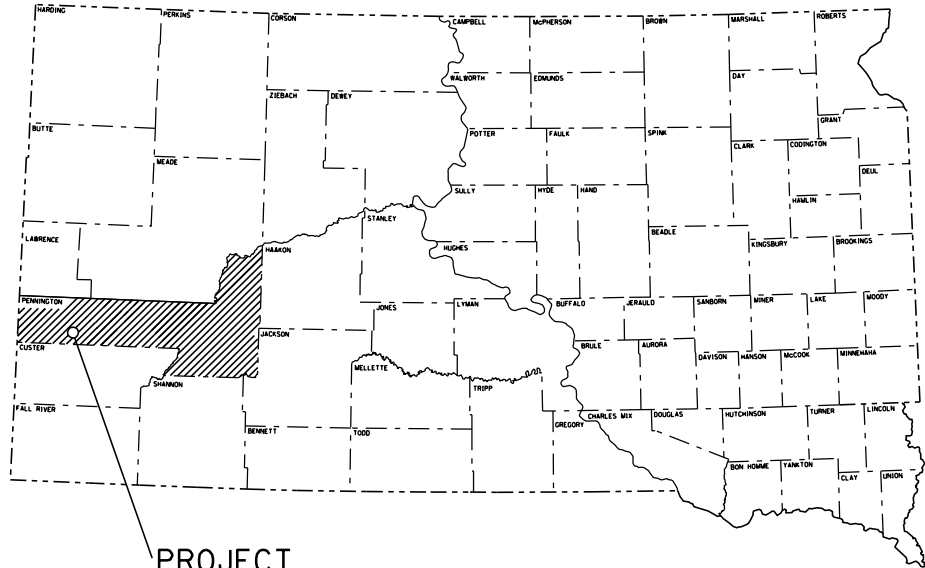


Plot Scale - 1:7680

trc11625

Plotted From -



STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
PROJECT 000P-491
US16
CITY OF HILL CITY
PENNINGTON COUNTY

COLD APPLIED PLASTIC MARKINGS
PCN i2xd

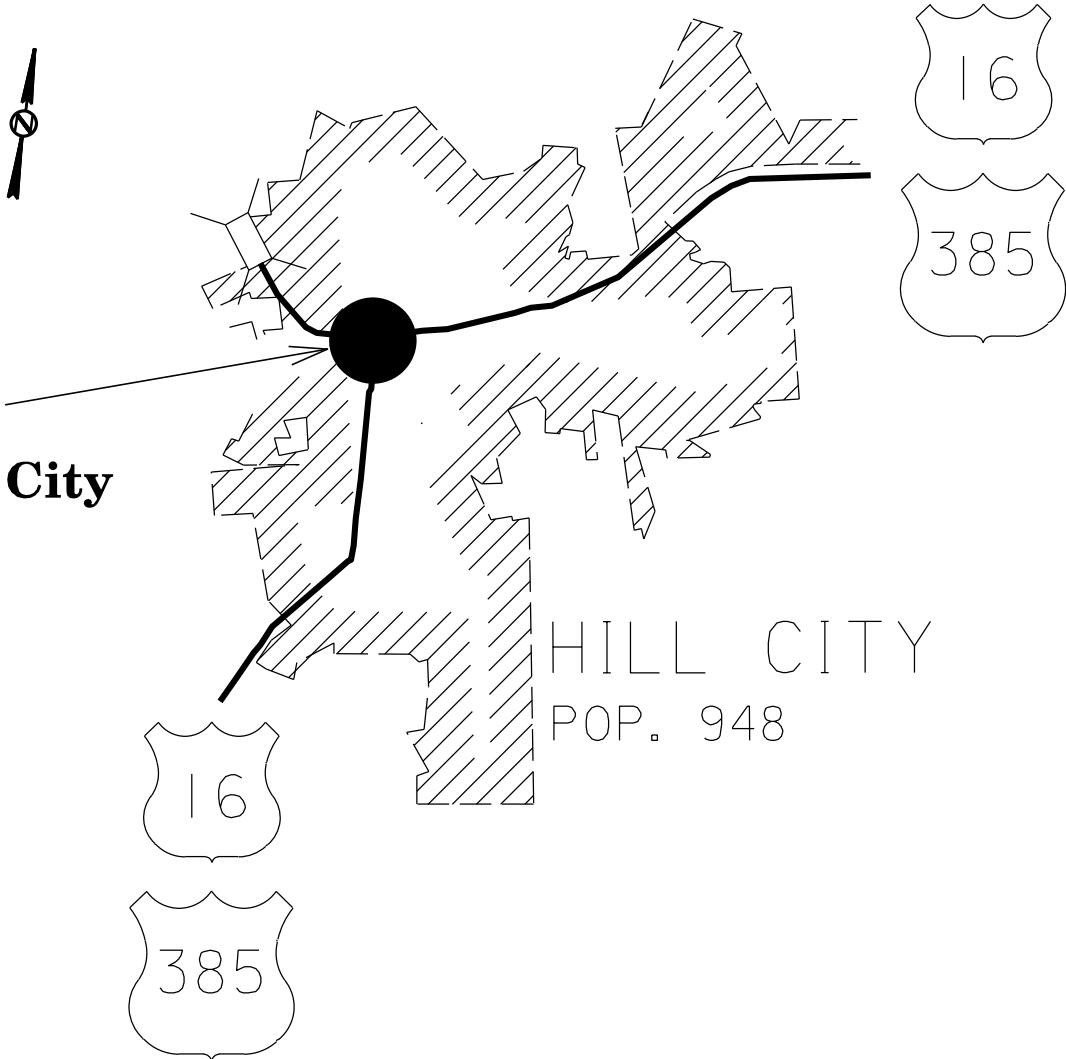
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-491	1	11

Plotting Date: 03/05/2014

INDEX OF SHEETS

Sheet 1	Title Sheet
Sheets 2-4	Estimate of Qts. & Notes
Sheets 5-7	Marking Layouts
Sheet 8	Sign Detail
Sheets 9-11	Standard Plates

Project
US16
City of Hill City



HILL CITY
POP. 948

Total Length = 0.63 MI

STORM WATER PERMIT
(No Permit Required)

DESIGN DESIGNATION - US16 & US16B

ADT (2012)	5773
ADT (2032)	9664
DHV	2029.5
d	51%
T DHV	4.4%
T ADT	9.7%

1:200
Plot Scale -
trc11625
Plotted From -

ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
110E1400	Remove Pavement Marking, 4" or Equivalent	2,000	Ft
632E1320	2.0"x2.0" Perforated Tube Post	50.0	Ft
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	12.0	SqFt
* 633E0010	Cold Applied Plastic Pavement Marking, 4"	9,440	Ft
* 633E0020	Cold Applied Plastic Pavement Marking, 8"	400	Ft
* 633E0030	Cold Applied Plastic Pavement Marking, 24"	555	Ft
* 633E0040	Cold Applied Plastic Pavement Marking, Arrow	8	Each
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	9,440	Ft
633E5005	Grooving for Cold Applied Plastic Pavement Marking, 8"	400	Ft
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	555	Ft
633E5020	Grooving for Cold Applied Plastic Pavement Marking, Area	880	SqFt
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	8	Each
634E0010	Flagging	40	Hour
634E0100	Traffic Control	1,096	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	2	Each

* - Denotes State Furnished Materials

WORK DESCRIPTION

Work on this project consists of Removal of Pavement Marking, Grooving, Applying State Furnished Cold Applied Plastic Pavement Markings, and Installing Reserved Parking Signs on the following route:

1. US16 – MRM 40.37 to MRM 41.00
- a. Edge Lines, Centerlines, Skips, Arrows, Crosswalks, Stop Lines, and Parking Space Markings.

