

1

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Rush Lake

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T 122 N

**PROJECTS 012 W-151, 012 E-151, 012-151
025-151, 025-151' & 025-151**

US HIGHWAY 12 & SD 25

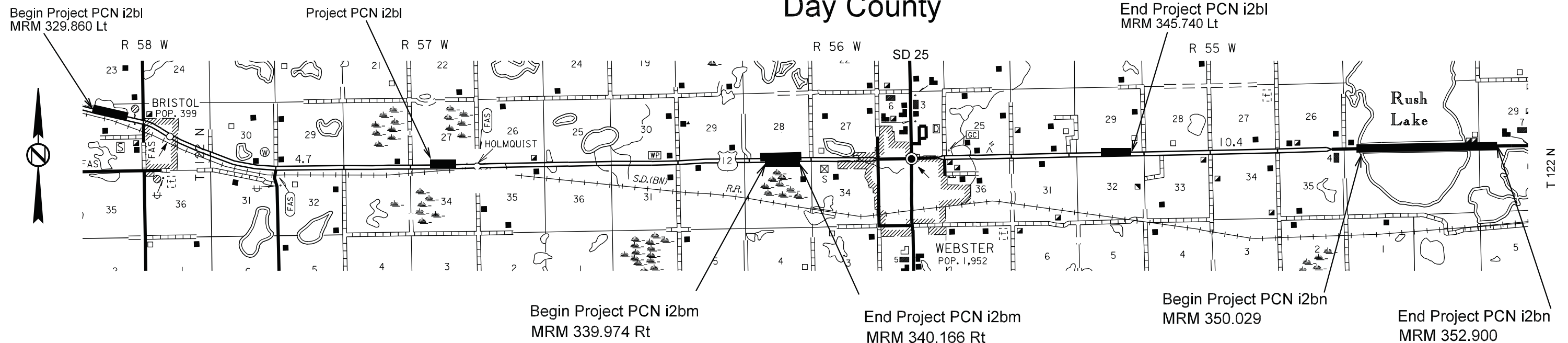
DAY, CLARK & MARSHALL COUNTIES

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US 12 Layout Maps

Day County



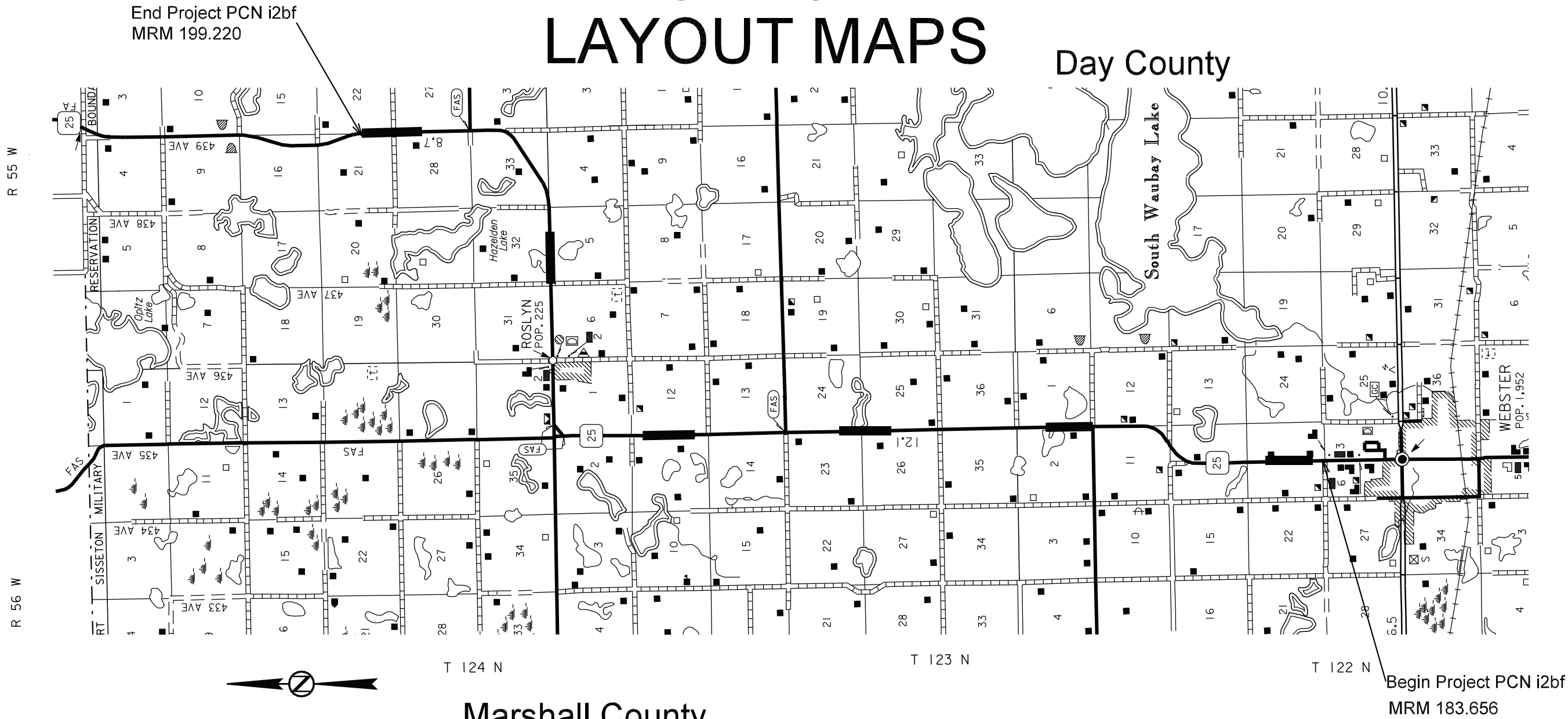
STORM WATER PERMIT
(None Required)

2010 ADT = 1501 per direction

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012 W-151, 012 E-151, 012-151 025-151, 025-151 & 025-151	2	16
Plotting Date: 25-MAY-2011			

SD 25 LAYOUT MAPS

Day County



Marshall County

Clark County

STORM WATER PERMIT
(None Required)

2010 ADT = 1058

End Project PCN i2c3
MRM 207.936

Begin Project PCN i2c3
MRM 207.704

End Project PCN i2be
MRM 165.270

Begin Project PCN i2be
MRM 164.974

PLOTTED FROM - TRAB12245

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012 W-151, 012 E-151, 012-151 025-151, 025-151 & 025-151	3	16

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	012 W-151 PCN i2bl	012 E-151 PCN i2bm	012-151 PCN i2bn	025-151 PCN i2bf	025-151 PCN i2be	025-151 PCN i2c3	TOTAL QUANTITY	UNIT
009E0010	Mobilization	LS	LS	LS	LS	LS	LS	Lump Sum	LS
230E0100	Remove and Replace Topsoil	LS	LS	LS	LS	LS	LS	Lump Sum	LS
250E0020	Incidental Work, Grading	LS	LS	LS	LS	LS	LS	Lump Sum	LS
634E0010	Flagging	-	-	30	50	30	20	130	Hour
634E0100	Traffic Control	272	272	204	306	306	306	1,666	Unit
634E0120	Traffic Control, Miscellaneous	LS	LS	LS	LS	LS	LS	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	2	-	-	-	-	4	Each
700E0210	Class B Riprap	10,557	1,442	2,929	7,782	3,244	1,307	27,261	Ton
730E0251	Special Permanent Seed Mixture 1	28	6	7	21	7	6	75	Lb
731E0100	Fertilizing	100	20	25	75	25	20	265	Lb
732E0100	Mulching	2	0.4	0.5	1.5	0.5	0.4	5.3	Ton
831E0110	Type B Drainage Fabric	9,899	1,352	2,745	7,387	3,041	1,225	25,649	Sq Yd

