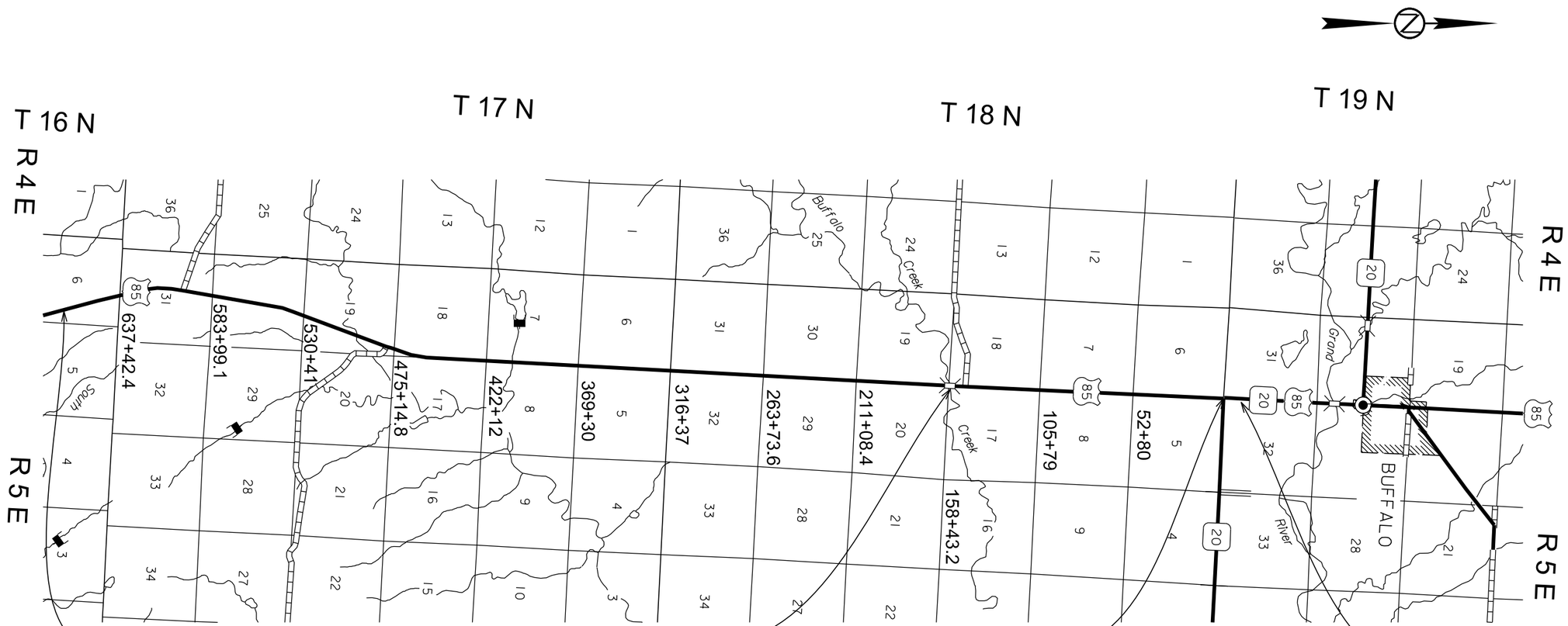
Section C: Traffic Control Plans

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(81)112	C1	C7

Plotting Date: 10/10/2014

INDEX OF SHEETS



END PROJECT
Sta 664+63.8
2420.2' North & 9843 West of the
Southeast Corner of Section 6 -
Township 16 North - Range 5 East
MRM 112.00 + 0.321

Exception
Sta 156+77.25 to Sta 157+82.75
Continuous Concrete Bridge
Length = 105.5' = 0.019 mile
MRM 121.82

Equation
Sta 500+55.3 Bk =
Sta 0+00 Ah
MRM 124.87

BEGIN PROJECT
Sta 496+55.3
400' North of the
Northwest Corner Section 5 -
Township 18 North - Range 5 East
MRM 124.87