NOTE: Existing stop lines at crosswalk locations shall not be replaced.

PERMANENT PAVEMENT MARKINGS

All locations on this project have, or have had, existing markings and the Contractor is encouraged to review all routes prior to bidding and to become familiar with existing conditions that may impact construction.

SPECIFICATIONS

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

U.S. Department of Transportation Federal Highway Administration Manual on Uniform Traffic Control Devices, 2009 Edition, and current Revisions.

REMOVE PAVEMENT MARKING, 4” OR EQUIVALENT

There are areas where the existing marking paint shall be removed by the Contractor. The majority of these areas are on Main Street where the parking stalls are marked. The existing paint marking the stalls will need to be removed to allow for the new parking layout. Other areas of paint removal may be required by the Engineer.

STATE FURNISHED COLD APPLIED PLASTIC PAVEMENT MARKING

The SDDOT will furnish all of the required Cold Applied Plastic Pavement Markings for use on this project. The Contractor will be required to pick up the marking materials from the Rapid City South Maintenance yard and shall notify the Engineer two weeks prior to pick up.

The cost of the furnished markings for excise tax purposes is \$22,366.05.

The Contractor will be required to pay all excise tax associated with this project and is considered incidental. No separate payment will be made to the contractor for Excise Tax.

State furnished Cold Plastic Pavement Markings of the width and color specified will be measured to the nearest foot.

Cost for state furnished Cold Applied Plastic Pavement Markings will be paid at the contract unit price per foot for Cold Applied Plastic Pavement Marking, 4”; Cold Applied Plastic Marking, 8”; Cold Applied Plastic Marking, 24”; and Cold Applied Plastic Marking, Arrow. Payment will be full compensation for all items necessary to complete the work including, but not limited to, furnishing and installing adhesive, applying State Furnished Cold Applied Plastic Pavement Markings, handling, and installation of materials, labor, and equipment.

The Contractor shall use all of the State Furnished Cold Applied Plastic Pavement Marking materials prior to using any pavement marking materials furnished by the Contractor.

All unused Cold Applied Plastic Pavement Markings remain property of the State of South Dakota and shall be returned to the Engineer upon completion of the project.

COLD APPLIED PLASTIC PAVEMENT MARKING

The Contractor shall apply the Cold Applied Plastic Pavement Marking material as per manufacturer’s instructions.

Cold applied plastic pavement markings shall be placed into a recessed groove on the surface.

Final locations of markings will be determined by Engineer.

GROOVE PAVEMENT FOR PAVEMENT MARKING

The grooving shall be completed within the following tolerance:

Depth of Groove: 100 mils, ± 10 mils.

Existing grooves that do not meet the 100 mil depth requirement shall be re-grooved. In areas where the existing groove depth meets the 100 mil depth requirements and portions of the existing markings are still in place, the existing markings shall be removed. All costs for materials, labor, and equipment necessary to remove the existing markings shall be incidental to the contract unit price per foot for Grooving for Cold Applied Plastic Marking, 4”; Cold Applied Plastic Marking, 8”; Cold Applied Plastic Marking, 24”; and Cold Applied Plastic Marking, Arrow.

Markings that fall outside of the groove shall be removed (at least 90%) using additional methods approved by the Engineer. All costs for materials, labor, and equipment necessary to remove the existing markings shall be incidental to the contract unit price per foot for Grooving for Cold Applied Plastic Marking, 4”; Cold Applied Plastic Marking, 8”; Cold Applied Plastic Marking, 24”; and Cold Applied Plastic Marking, Arrow.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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GROOVE PAVEMENT FOR PAVEMENT MARKING

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

All surface preparation, removal, and cleaning work shall be conducted in such a manner as to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners.

GROOVING FOR COLD APPLIED PLASTIC PAVEMENT MARKING, AREA

The Contractor shall groove the existing surface as directed by the Engineer to eliminate the appearance of a crosswalk. The depth of groove shall be approved by the Engineer and shall be adjusted to match that of the existing grooves and which will create the least amount of damage to the pavement.

The grooving will be measured to the nearest square foot.

PERMANENT SIGNING

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

The Contractor shall furnish the following signs:
Qty. (6) R7-8; Reserved Parking (for persons with disabilities); 12"x18"
Qty. (6) Special Plaque; Minimum Fine \$100; 12"x6"; see sign details

The Contractor shall provide all labor and equipment necessary to install permanent signing as detailed in these plans and/or as required by the Engineer. Payment for furnishing and installing permanent signs will be paid for the contract unit price for each type of sign based on sheeting requirements per square foot of sign. All signs shall have ASTM D4956 Type IV (High Intensity) sheeting. Payment for new signposts, hardware, bases, and labor will be made at the contract unit price per foot for 2” x 2” perforated tube post. Breakaway post details regarding posts, hardware, and bases shall be followed as per the manufacturer’s recommendations. The sign post contract items shall include post bases and all hardware. The post lengths shall be verified by the Contractor. The Contractor is urged to cut posts to length on job site after site by site verification of post length.

The Contractor shall use Telespar brand (or equivalent) posts on all new standard highway signs as approved by the Engineer. All post materials shall conform to Section 982 of the Standard Specifications, and be in accordance with ASTM specifications. All posts and bases shall by accompanied by Certificates of Compliance and shall meet all safety standards as set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

The Contractor shall stake the signs and the Engineer will verify the location prior to installation. The lateral distance from the roadway and the height of the sign shall be established by the Contractor according to the MUTCD.

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Plotted From -
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PERFORATED TUBE POST

Payment for 2" x 2" perforated tube post shall include all cost for labor, equipment, and materials necessary to complete the following work:

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

HARDWARE

All signs and sign assemblies mounted on concrete or asphalt surfacing shall use a surface mount breakaway assembly for square posts. The Contractor shall use Xcessories Squared brand, Kleen Break Model 425 Surface Mount Coupler Assembly for 1¾" & 2" square post or equivalent. All flush mount breakaway base design shall be submitted to the Engineer for approval two weeks prior to installation and shall meet the requirements of NCHRP Report 350.

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

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

SHEETING REQUIREMENTS

All legend and border utilizing the color black shall be vinyl or screen printed black, non-reflectorized material. All other legend and border shall be of same type of sheeting as the background of the same sign. All signs shall have "Type IV" sheeting and shall also have High Intensity Prismatic retro-reflective background, Type IV as per AASHTO designation M 268 (ASTM D4956).

SIGN LEGEND, BORDER, BACKGROUND, AND MOUNTING

All sign material shall comply with Section 982 of the Standard Specifications.

The sign colors shall be as stipulated in the MUTCD and as shown in the sign details.

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

MAINTENANCE OF TRAFFIC

Each construction work area shall be individually signed throughout the entire length of the construction work area.

Traffic approaching the project from intersecting roadways 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.

The delay to the travelling public shall not exceed 15 minutes.

MAINTENANCE OF TRAFFIC (CONTINUED)

Equipment and vehicles entering or exiting the roadway working within the right-of-way shall display a flashing amber light visible for a minimum distance of ¼ mile in all directions. Hazard lights alone are not acceptable.

Resetting, temporary relocation, and/or covering of existing conflicting traffic control devices as necessary to adequately maintain traffic or perform the work, shall be the responsibility of the Contractor. This work shall be included in the contract lump sum price for Traffic Control, Miscellaneous.

Contractor 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.

Damage to the ditch due to the Contractor's operations shall be repaired by the Contractor to the satisfaction of the Engineer, at no expense to the State.