SPECIFICATIONS

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

Highway	Location	Begin MRM	End MRM	Length (Miles)	Length (Feet)	Width (Feet)	Depth (Feet)	Excavation (Cu Yds)	Riprap (Tons)	Class of Stone	Drainage Fabric (Sq Yds)	Ledge Rock
US12 WB - PCN i2bl	Left	329.860	330.349	0.489	2582	12	2	2295	3672	B	3443	No
US12 WB - PCN i2bl	Left	335.004	335.226	0.222	1172	8	2	695	1111	B	1042	Yes
US12 WB - PCN i2bl	Left	339.587	339.853	0.266	1404	12	2	1248	1997	B	1873	No
US12 WB - PCN i2bl	Left	339.974	340.222	0.248	1309	12	2	1164	1862	B	1746	No
US12 WB - PCN i2bl	Left	345.485	345.740	0.255	1346	12	2	1197	1915	B	1795	No
US12 EB - PCN i2bm	Right	339.974	340.166	0.192	1014	12	2	901	1442	B	1352	No
US12 - PCN i2bn	Right	350.029	350.044	0.015	79	12	2	70	113	B	106	Yes
US12 - PCN i2bn	Right	350.961	350.965	0.004	21	12	2	19	30	B	28	Yes
US12 - PCN i2bn	Right	351.296	351.307	0.011	58	12	2	52	83	B	77	Yes
US12 - PCN i2bn	Left	352.000	352.161	0.161	850	12	2	756	1209	B	1133	Yes
US12 - PCN i2bn	Right	352.701	352.900	0.199	1051	12	2	934	1494	B	1401	Yes
SD25 - PCN i2be	Left	164.974	165.270	0.296	1563	12	2	1389	2223	B	2084	No
SD25 - PCN i2be	Right	165.114	165.250	0.136	718	12	2	638	1021	B	957	No
SD25 - PCN i2bf	Left	183.656	183.762	0.106	560	15	2	622	995	B	933	No
SD25 - PCN i2bf	Left	186.160	186.265	0.105	554	15	2	616	986	B	924	No
SD25 - PCN i2bf	Left	189.188	189.290	0.102	539	15	2	598	957	B	898	No
SD25 - PCN i2bf	Right	191.647	191.821	0.174	919	15	2	1021	1633	B	1531	No
SD25 - PCN i2bf	Left	191.659	191.821	0.162	855	15	2	950	1521	B	1426	No
SD25 - PCN i2bf	Right	195.455	195.560	0.105	554	15	2	616	986	B	924	No
SD25 - PCN i2bf	Right	199.145	199.220	0.075	396	15	2	440	704	B	660	No
SD 25 - PCN i2c3	Right	207.704	207.936	0.232	1225	9	2	817	1307	B	1225	No

PLOTTED FROM - TRAB12245

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012 W-151, 012 E-151, 012-151 025-151, 025-151 & 025-151	4	16

SCOPE OF WORK

Work on this project involves repairing the inslope riprap protection that exists along US 12 & SD 25.

SEQUENCE OF OPERATIONS

The following Sequence of Operations shall be used for this project. The Contractor may submit an alternate Sequence of Operations for consideration by the Area Engineer. An alternate Sequence of Operations shall be submitted to the Area Engineer a minimum of 2 weeks prior to the preconstruction meeting.

1. Install construction signing.
2. Remove topsoil from inslopes.
3. Shape area to receive fabric and riprap.
4. Install drainage fabric and riprap.
5. Repair shoulder/inslope above riprap.
6. Install erosion control (turf mat, seeding & mulch).
7. Project cleanup and removal of construction signing.

TRAFFIC CONTROL

All routes shall remain open to traffic at all times. On US 12, one lane of traffic in each direction may be closed to traffic during working hours. If work is ongoing on both sides of the roadway such that a lane closure is in place, work shall be sequenced such that the lane closures are not opposite each other. The roadway shall be open to normal traffic flows during nighttime and other non-working hours.

Flagger(s) shall be required at any time that the Engineer determines that construction activities impose a hazard to the traveling public or construction crews. During peak traffic times, if traffic needs to be stopped, 2 sets of Flaggers may be required.

Channelizing Devices shall be placed on the top of the inslope at a maximum spacing of 100 ft in areas where inslope work is underway during non-working hours.

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.

Should the Contractor choose to remove the existing Yellow Type 2 Object Markers located along the shoulders of US 12 across Rush Lake, Channelizing Devices shall be placed on the top of the inslope at a maximum spacing of 200 ft until the Type 2 Object Markers are permanently reinstalled by the Contractor.

Storage of vehicles and equipment shall be as near the right-of-way line as possible. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

Work activities during non-daylight hours are subject to prior approval.

Traffic approaching the project from intersecting roadways, streets, and approaches must be adequately accommodated. Major intersections or large commercial entrances may require additional signing, flaggers, and channelizing devices on a temporary basis until work activities pass these areas.

50 M.P.H. Advisory Speed Plates shall be attached to the W4-2 Lane Ends symbol signs.

The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall be on fixed location, breakaway supports.

All breakaway sign supports shall comply with FHWA NCHRP 350 or MASH crashworthy requirements. The Contractor shall provide post installation details at the preconstruction meeting for all breakaway sign support assemblies.

Traffic Control units, 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.

REMOVE AND REPLACE TOPSOIL

Prior to beginning excavation and shaping for the drainage fabric and riprap placement, a 6" depth of topsoil shall be removed from those areas above the present riprap line. The topsoil may be bladed up into a window at the top of the inslope. Following completion of riprap operations, topsoil shall be placed back on the inslopes in those areas above the riprap.

All costs associated with removing and replacing the topsoil along areas to be graded shall be incidental to the lump sum price for REMOVE AND REPLACE TOPSOIL.

INCIDENTAL WORK, GRADING

Excavation and shaping shall be required prior to placing the drainage fabric and riprap. The excavation required shall allow for the placement of the drainage fabric and riprap as shown on the Typical Riprap Section. Excavation and shaping shall allow for placement of a 2.0 ft thickness of riprap.

Excavated material shall become the property of the Contractor for his disposal.

All costs associated with excavation, shaping and disposal shall be incidental to the contract lump sum price for INCIDENTAL WORK, GRADING. The Contractor shall be responsible for visiting the project site and determining the amount of work required for this contract item.

DRAINAGE FABRIC AND RIPRAP

Riprap for use on this project shall be Class B conforming to Section 830 of the Standard Specifications.

The drainage fabric and riprap shall be placed as per Typical Section on the inslopes. Any in place fabric at the top of the existing riprap limits shall be preserved and tucked under the new fabric installation. The limits of riprap placement may be adjusted in the field by the Engineer. Plans were prepared accounting for additional erosion to have taken place from the time the plans were prepared until construction activities are completed. TYPE B DRAINAGE FABRIC shall be measured and paid for based upon the slope distance of fabric placed and covered by riprap. The two foot vertical edges at the top and bottom and pinning shall be incidental to the contract unit price per square yard of TYPE B DRAINAGE FABRIC. Payment shall be full compensation for furnishing and placing the fabric and for all labor, equipment, materials and incidentals necessary to prepare the area for satisfactory placement of the drainage fabric.