Plot Scale - 1:200

Plotted From - trrc11610

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS

SECTION C ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
634E0010	Flagging	1,300	Hour
634E0020	Pilot Car	650	Hour
634E0100	Traffic Control	1,449	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	25.4	Mile

SEQUENCE OF OPERATIONS

All work requiring lane closures shall be controlled using the standards in plate number 634.23, “Guides for Traffic Control Devices Lane Closure with Flagger Provided”. The Contactor shall coordinate his operations such that during non-working hours the roadway shall be open to two-way traffic for the entire width of the roadway. During the use of the pilot car, the Contractor will be limited to 15 minute traffic delays.

Variations from this sequence shall be submitted to the Engineer for approval.

1. Set up Traffic Control.
2. Widen shoulders at SD 20 east and weigh station.
3. Perform Process In Place Surfacing, Prime Shoulders, allow 7 days to cure.
4. Complete milling and perform digouts where necessary.
5. Place base course and millings on shoulders
6. Complete spot leveling.
7. Complete 1st and 2nd lifts of Asphalt Concrete Surfacing.
8. Complete installation of rumble strips.
9. Complete flush seal operation.
10. Complete Pavement Marking.
11. Complete Permanent Signing.
12. Remove Traffic Control.

The intent of the plan sequence of operations is to have the least amount of impact on the traveling public and adjacent businesses. Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department’s intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of two weeks prior to potential implementation.

MAINTENANCE OF APPROACHES DURING OPERATIONS

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

WIDTH RESTRICTION

Traffic control shall be placed so a 17’ wide load can pass through the project during all hours. A 14’ wide restriction during working hours will be allowed provided flaggers are used and traffic control is adjusted to allow a 17’ wide load to pass. Payment for moving traffic control to allow for a 17’ wide load shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

TRAFFIC CONTROL – GENERAL NOTES

1. Unless otherwise stated in these plans, no work will be allowed during hours of darkness. Hours of darkness are defined as ½ hour after sunset until ½ hour before sunrise.

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

3. Existing guide, route, informational logo, regulatory, and warning signs shall be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including but not limited to, traffic signal heads, delineation, and signing shall be the responsibility of the Contractor. Non-applicable signing and all traffic control devices shall be covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 48 hours. The cost of removing or covering non-applicable signs shall be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.

4. Construction signing mounted on portable supports shall not be used for a duration of more than 3 days, unless approved by the Engineer. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports.

5. The quantity of traffic control units paid for will be for the greatest number of installations per sign in place at any one time regardless of the number of set-ups on the project.

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

7. All materials and equipment shall be stored a minimum distance of 30’ from the traveled way during nonworking hours.

8. The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

9. The Contractor shall be required to have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.

10. The Contractor or designated traffic control subcontractor shall make night inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.

11. Vehicles working in traffic or alongside traffic shall be equipped with a flashing amber light visible from all directions. The amber light shall be mounted on the uppermost part of the Contractor’s vehicle. Lights must have peak intensity within the range of 40 to 400 candelas and must flash at 75 ± 15 flashes per minute. Vehicle flasher/hazard lights are not acceptable. All haul trucks shall be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights shall be incidental to the various related contract bid items.

12. All construction operations shall be conducted in the general direction of traffic movement.

13. If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD – whichever is more stringent shall be used, as determined by the Engineer.

14. Temporary Road Markers (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5’ spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.

15. Drums are required in all lane closure tapers.

16. The Contractor shall furnish, install and maintain Truck Crossing signs. The exact number and location will be determined upon construction. Payment for additional signs will be based on the contract unit price per unit for traffic control. The Truck Crossing signs shall be displayed at all times when haul vehicles are hauling material. When the truck haul conditions no longer exist, the signs shall be covered or removed from view.