Separate projects may be underway at the same time as this project; therefore the Contractor shall coordinate work zones with the adjacent construction projects to avoid any conflicting traffic control signing.

SIGN TABULATION

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	12	17	204
W1-6	60" x 30"	ONE DIRECTION LARGE ARROW	2	30	60
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W9-3	48" x 48"	CENTER LANE CLOSED AHEAD	2	34	68
W20-1	48" x 48"	ROAD WORK AHEAD	12	34	408
W20-4	48" x 48"	ONE LANE ROAD AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	2	34	68
*****		TYPE III BARRICADE - 6 FT. DOUBLE SIDED	2	42	84
TOTAL UNITS					1096

Road Work and End Road Work signs shall be placed at the beginning and end of the project limits as applicable.

SEQUENCE OF OPERATIONS

The Contractor shall maintain traffic in accordance with applicable MUTCD Standards, Section 4.4 and 634 of the Standard Specifications, and the details shown in these plans.

Construction operations shall be conducted in the general direction of traffic movement. Work activities shall be confined to ½ width (one – 12 ft. lane) of the roadway leaving the adjoining lane open to traffic.

Construction work areas shall be limited in length to what the Contractor can groove and tape in a day's production.

TRAFFIC CONTROL

Traffic control shall be placed so a 17' wide load can pass through the project during non-working hours. Narrowed lanes during work 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 paid for at the contract lump sum price for Traffic Control, Miscellaneous

TRAFFIC CONTROL (CONTINUED)

The quantity of signs paid for will be for the most installations per sign in place at any one time regardless of the number of set-ups on the project.

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.

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

Cost of equipment and traffic control devices on equipment, including arrow panels and signs, will be paid for at the contract lump sum price for Traffic Control, Miscellaneous.

During non-working hours, all materials and equipment shall be stored a minimum of 30 feet from the traveled lanes and adjacent sidewalks.

Traffic control shall be provided in type and quantity as shown on the Standard Plate Sheets. The use and placement of signs shall be as shown on the Standard Plate Sheets or as required by the Engineer.

Nonfixed location signs may be mounted on portable supports. The portable supports shall comply with FHWA NCHRP 350 and/or MASH crash worthy requirements and shall be constructed to yield upon impact to minimize hazards to motorists. The bottom of signs on portable or temporary supports shall not be less than five feet above the pavement in urban or multi-lane areas, and one foot above the pavement in rural areas. Regulatory signs shall not be less than five feet above the pavement in rural areas.

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

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

Traffic Control, Miscellaneous will be paid for only once on the contract. The Contractor may substitute 42" cones for barrels on this project for daytime use only.

Construction signing mounted on portable supports shall not be used for 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.

At the end of each day's work, all traffic control devices shall be pulled off the roadway and taken down and traffic shall be opened to two lanes. Applicable signing shall remain in place, i.e. "Road Work Ahead" etc.

The contract unit price per unit for Traffic Control shall include all labor, equipment and materials necessary to furnish, erect and maintain the traffic control devices for the duration of the entire project. Payment will be made only once for each traffic control device even if the device is used more than once on the project

1:200
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TRAFFIC CONTROL (CONTINUED)

Flagger(s) and FLAGGER symbol sign(s) may be required to adequately accommodate traffic during the grooving and placement of permanent pavement markings at intersections.

Temporary pavement marking used in transition tapers shall be Temporary Road Markers. The temporary pavement marking shall be placed in accordance with Section 634 of the Standard Specifications, and shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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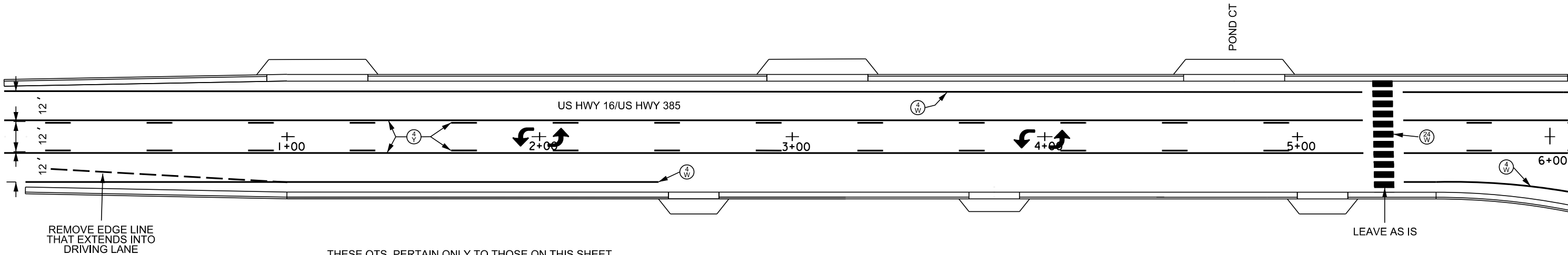
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PAVEMENT MARKING LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-491	5	11

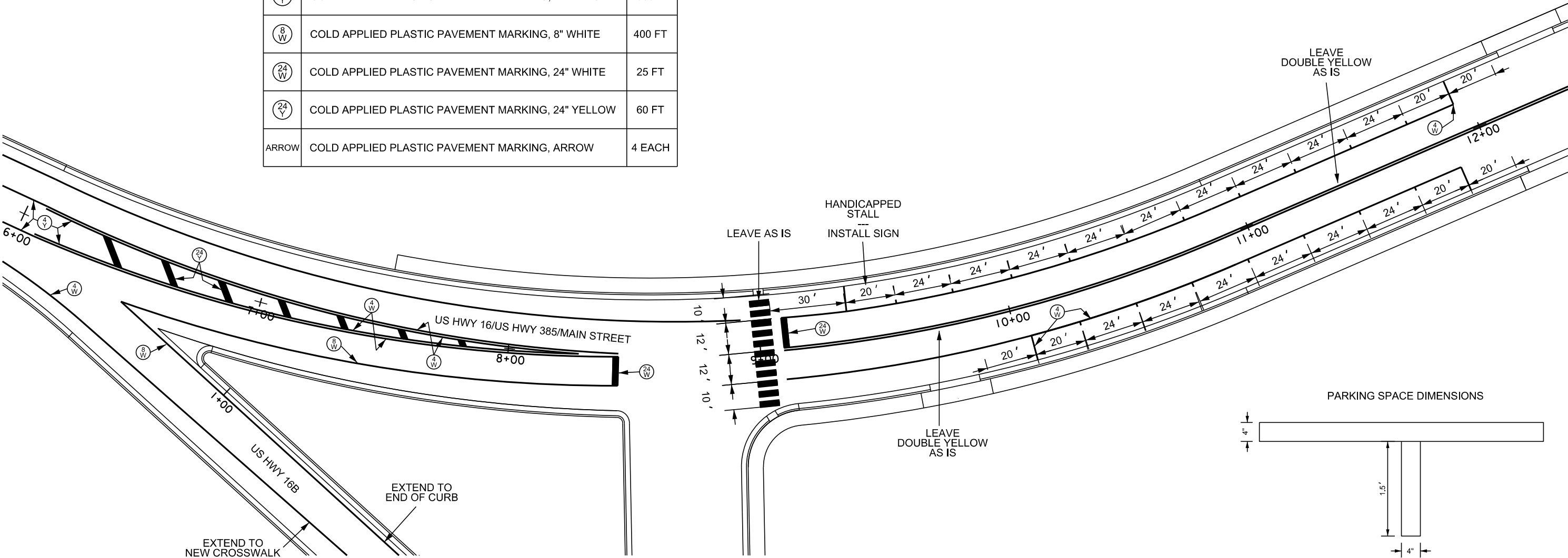
Plotting Date: 03/05/2014

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THESE QTS. PERTAIN ONLY TO THOSE ON THIS SHEET
ADDITIONAL QTS. ARE NEEDED THROUGHOUT THE PROJECT

