	Mailbox Turnout	1.0	0.1	0.01	0.9	0.01	0.0	0.0	
96	537+47	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
97	544+77	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
98	556+04	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
99	570+26	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
100	581+97	Right	219th - Unimproved Section Line	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
101	581+97	Left				0.0	0.0	0.00	0.0	0.00	0.0	15.0	
102	587+77	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
103	590+17	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
104	596+85	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
105	602+04	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
106	609+99	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
107	609+99	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
108	616+99	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
109	627+98	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
110	633+29	Right	Asphalt to the Radius point	Asphalt Around Radius	Resurface Existing Up To Radius With Q2 Hot Mix Asphalt Concrete & Place Base Course	9.3	0.6	0.09	8.6	0.02	0.0	5.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Base Course To Transition
111	635+83	Right	220th - Asphalt to the Radius point	Asphalt Around Radius	Resurface Existing Up To Radius With Q2 Hot Mix Asphalt Concrete & Place Base Course	7.4	0.5	0.07	6.9	0.02	0.0	5.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Base Course To Transition
112	635+83	Left				7.4	0.5	0.07	6.9	0.02	0.0	5.0	
113	651+03	Right	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
114	651+03	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
115	672+44	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
116	693+42	Left	Field Approach	Gravel	Place Base Course	0.0	0.0	0.00	0.0	0.00	0.0	15.0	
117	694+34	Right	221th - Asphalt to the radius	Asphalt Around Radius	Resurface Existing Up To Radius With Q2 Hot Mix Asphalt Concrete & Place Base Course	7.4	0.5	0.07	6.9	0.03	222.0	5.0	2.0" Compacted Depth of Q2 Hot Mix Asphalt Concrete; Base Course To Transition
118	694+34	Left				7.4	0.5	0.07	6.9	0.03	222.0	5.0	
	693+34 to 694+34		End Project Transition	Asphalt	Cold Mill Asphalt Concrete	14.5	0.9	0.15	13.5	0.07	267.0	0.0	Mill 0" to 2.0" Transition
					Totals	**405.3**	**24.7**	**4.1**	**376.5**	**0.7**	**2335.0**	**1821.0**	

DETAIL FOR BRIDGE APPROACH



Area to be cut out at bridge.
Tapers to daylight at 100'.
Typical at both ends of bridge.



NOTES REGUARDING BRIDGE APPROACHES

In order to construct the new surface flush with the top of the bridge and to provide depth for additional asphalt concrete, It will be necessary to cut out the existing base course to the limits shown on the layout above. The excavated material shall be wasted as directed by the Engineer.

The 6" Asphalt Concrete Layer shall be placed in the following lifts - 1st lift: 2.0", 2nd lift: 1.5", 3rd lift: 1.0", 4th lift: 1.5". Not more than one lift shall be completed in the same day.

Any damage to the bridges shall be at the Contractor's expence.

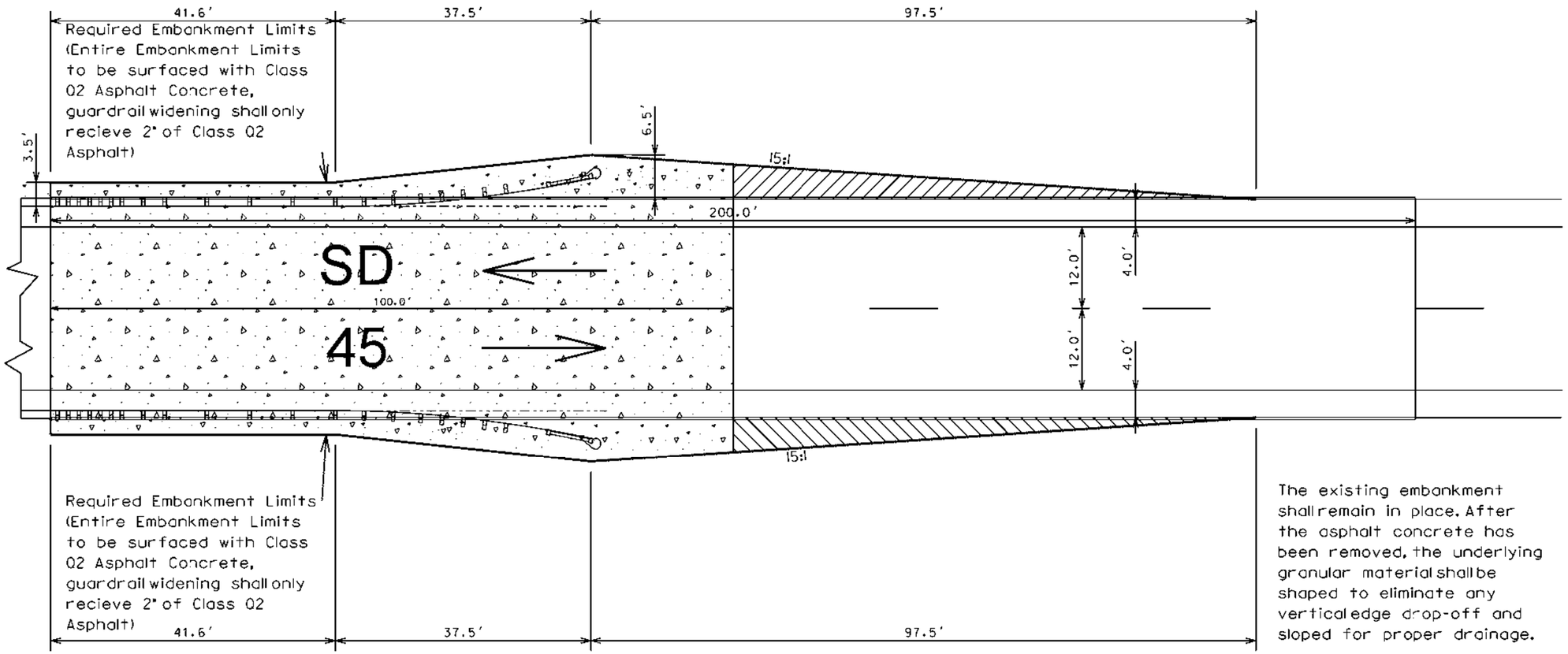
See Table of Additional Quantities.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	16	43

Plotting Date: 10/17/2016

Revised: 10-17-2016

GUARDRAIL EMBANKMENT LAYOUT
STR. NO. 30-160-442
SD 45 @ MRM 93.02
(Guardrail Embankment Identical at Both Ends of the Bridge)



Indicates Placement of Class Q2 Asphalt Concrete

Indicates Cold Milling & Placement of Class Q2 Asphalt Concrete

PLOT SCALE - 1:17.4995

PLOT NAME - 1

FILE - ...\30-160-442_GUARDRAIL_EMBANKMENT_LAYOUT.DGN

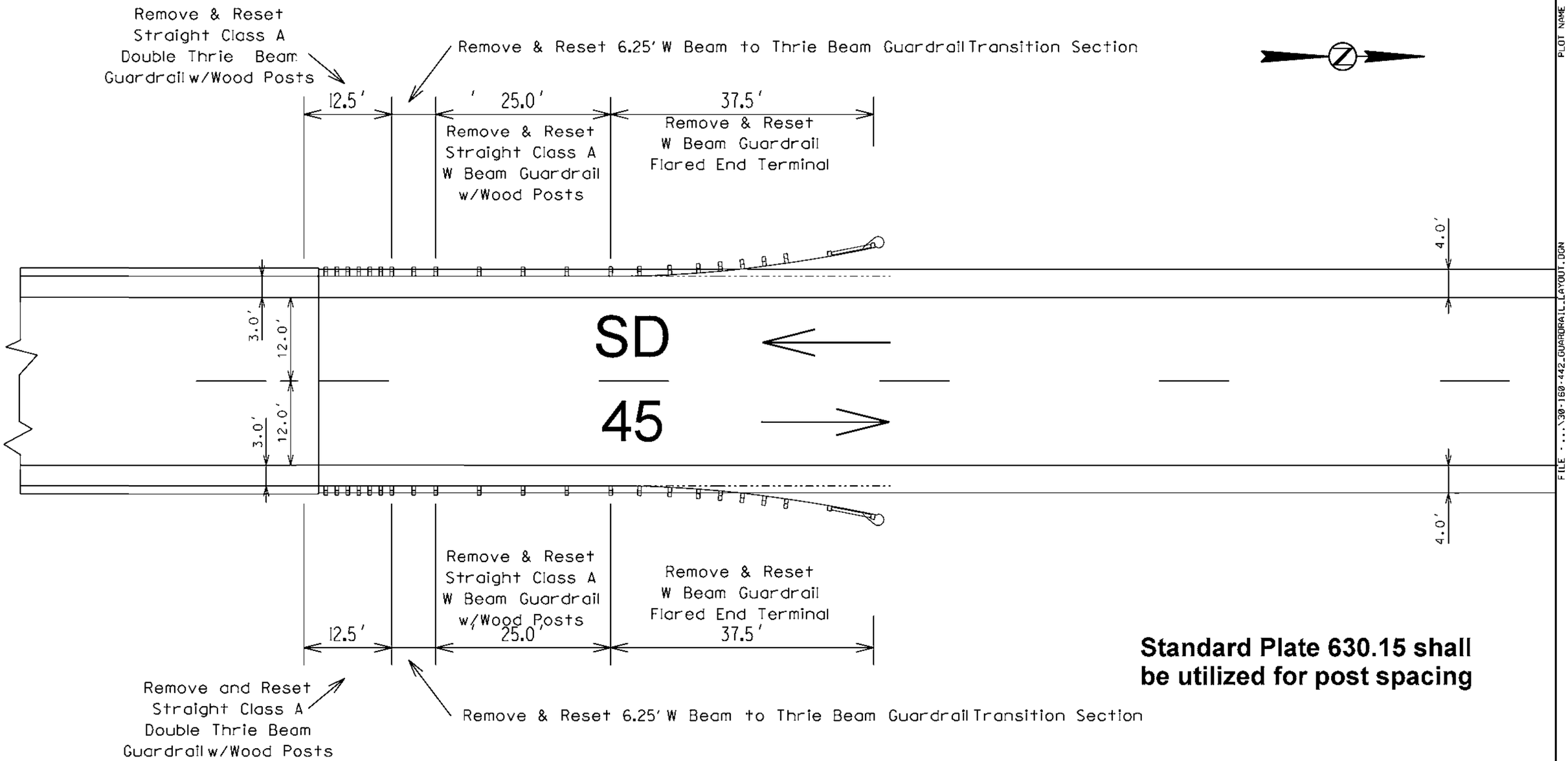
PLOTTED FROM - TRHJINT04

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	17	43

Plotting Date: 10/12/2016

Revised: 10-12-2016

GUARDRAIL LAYOUT
STR. NO. 30-160-442
SD 45 @ MRM 93.02
(Guardrail Identical at both ends of the bridge)



Standard Plate 630.15 shall be utilized for post spacing

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	18	43

P 0045(56)88 , PCN 05EY, SD 45 Permanent Sign Installation Table

MRM	Side of Road	Description	Sign Code	Width (Inches)	Height (Inches)	Flat Aluminum sign, Nonremovable Copy High Intensity (SQFT)	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity (SQFT)	2.0"x2.0" Perforated Tube Post 12 ga. (FT)	(N.A.B.I.) Square Tube Anchor Sleeve (Each)	Remove Traffic Sign (Each)	Remove Sign For Reset (Each)	Reset Sign (Each)	Direction Sign Faces	Current Type of Post	Remarks
88.00 + 0.055	Lt.	South	M3-3	24	12	2.0		12	1	1			N	U-Channel	Replace Existing Signs at 88.00 + 0.093 with New Signs on New Post at 88.00 + 0.055 (Approximately 200 Ft. South of Existing Location)
		SD 45	M1-5	24	24	4.0							N		
88.00 + 0.117	Lt.	Stop	R1-1	30	30		5.2	10	1	1			W	U-Channel	Replace Existing Sign with New Sign on New Post
88.00 + 0.127	Rt.	Stop	R1-1	30	30		5.2	10	1	1			E	U-Channel	Replace Existing Sign with New Sign on New Post
88.00 + 0.192	Rt.	North	M3-1	24	12	2.0		12	1	1			S	U-Channel	Replace Existing Signs at 88.00 + 0.135 with New Signs on New Post at 88.00 + 0.192 (Approximately 300 Ft. North of Existing Location)
		SD 45	M1-5	24	24	4.0							S		
88.00 + 0.270	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	U-Channel	Replace Existing Sign with New Sign on New Post
88.00 + 0.729	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
88.00 + 0.802	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	Telespar	Replace Existing Sign with New Sign on New Post
89.00 + 0.056	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	U-Channel	Replace Existing Sign with New Sign on New Post
89.00 + 0.077	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
89.00 + 0.194	Rt.	Adopt A Highway	ADO-5							1			S	4" X 6" Wood	Remove Signs, Do Not Replace. Group has Canceled this Program
			ADO-1										S		
		Litter Crew Ahead	ADO-6										S		
89.00 + 0.217	Lt.	Buffalo County	I-1	36	24	6.0		12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
89.00 + 0.219	Lt.	Stop	R1-1	30	30		5.2	10	1	1			W	U-Channel	Replace Existing Sign with New Sign on New Post
89.00 + 0.227	Rt.	Stop	R1-1	30	30		5.2	10	1	1			E	U-Channel	Replace Existing Sign with New Sign on New Post
89.00 + 0.250	Rt.	Left Curve Arrow	W1-2L	30	30		6.3	11	1	1			S	U-Channel	Replace Existing Sign with New Sign on New Post
89.00 + 0.288	Rt.	Hand County	I-1	36	24	6.0		11	1	1			S	U-Channel	Replace Existing Sign with New Sign on New Post
89.00 + 0.428	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
89.00 + 0.601	Lt.	Right Curve Arrow	W1-2R	30	30		6.3	11	1	1			N	U-Channel	Replace Existing Sign with New Signs on New Post
89.00 + 0.671	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	4" X 6" Wood	Replace Existing Sign with New Sign on New Post

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	19	43

P 0045(56)88 , PCN 05EY, SD 45 Permanent Sign Installation Table

MRM	Side of Road	Description	Sign Code	Width (Inches)	Height (Inches)	Flat Aluminum sign, Nonremovable Copy High Intensity (SQFT)	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity (SQFT)	2.0"x2.0" Perforated Tube Post 12 ga. (FT)	(N.A.B.I.) Square Tube Anchor Sleeve (Each)	Remove Traffic Sign (Each)	Remove Sign For Reset (Each)	Reset Sign (Each)	Direction Sign Faces	Current Type of Post	Remarks
90.00 + 0.025	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
90.00 + 0.207	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	4" X 6" Wood	Replace Existing Sign with New Sign on New Post
90.00 + 0.242	Rt.	Stop								1			E	4" X 6" Wood	Remove Do Not Replace
90.00 + 0.595	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	U-Channel	Replace Existing Sign with New Sign on New Post
90.00 + 0.605	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
91.00 + 0.036	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	Wood	Replace Existing Sign with New Sign on New Post
91.00 + 0.039	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
91.00 + 0.258	Lt.	Stop	R1-1	30	30		5.2	10	1	1			W	U-Channel	Replace Existing Sign with New Sign on New Post
91.00 + 0.264	Rt.	Stop	R1-1	30	30		5.2	10	1	1			E	Wood	Replace Existing Sign with New Sign on New Post
91.00 + 0.298	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	U-Channel	Replace Existing Sign with New Sign on New Post
91.00 + 0.343	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	4" X 6" Wood	Replace Existing Sign with New Sign on New Post
91.00 + 0.683	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	U-Channel	Replace Existing Sign with New Sign on New Post
91.00 + 0.707	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
92.00 + 0.069	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
92.00 + 0.078	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	U-Channel	Replace Existing Sign with New Sign on New Post
92.00 + 0.259	Lt.	Stop	R1-1	30	30		5.2	10	1	1			W	U-Channel	Replace Existing Sign with New Sign on New Post
92.00 + 0.445	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
92.00 + 0.447	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	Wood	Replace Existing Sign with New Sign on New Post
92.00 + 0.786	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	20	43