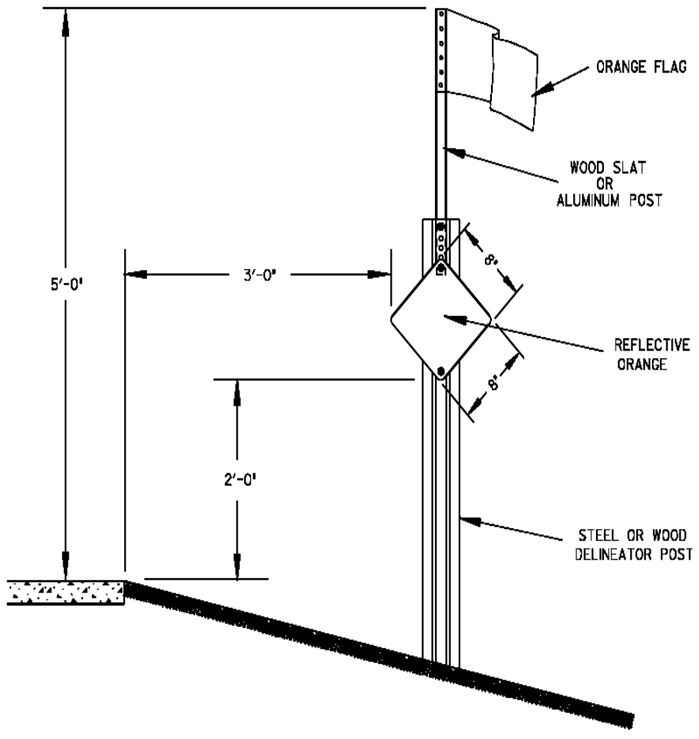
17. Where needed bump signs shall be used with speed advisory plates attached.

BUMP MARKERS

Bump Markers shall be placed adjacent to the bump location

After placing the Bump Markers, Bump warning signs with the appropriate speed advisory plates shall be placed 500 feet to 750 feet in advance of the bump location in rural areas, or 250 feet to 500 feet in advance of the bump location in urban areas. These distances may be adjusted by the Engineer if local conditions do not allow the placement of warning signs within the specified areas.

Payment for Bump Markers shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.



TEMPORARY PAVEMENT MARKING

Temporary pavement markings for the centerline of the roadway throughout the full length of the project shall meet the requirements of Section 634 of the Specifications.

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

The Contractor shall use "DO NOT PASS" and "PASS WITH CARE" signs for a period of no more than 2 weeks after paving is complete to mark no passing zones on roads following application of flush seal.

ROUTE	ESTIMATED DO NOT PASS SIGNS	ESTIMATED PASS WITH CARE SIGNS	ESTIMATED TOTAL MILES NO PASSING ZONE
US Highway 85	14	14	3.4

Cost for furnishing, installing and removing the DO NOT PASS and PASS WITH CARE signs shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

Flagger symbol signs (W20-7) and flaggers, or a shadow vehicle with high-intensity rotating, flashing, oscillating 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 ROAD WORK AHEAD (W20-1), a Worker symbol sign (W21-1) or a BE PREPARED TO STOP (W3-4) warning sign 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.

Temporary Pavement Marking Paint shall be used on all surfaces except for the final lift of Class Q3 Hot Mixed Asphalt. Temporary Road Markers (Tabs) with protective marker covers shall be used on the final lift of Class Q3 Hot Mixed Asphalt Concrete. The Contractor shall remove the protective marker covers after the application of the flush seal.All costs for temporary pavement marking including furnishing, applying, remove covers, maintenance and removal of tabs shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