ITEM	QTY
(4 W) COLD APPLIED PLASTIC PAVEMENT MARKING, 4" WHITE	2000 FT
(4 Y) COLD APPLIED PLASTIC PAVEMENT MARKING, 4" YELLOW	2500 FT
(8 W) COLD APPLIED PLASTIC PAVEMENT MARKING, 8" WHITE	400 FT
(24 W) COLD APPLIED PLASTIC PAVEMENT MARKING, 24" WHITE	25 FT
(24 Y) COLD APPLIED PLASTIC PAVEMENT MARKING, 24" YELLOW	60 FT
ARROW COLD APPLIED PLASTIC PAVEMENT MARKING, ARROW	4 EACH



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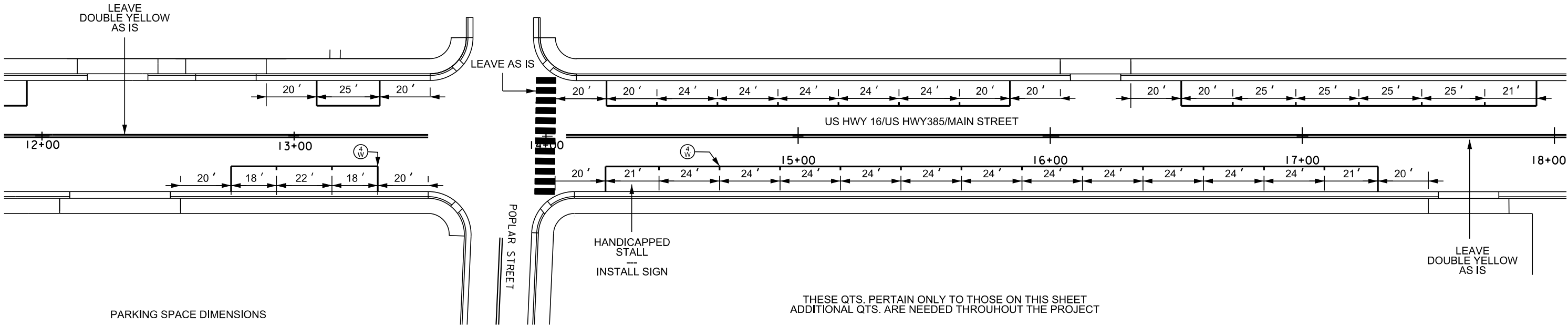
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PAVEMENT MARKING LAYOUT

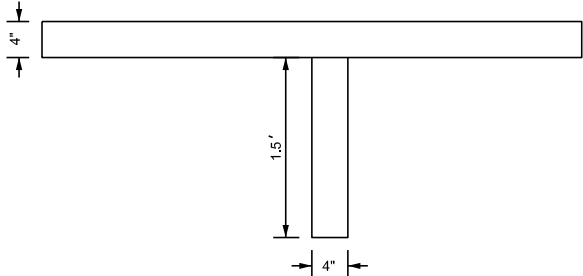
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-491	6	11

Plotting Date: 03/05/2014

Plot Scale - 1:40

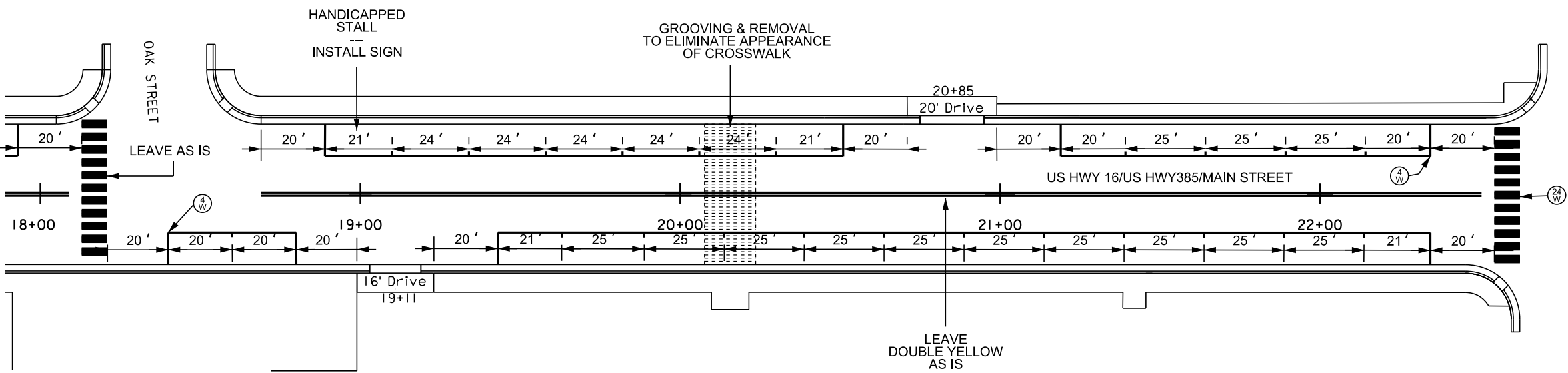
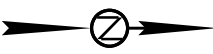


PARKING SPACE DIMENSIONS

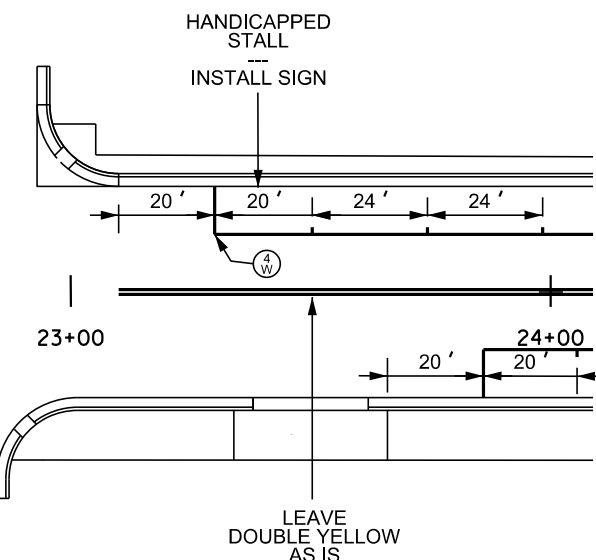


THESE QTS. PERTAIN ONLY TO THOSE ON THIS SHEET
ADDITIONAL QTS. ARE NEEDED THROUOUT THE PROJECT

	ITEM	QTY
(4 W)	COLD APPLIED PLASTIC PAVEMENT MARKING, 4" WHITE	1660 FT
(24 W)	COLD APPLIED PLASTIC PAVEMENT MARKING, 24" WHITE	90 FT