Vehicles and equipment shall not be operated directly on the drainage fabric.

The quantity of Type B Drainage Fabric shown in the Estimate of Quantities is based upon widths of 8, 9, 12 & 15 ft.

CLASS B RIPRAP shall be measured and paid for by the ton in place as shown on the weigh ticket which shall accompany each load.

DRILLS

In addition to the drills specified in Section 730 of the Standard Specifications, other types of drills including no-till drills will be allowed as long as they have baffles, partitions, agitators, or augers which keep the seed distributed throughout the seed box and the seed is planted at a depth of ¼" to ½".

FERTILIZING

A commercial fertilizer with a minimum guaranteed analysis of 18-46-0, 11-52-0 or an approved alternate fertilizer shall be applied to all areas designated for permanent seeding. The application rate of fertilizer shall be 100 pounds per acre.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012 W-151, 012 E-151, 012-151 025-151, 025-151 & 025-151	5	16

MULCHING (GRASS HAY OR STRAW)

Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

Following seeding Grass Hay or Straw Mulch shall be blown on and punched in at the rate of 2 tons per acre on newly seeded areas.

PERMANENT SEEDING

The areas to be seeded comprise of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation. The estimated area to seed is [2.7](#) acres.

All permanent seed shall be planted in the topsoil at a depth of ¼” to ½”.

All seed broadcast must be raked or dragged in (incorporated) within the top ¼” to ½” of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Special Permanent Seed Mixture 1 shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Intermediate Wheatgrass	Chief, Oahe, Slate	8
Western Wheatgrass	Flintlock, Rodan, Rosana	4
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Big Bluestem	Bison, Bonilla, Champ, Pawnee, Sunnyview	3
Oats or Spring Wheat: April through July; Winter Wheat: August through November		10
Total:		28

GENERAL NOTES

All waste and excess material generated from the various construction activities shall be removed from the ROW as determined by the Engineer.

WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the DOT Environmental Office.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the DOT Environmental Office.

The DOT Environmental Office contact is the Environmental Project Scientist, 605-773-3268. The WATER SOURCE plan note does not relieve the Contractor of his/her responsibility to obtain the necessary permits from other agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE).

WORK AFFECTING WATERWAYS

A. WATER QUALITY

Surface Water Discharge

If construction dewatering is required, the Contractor is required to obtain a Surface Water Discharge Permit from the DENR. Contact the DENR Surface Water Program at 605-773-3351 to apply for a permit.

Storm Water

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

WASTE DISPOSAL SITE

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

Construction/demolition debris may not be disposed of within the State ROW.

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

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

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

- Construction/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/demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating “No Dumping Allowed”.
- 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.

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HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC 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 no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation, the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to the DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3268). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

PLOT SCALE - 1/8"=1'-0"

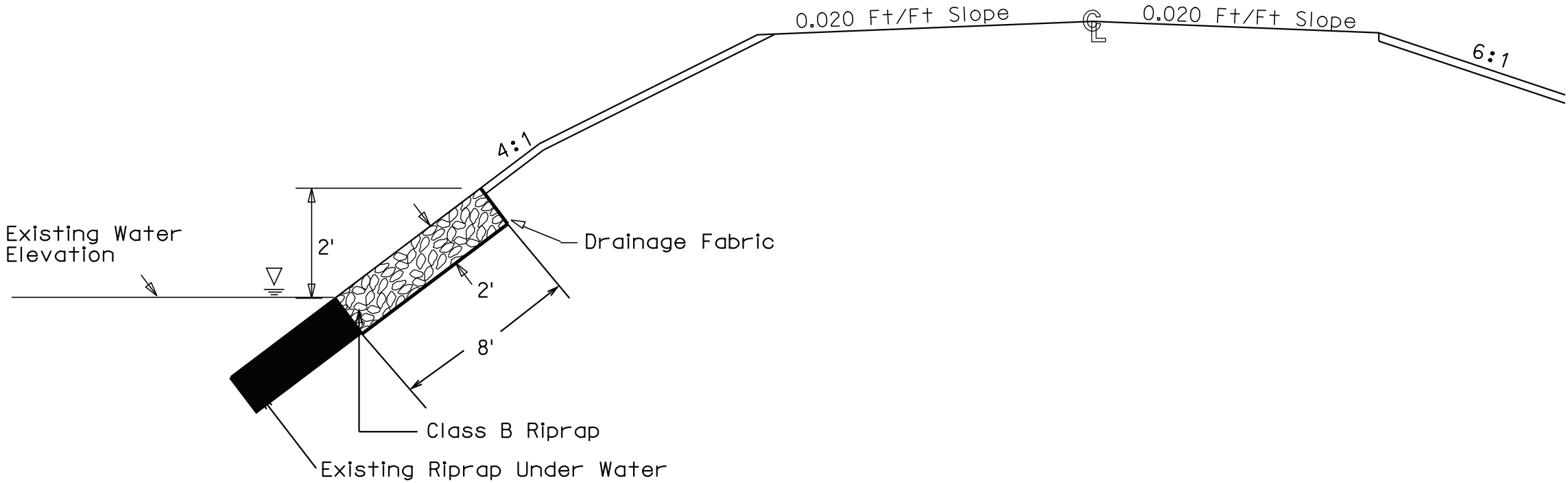
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Plotting Date: 25-MAY-2011			

US 12 WB

TYPICAL RIPRAP SECTION

MRM 335.004 to 335.226 Lt



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PLOT SCALE - 1/8"=1'-0"

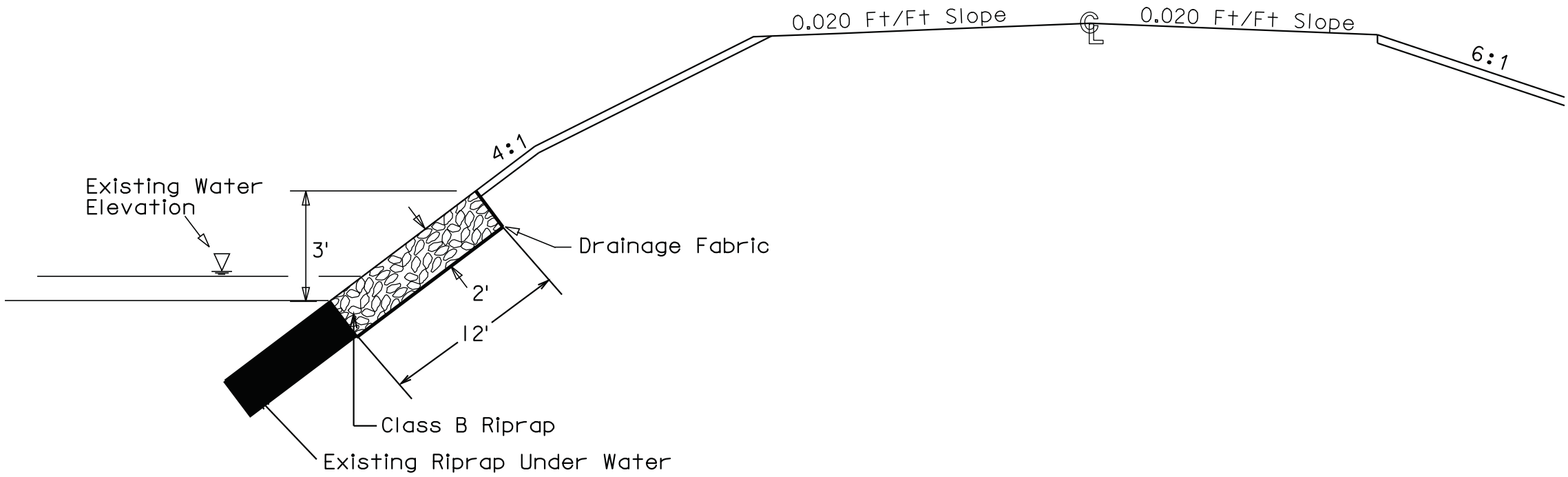
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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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Plotting Date: 25-MAY-2011			