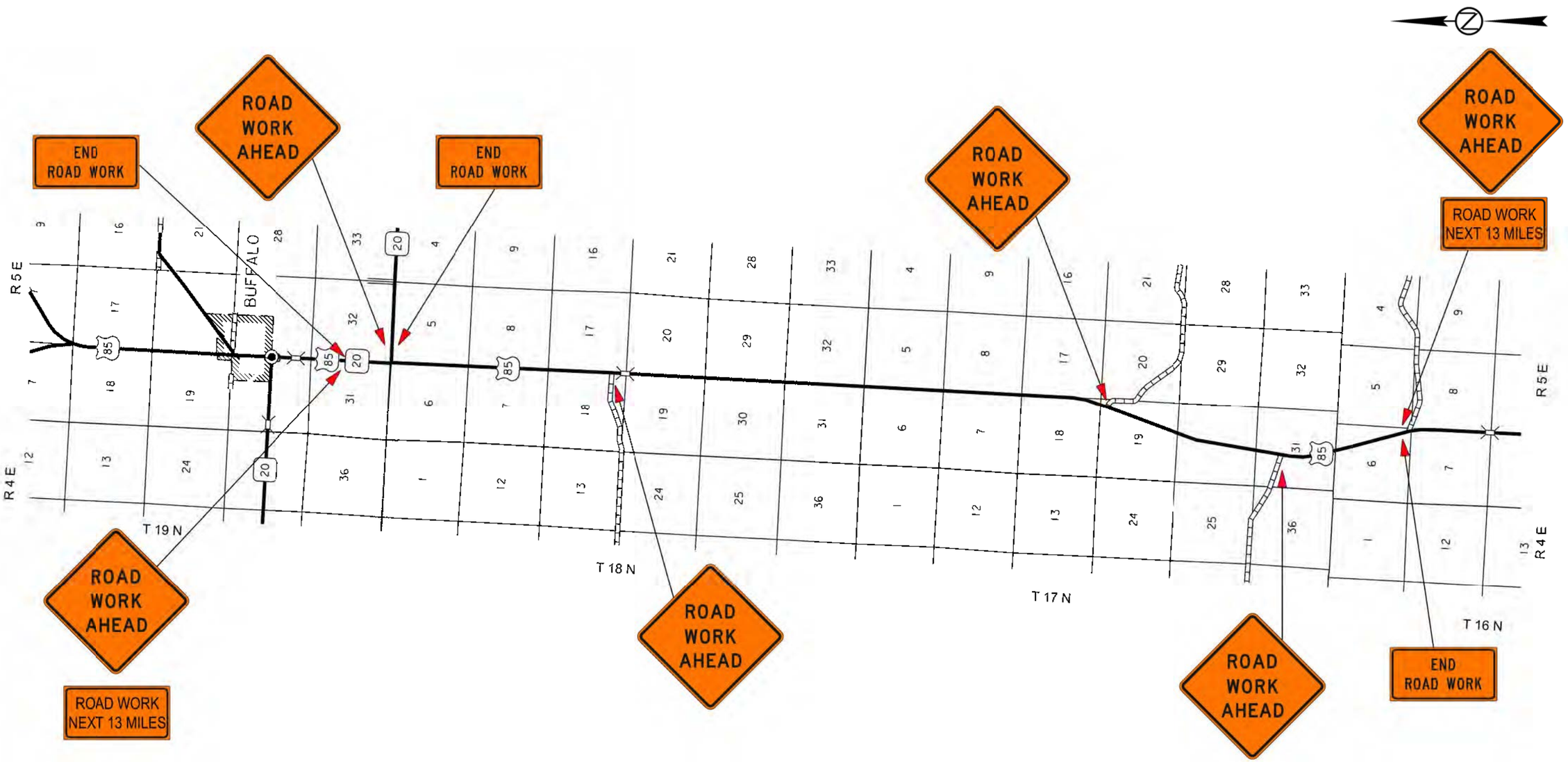
TABLE OF TRAFFIC CONTROL

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-1	48" x 24"	ROAD WORK NEXT ## MILES	2	24	48
G20-2	36" x 18"	END ROAD WORK	3	17	51
W3-4	48" x 48"	BE PREPARED TO STOP	2	34	68
W8-1	48" x 48"	BUMP	6	34	204
W8-6	48" x 48"	TRUCK CROSSING	2	34	68
W8-11	48" x 48"	UNEVEN LANES	4	34	136
W8-15	48" x 48"	GROOVED PAVEMENT	4	34	136
W13-1P	30" x 30"	ADVISORY SPEED PLATE	6	21	126
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	6	34	204
W20-4	48" x 48"	ONE LANE ROAD #### FT. OR AHEAD	2	34	68
W20-7	48" x 48"	FLAGGER	4	34	136
W21-1	48" x 48"	WORKERS (SYMBOL)	2	34	68
W21-2	48" x 48"	FRESH OIL	2	34	68
W21-5	48" x 48"	SHOULDER WORK	2	34	68
				TOTAL UNITS	**1449**

