

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED

PROJECT 012 - 169
US HIGHWAY 12
BROWN COUNTY

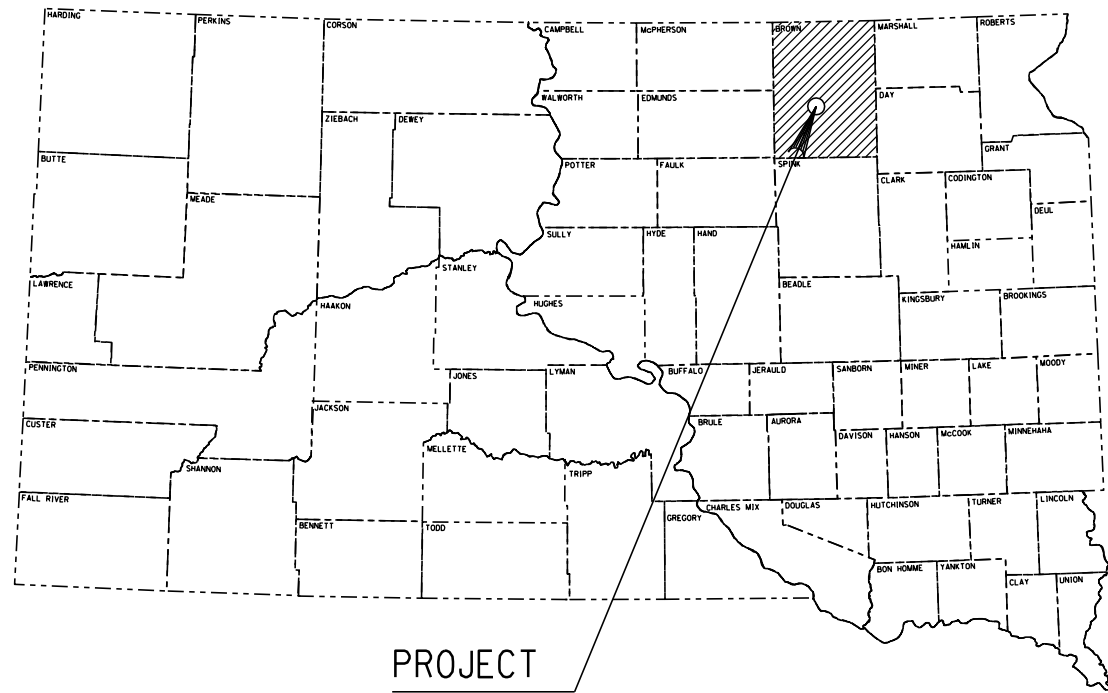
REPLACE TRAFFIC SIGNAL MAST ARM
 Northeast Quadrant of Intersection
 PCN i2ve

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012 - 169	1	7

Plotting Date: 02/28/2013

INDEX OF SHEETS

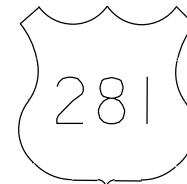
SHEET 1	TITLE SHEET
SHEET 2	ESTIMATE OF QUANTITIES & PLAN NOTES
SHEET 3	EXISTING SIGNAL LAYOUT
SHEET 4	MAST ARM BANDING DETAIL
SHEET 5-6	STANDARD PLATES
SHEET 7	ITEMIZED LIST FOR TRAFFIC CONTROL