US 12 EB & WB

TYPICAL RIPRAP SECTION

MRM - 329.860 to 330.349 Lt	339.974 to 340.166 Rt	350.961 to 350.965 Rt
339.587 to 339.853 Lt	345.485 to 345.740 Lt	351.296 to 351.307 Rt
339.974 to 340.222 Lt	350.029 to 350.044 Rt	352.000 to 352.161 Lt
		352.701 to 352.900 Rt



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PLOT SCALE - 1/8"=1'-0"

PLOTTED FROM - TRAB12245

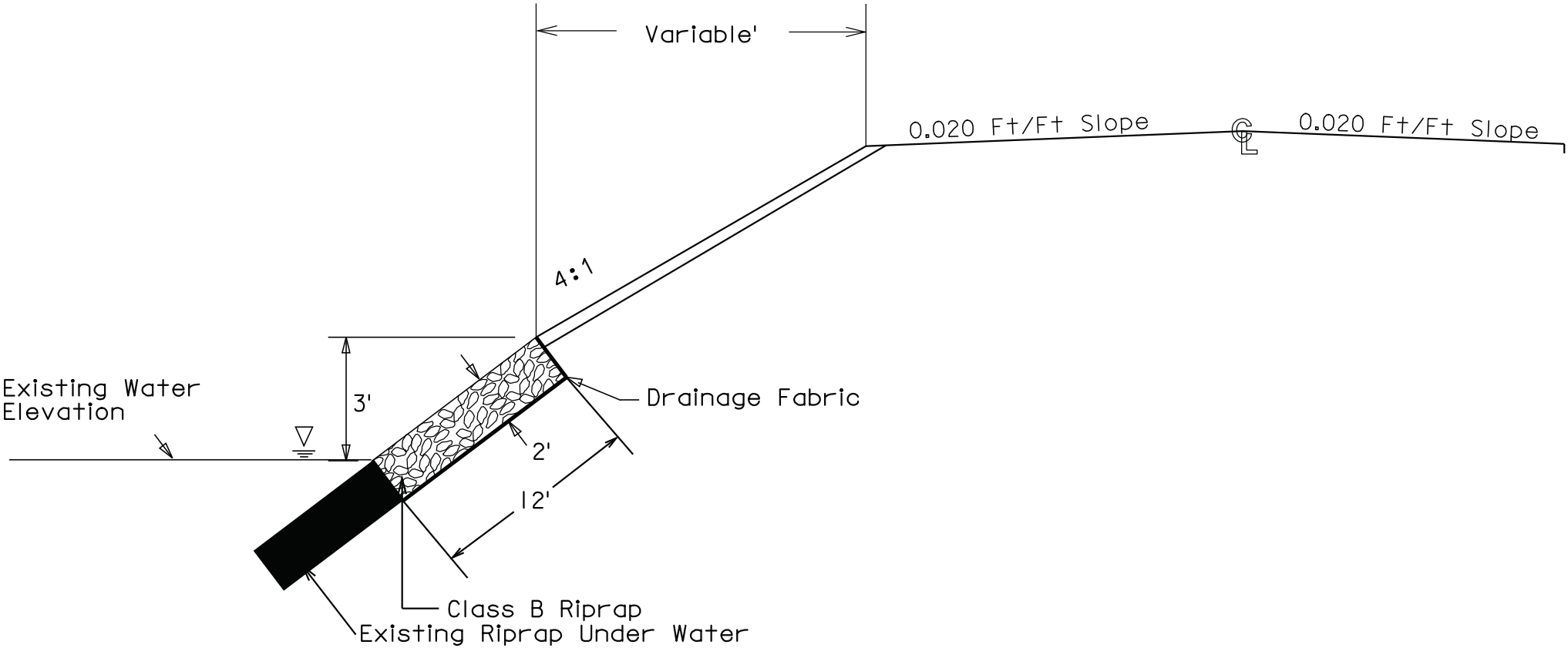
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SD 25

TYPICAL RIPRAP SECTION

MRM - 164.974 to 165.270 Lt
165.114 to 165.250 Rt



PLOT SCALE - 1/8"=1'-0"

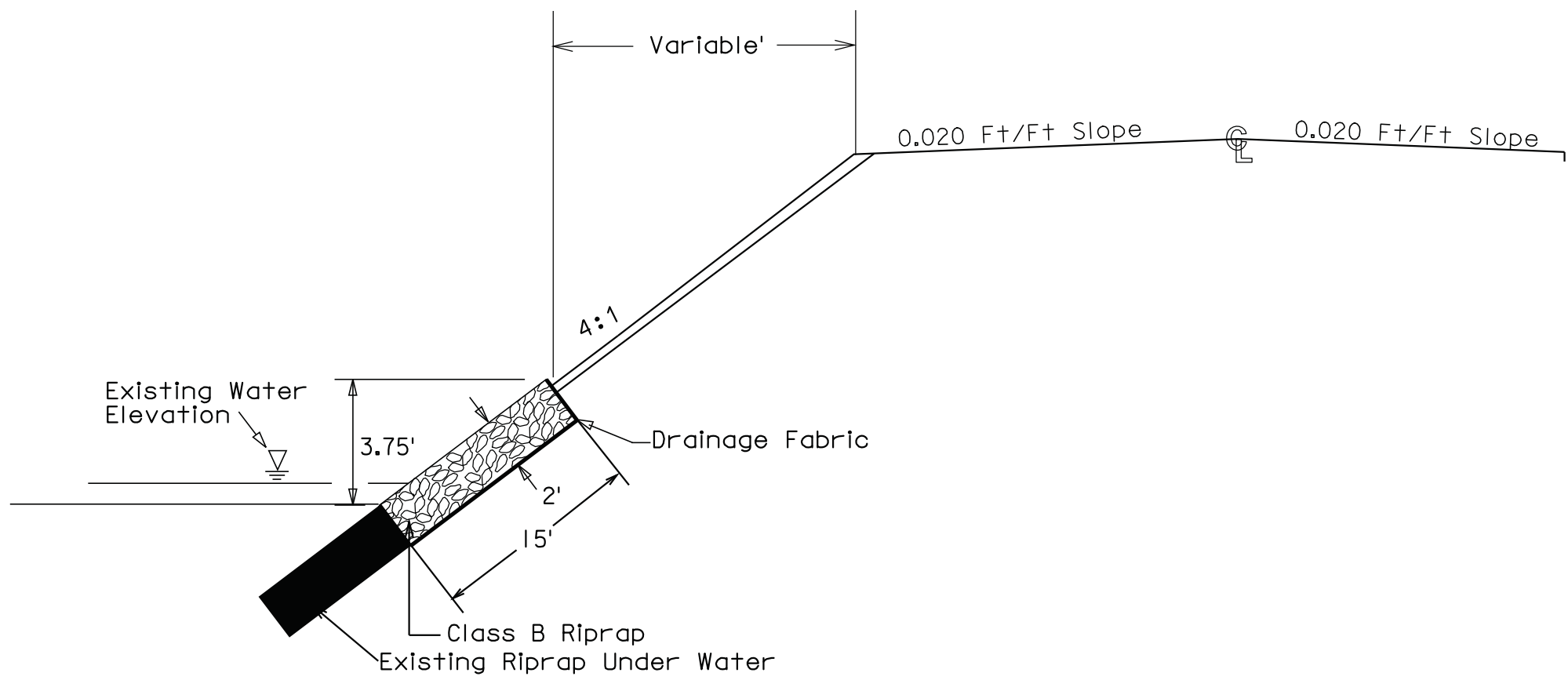
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Plotting Date: 25-MAY-2011			