FIXED LOCATION SIGNS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(81)112	C4	C7

Plotting Date: 10/16/2014



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Plotted From - krc11610

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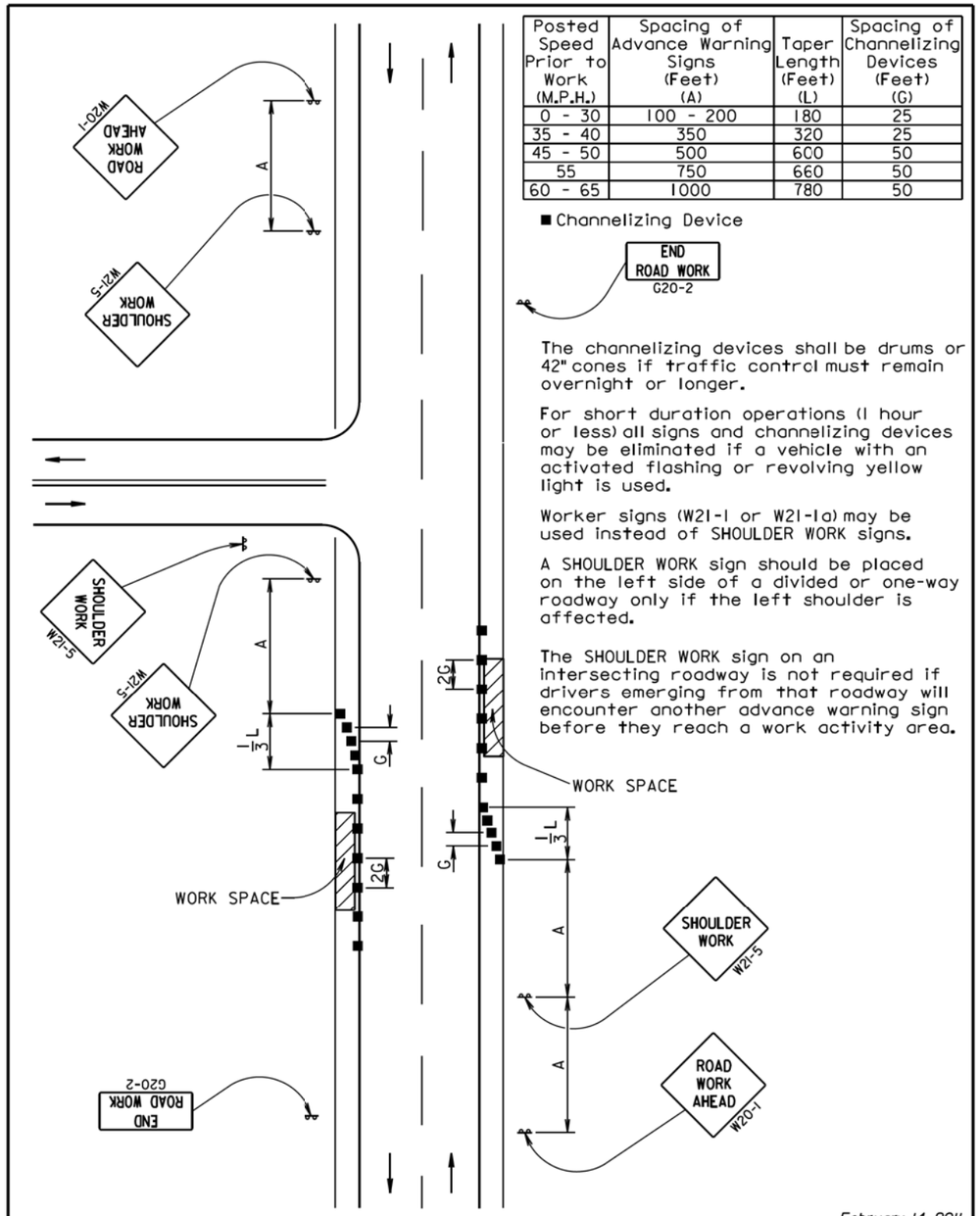


Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	100 - 200	180	25
35 - 40	350	320	25
45 - 50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

END ROAD WORK G20-2

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.

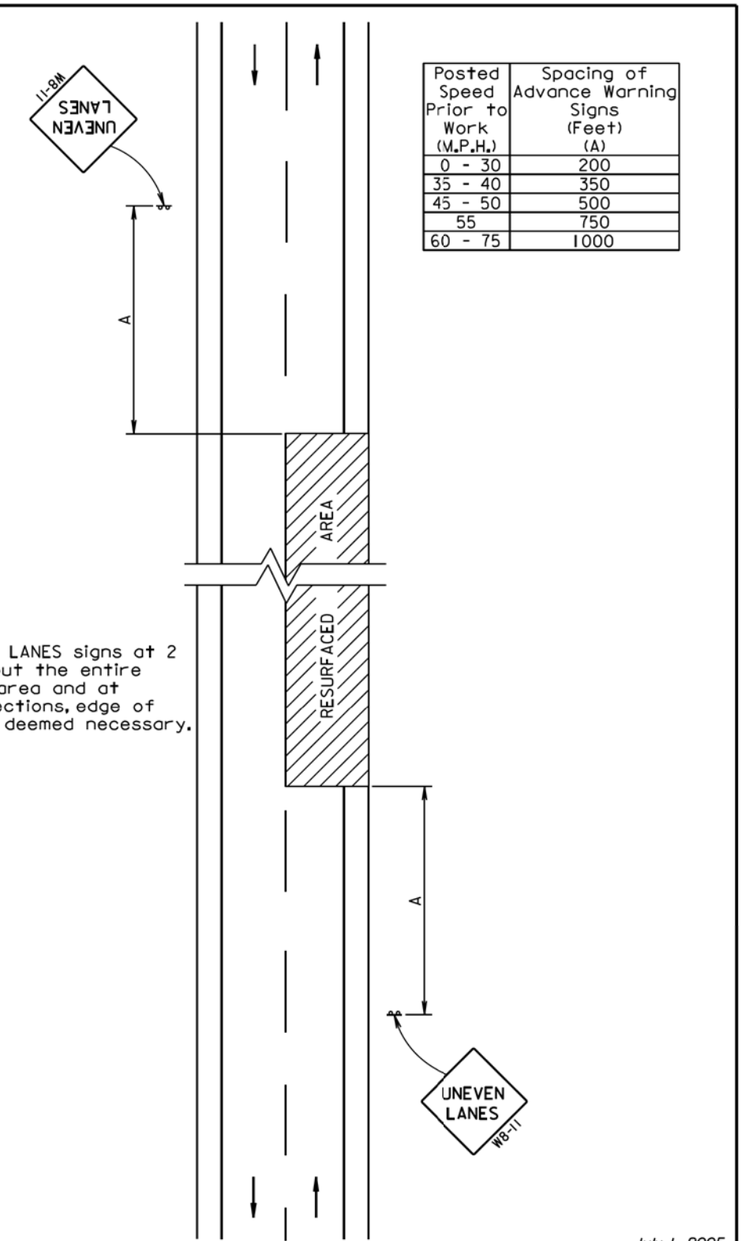
Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

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.

February 14, 2011

Published Date: 3rd Qtr. 2014	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.