Project 012 - 169
 US 12 MRM 288.94

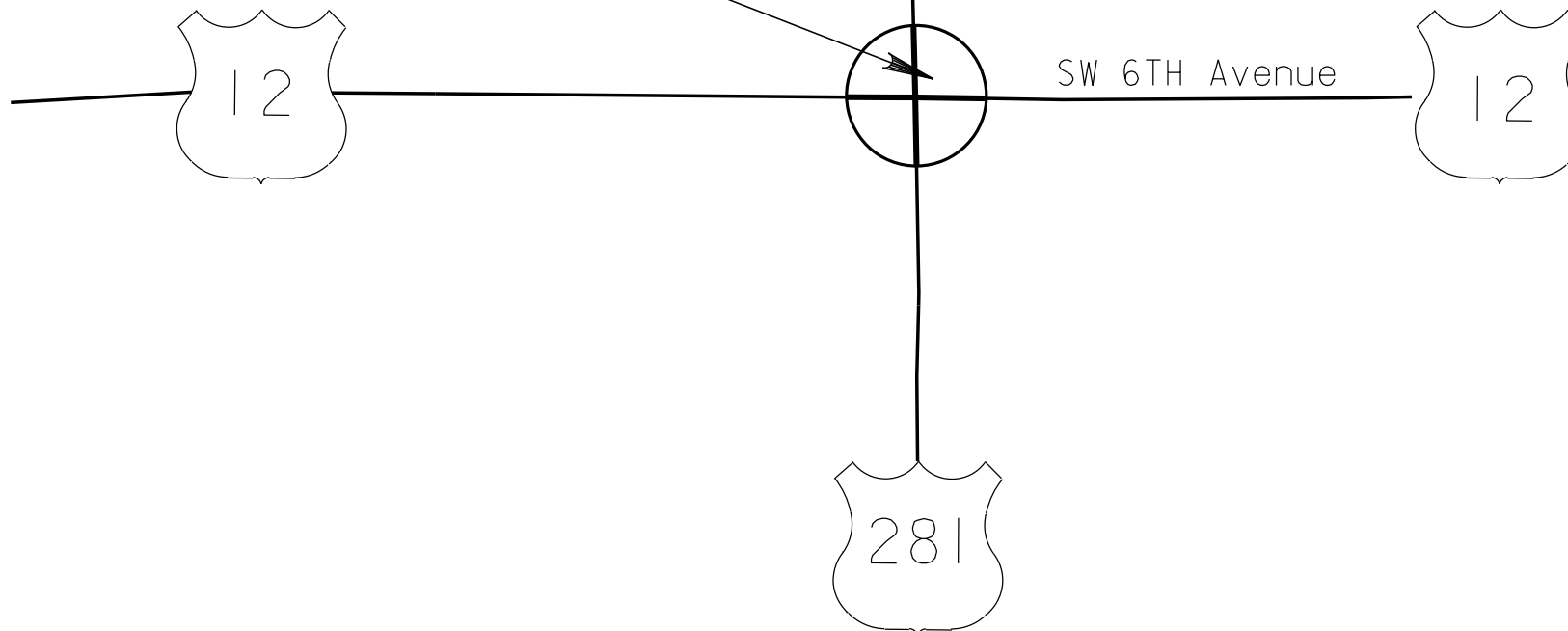
T 123 N

R 65 W



R 64 W

City of Aberdeen



DESIGN DESIGNATION
 US Highway 281

ADT (2012)	5,204
ADT (2032)	6,593
DHV	857.1
D	51%
T DHV	4.9%
T ADT	10.7%
V	45 M.P.H.

DESIGN DESIGNATION
 US Highway 12

ADT (2012)	11,895
ADT (2032)	15,071
DHV	1672.9
D	50%
T DHV	2.3%
T ADT	5.1%
V	35 M.P.H.

STORM WATER PERMIT
 None Required

PLOT SCALE - 1:200

PLOTTED FROM - TRAB17879

PLOT NAME - 1

FILE - ... \DESIGN FILES\TITLE SHEET.DGN

ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E5110	Salvage Signal Equipment	Lump Sum	LS
632E3500	Reset Sign	3	Each
634E0100	Traffic Control	367	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each
635E3998	Mast Arm for Existing Signal Pole	1	Each

SPECIFICATIONS

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

GENERAL NOTES

Work includes, but is not limited to, the salvage and reinstallation of existing 3 section traffic signal heads, vehicle preemption detector unit, resetting traffic signs, and removal of existing 45' traffic signal mast arm and the installation of a new 45' traffic signal mast arm.

GENERAL MAINTENANCE OF TRAFFIC

Contractor shall give the Aberdeen Area office; (Phone No. 605-626-7885) 72 hours advance notice prior to starting work to allow for a press release to be issued.

Work will be allowed only during the hours between 6 PM and 7 AM. Once the signal has been set to all red flash, the new mast arm shall be installed and the traffic signal system shall be fully operational by 7 AM.