MCGREGOR STREET



Plotted From - trc11625

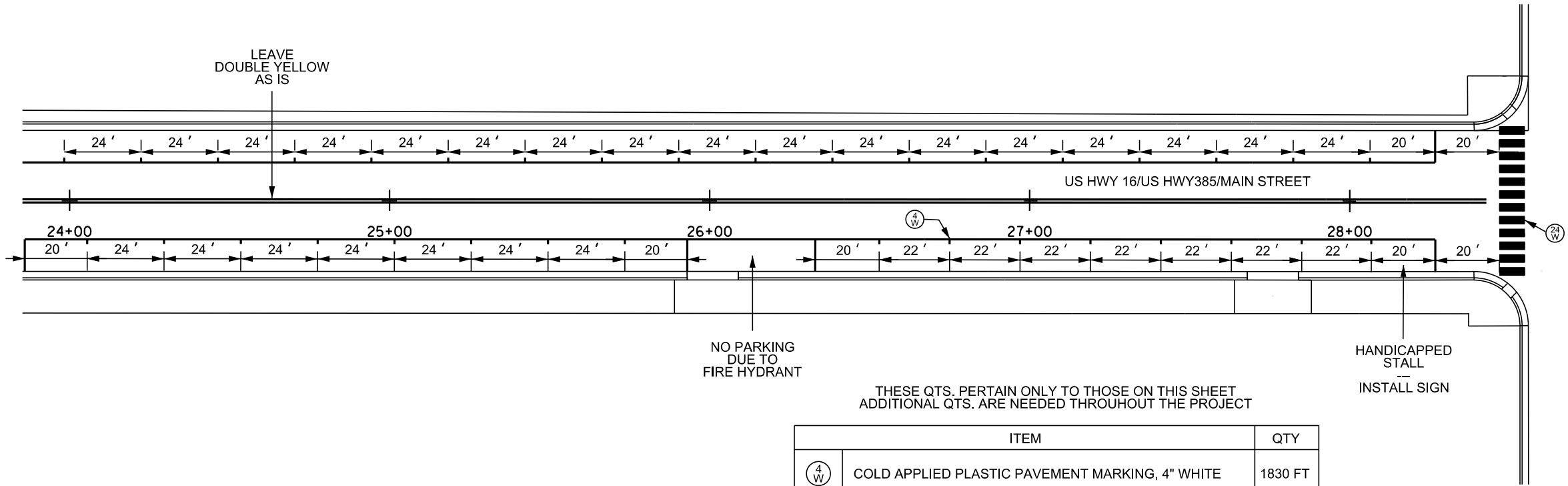
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PAVEMENT MARKING LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-491	7	11

Plotting Date: 03/05/2014

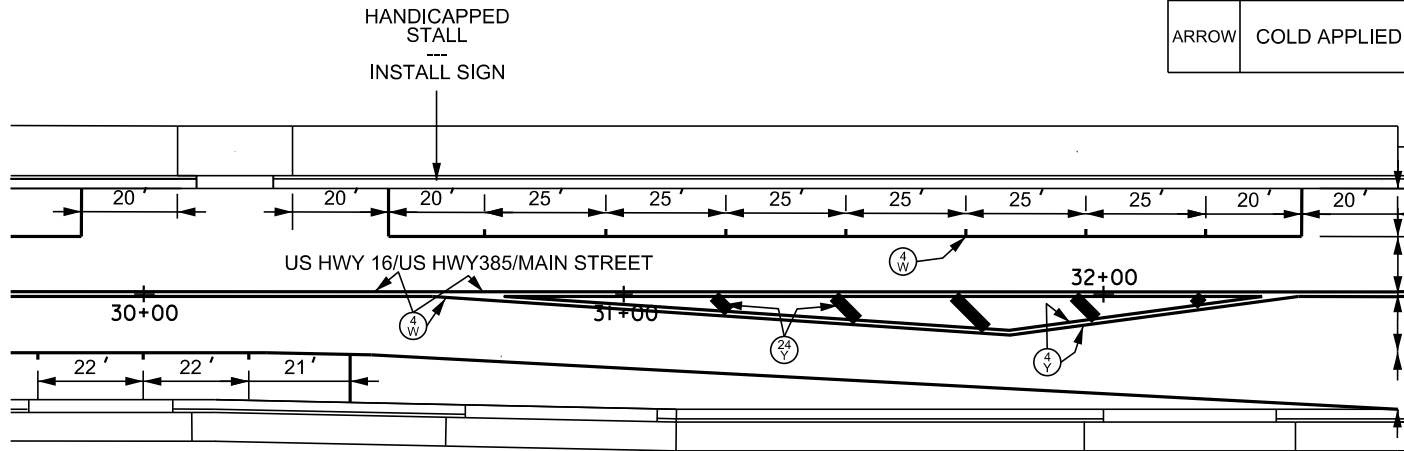
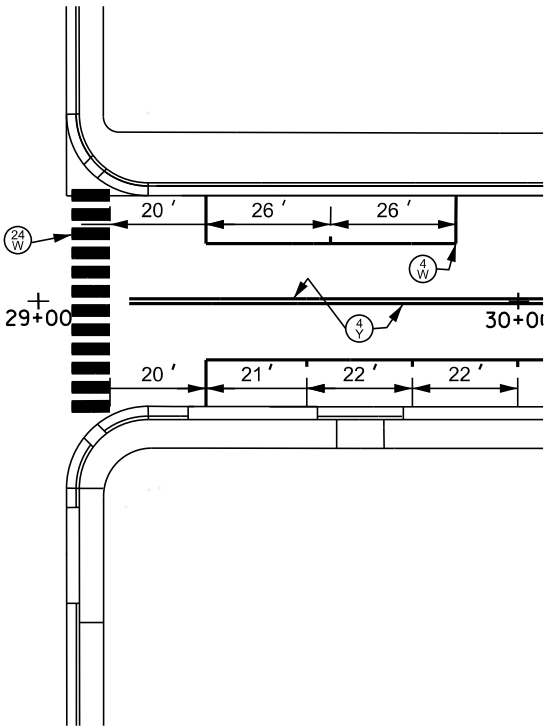
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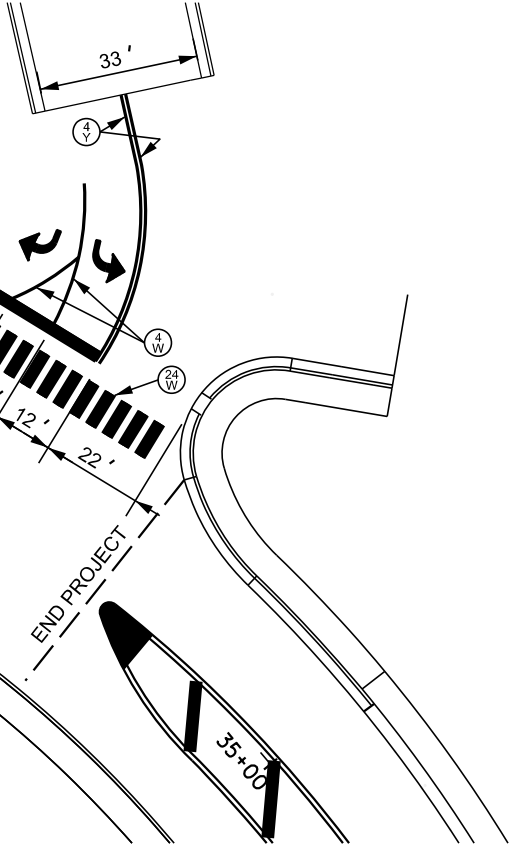
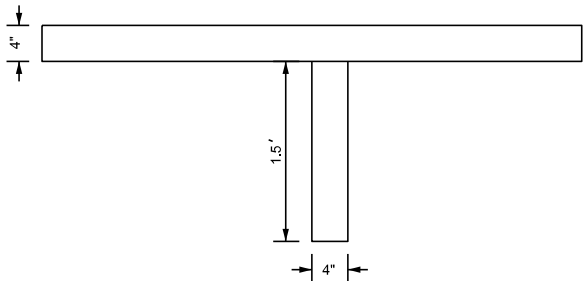
THESE QTS. PERTAIN ONLY TO THOSE ON THIS SHEET
ADDITIONAL QTS. ARE NEEDED THROUOUT THE PROJECT