P 0045(56)88 , PCN 05EY, SD 45 Permanent Sign Installation Table

MRM	Side of Road	Description	Sign Code	Width (Inches)	Height (Inches)	Flat Aluminum sign, Nonremovable Copy High Intensity (SQFT)	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity (SQFT)	2.0"x2.0" Perforated Tube Post 12 ga. (FT)	(N.A.B.I.) Square Tube Anchor Sleeve (Each)	Remove Traffic Sign (Each)	Remove Sign For Reset (Each)	Reset Sign (Each)	Direction Sign Faces	Current Type of Post	Remarks
93.02 + 0.244	Rt.	Stop	R1-1										E	Telespar	Do Not Disturb
93.02 + 0.284	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	U-Channel	Replace Existing Sign with New Sign on New Post
93.02 + 0.319	Rt.	North	M3-1	24	12	2.0		12	1	1			S	U-Channel	Replace Existing Signs at 93.02 + 0.262 with New Signs on New Post at 93.02 + 0.319 (Approximately 200 Ft. North of Existing Location)
		SD 45	M1-5	24	24	4.0							S		
93.02 + 0.617	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	U-Channel	Replace Existing Sign with New Sign on New Post
93.02 + 0.661	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
94.00 + 0.032	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
94.00 + 0.202	Rt.	Adopt A Highway	ADO-5					12	1		1	1	S	4" X 6" Wood	Reset Existing Signs on New Post
		Sunshine Bible Academy	ADO-1										S		
		Litter Crew Ahead	ADO-6										S		
94.00 + 0.192	Lt.	South	M3-3	24	12	2.0		12	1	1			N	U-Channel	Replace Existing Signs at 94.00 + 0.230 with New Signs on New Post at 94.00 + 0.192 (Approximately 200 Ft. South of Existing Location)
		SD 45	M1-5	24	24	4.0							N		
94.00 + 0.253	Lt.	Stop	R1-1	36	36		7.5	11	1	1			W	U-Channel	Replace Existing Sign with New Sign on New Post
94.00 + 0.260	Rt.	Stop	R1-1	36	36		7.5	10	1	1			E	4" X 6" Wood	Replace Existing Sign with New Sign on New Post
94.00 + 0.480	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	4" X 6" Wood	Replace Existing Sign with New Sign on New Post
94.00 + 0.773	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	Telespar	Replace Existing Sign with New Sign on New Post
94.00 + 0.795	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
95.00 + 0.164	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	Telespar	Replace Existing Sign with New Sign on New Post
95.00 + 0.564	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	Wood	Replace Existing Sign with New Sign on New Post
95.00 + 0.955	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	21	43

P 0045(56)88 , PCN 05EY, SD 45 Permanent Sign Installation Table

MRM	Side of Road	Description	Sign Code	Width (Inches)	Height (Inches)	Flat Aluminum sign, Nonremovable Copy High Intensity (SQFT)	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity (SQFT)	2.0"x2.0" Perforated Tube Post 12 ga. (FT)	(N.A.B.I.) Square Tube Anchor Sleeve (Each)	Remove Traffic Sign (Each)	Remove Sign For Reset (Each)	Reset Sign (Each)	Direction Sign Faces	Current Type of Post	Remarks
96.00 + 0.022	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	Wood	Replace Existing Sign with New Sign on New Post
96.00 + 0.268	Lt.	Stop	R1-1	30	30		5.2	10	1	1			W	U-Channel	Replace Existing Sign with New Signs on New Post
96.00 + 0.444	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
96.00 + 0.774	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	U-Channel	Replace Existing Sign with New Sign on New Post
97.00 + 0.116	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
98.00 + 0.215	Lt.	South	M3-3	24	12	2.0		12	1	1			N	U-Channel	Replace Existing Signs at 98.00 + 0.234 with New Signs on New Post at 98.00 + 0.215 (Approximately 100 Ft. South of Existing Location)
		SD 45	M1-5	24	24	4.0							N		
98.00 + 0.256	Lt.	Stop	R1-1	30	30		5.2	10	1	1			W	U-Channel	Replace Existing Sign with New Sign on New Post
98.00 + 0.266	Rt.	Stop	R1-1	30	30		5.2	10	1	1			E	U-Channel	Replace Existing Sign with New Sign on New Post
98.00 + 0.330	Rt.	Sunshine Bible Academy	D1-1D	84	24	14.0		26	2	1			S	4" X 6" Wood	Replace Existing Signs at 98.00 + 0.311 with New Signs on New Post at 98.00 + 0.330 (Approximately 100 Ft. North of Existing Location)
98.00 + 0.368	Lt.	Stop	R1-1	30	30		5.2	10	1	1			W	4" X 6" Wood	Replace Existing Sign with New Sign on New Post
98.00 + 0.450	Lt.	Sunshine Bible Academy	D1-1D	84	24	14.0		26	2	1			N	4" X 6" Wood	Replace Existing Signs at 98.00 + 0.431 with New Signs on New Post at 98.00 + 0.450 (Approximately 100 Ft. North of Existing Location)
99.00 + 0.278	Rt.	North	M3-1	24	12	2.0		12	1	1			S	U-Channel	Replace Existing Signs with New Signs on New Post
		SD 45	M1-5	24	24	4.0							S		
100.00 + 0.226	Lt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			S	4" X 6" Wood	Replace Existing Sign with New Sign on New Post
100.00 + 0.262	Lt.	Stop	R1-1	30	30		5.2	10	1	1			W	4" X 6" Wood	Replace Existing Sign with New Sign on New Post
100.00 + 0.273	Rt.	Stop	R1-1	30	30		5.2	10	1	1			E	4" X 6" Wood	Replace Existing Sign with New Sign on New Post
100.00 + 0.589	Rt.	No Passing Zone	W14-3	48X48X36			5.6	12	1	1			N	U-Channel	Replace Existing Sign with New Sign on New Post
101.00 + 0.265	Lt.	Stop	R1-1	30	30		5.2	10	1	1			W	U-Channel	Replace Existing Sign with New Sign on New Post
101.00 + 0.275	Rt.	Stop	R1-1	30	30		5.2	10	1	1			E	4" X 6" Wood	Replace Existing Sign with New Sign on New Post
					TOTAL	76.0	318.3	808.0	70	69	1	1			

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	22	43

P 0045(56)88, PCN 05EY, Sign Summary SD 45

Sign Code	Description	Width (Inches)	Height (Inches)	Sq. Ft.	No.	Flat Aluminum Sign, Nonremovable Copy High Intensity (SQFT)	Flat Aluminum Sign, Nonremovable Copy Super or Very High Intensity (SQFT)	Text / Background
D1-1	Sunshine Bible Academy	84	24	14.0	2	28.0		White on Green
I-1	Buffalo County	36	24	6.0	1	6.0		White on Green
I-1	Hand County	36	24	6.0	1	6.0		White on Green
M1-5	SD45	24	24	4.0	6	24.0		See Standard Plate 632.20
M3-1	North	24	12	2.0	3	6.0		Black on White with Green Border
M3-3	South	24	12	2.0	3	6.0		Black on White with Green Border
R1-1	Stop	30	30	5.2	15		78.0	White on Red
R1-1	Stop	36	36	7.5	2		15.0	White on Red
W1-2L	Left Curve Arrow	30	30	6.3	1		6.3	Black on Fluorescent Yellow
W1-2R	Right Curve Arrow	30	30	6.3	1		6.3	Black on Fluorescent Yellow
W14-3	No Passing Zone	48x48x36		5.6	38		212.8	Black on Fluorescent Yellow
					Totals	**76.0**	**318.3**	

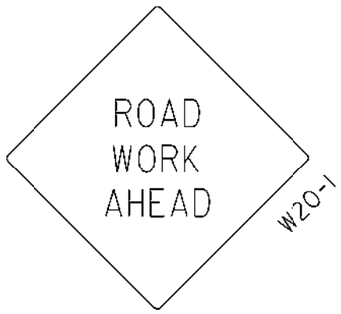
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	23	43

Plotting Date: 10/12/2016

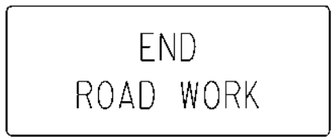
Revised: 10-12-2016

Fixed Location Signs

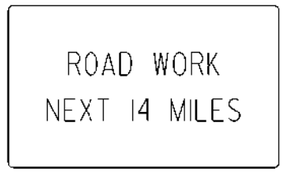
A



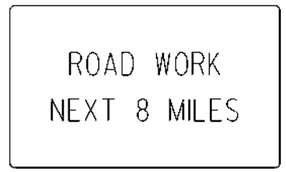
B



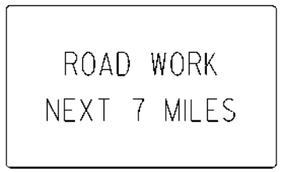
C



D



E



PLOT SCALE - 1:6999.52

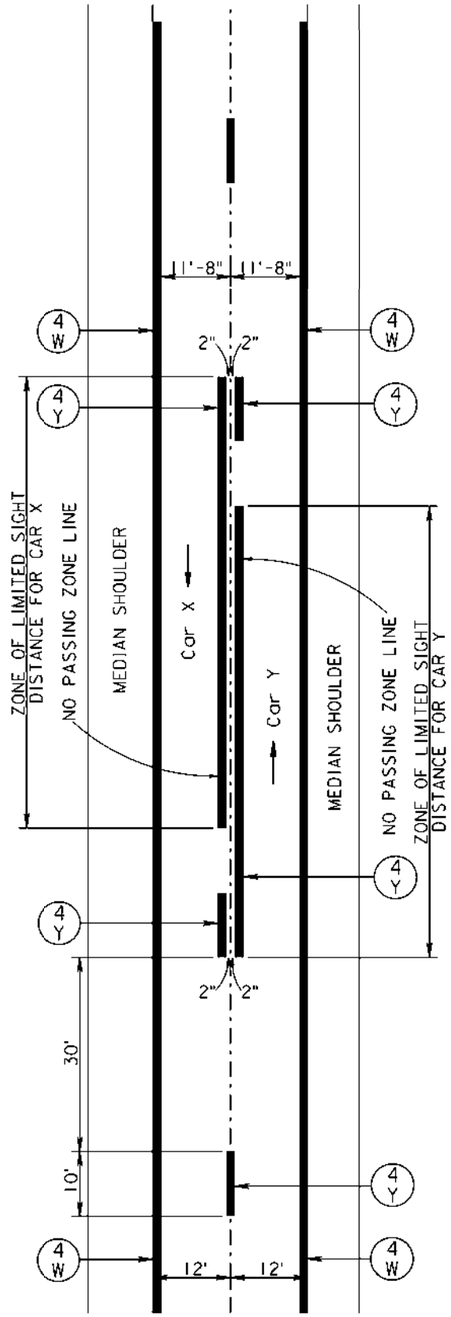
PLOTTED FROM - TRHJINT04

PLOT NAME - 1

FILE - ...\OBEY FIXED LOCATION SIGNS.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0045(56)88	24	43

TWO LANE UNDIVIDED ROADWAY



KEY	ITEM
4 W	4" White
4 Y	4" Yellow

FURNISHING AND APPLYING PAVEMENT MARKING PAINT

1. The approximate paint application rates shall be as follows:

Undivided Roadway	Divided Roadway
Yellow Centerline 12± Gallons/Pass-Mile (Includes No-passing lines)	White Centerline 4.60 Gallons/Pass-Mile
White Edgeline 16.90 Gallons/Pass-Mile (Solid Line)	Yellow or White Edgeline 16.90 Gallons/Pass-Mile (Solid Line)

2. The typical pavement markings as shown on this sheet shall be applied throughout the entire length of the project.

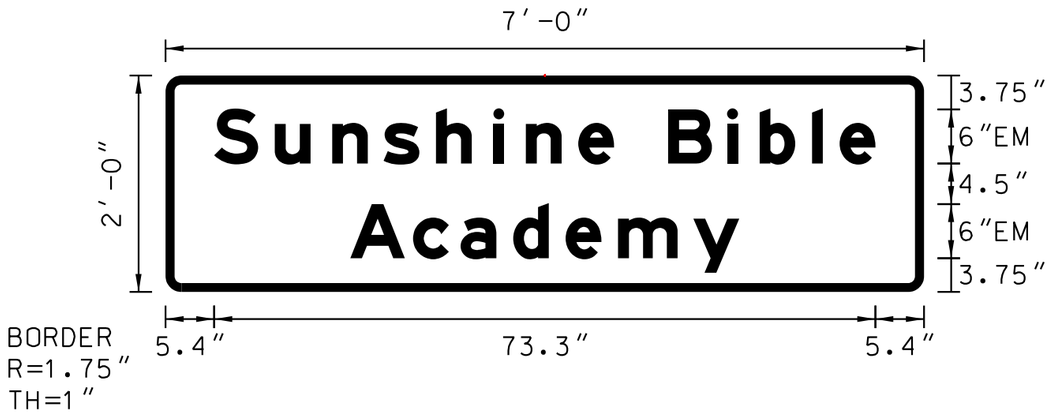
3. Exact location of the NO PASSING ZONE lines will be determined in the field by the Engineer. A dash of white paint will mark the beginning and end of all no passing zones. NO PASSING ZONE signs and the ending post in fence lines, if present, shall not be used as the beginning and ending NO PASSING ZONE lines.

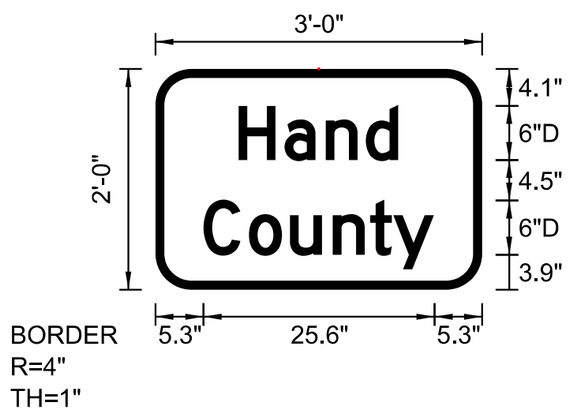
4. Traffic Control shall be incidental to the cost of application. The striper and advance or trailing warning vehicle shall be equipped with flashing amber lights or advance warning arrow panel.