SD 25

TYPICAL RIPRAP SECTION

MRM - 183.656 to 183.762 Lt	191.647 to 191.821 Rt	199.145 to 199.220 Rt
186.160 to 186.265 Lt	191.659 to 191.821 Lt	
189.188 to 189.290 Lt	195.455 to 195.560 Rt	



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PLOT SCALE - 1/8"=1'-0"

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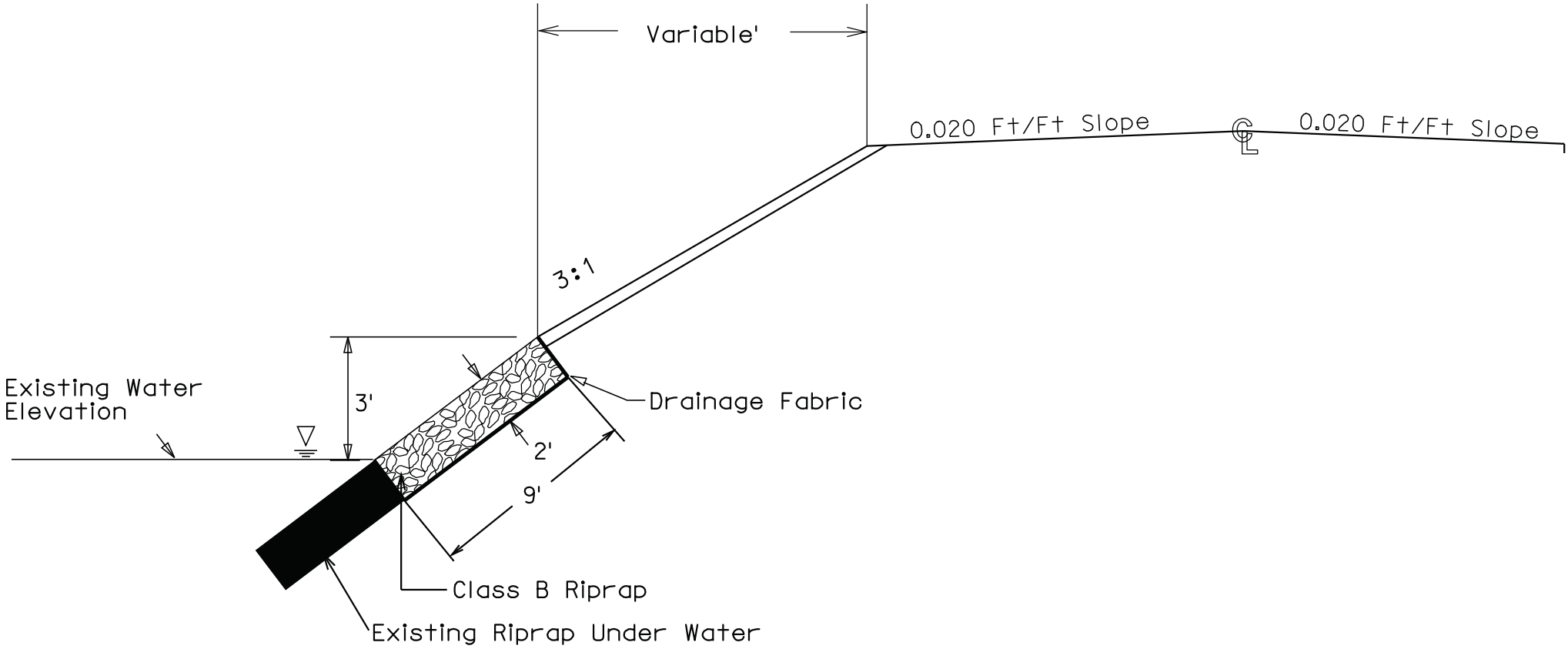
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Plotting Date: 25-MAY-2011			

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SD 25

TYPICAL RIPRAP SECTION

MRM - 207.704 TO 207.936 Rt



Plotting Date: 19-MAY-2011

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 - 75	1000



July 1, 2005

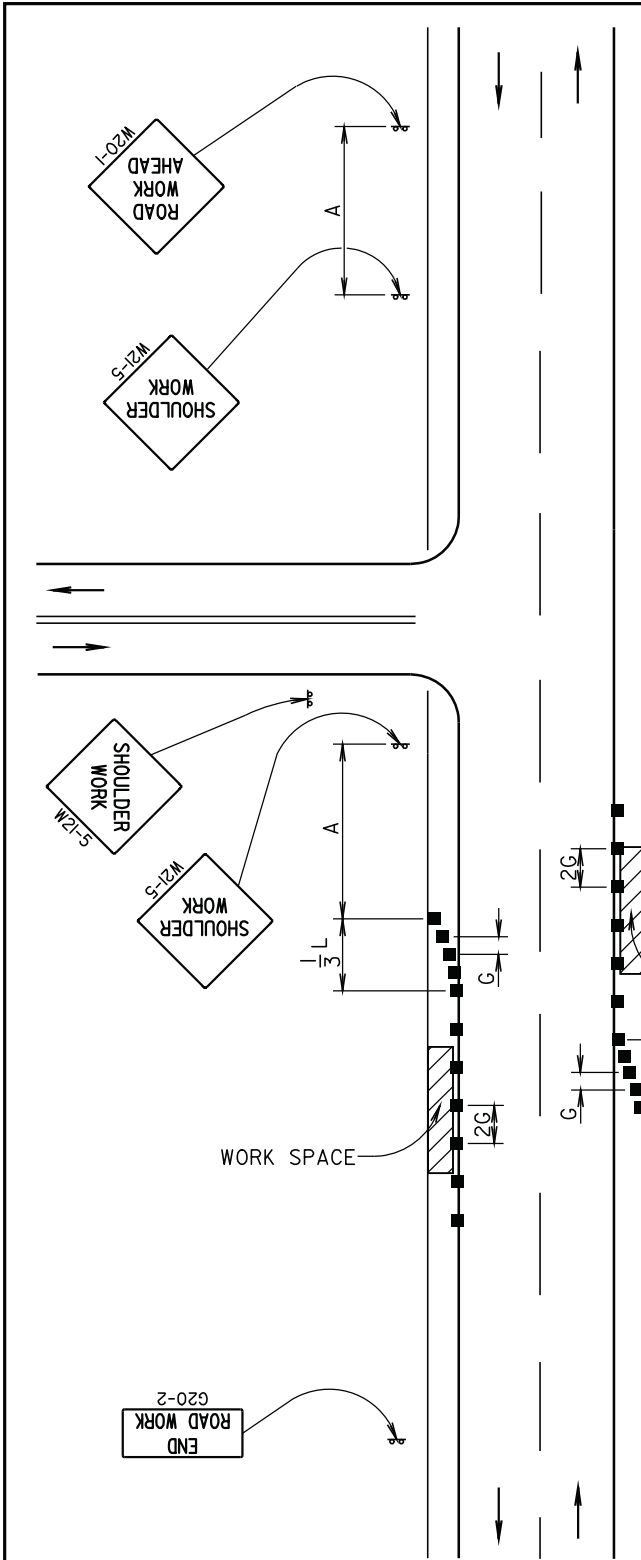
SD
DOT

GUIDES FOR TRAFFIC CONTROL DEVICES
WORK BEYOND THE SHOULDER

PLATE NUMBER
634.01

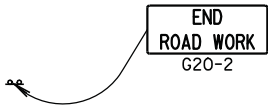
Sheet 1 of 1

Published Date: 2nd Qtr. 2011



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	100 - 200	180	25
35 - 40	350	320	25
45 - 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 or longer.