July 1, 2005

Published Date: 3rd Qtr. 2014	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES UNEVEN ROAD SURFACE	PLATE NUMBER 634.22 Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(81)112	C6	C7

Plotting Date: 10/10/2014

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.

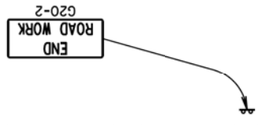
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

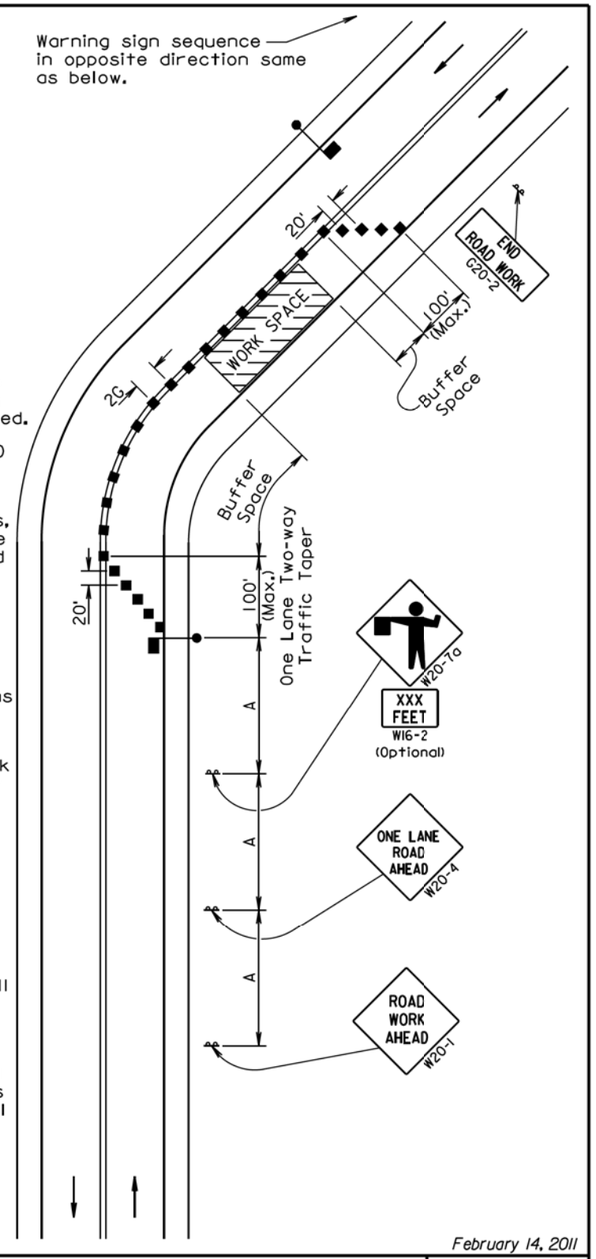
The channelizing devices shall be drums or 42" cones.

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.



February 14, 2011

Published Date: 3rd Qtr. 2014	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

Plot Scale - 1:200

- Plotted From - trrc11610

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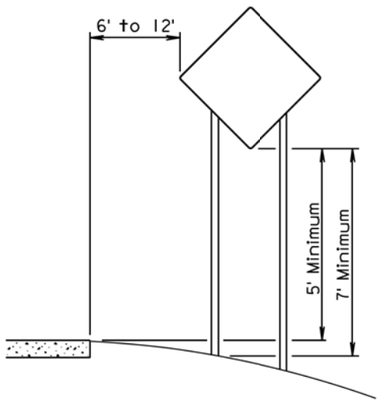
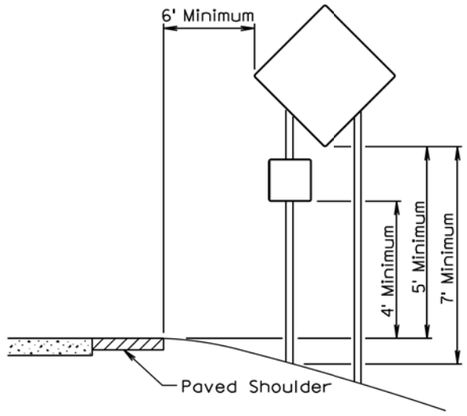
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0085(81)112	C7	C7