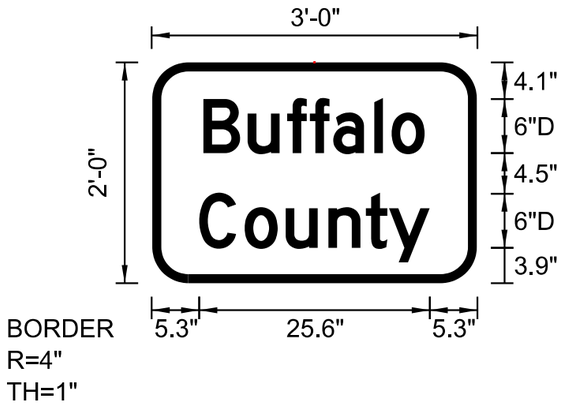
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	25	43

Plotting Date: 09/09/2016

SPECIAL SIGN DESIGN

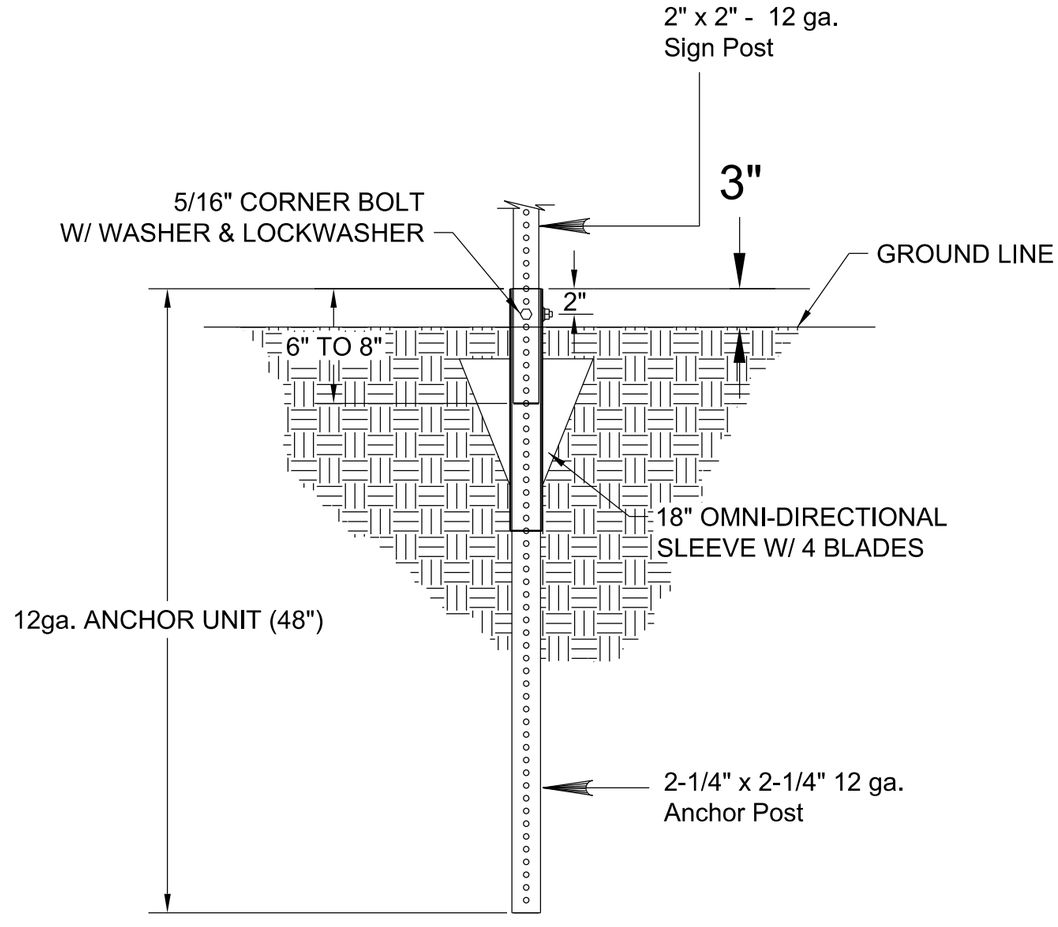






All signs on this sheet shall have a green background with white legend and white border

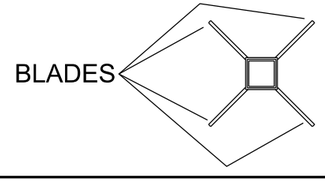
SQUARE TUBE
4 BLADE ANCHOR DETAIL



2-1/2" x 18" OMNI-ANCHOR SLEEVE
FOR SOIL STABILIZATION.

2-1/2" x 18" 12 ga. Omni-Sleeve

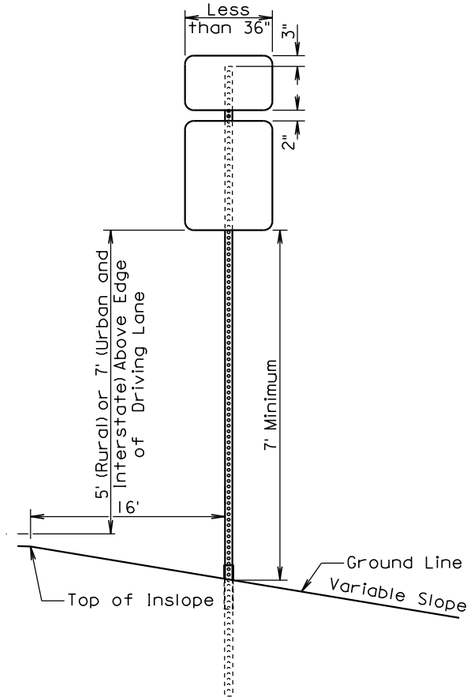
ANCHOR SLEEVE
TOP VIEW



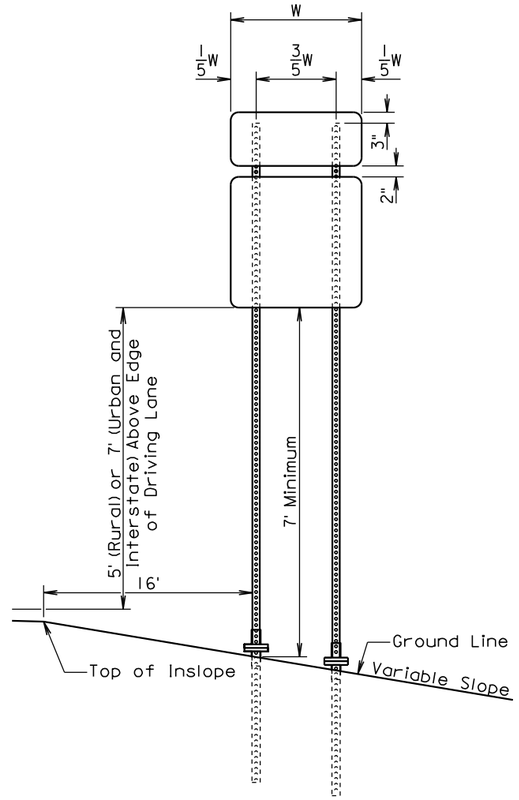
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	27	43

Plotting Date: 06/23/2016

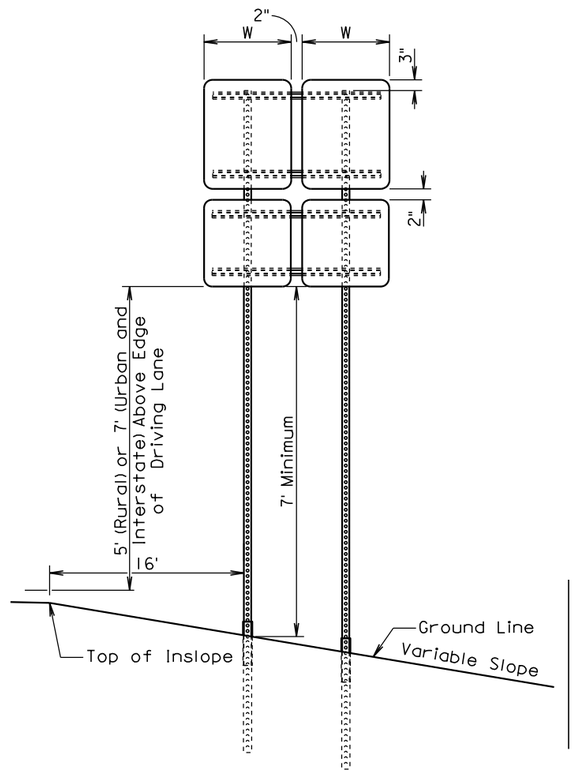
INSTALLATION DETAILS FOR MULTIPLE SIGN ASSEMBLIES



ELEVATION VIEW
(Single post assembly)



ELEVATION VIEW
(Double post assembly)

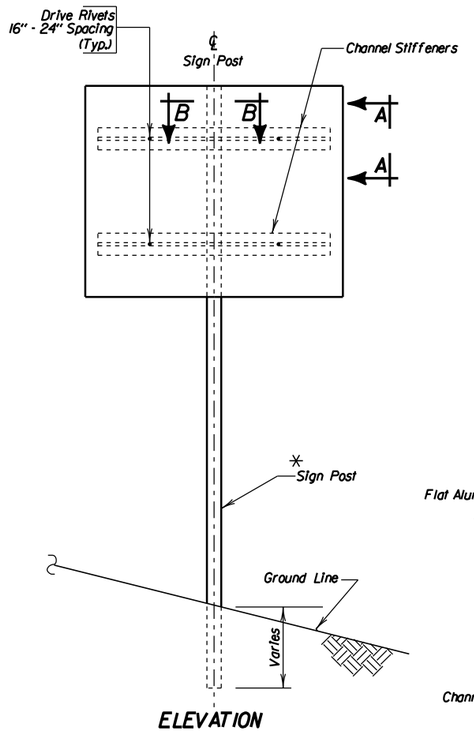


ELEVATION VIEW
(Double post assembly)

GENERAL NOTES:

The sign posts and bases shown are for illustrative purpose. The post type required shall be the type specified in the plans.

ONE POST BREAKAWAY SIGN SUPPORTS



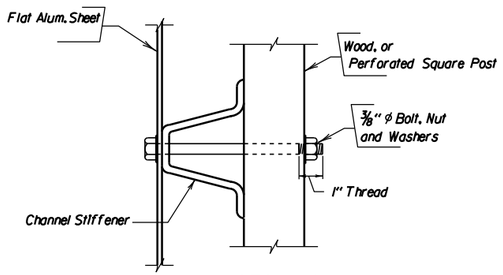
ELEVATION

Ø A plastic washer, as recommended by the sheeting manufacturer, shall be installed between the sign face and the metal washer shown.

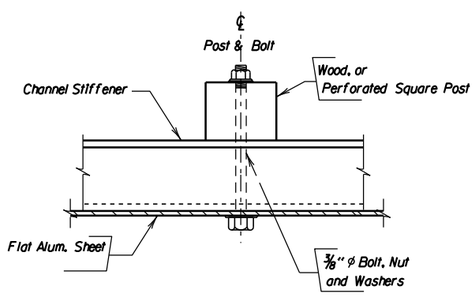
Height and lateral distance as recommended by latest edition of MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

* Single post installation shown. (See applicable Details or Standard Plates shown in these plans for multiple post spacing requirements.)

(Typical Sign and Stiffener Details)

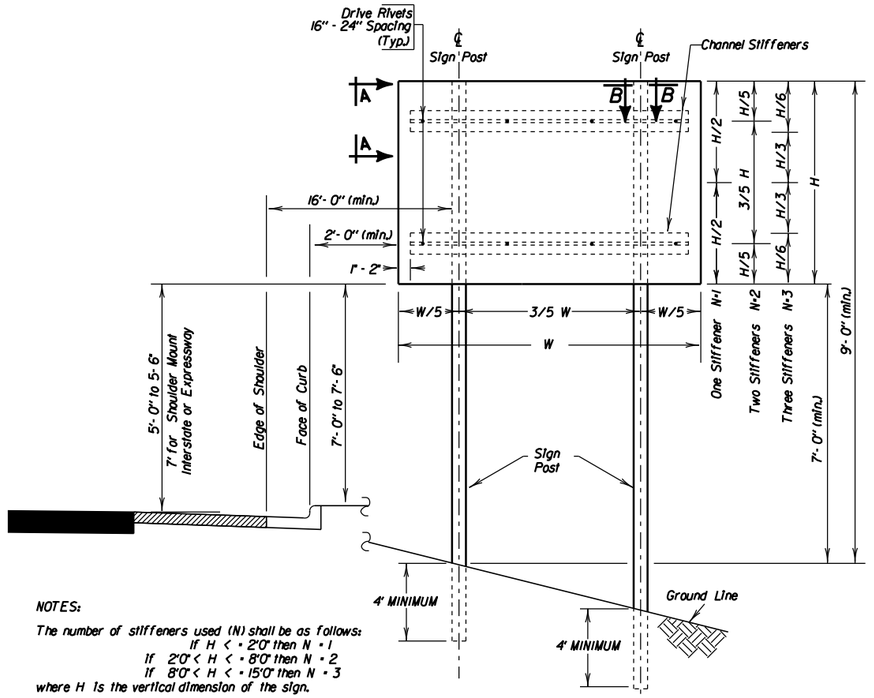


SEC. A-A



SEC. B - B

TWO POST BREAKAWAY SIGN SUPPORTS



NOTES:

The number of stiffeners used (N) shall be as follows:

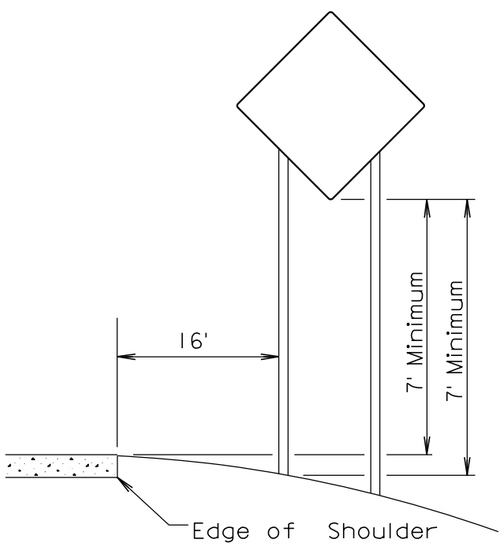
If H < = 2'0" then N = 1
If 2'0" < H < = 8'0" then N = 2
If 8'0" < H < = 15'0" then N = 3

where H is the vertical dimension of the sign.

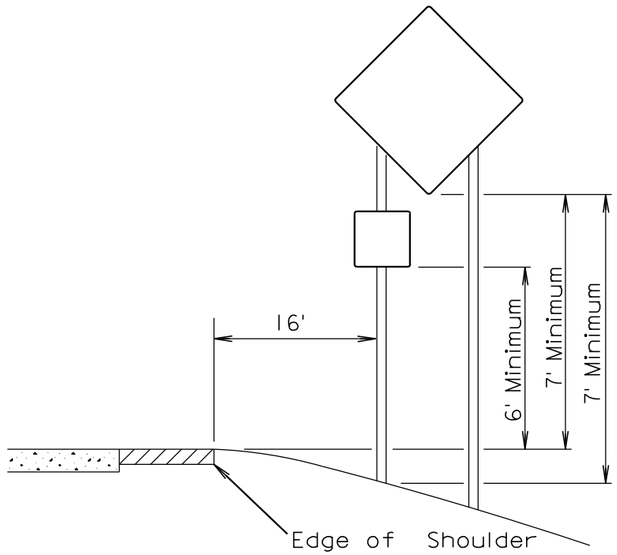
A minimum of two bolts shall be required to fasten the sign to each post.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0045(56)88	29	43
Plotting Date: 06/23/2016			

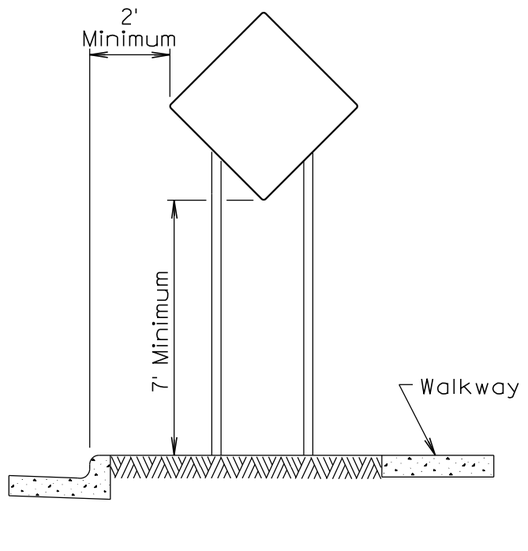
SIGN SUPPORTS
(Lateral Off–Sets)



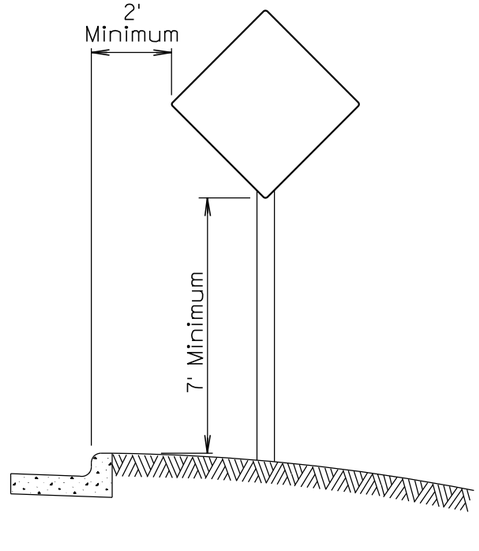
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT



URBAN DISTRICT

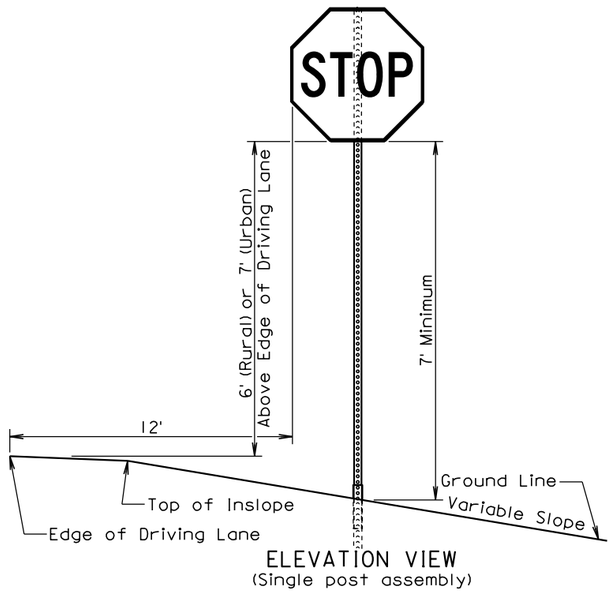
PLOT SCALE - 1:200

PLOTTED FROM - TRAB10100

PLOT NAME - 4

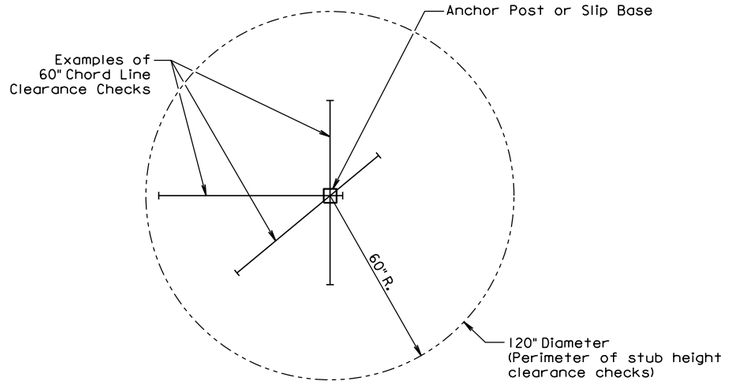
FILE - ...\SIGN POST INSTALL DETAILS.DGN

INSTALLATION DETAILS FOR STOP SIGNS

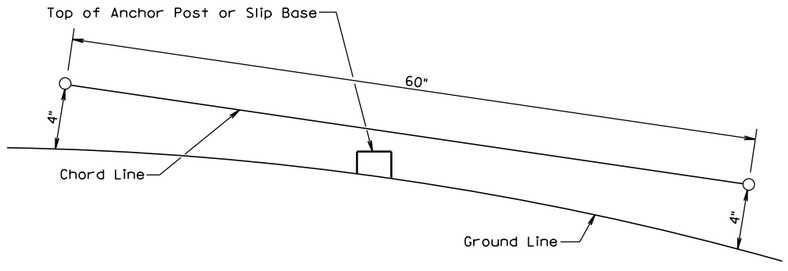


ELEVATION VIEW
(Single post assembly)

BREAKAWAY SUPPORT STUB CLEARANCE



PLAN VIEW
(Examples of stub height clearance checks)

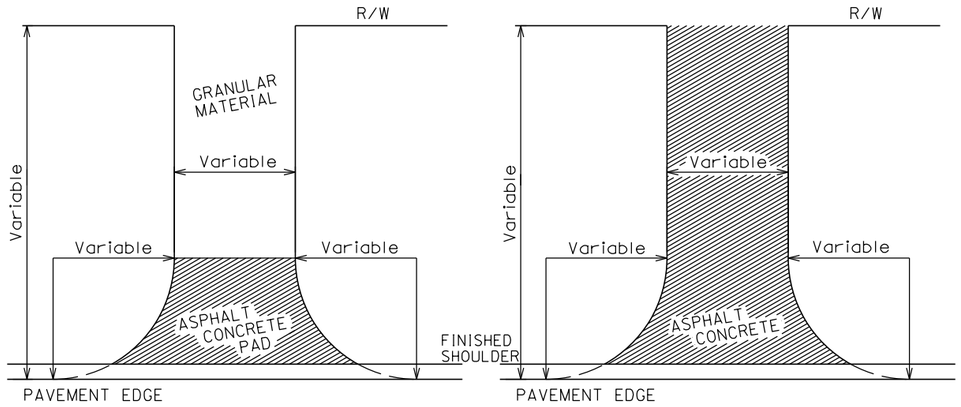


ELEVATION VIEW

GENERAL NOTES:

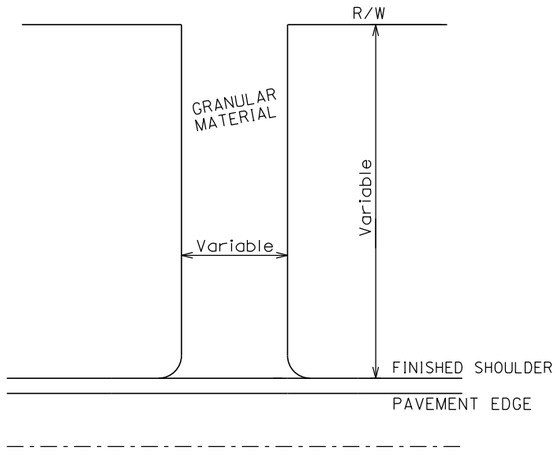
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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.



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND R/W

INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND R/W



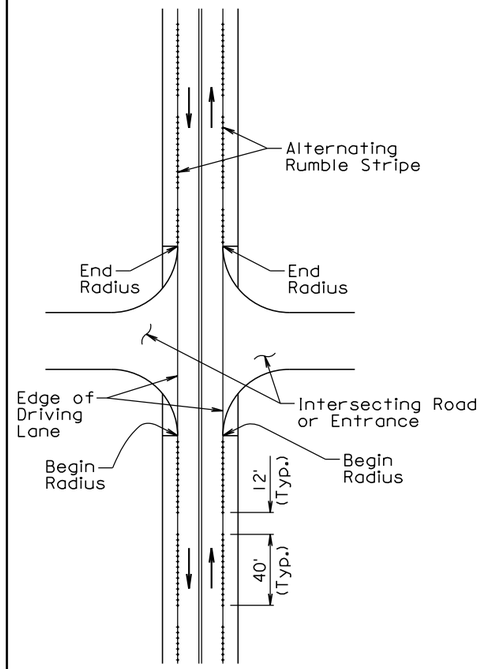
ENTRANCE

The surfacing details shown on this sheet are provided as a guide for surfacing these facilities. The precise construction limits for situations other than the standards shown will be determined by the Engineer, at the time of construction.

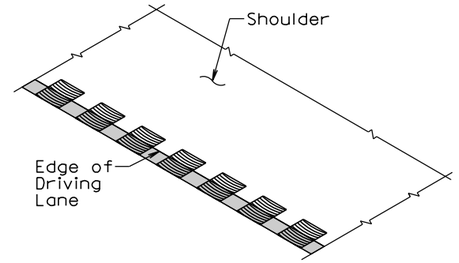
ROADWAY WITH SHOULDER

March 31, 2000

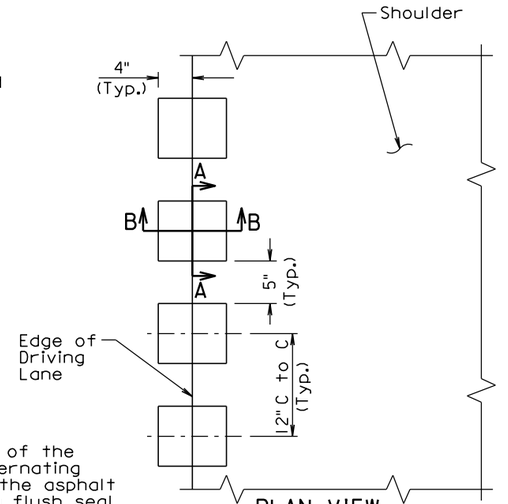
Published Date: 3rd Qtr. 2016	SDDOT	RESURFACING OF INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 320.11
			Sheet 1 of 1



PLAN VIEW



PERSPECTIVE OF TYPICAL
RUMBLE STRIPE IN ASPHALT CONCRETE



PLAN VIEW
TYPICAL RUMBLE STRIPE
IN ASPHALT CONCRETE

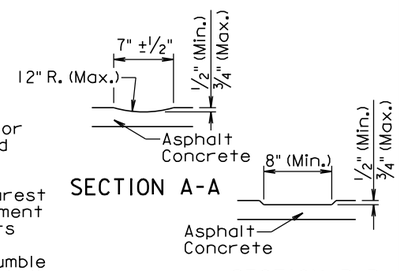
GENERAL NOTES:

A rumble stripe shall be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble stripe shall receive a flush seal with the shoulder flush sealing or asphalt surface treatment.

A rumble stripe shall not be constructed through intersecting roads, entrances, and turnouts. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble stripe adjacent to the intersecting roads, entrances, and turnouts shall be adjusted as approved 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 for each shoulder. Measurement and payment of the rumble stripe shall include the 12' long segments without rumble stripes and the segments adjacent to intersecting roads, entrances, and turnouts without rumble stripes. Payment for constructing the rumble stripe shall be at the contract unit price per mile for "Grind 8" Rumble Strip or Stripe in Asphalt Concrete".

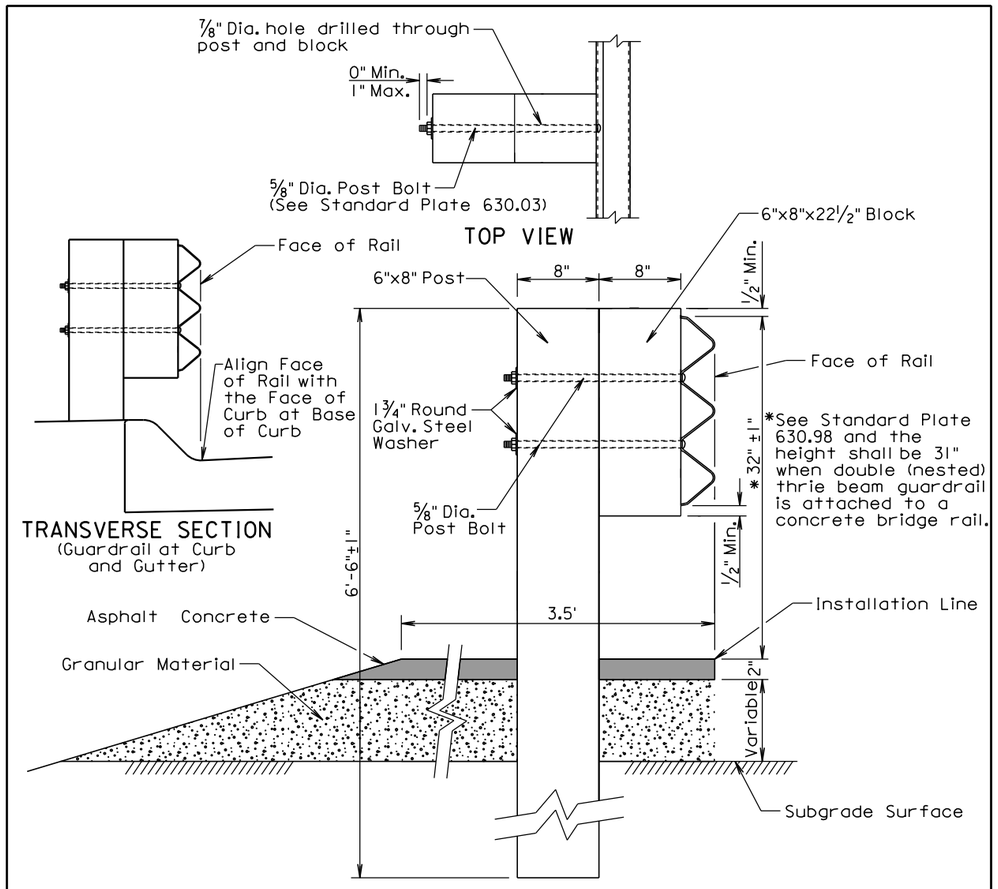


SECTION A-A

SECTION B-B

June 26, 2011

Published Date: 3rd Qtr. 2016	SDDOT	8" RUMBLE STRIPE IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.20
			Sheet 1 of 1



GENERAL NOTES:

Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the Specifications for "Asphalt Concrete Composite." For informational purposes, the Rate of Materials for the 3.5' wide section of asphalt concrete as shown above shall be 4.80 Tons per Station.

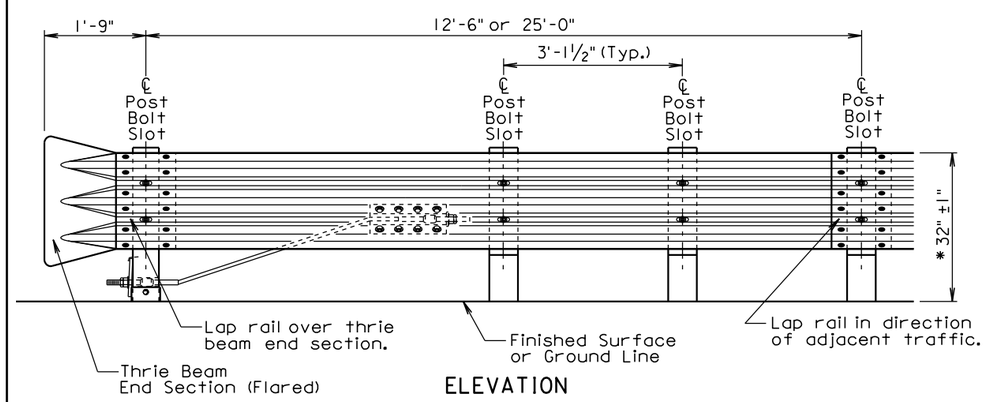
Granular material shall be the same type used elsewhere on the project or shall be as specified in the plans. If granular material type is not specified in the plans, the material shall conform to the Specifications for "Base Course". The granular material shall be placed the same thickness as the mainline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

The cross slope for the surfacing and subgrade surface shall be as specified in the plans (See Typical Sections and/or Cross Sections).

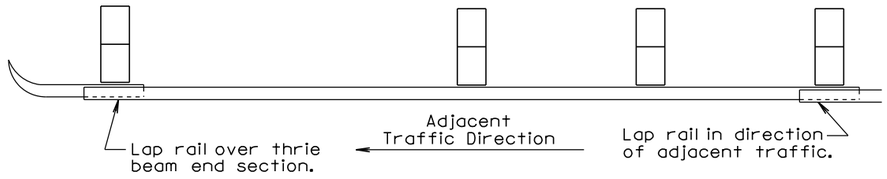
The top of post and top of block shall have a true square cut. The top of block shall be ±1 inch from the top of the post.

June 26, 2015

Published Date: 3rd Qtr. 2016	SDDOT	***THRIE BEAM GUARDRAIL POST INSTALLATION***	***PLATE NUMBER*** 630.01
			Sheet 1 of 1



* See Standard Plate 630.98 and the height shall be 31" when double (nested) thrie beam guardrail is attached to a concrete bridge rail.



THRIE BEAM GUARDRAIL DEFLECTION CRITERIA	
POST SPACING	MAXIMUM DEFLECTION
6'-3"	2'-6"
3'-1 1/2"	1'-9"

For Informational Purposes Only

GENERAL NOTES:

All thrie beam rail shall be Type 1.

There will be no separate payment for furnishing and installing Thrie Beam End Sections (Flared) and Thrie Beam Terminal Connectors. All costs for the Thrie Beam End Sections (Flared) and Thrie Beam Terminal Connectors shall be incidental to the contract unit price per foot for the respective "Thrie Beam Guardrail" bid item.

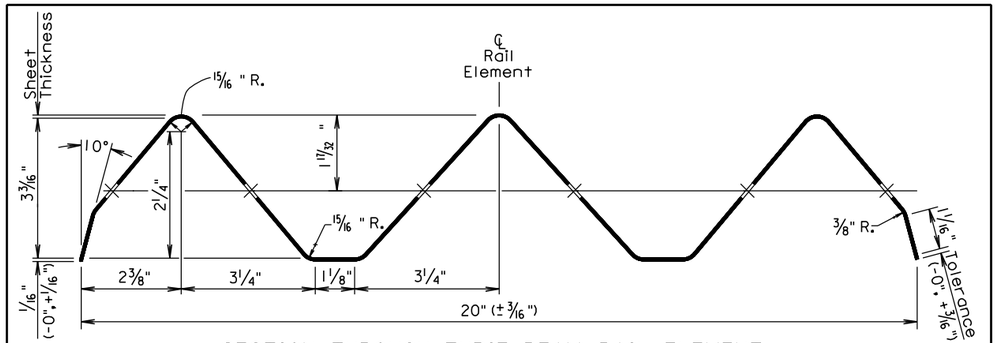
Thrie beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used shall be compatible with the total length of rail per site as shown in the plans.