During the time when the traffic signal at the intersection of US Highway 12 (6th Avenue) and US 281 is set to all red flash, the intersection shall be controlled by use of 48" Stop signs on all four legs of the intersection.

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.

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. 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.

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.

POLES (Mast Arm)

The mast arm shall be galvanized steel. Galvanizing shall be in accordance with AASHTO Specification M111 (ASTM A123). Steel arm material shall be in accordance with ASTM A36, A242, A570, A572, A607 or A595 Grade A or B. A595 material shall be limited to a 3/8 inch maximum thickness. Steel arm material with a thickness of 1/2 inch to 2 inches, shall satisfy Charpy V-Notch toughness test requirements of 15 ft. lb. at 40 degrees F. The SDDOT Office of Bridge Design shall be contacted for Charpy impact requirements for steel pole material thickness greater than 2 inches.

Cantilever traffic signal supports shall be designed for fatigue in accordance with Fatigue Importance Category III without galloping and truck induced gusts.

SHOP DRAWING AND CATALOG CUTS SUBMITTALS

The Contractor shall submit shop drawings and catalog cuts in accordance with Section 985 of the Standard Specifications or in Adobe PDF format.

Adobe PDF submittals shall be sent to the following email addresses:

Pete.Longman@state.sd.us
Dan.Martell@state.sd.us

ON-SITE INSPECTION

An on-site inspection of the traffic signal shall be conducted before acceptance of the project, once the traffic signal is completed and operational. The on-site inspection shall be conducted by the Project Engineer or Region Traffic Engineer with the Contractor.

SALVAGE SIGNAL EQUIPMENT

The following traffic signal system components shall be salvaged and installed with the new traffic signal mast arm;

3 – 3 section traffic signal heads.
Vehicle Preemption Detector Unit.
Signal head and Vehicle Preemption Detector Unit electrical wiring.

All costs for work involved in the salvage Signal Equipment shall be incidental to the contract lump sum price for "Salvage Signal Equipment".

MAST ARM FOR EXISTING SIGNAL POLE

The traffic signal mast arm shall be 45 feet in length. The existing traffic signal pole is a Millerbernd, 16-BHSTR-206/LD (SD/DOT) Rotatable Traffic Signal Standard.

All costs to furnish the Traffic Signal Mast Arm with hardware, install the salvaged three 3-section traffic signal heads, the Vehicle Preemption Detector, and re-wire the components to provide a complete operational traffic signal system shall be incidental to the contract unit price for "Mast Arm for Existing Signal Pole".

During replacement of the traffic signal mast arm, damage to existing traffic signal wiring shall be replaced by the Contractor with new wiring of the same size at no cost to the State.

After removal, the existing mast arm shall become the property of the Contractor.

EXISTING TRAFFIC SIGNS

Signs designated for reset are summarized as follows;

- 1 – Left On Green Arrow Only.
- 1 – US 12 Route Marker Assembly.
- 1 – US 281 Route Marker Assembly.

All costs associated with removing signs from existing mast arm and re-installing signs on to new mast arm shall be incidental to the contract unit price per each for "Reset Sign".

Signs shall be attached to the new mast arm by the sign banding method.

SIGN BANDING

All costs associated with furnishing and installing new sign banding hardware, stainless steel banding strap, flared leg bracket, stainless steel banding buckle, bolts, nuts and washers shall be incidental to the contract unit price per each for "Reset Sign".