For short duration operations (1 hour or less) all signs and 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.

WORK SPACE



February 14, 2011

SD
DOT

GUIDES FOR TRAFFIC CONTROL DEVICES
WORK ON SHOULDERS

PLATE NUMBER
634.03

Sheet 1 of 1

Published Date: 2nd Qtr. 2011

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 - 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.

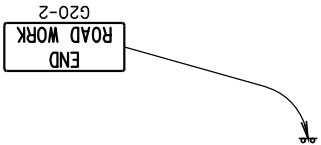
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

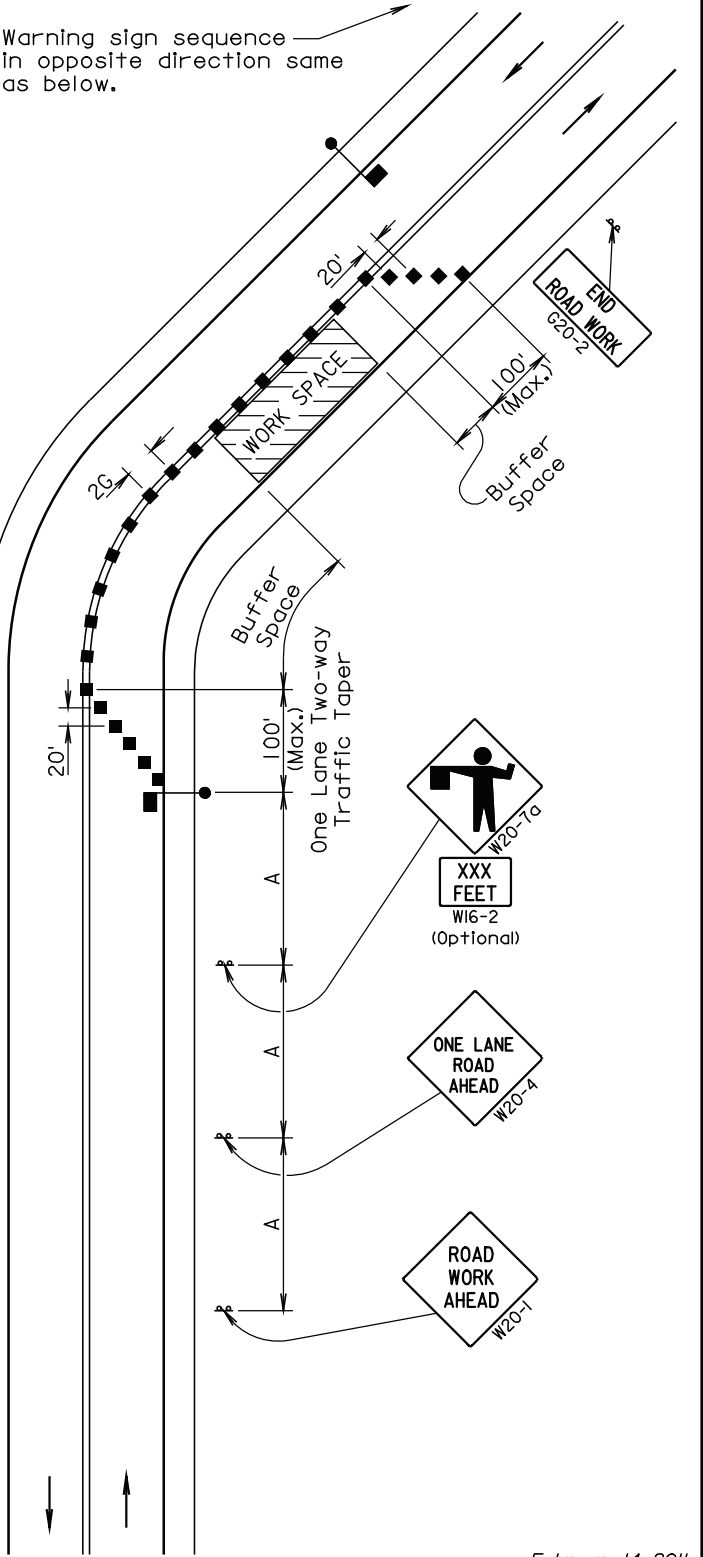
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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.

Warning sign sequence in opposite direction same as below.



February 14, 2011

Published Date: 2nd Qtr. 2011

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GUIDES FOR TRAFFIC CONTROL DEVICES
LANE CLOSURE WITH FLAGGER PROVIDED

PLATE NUMBER
634.23

Sheet 1 of 1

Plotting Date: 19-MAY-2011

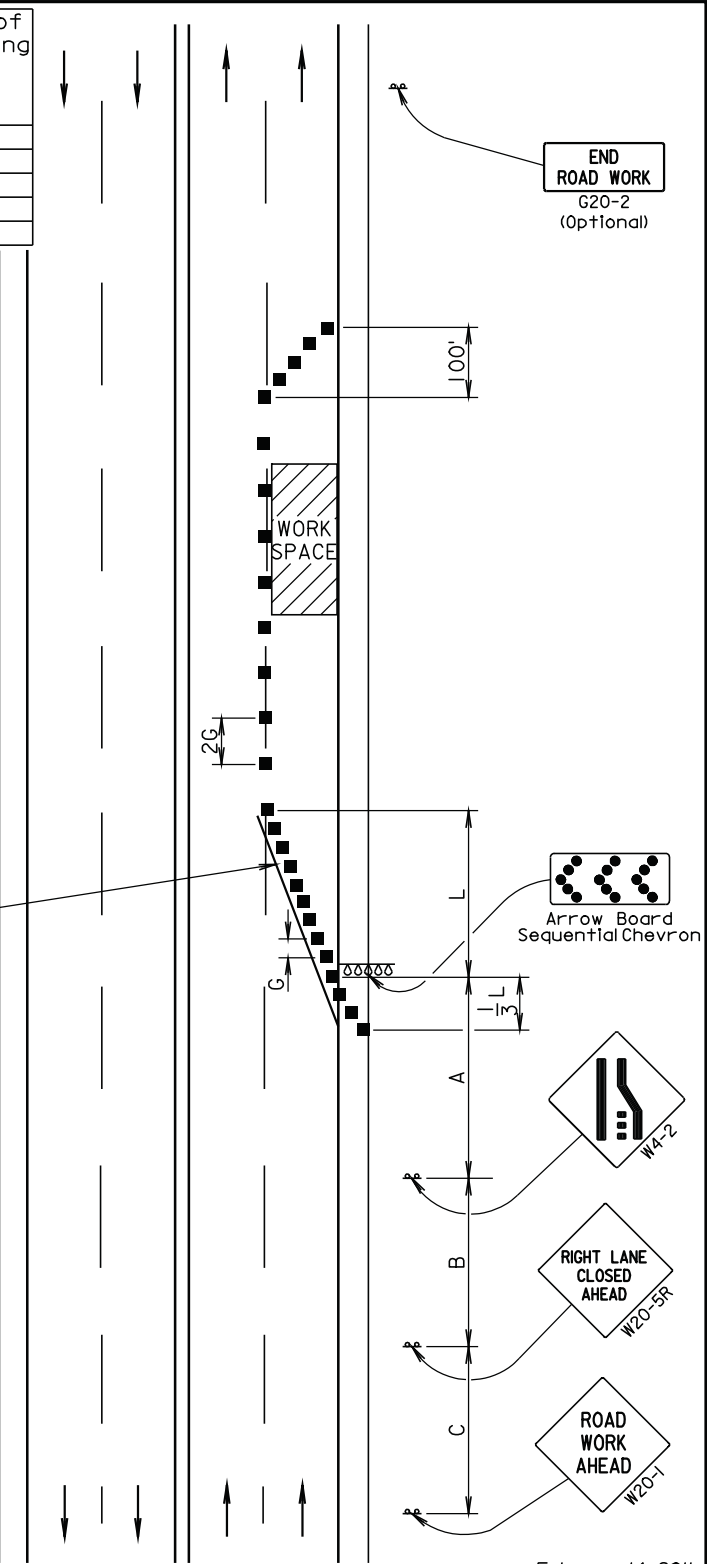
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)			Taper Length (Feet)	Spacing of Channelizing Devices (Feet)
	(A)	(B)	(C)		
0 - 30	200			180	25
35 - 40	350			320	25
45 - 50	500			600	50
55	750			660	50
60 - 65	1000			780	50