Thrie Beam End Sections (Flared) shall only be used in a one-way traffic situation. See Standard Plate 630.80 for Thrie Beam End Section (Flared) in the Beam Guardrail Trailing End Terminal.

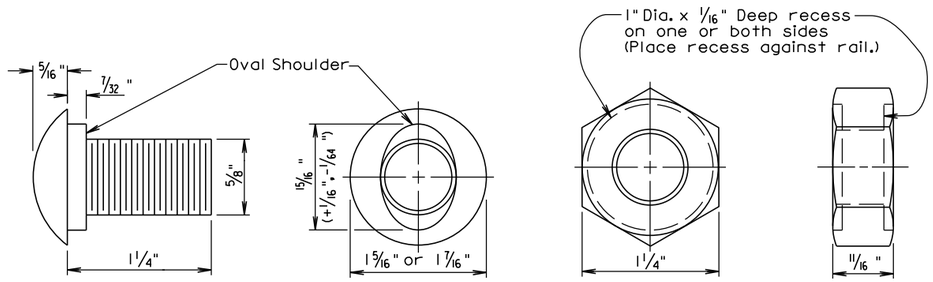
All costs for constructing thrie beam guardrail including labor, equipment, and materials including all posts, blocks, steel beam rail, and hardware shall be incidental to the contract unit price per foot for the respective "Thrie Beam Guardrail" bid item.

June 26, 2015

Published Date: 3rd Qtr. 2016	SDDOT	***THRIE BEAM GUARDRAIL INSTALLATION***	***PLATE NUMBER*** 630.02
			Sheet 1 of 1

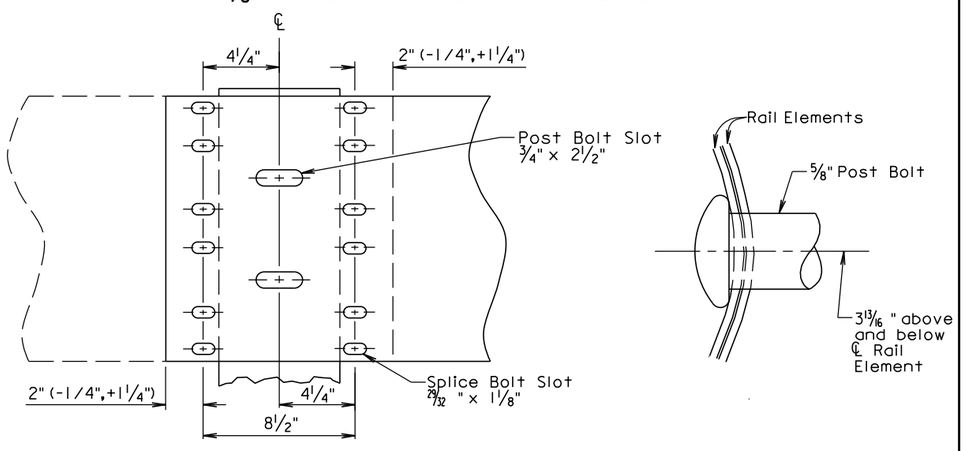


SECTION THROUGH THRIE BEAM RAIL ELEMENT



The Post Bolt is similar except the post bolt is 18" long.

SPLICE BOLT
(5/8" BUTTON HEAD BOLT AND RECESS NUT)

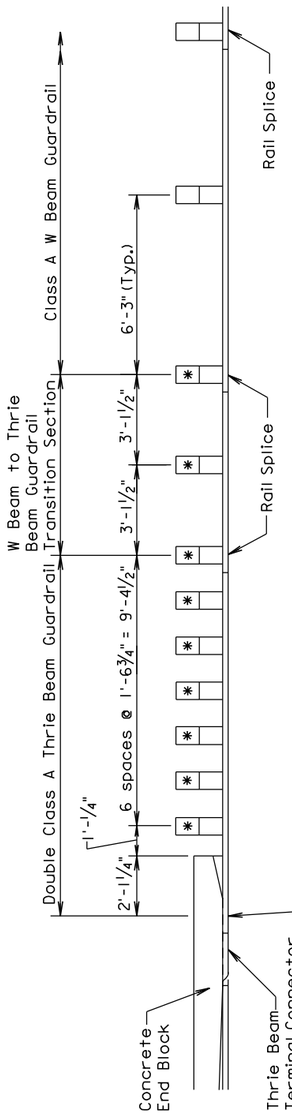


Lap in direction of traffic.

RAIL SPLICE

March 31, 2000

Published Date: 3rd Qtr. 2016	SDDOT	THRIE BEAM RAIL, RAIL SPLICE, AND HARDWARE	PLATE NUMBER 630.03
			Sheet 1 of 1

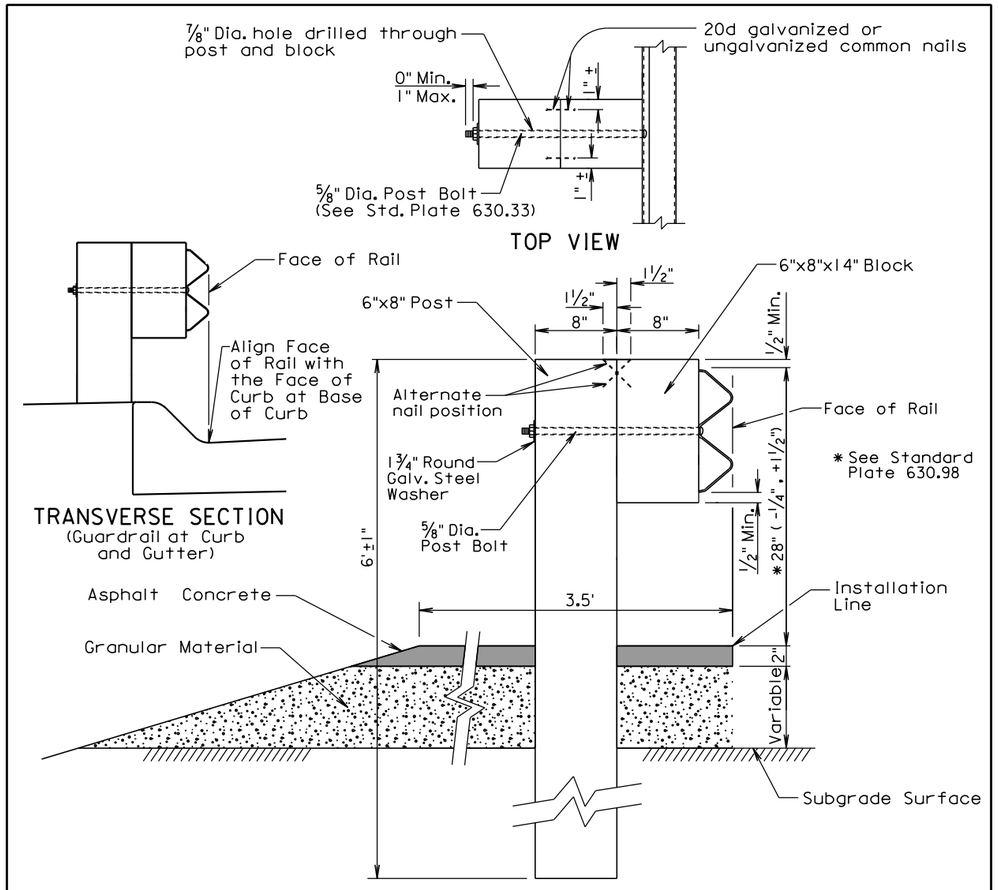


* 6" x 8" x 7' posts shall be used at these locations.

POST SPACING ARRANGEMENT FOR THRIE BEAM GUARDRAIL AT BRIDGE END

December 23, 2002

Published Date: 2nd Qtr. 2016	SDDOT	POST SPACING ARRANGEMENT FOR THRIE BEAM GUARDRAIL AT BRIDGE END	PLATE NUMBER 630.15
			Sheet 1 of 1



GENERAL NOTES:

Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the Specifications for "Asphalt Concrete Composite." For informational purposes, the Rate of Materials for the 3.5' wide section of asphalt concrete as shown above shall be 4.80 Tons per Station.

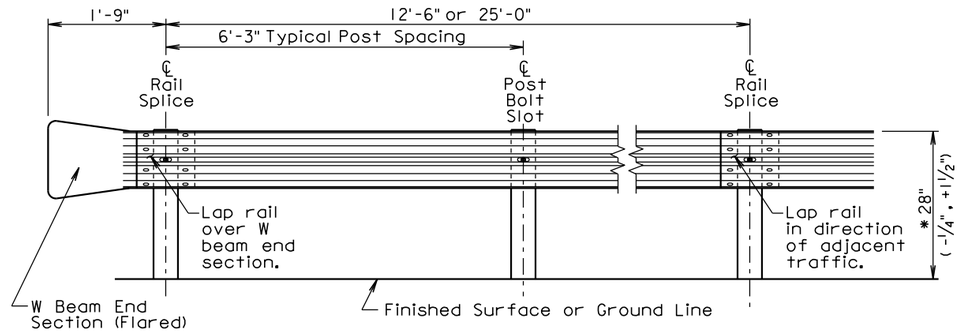
Granular material shall be the same type used elsewhere on the project or shall be as specified in the plans. If granular material type is not specified in the plans, the material shall conform to the Specifications for "Base Course". The granular material shall be placed the same thickness as the mainline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

The cross slope for the surfacing and subgrade surface shall be as specified in the plans (See Typical Sections and/or Cross Sections).

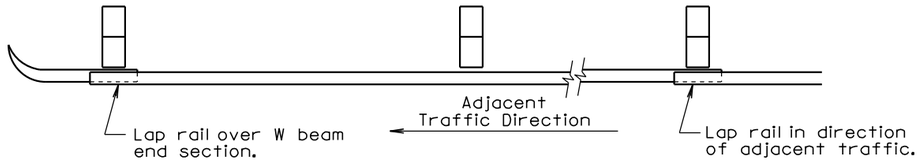
The top of post and top of block shall have a true square cut. The top of block shall be ±1 inch from the top of the post.

June 26, 2015

Published Date: 2nd Qtr. 2016	SDDOT	W BEAM GUARDRAIL POST INSTALLATION	PLATE NUMBER 630.31
			Sheet 1 of 1



* See Standard Plate 630.98



W BEAM GUARDRAIL DEFLECTION CRITERIA	
POST SPACING	MAXIMUM DEFLECTION
6'-3"	5'-0"
3'-1 1/2"	3'-9"

For Informational Purposes Only

GENERAL NOTES:

All W beam rail shall be Type 1.

There will be no separate payment for furnishing and installing W Beam End Sections (Flared) and W Beam Terminal Connectors. All costs for the W Beam End Sections (Flared) and W Beam Terminal Connectors shall be incidental to the contract unit price per foot for the respective "W Beam Guardrail" bid item.

W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used shall be compatible with the total length of rail per site as shown in the plans.

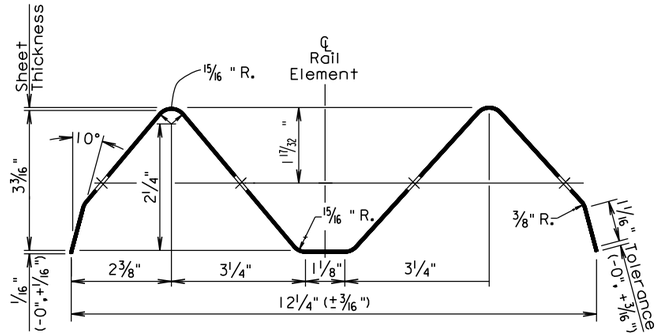
W Beam End Sections (Flared) shall only be used in a one way traffic situation. See Standard Plate 630.80 for W Beam End Section (Flared) in the Beam Guardrail Trailing End Terminal.

All costs for constructing W beam guardrail including labor, equipment, and materials including all posts, blocks, steel beam rail, and hardware shall be incidental to the contract unit price per foot for the respective "W Beam Guardrail" bid item.

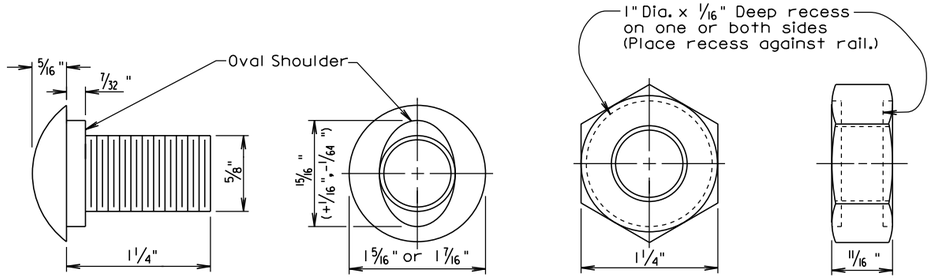
June 26, 2015

Published Date: 2nd Qtr. 2016	SDDOT	W BEAM GUARDRAIL INSTALLATION	PLATE NUMBER 630.32
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0045(56)88	35	43

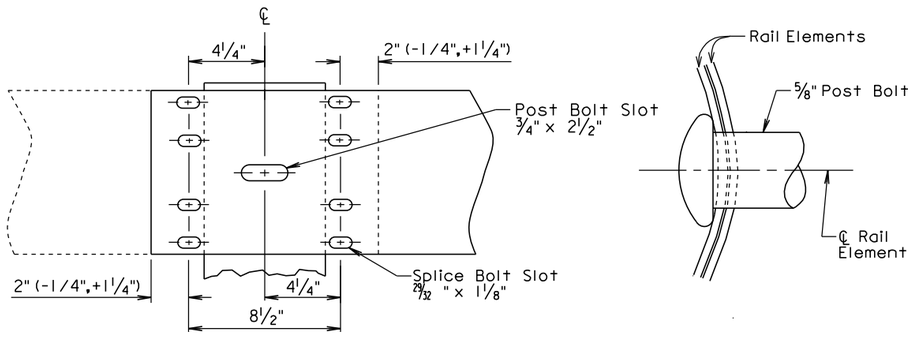


SECTION THROUGH W BEAM RAIL ELEMENT



The Post Bolt is similar except the post bolt is 18" long.

SPLICE BOLT
(5/8" BUTTON HEAD BOLT AND RECESS NUT)

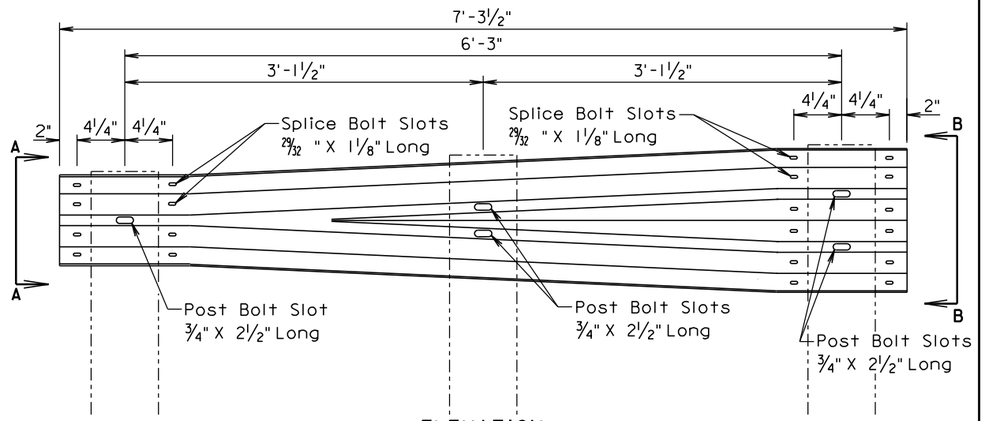


Lap in direction of traffic.