EXISTING SIGNAL LAYOUT

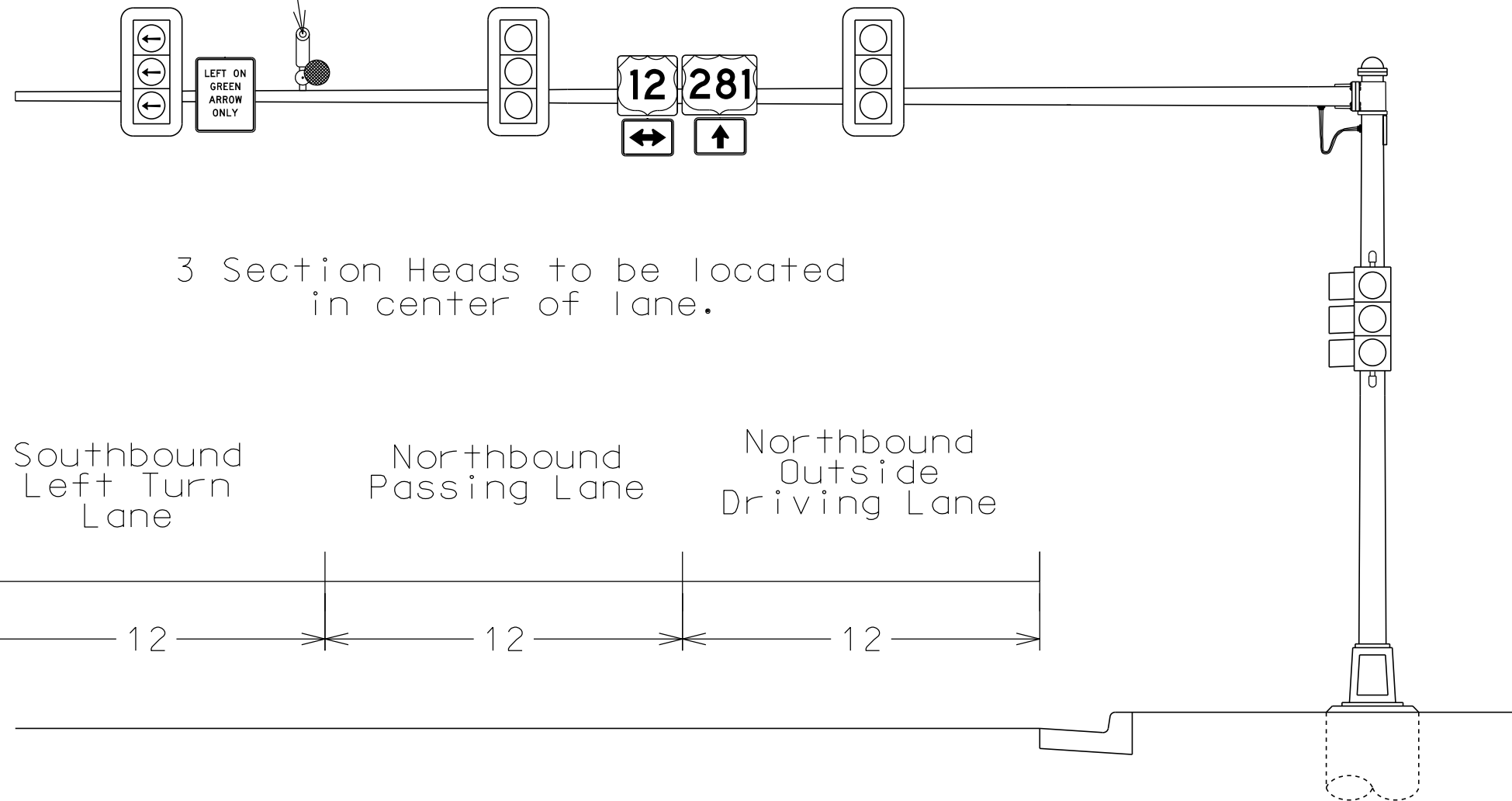
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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Mast Arm, 3 Section Signal Heads
Vehicle Preemption Detector Unit and Highway Signs