Channelizing Device

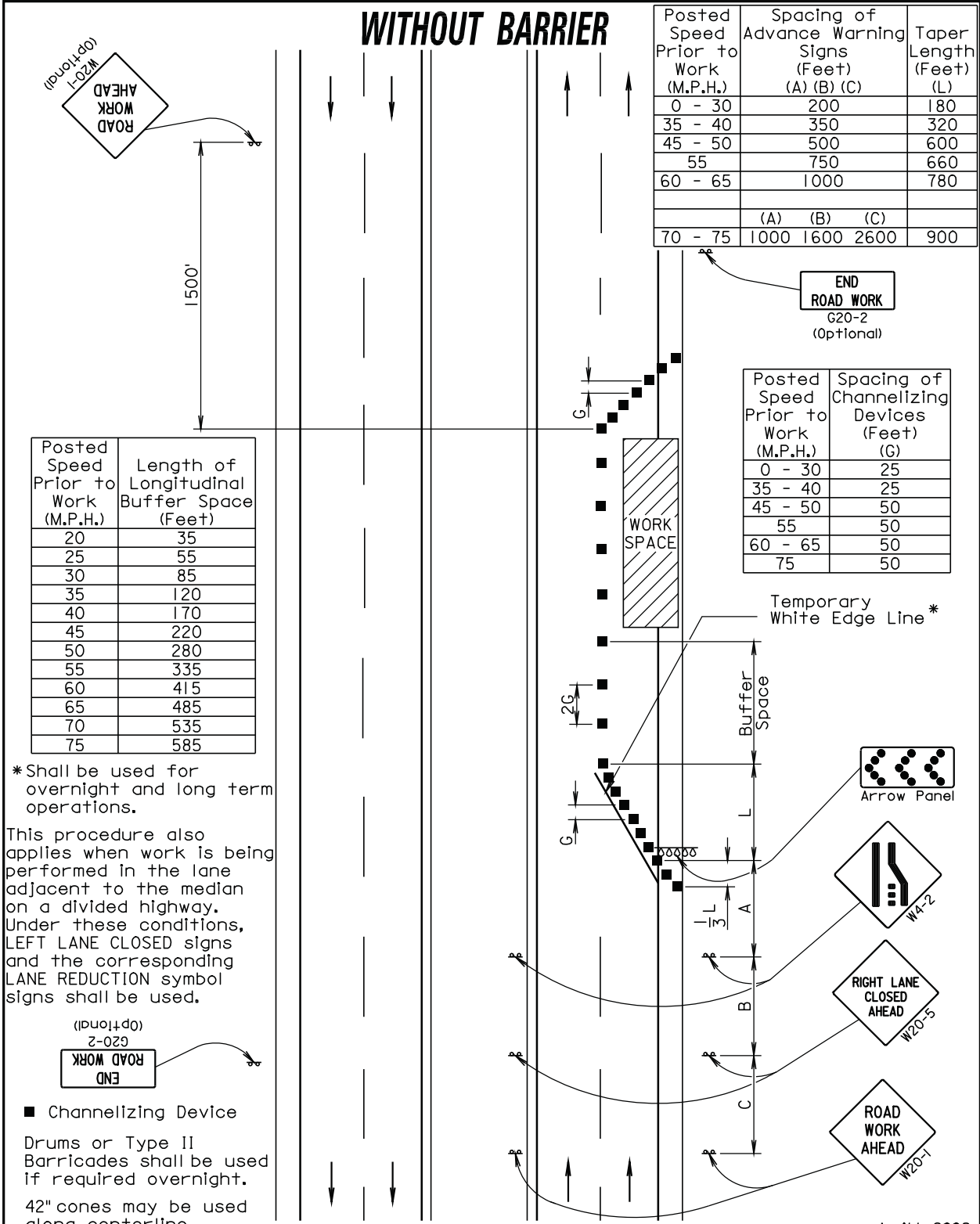
The channelizing devices shall be drums or 42" cones if traffic control must remain overnight or longer. During daylight hours, 42" cones may be used in lieu of drums along the centerline.

Longitudinal dimensions may be adjusted to fit project conditions such as horizontal curves, vertical curves, and other site restrictions.

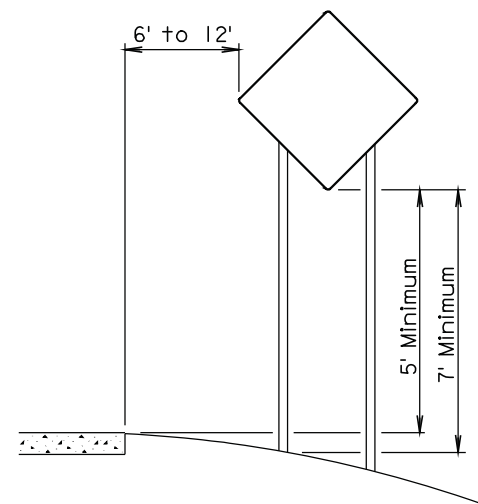
Four inch white temporary pavement marking shall be used if traffic control must remain overnight or longer.