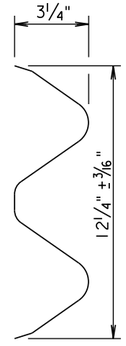
RAIL SPLICE

December 23, 2004

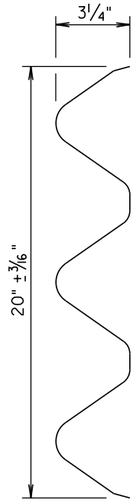
Published Date: 2nd Qtr. 2016	SDDOT	W BEAM RAIL, RAIL SPLICE, AND HARDWARE	PLATE NUMBER 630.33
			Sheet 1 of 1



ELEVATION



VIEW A-A



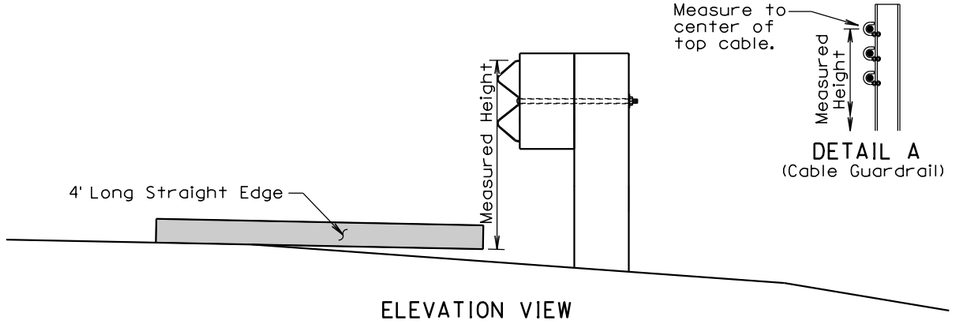
VIEW B-B

GENERAL NOTE:

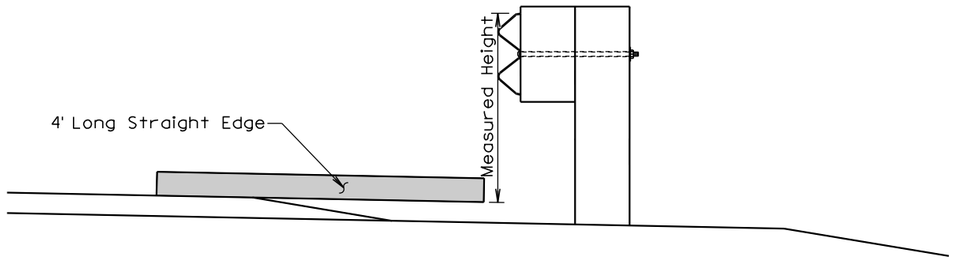
All costs for constructing the W Beam to Thrie Beam Guardrail Transition including labor, equipment, and materials including two posts, two blocks, W beam to thrie beam transition section, and hardware shall be incidental to the contract unit price per each for "W Beam to Thrie Beam Guardrail Transition".

March 31, 2000

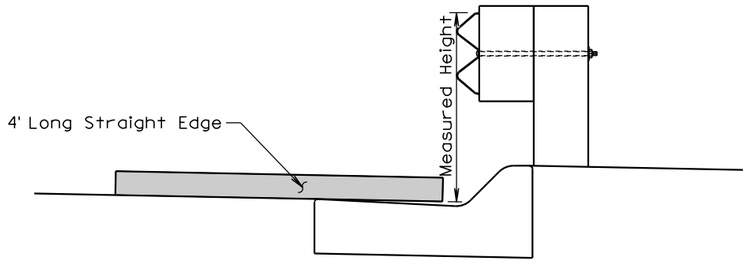
Published Date: 3rd Qtr. 2016	SDDOT	W BEAM TO THRIE BEAM GUARDRAIL TRANSITION SECTION	PLATE NUMBER 630.82
			Sheet 1 of 1



ELEVATION VIEW
(Guardrail Adjacent to Differential Slopes)



ELEVATION VIEW
(Guardrail Adjacent to Differential Surfacing Elevations)



ELEVATION VIEW
(Guardrail at Curb and Gutter)

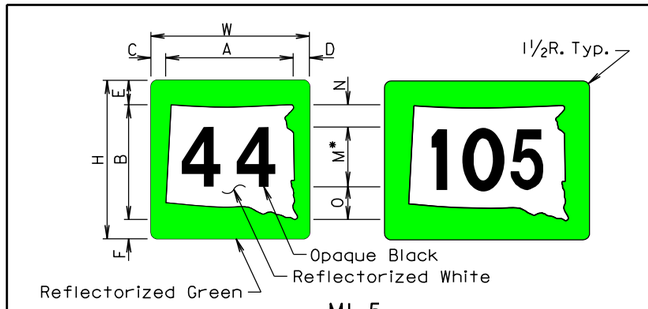
GENERAL NOTES:

The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems shall be measured in accordance with this standard plate.

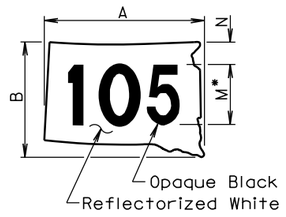
When measuring height of cable guardrail or cable barrier the height shall be measured to the center of the top cable. See Detail A.

June 26, 2010

Published Date: 3rd Qtr. 2016	SDDOT	MEASURING GUARDRAIL HEIGHT	PLATE NUMBER 630.98
			Sheet 1 of 1



MI-5



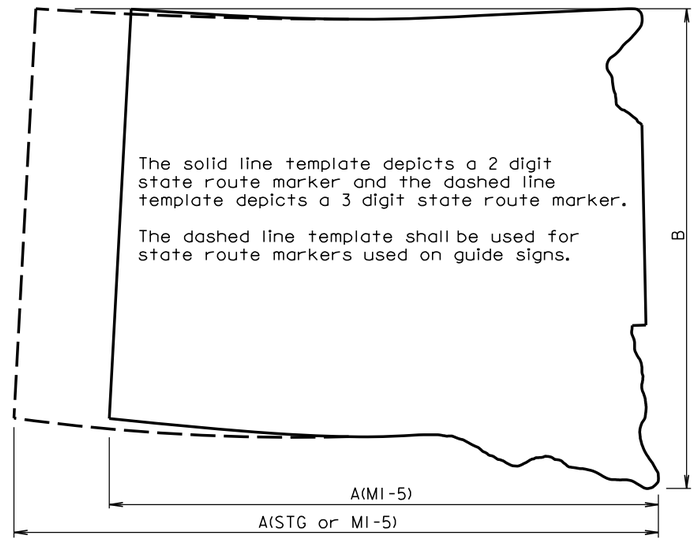
STG

SIGN CODE	WxH	A	B	C	D	E	F	M*	N	O
MI-5	24x24	20½	18	2	1½	3½	2½	12D	2	4
MI-5**	30x24	24	18	2¼	1¾	3½	2½	12D	2	4
MI-5	30x30	25⅝	22½	2½	1⅞	4⅜	3⅛	15D	2½	5
MI-5	36x36	30¾	27	3	2¼	5¼	3¾	18D	3	6

SIGN CODE	AxB	M*	N
STG-24	24x18	10D	4
STG-32	32x24	12D	4¾
STG-48	48x36	18D	7
STG-64	64x48	24D	9½

*In the few cases where there is not enough space for the numerals, the standard "D" series font may be replaced with "C" series font if approved by the Engineer.

**3 Digits



TEMPLATE FOR STATE ROUTE MARKER

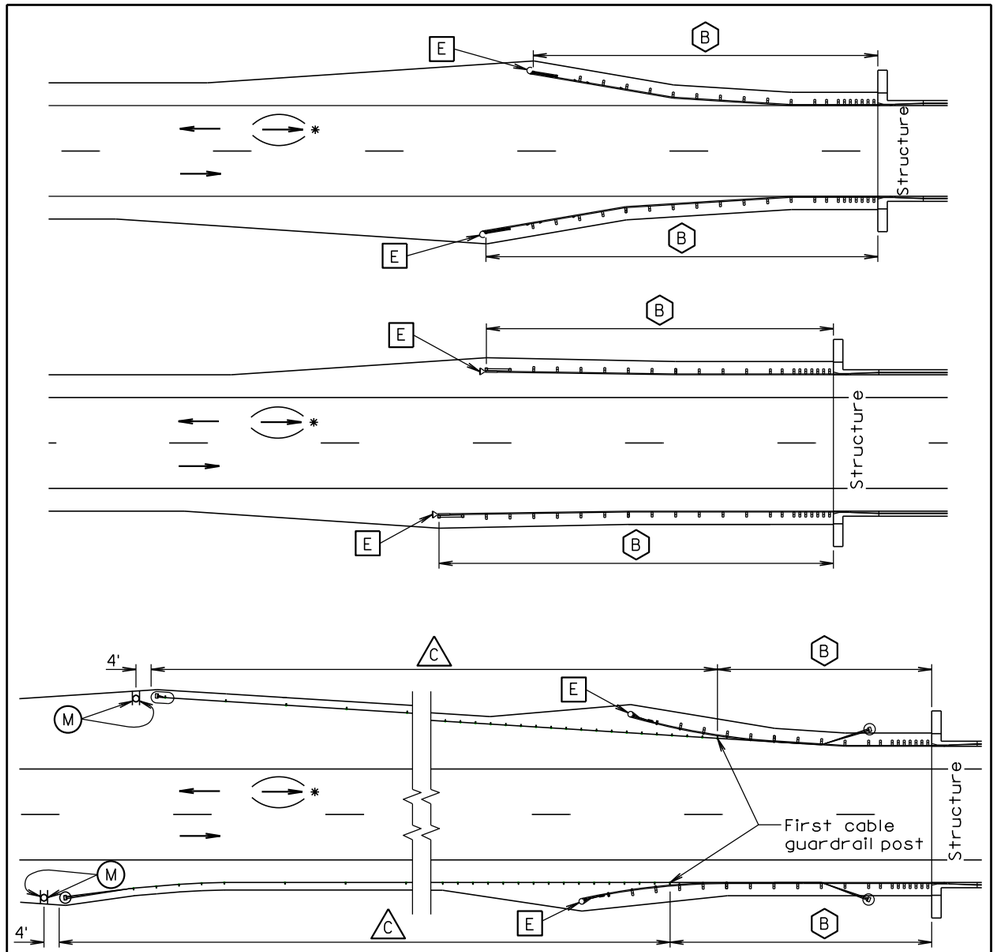
GENERAL NOTES:

The unit for all dimensions shown is inches.

Numerals shall be "D" series font for all state route markers except as noted above.

December 23, 2003

Published Date: 3rd Qtr. 2016	SDDOT	STATE ROUTE MARKERS	PLATE NUMBER 632.20
			Sheet 1 of 1



TYPICAL GUARDRAIL LAYOUTS

B Steel Beam Guardrail Delineation

E Guardrail Terminal End Object Marker

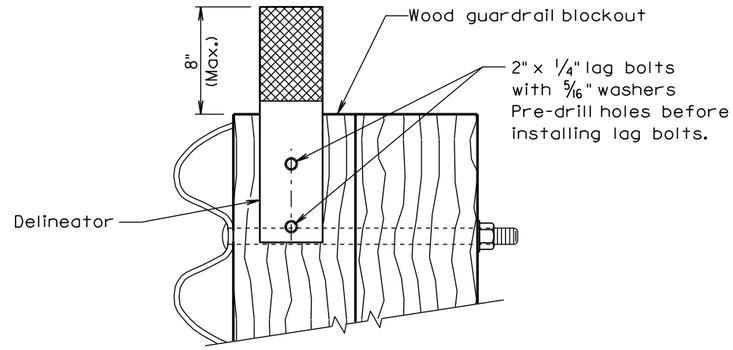
C 3 Cable Guardrail Delineation

M Type 2 Object Marker

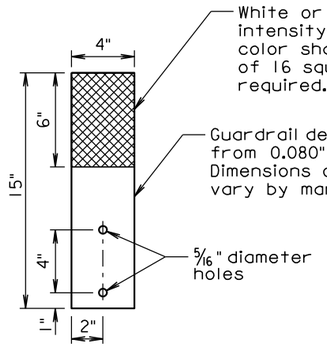
* For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

June 26, 2011

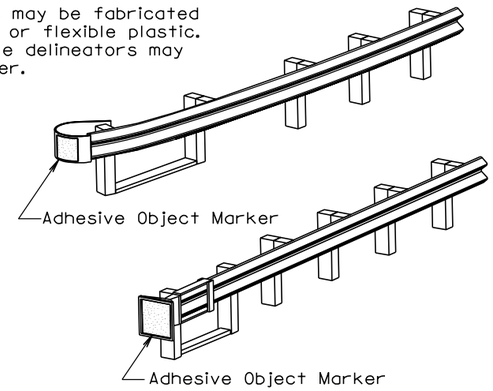
Published Date: 3rd Qtr. 2016	SDDOT	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
			Sheet 1 of 4



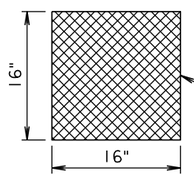
B STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



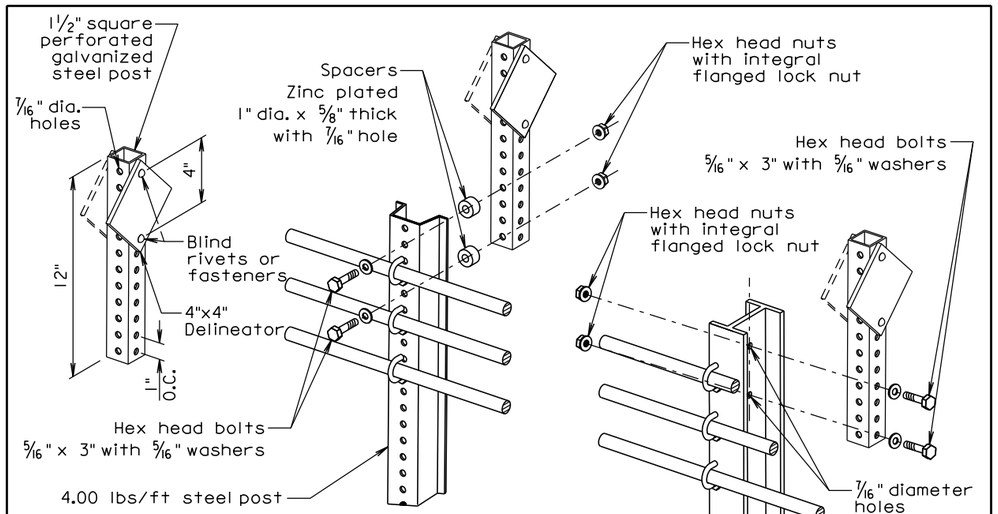
E GUARDRAIL TERMINAL END OBJECT MARKER



ADHESIVE OBJECT MARKER

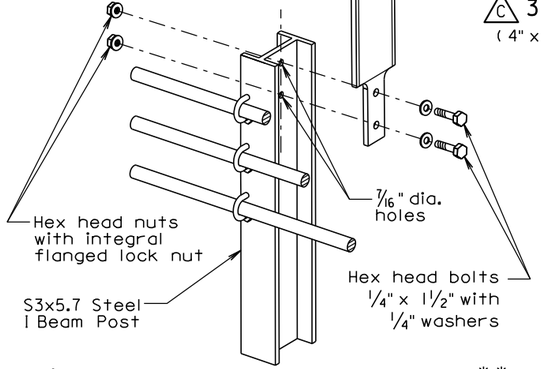
June 26, 2011

Published Date: 3rd Qtr. 2016	SDDOT	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
			Sheet 2 of 4

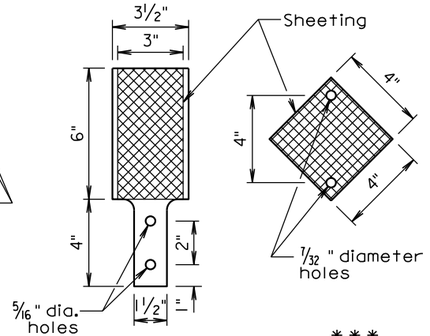


C 3 CABLE GUARDRAIL DELINEATION
(4" x 4" Delineator on Flanged Channel Steel Post)

C 3 CABLE GUARDRAIL DELINEATION
(4" x 4" Delineator on I Beam Steel Post)



C 3 CABLE GUARDRAIL DELINEATION**
(Flexible 3" x 6" Delineator on I Beam Post)



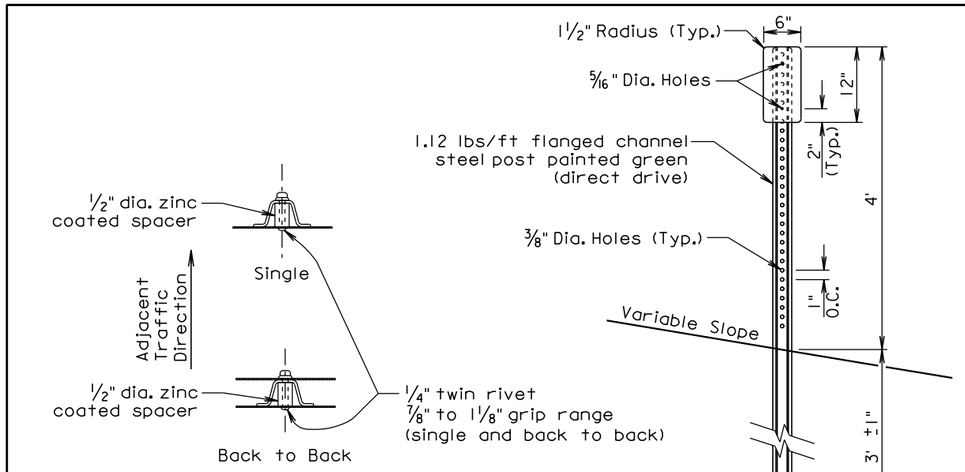
DELINEATORS***
(For 3 Cable Guardrail)

** Flexible delineators may be attached to post with manufacturer approved adhesive instead of bolts.

*** Dimensions of flexible delineators may vary by manufacturer. A minimum of 16 square inches of sheeting area is required. The sheeting shall be white or yellow super or very high intensity fluorescent sheeting. The sheeting color shall match the edgeline color.