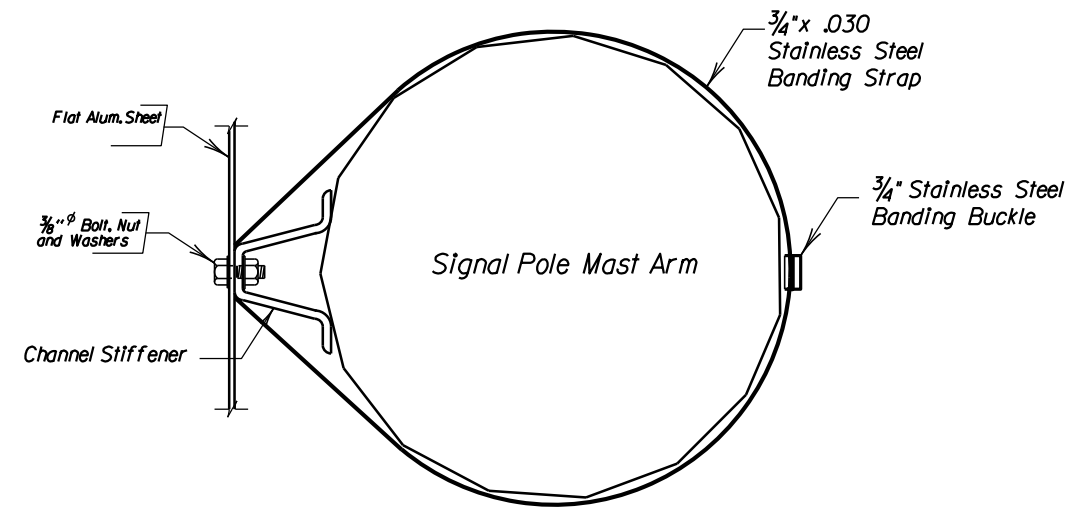
US 281 Northbound, MRM 194.24
US 12 Westbound MRM 288.94

Vehicle Preemption
Detector Unit

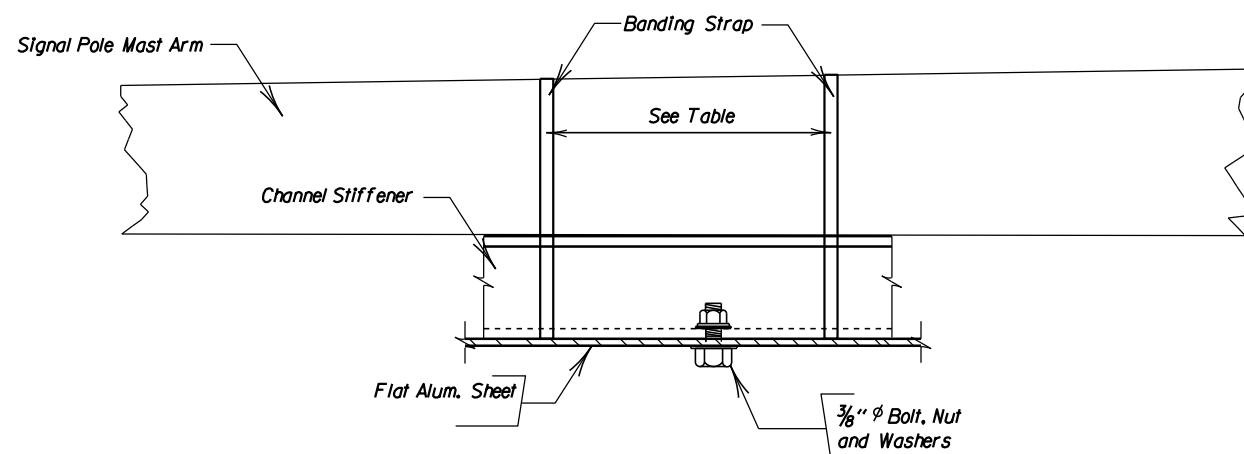
Signal Pole in NE
Quadrant of
Intersection