ITEM		QTY
(4 W)	COLD APPLIED PLASTIC PAVEMENT MARKING, 4" WHITE	1830 FT
(4 Y)	COLD APPLIED PLASTIC PAVEMENT MARKING, 4" YELLOW	1450 FT
(24 W)	COLD APPLIED PLASTIC PAVEMENT MARKING, 24" WHITE	350 FT
(24 Y)	COLD APPLIED PLASTIC PAVEMENT MARKING, 24" YELLOW	30 FT
ARROW	COLD APPLIED PLASTIC PAVEMENT MARKING, ARROW	4 EACH

ELM STREET



PARKING SPACE DIMENSIONS



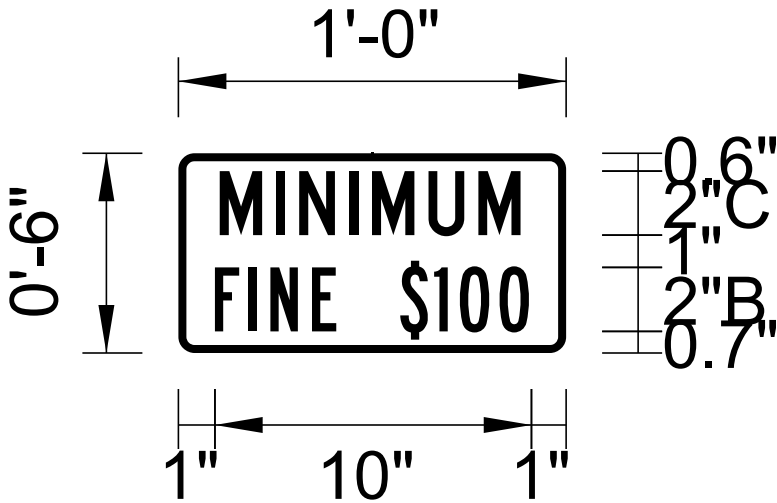
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SIGN DETAIL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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SIGN DETAIL
1:5



Panel Style: guide_con_general_services.ssi
Dimensions are in inches, tenths

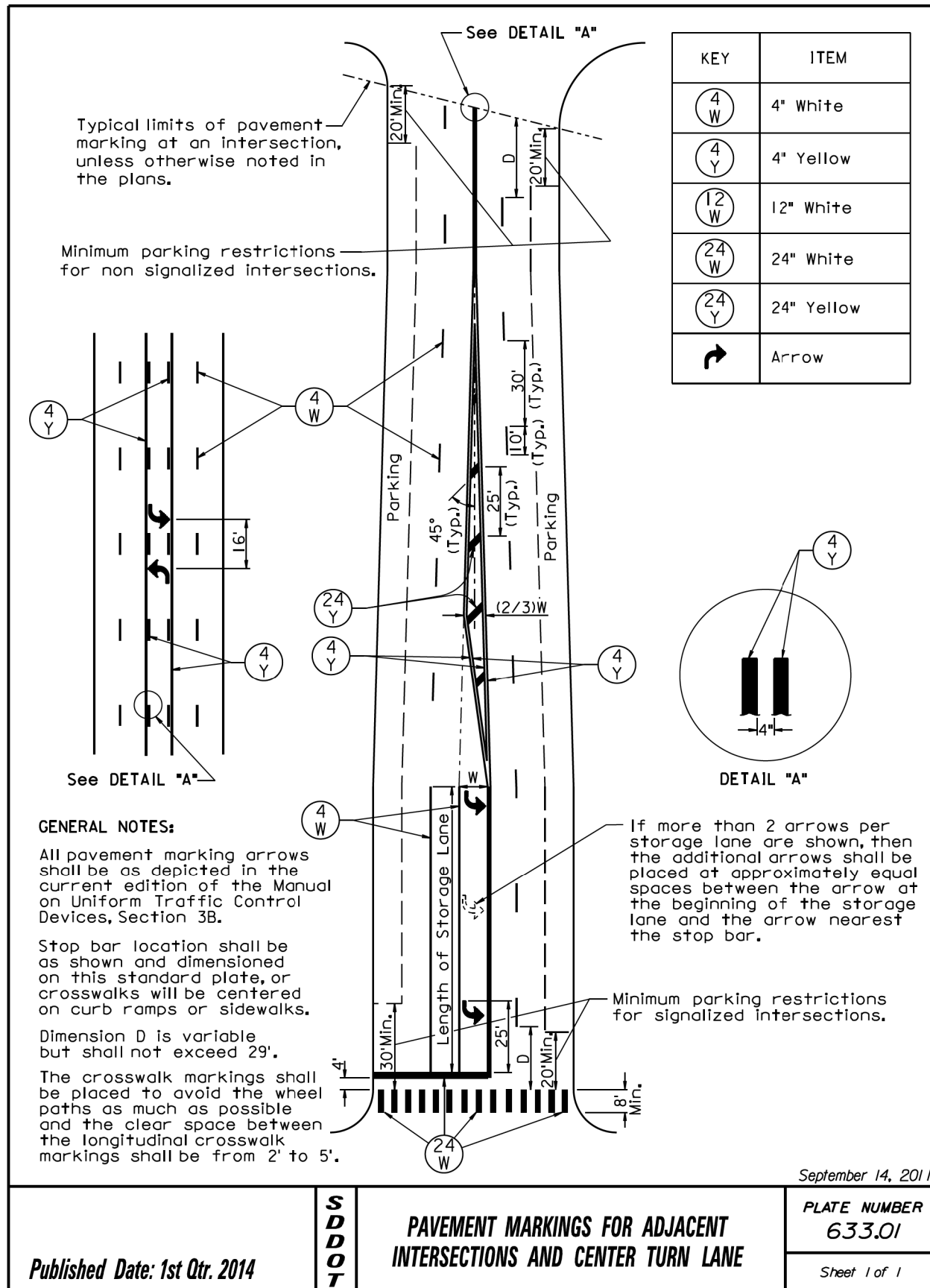
Letter locations are panel edge to lower left corner

SIGN NUMBER	Special Plaque - Min. Fine
WIDTH x HGHT.	1'-0" x 0'-6"
BORDER WIDTH	0.25"
CORNER RADIUS	0.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV COLOR: Blue
LEGEND/BORDER	TYPE: Non-Reflective COLOR: White/White


SYMBOL	ROT	X	Y	WID	HT

LETTER POSITIONS (X)																														LENGTH	SERIES/SIZE
M	I	N	I	M	U	M																									C 2000
1.3	3.1	3.8	5.3	6.1	7.8	9.4																								9.5	2
F	I	N	E		\$	1	0	0																							B 2000
1.1	2.2	2.9	4.2	4.9	6.9	8	8.8	10																						9.9	2