June 26, 2011

Published Date: 3rd Qtr. 2016	SDDOT	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
			Sheet 3 of 4



TYPE 2 OBJECT MARKER DETAILS AND POST ORIENTATION

M TYPE 2 OBJECT MARKER
(For Marking 3 Cable Guardrail Anchor)

GENERAL NOTES:

The delineators shall be covered with a minimum of 16 square inches of reflective sheeting. The reflective sheeting shall be of either very high intensity or super high intensity material. For bridges along two-way roadways the sheeting shall be on both sides of the delineator and shall be white in color. For one-way roadways the sheeting will only be required on the side facing traffic and the color will be the same as the nearest pavement marking, yellow on the left side of the roadway and white on the right side.

The first delineator shall be attached to the post nearest the bridge with additional delineators spaced in advance of the bridge at approximately 50 foot intervals. At bridges with short lengths of guardrail, less than 200 feet, a minimum of 4 delineators shall be placed in addition to the yellow object marker. The spacing between the delineators shall be approximately one third of the length of the guardrail. This will provide for a shorter spacing. At bridges with longer lengths of guardrail, greater than 200 feet, including bridges that have cable guardrail transitioning into the steel beam guardrail, the delineators will be placed at a spacing of approximately 50 feet. Delineation shall extend throughout the length of the guardrail system.

All costs for furnishing and installing single or back to back guardrail delineation shall be included in the contract unit price per each for "Guardrail Delineator".

An adhesive object marker shall be placed on the end of the W beam guardrail end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required. The reflective sheeting shall be fluorescent yellow super or very high intensity. All costs for furnishing and installing the adhesive object marker shall be incidental to various contract items.

A type 2 object marker shall be placed adjacent to the 3 cable guardrail anchor at the location noted on sheet 1 of this standard plate. The type 2 object marker (6" x 12") shall have a fluorescent yellow very high or super high intensity reflective sheeting. All costs for furnishing and installing the type 2 object marker including the steel post, 6" x 12" reflective panel, and hardware shall be included in the contract unit price per each for "Type 2 Object Marker" for single-sided and "Type 2 Object Marker Back to Back" for back to back type 2 object markers.

June 26, 2011

Published Date: 3rd Qtr. 2016	SDDOT	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
			Sheet 4 of 4

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

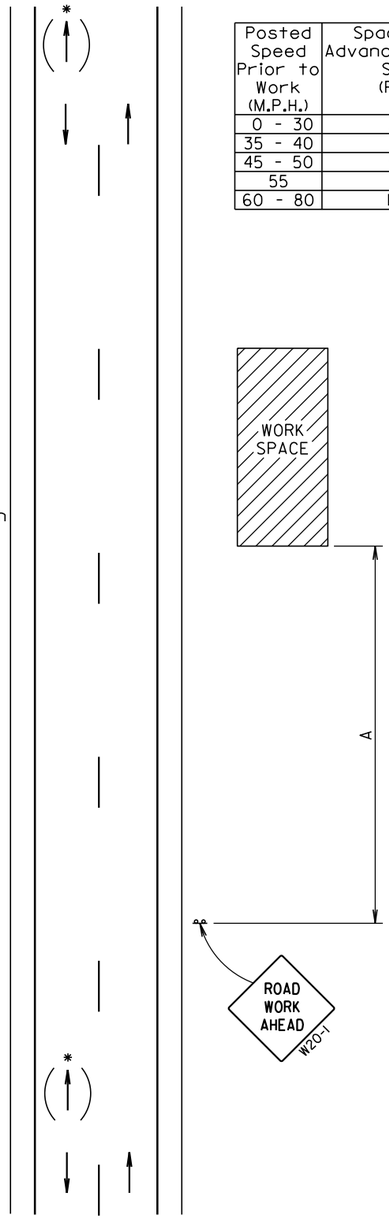
The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

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

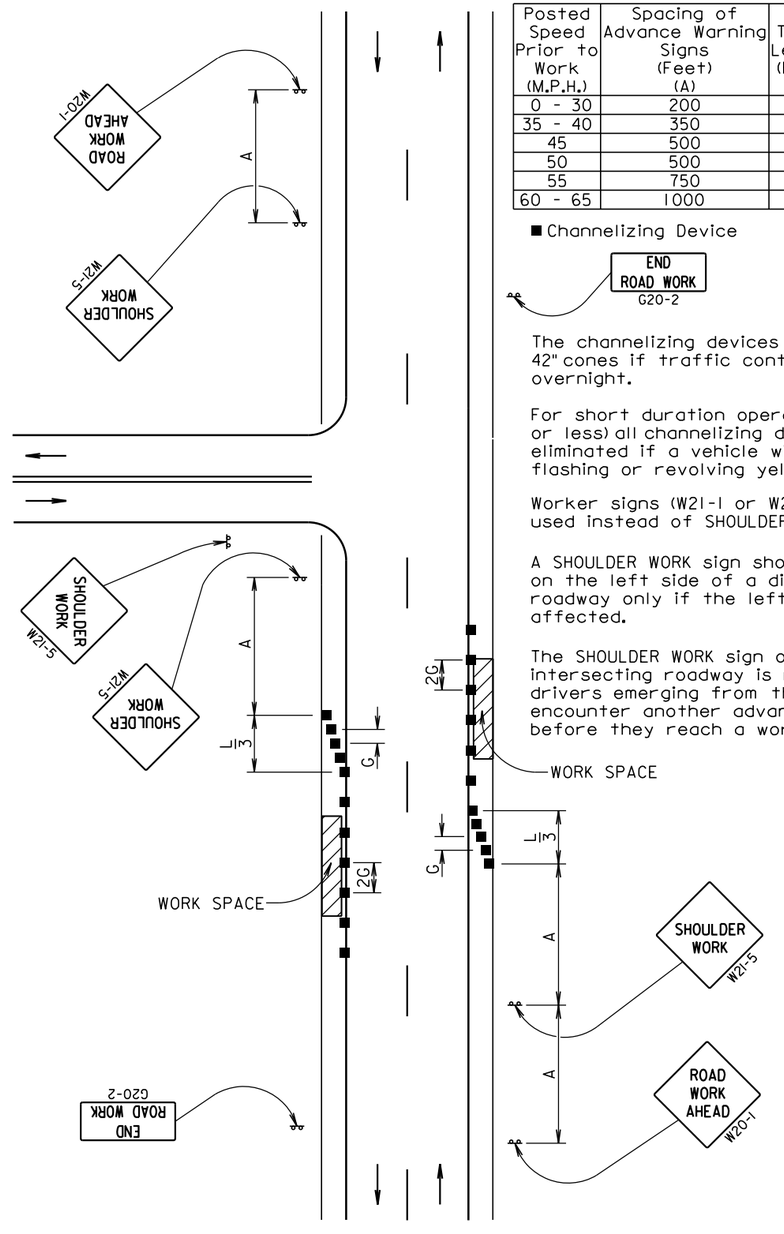
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000



April 15, 2015

Published Date: 3rd Qtr. 2016	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
			Sheet 1 Of 1

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



■ Channelizing Device

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

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

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

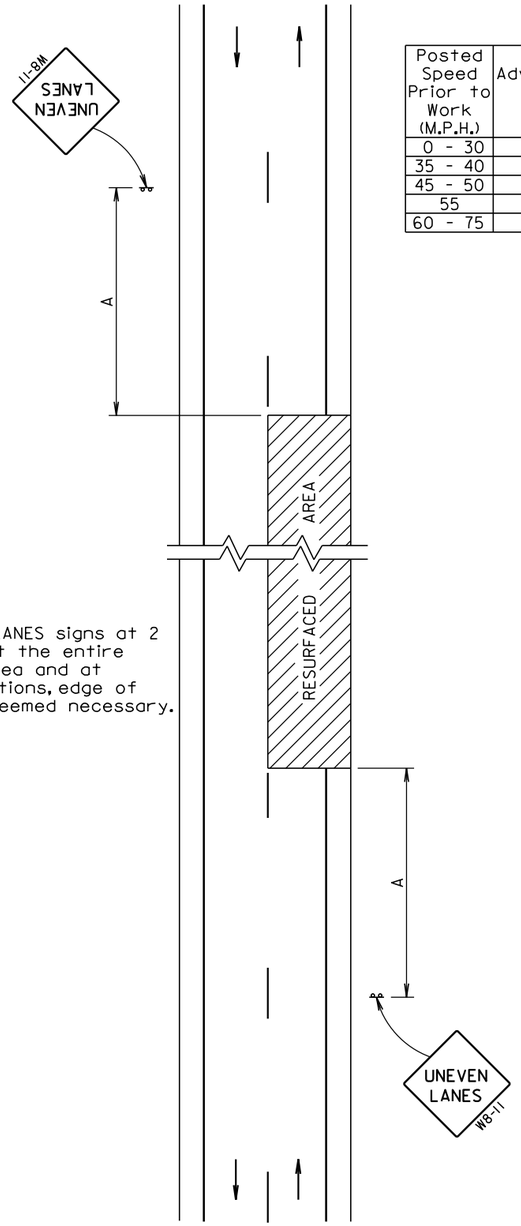
A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

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

June 3, 2016

Published Date: 3rd Qtr. 2016	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
			Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 75	1000



Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.

April 15, 2015

Published Date: 3rd Qtr. 2016	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES UNEVEN ROAD SURFACE	PLATE NUMBER 634.22 Sheet 1 of 1

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

Flagger

Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

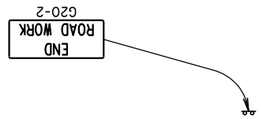
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or 42" cones.

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

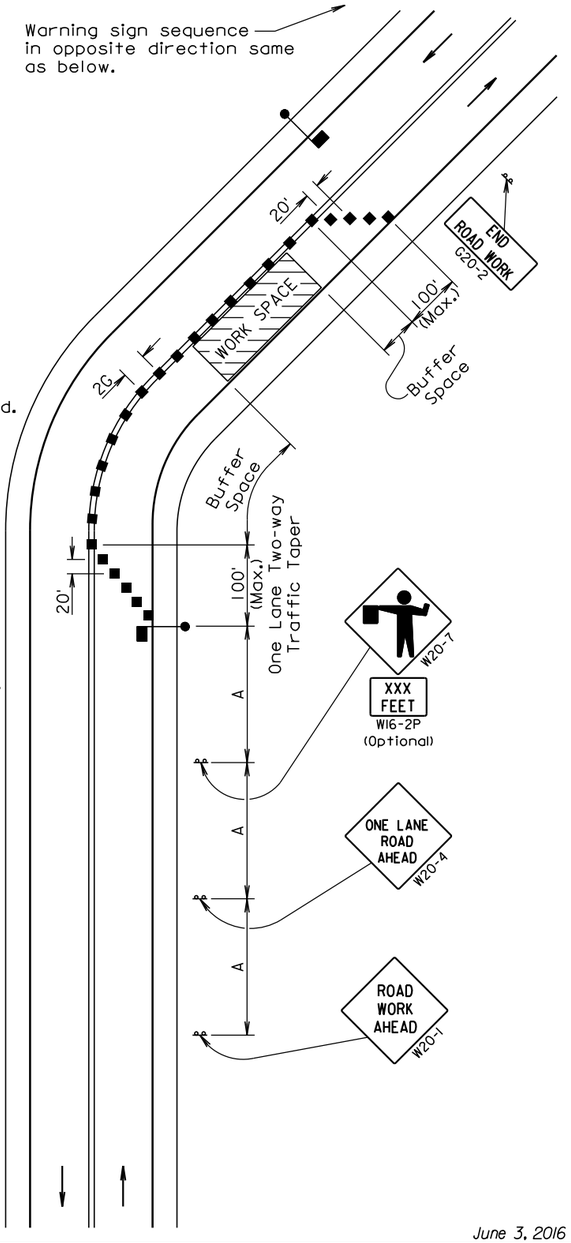


Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

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

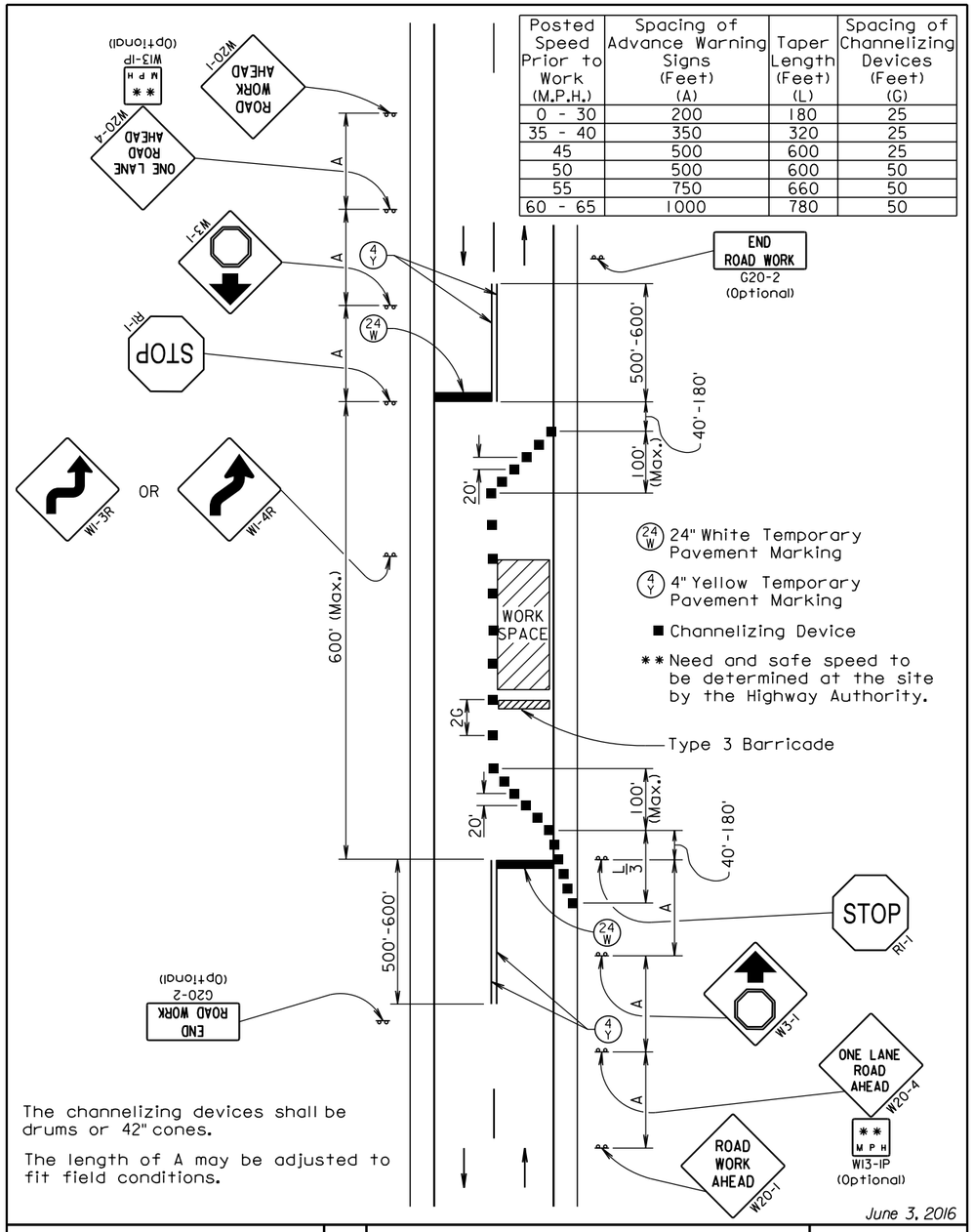
Warning sign sequence in opposite direction same as below.