SIGN BANDING TO TRAFFIC SIGNAL MAST ARM



Typical Section
SEC. A-A



Elevation
SEC. B-B

BANDING STRAPS

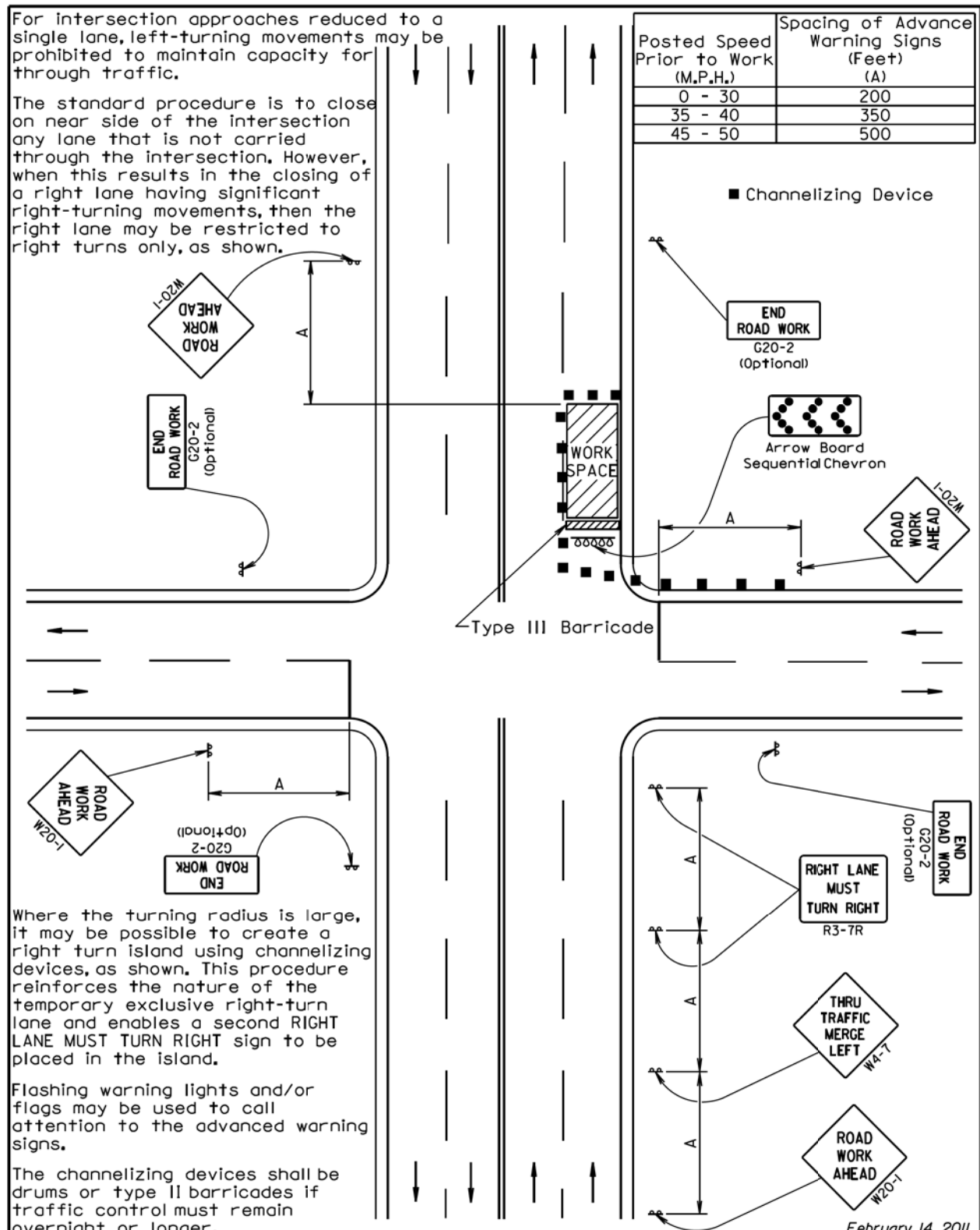
Sign Width	No. of Banding Straps	Inset from Vertical Edge of Sign
Less than 30"	2	6"
36" - 60"	3	6"
66" - 96"	4	6"

Inside Banding Strap(s) installed at Equal Spacing.

Channel Stiffener installed center of Flat Aluminum sheet sign blank.