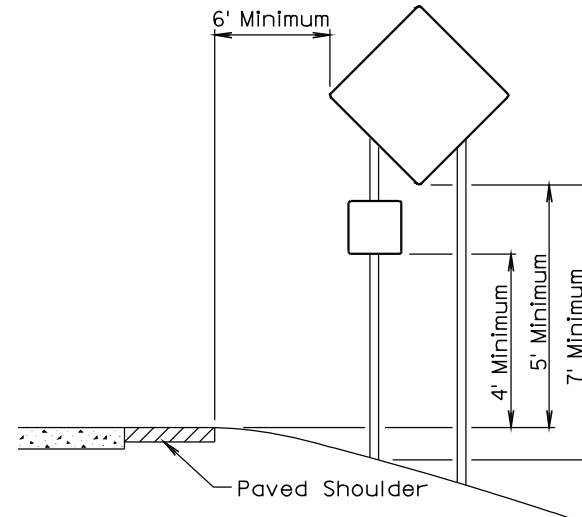
February 14, 2011



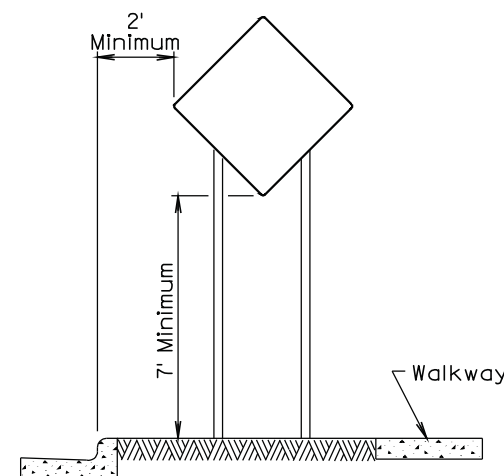
April 11, 2008



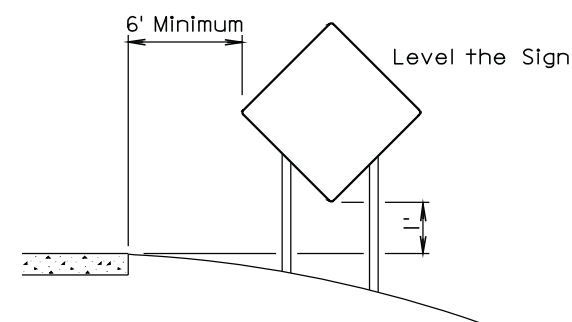
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT



RURAL DISTRICT
3 DAY MAXIMUM

February 14, 2011

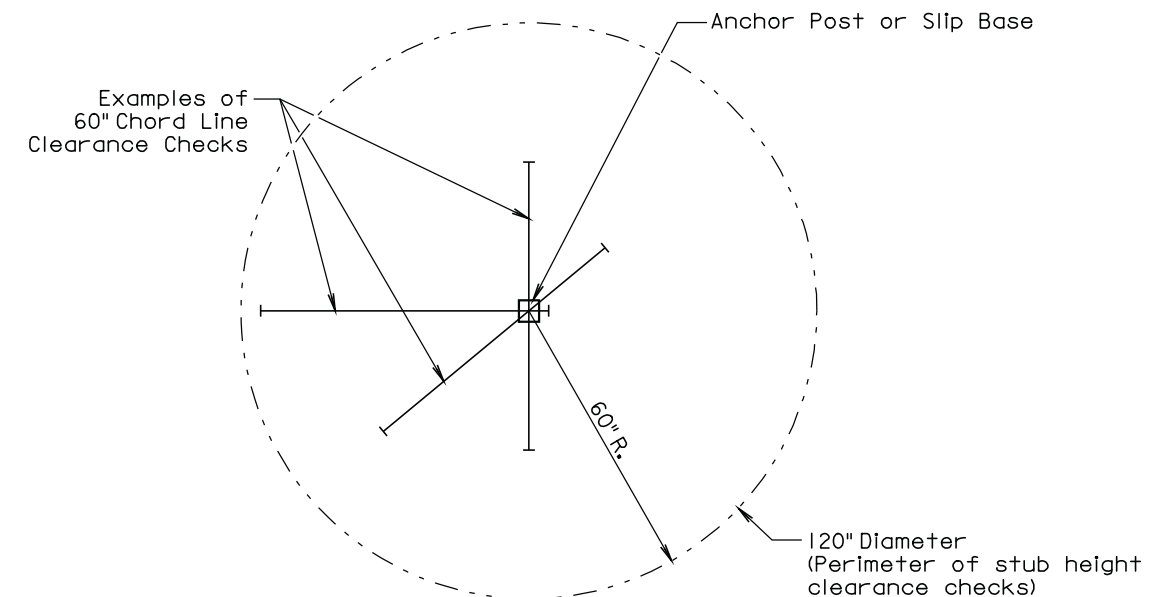
Published Date: 2nd Qtr. 2011

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CRASHWORTHY SIGN SUPPORTS
(Typical Construction Signing)

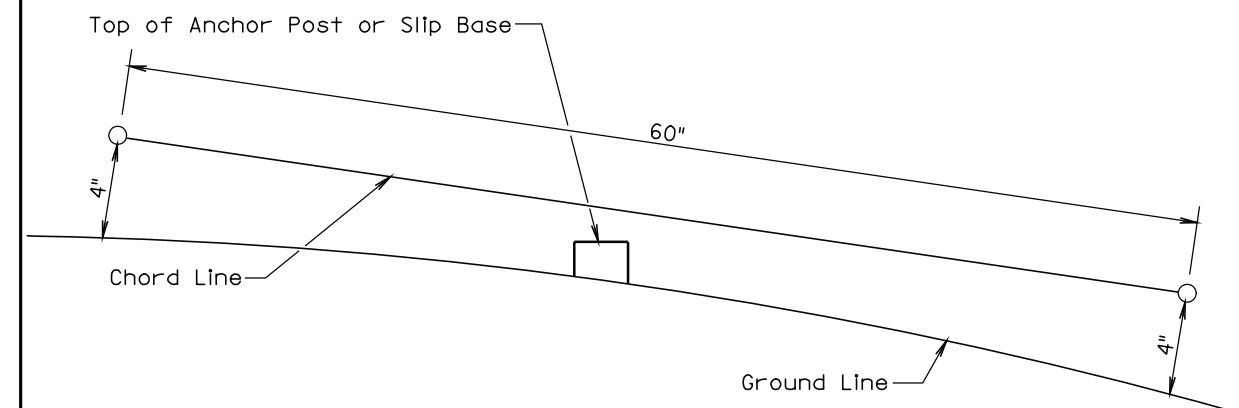
PLATE NUMBER
634.85

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: 2nd Qtr. 2011

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BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER
634.99

Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012 W-151, 012 E-151, 012-151 025-151, 025-151 & 025-151	16	16

ITEMIZED LIST FOR TRAFFIC CONTROL - 4 LANE ROADWAY DIVIDED

PCN i2bl

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	1	34	34
TOTAL UNITS					272

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:

Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:

If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.

If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

ITEMIZED LIST FOR TRAFFIC CONTROL - 4 LANE ROADWAY DIVIDED

PCN i2bm

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	1	34	34
TOTAL UNITS					272

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:

Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:

If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.

If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

ITEMIZED LIST FOR TRAFFIC CONTROL - 4 LANE ROADWAY UNDIVIDED

PCN i2bn

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

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:

Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:

If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.

If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

ITEMIZED LIST FOR TRAFFIC CONTROL - 2 LANE ROADWAY

PCN i2bf

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	2	34	68
W21-5	48" x 48"	SHOULDER WORK	2	34	68
TOTAL UNITS					306

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:

Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:

If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.

If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

ITEMIZED LIST FOR TRAFFIC CONTROL - 2 LANE ROADWAY

PCN i2be

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	2	34	68
W21-5	48" x 48"	SHOULDER WORK	2	34	68
TOTAL UNITS					306

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:

Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:

If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.

If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.

ITEMIZED LIST FOR TRAFFIC CONTROL - 2 LANE ROADWAY

PCN i2c3

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	2	34	68
W21-5	48" x 48"	SHOULDER WORK	2	34	68
TOTAL UNITS					306

If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:

Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:

If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.

If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.