June 3, 2016

Published Date: 3rd Qtr. 2016	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23 Sheet 1 of 1

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



24 W 24" White Temporary Pavement Marking

4 Y 4" Yellow Temporary Pavement Marking

■ Channelizing Device

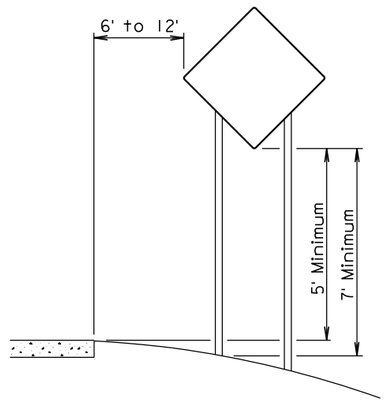
** Need and safe speed to be determined at the site by the Highway Authority.

The channelizing devices shall be drums or 42" cones.

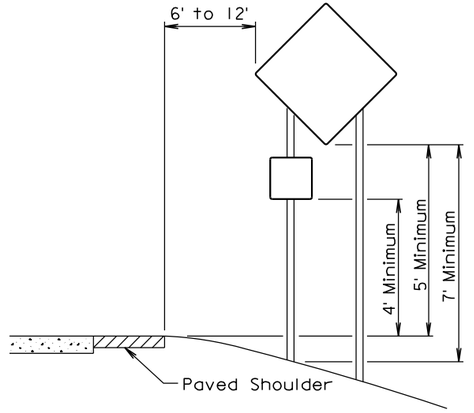
The length of A may be adjusted to fit field conditions.

June 3, 2016

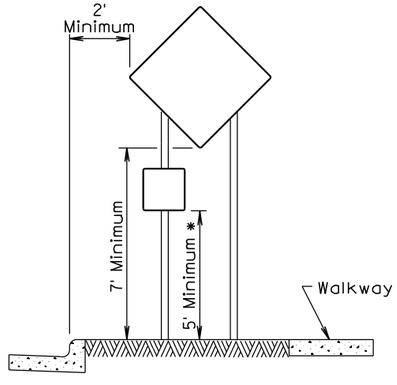
Published Date: 3rd Qtr. 2016	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE USING STOP SIGNS	PLATE NUMBER 634.25
			Sheet 1 of 1



RURAL DISTRICT

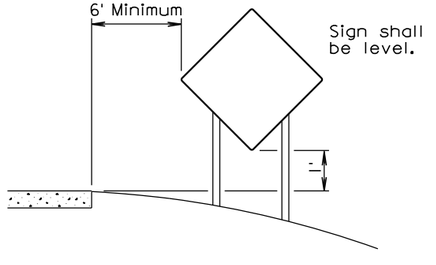


RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

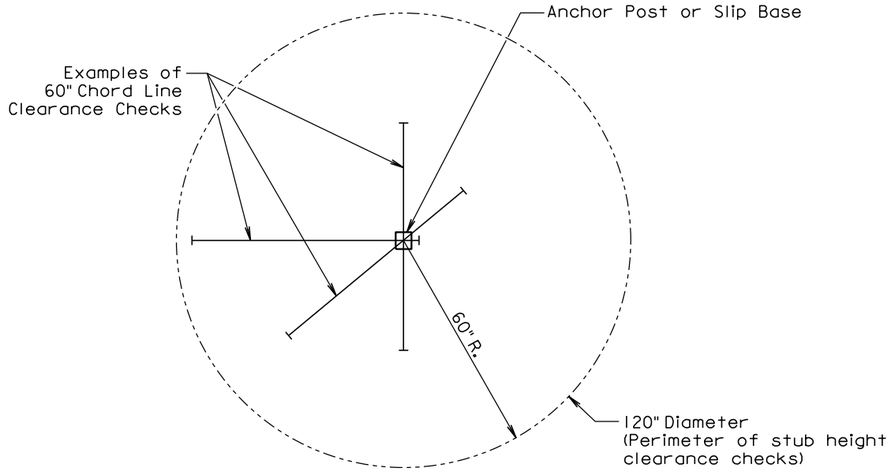
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

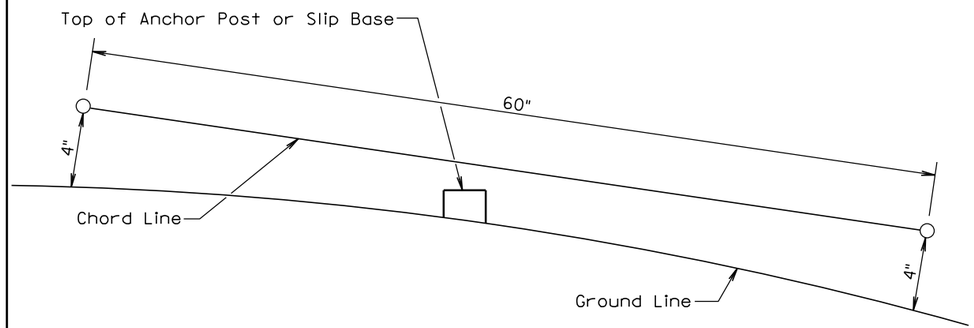
September 22, 2014

Published Date: 3rd Qtr. 2016	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:

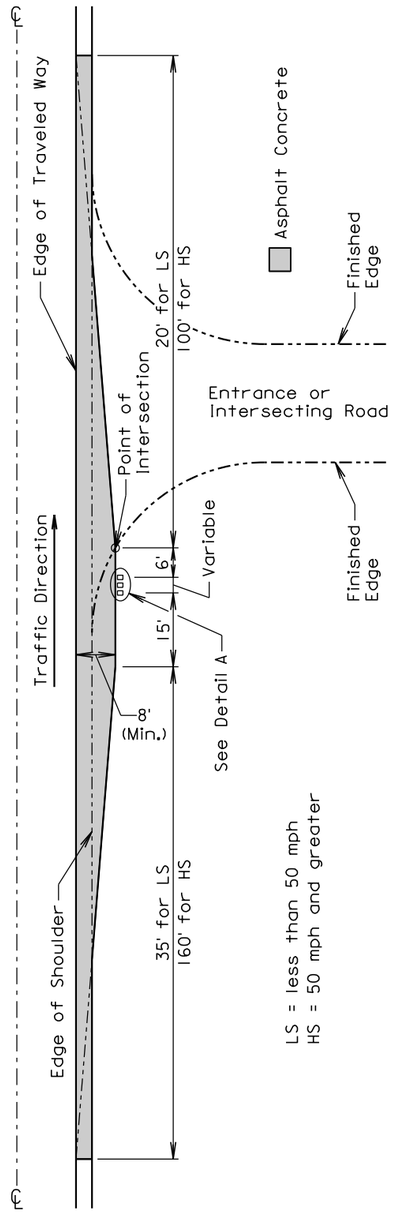
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

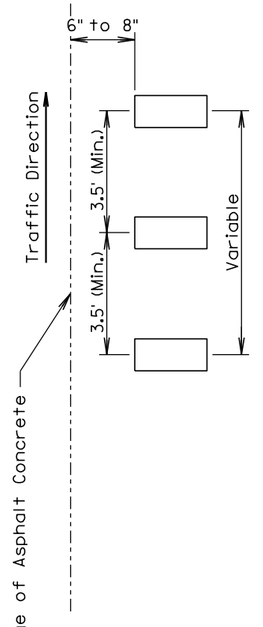
At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

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

Published Date: 3rd Qtr. 2016	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1





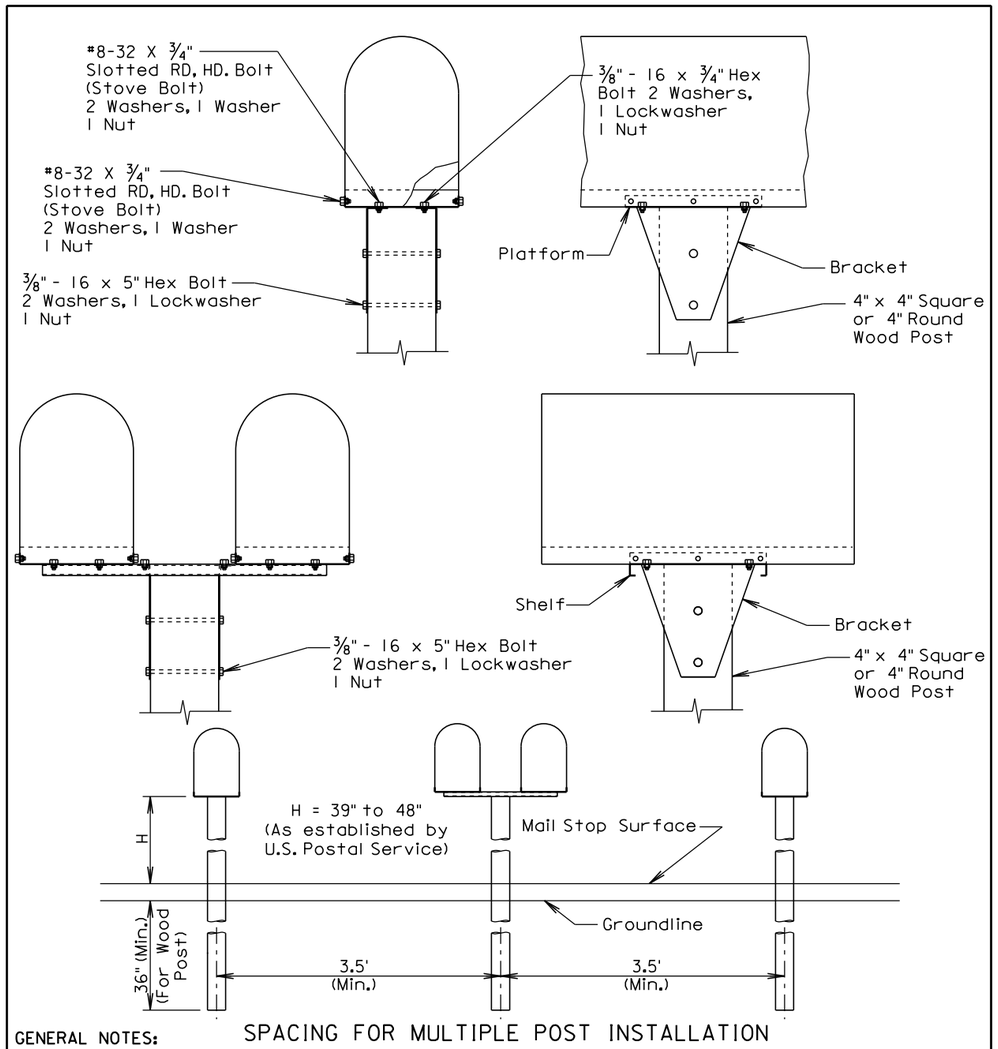
DETAIL A

(Mailbox Location)

September 6, 2015

Published Date: 3rd Qtr. 2016	SDDOT	MAILBOX TURNOUT	PLATE NUMBER 900.01
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0045(56)88	43	43



SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

The post support assemblies provided should be consistant throughout the project.

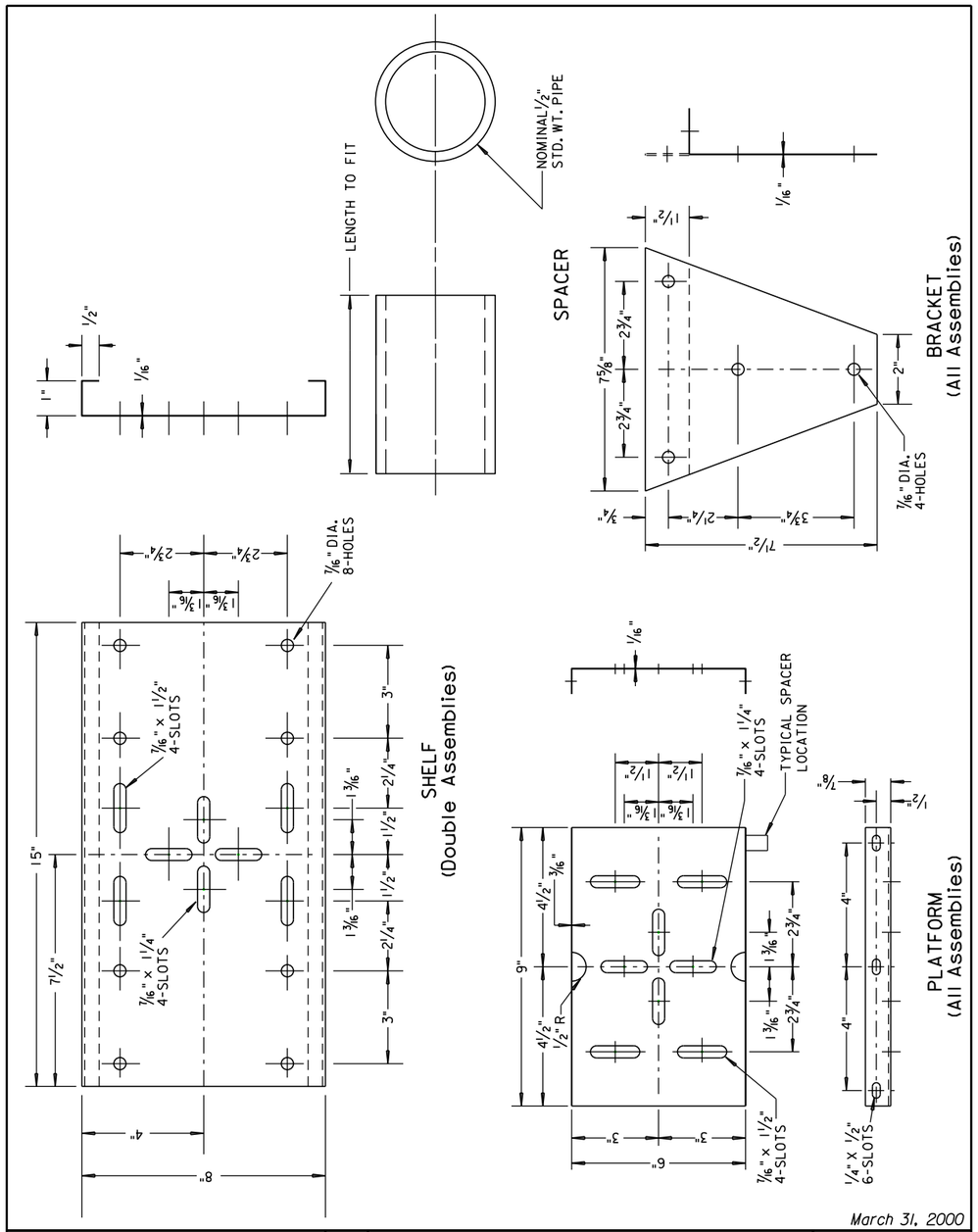
Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

Published Date: 3rd Qtr. 2016	SDDOT	***SINGLE AND DOUBLE MAILBOX ASSEMBLIES***	***PLATE NUMBER*** 900.02 *Sheet 1 of 1*



March 31, 2000

Published Date: 3rd Qtr. 2016	SDDOT	***MAILBOX SUPPORT HARDWARE***	***PLATE NUMBER*** 900.03 *Sheet 1 of 1*