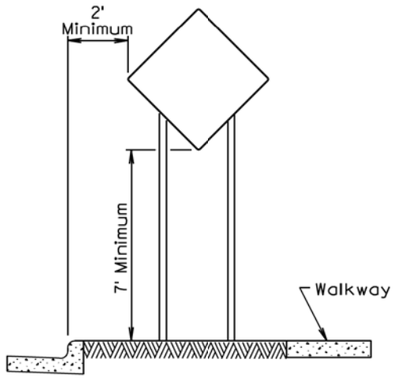
Plotting Date: 10/10/2014



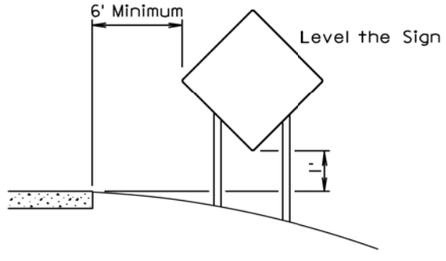
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



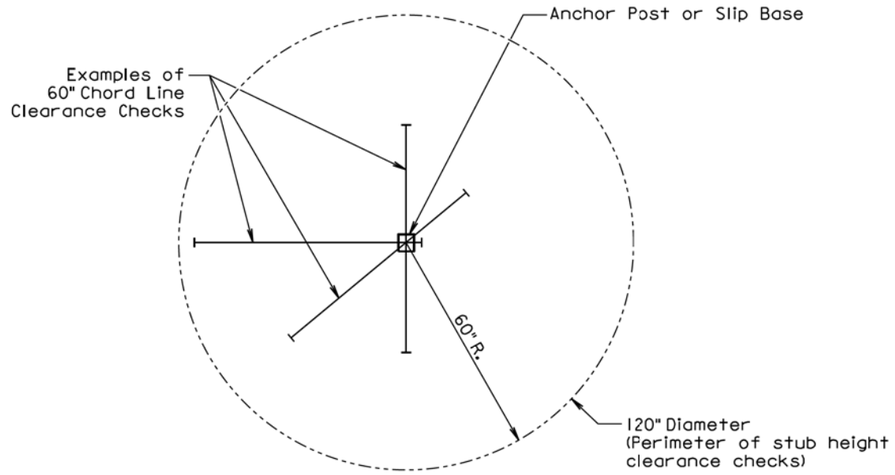
URBAN DISTRICT



RURAL DISTRICT 3 DAY MAXIMUM

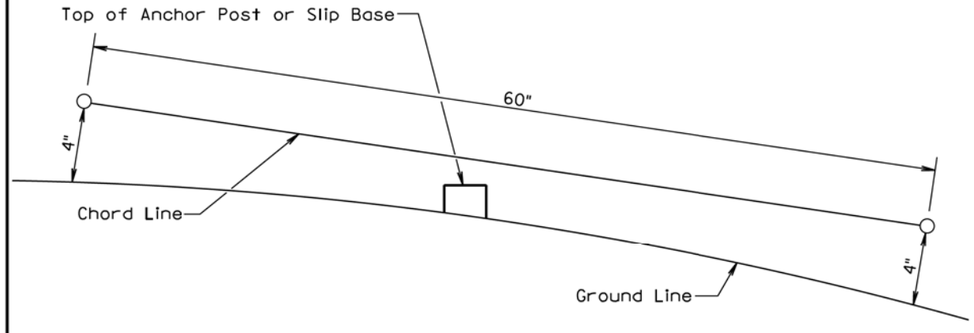
February 14, 2011

Published Date: 3rd Qtr. 2014	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW

(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 3rd Qtr. 2014	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

Plot Scale - 1:200

- Plotted From - trrc11610

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