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

 Flagger
 Channelizing Device

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

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

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

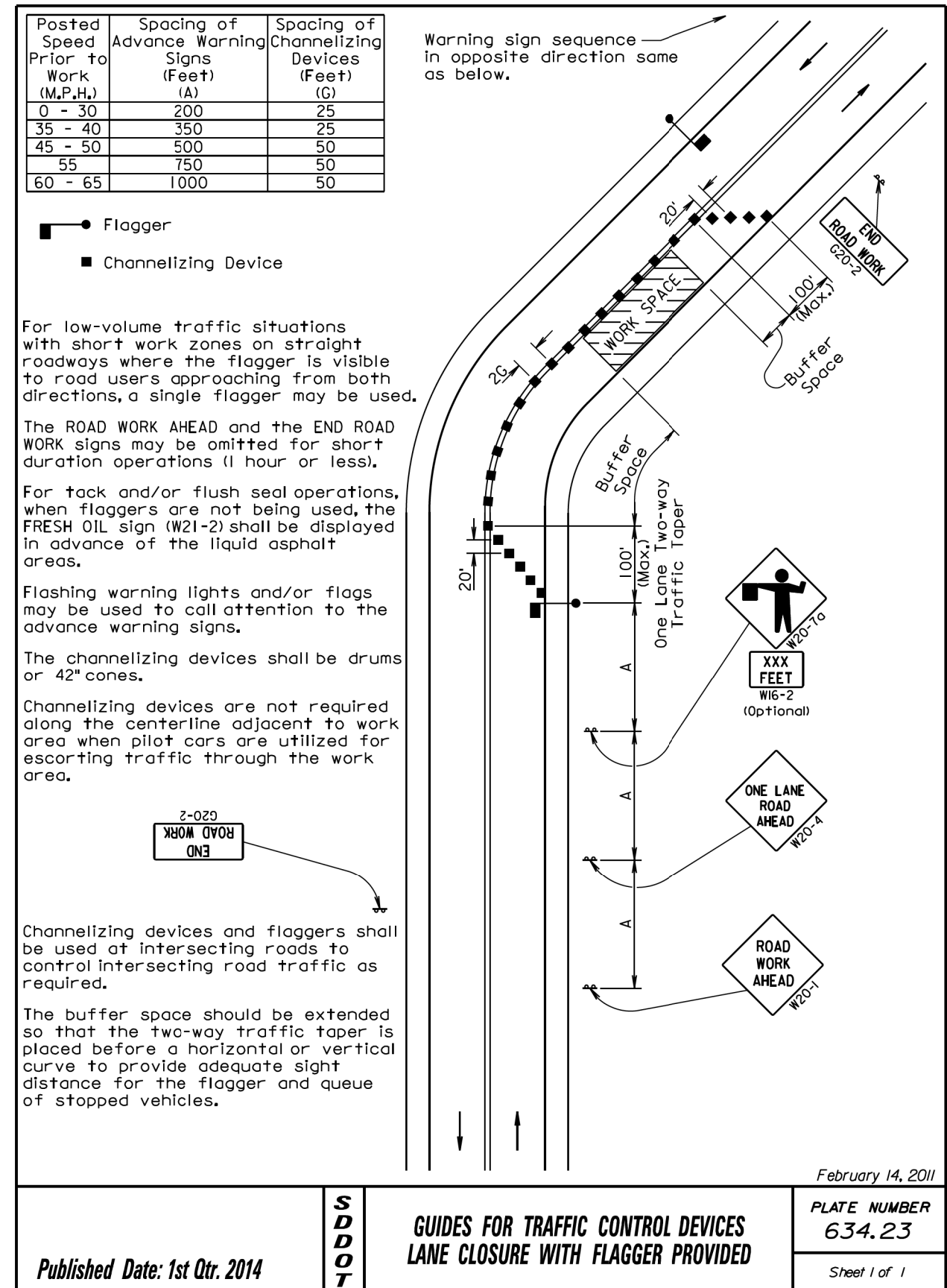
Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

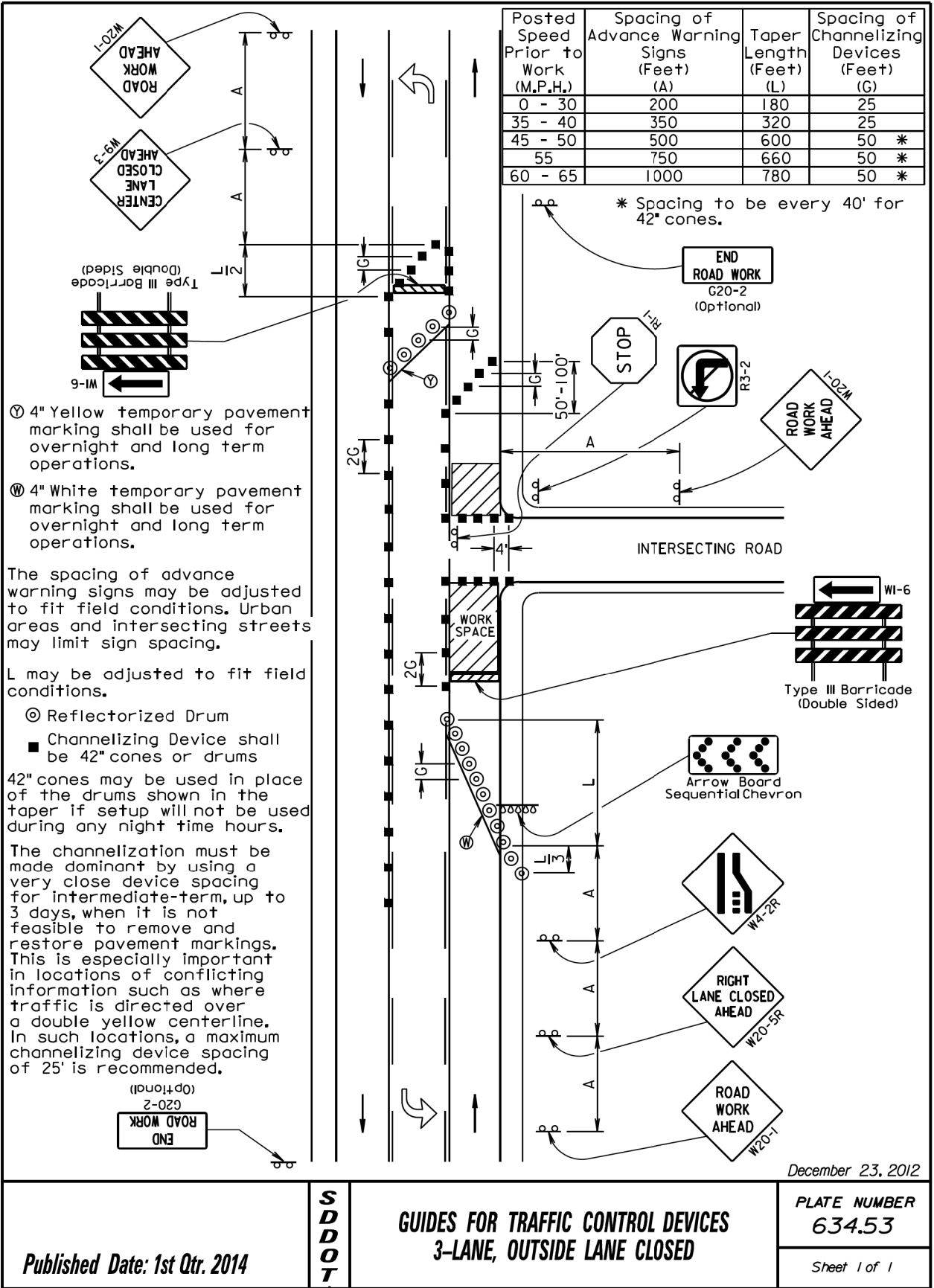
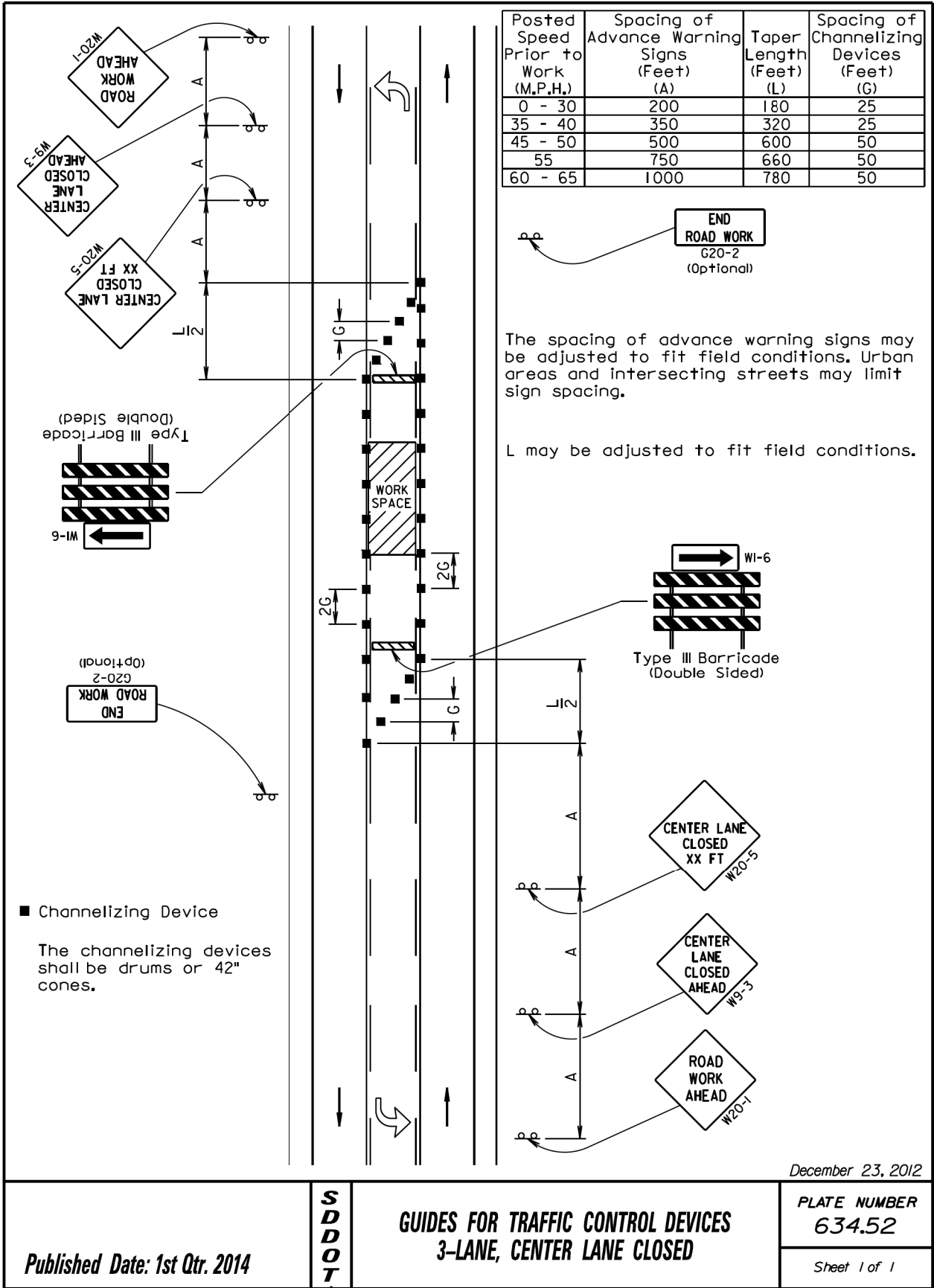
The channelizing devices shall be drums or 42" cones.