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

1:200 Plot Scale



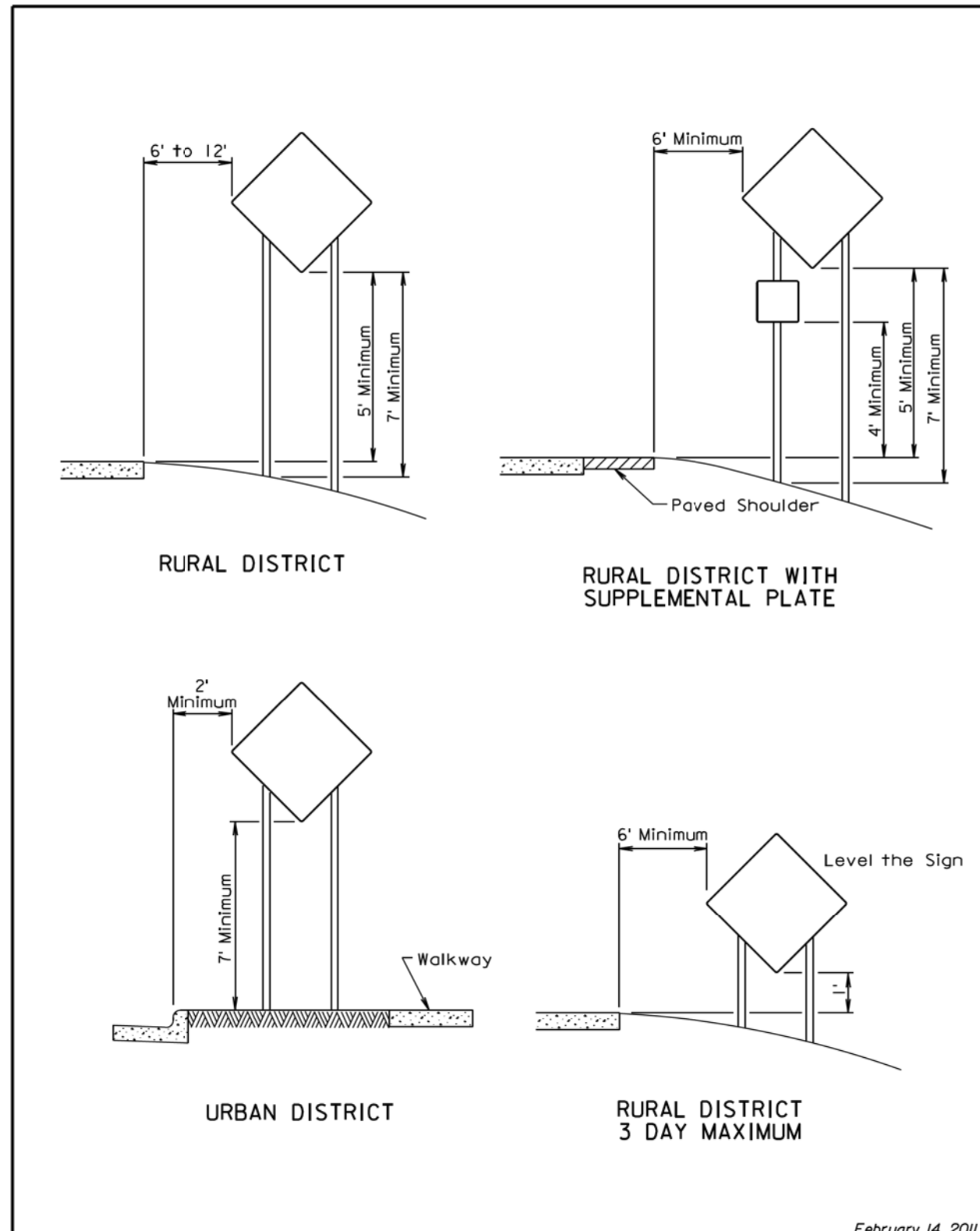
Where the turning radius is large, it may be possible to create a right turn island using channelizing devices, as shown. This procedure reinforces the nature of the temporary exclusive right-turn lane and enables a second RIGHT LANE MUST TURN RIGHT sign to be placed in the island.

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

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer.

February 14, 2011

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES RIGHT LANE CLOSURE FAR SIDE OF INTERSECTION	PLATE NUMBER 634.42
	Published Date: 1st Qtr. 2013	Sheet 1 of 1