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

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

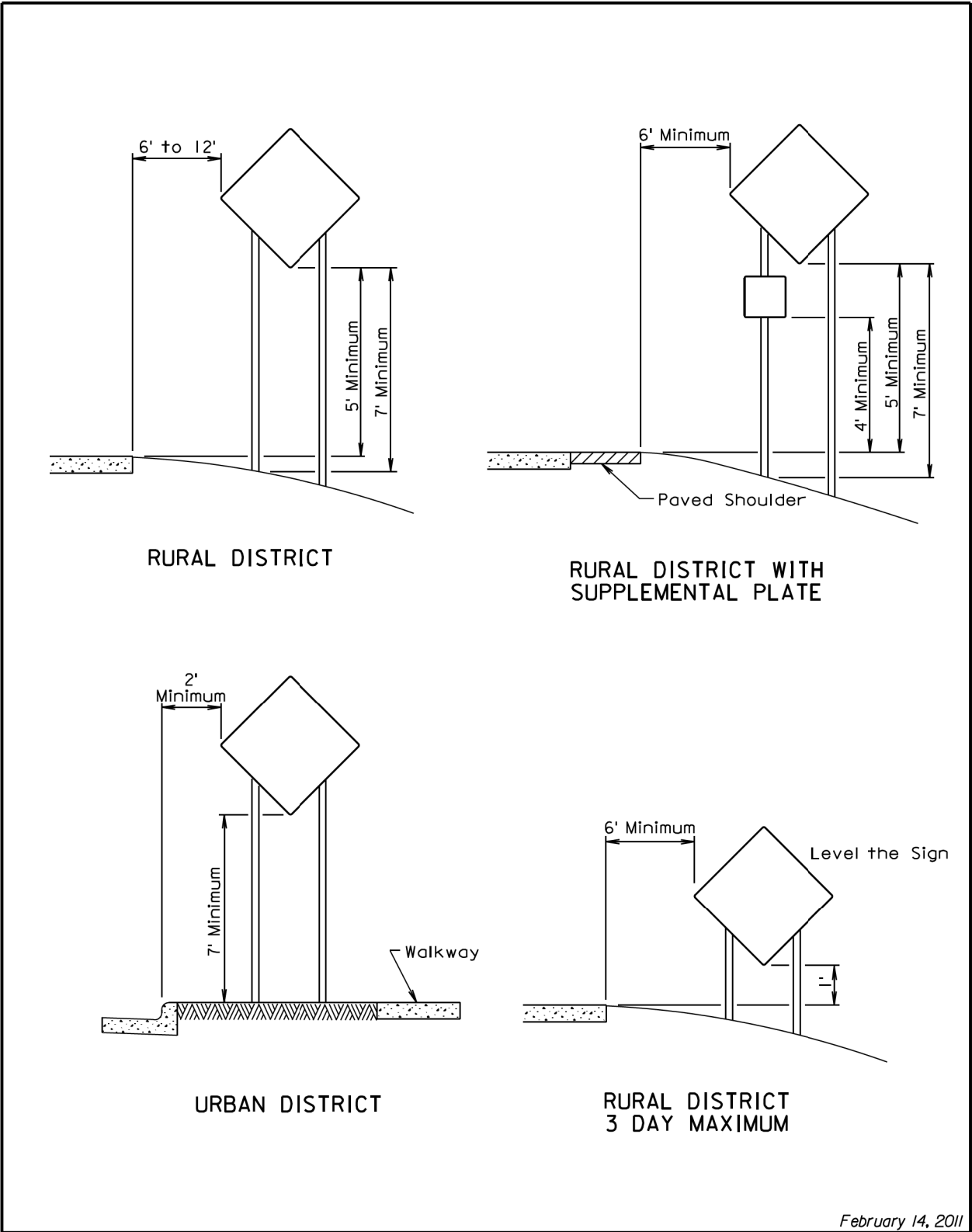
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.





STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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<i>Published Date: 1st Qtr. 2014</i>	S D D O T	CRASHWORTHY SIGN SUPPORTS <i>(Typical Construction Signing)</i>	February 14, 2011
			PLATE NUMBER 634.85 Sheet 1 of 1