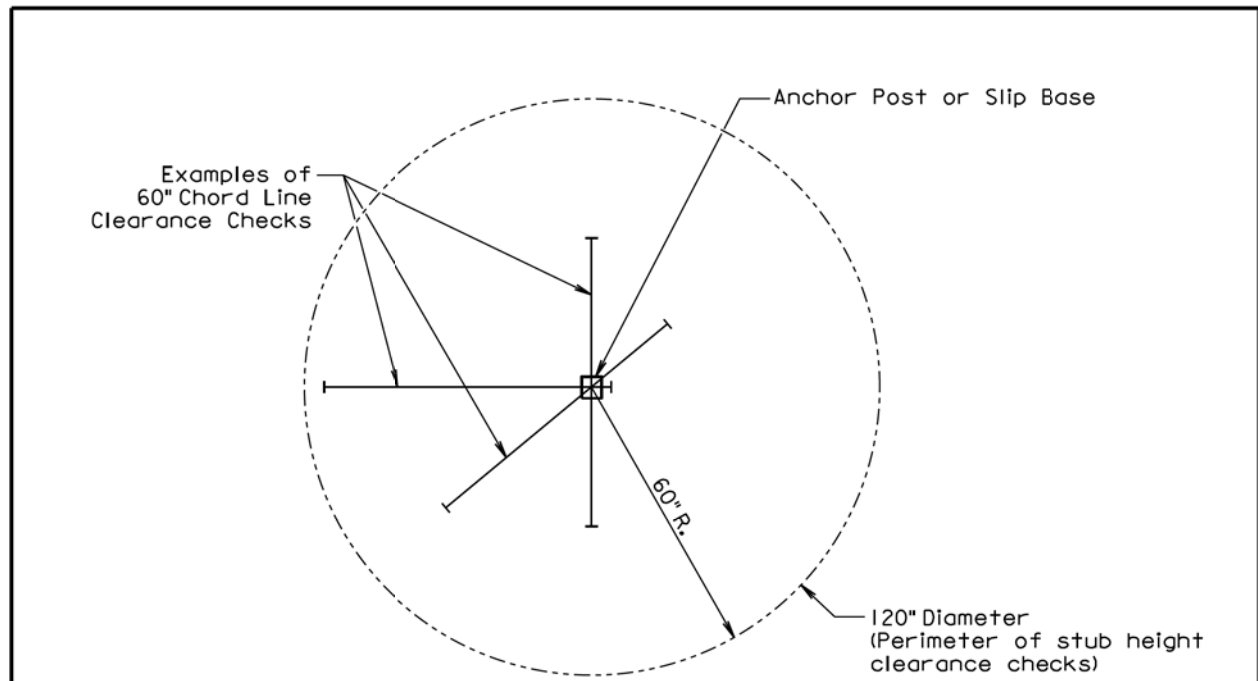
February 14, 2011

S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
	Published Date: 1st Qtr. 2013	Sheet 1 of 1

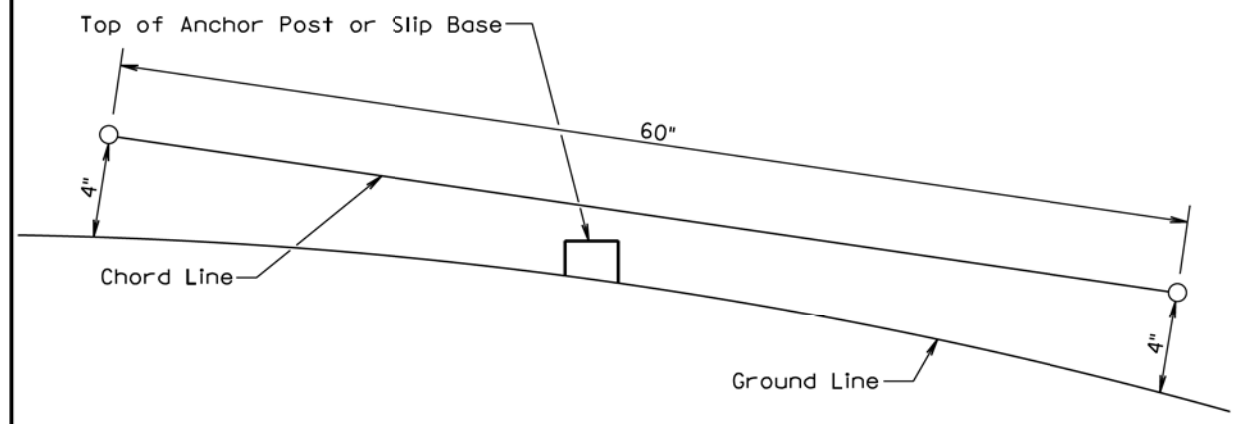
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Plot Scale - 1:200



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.

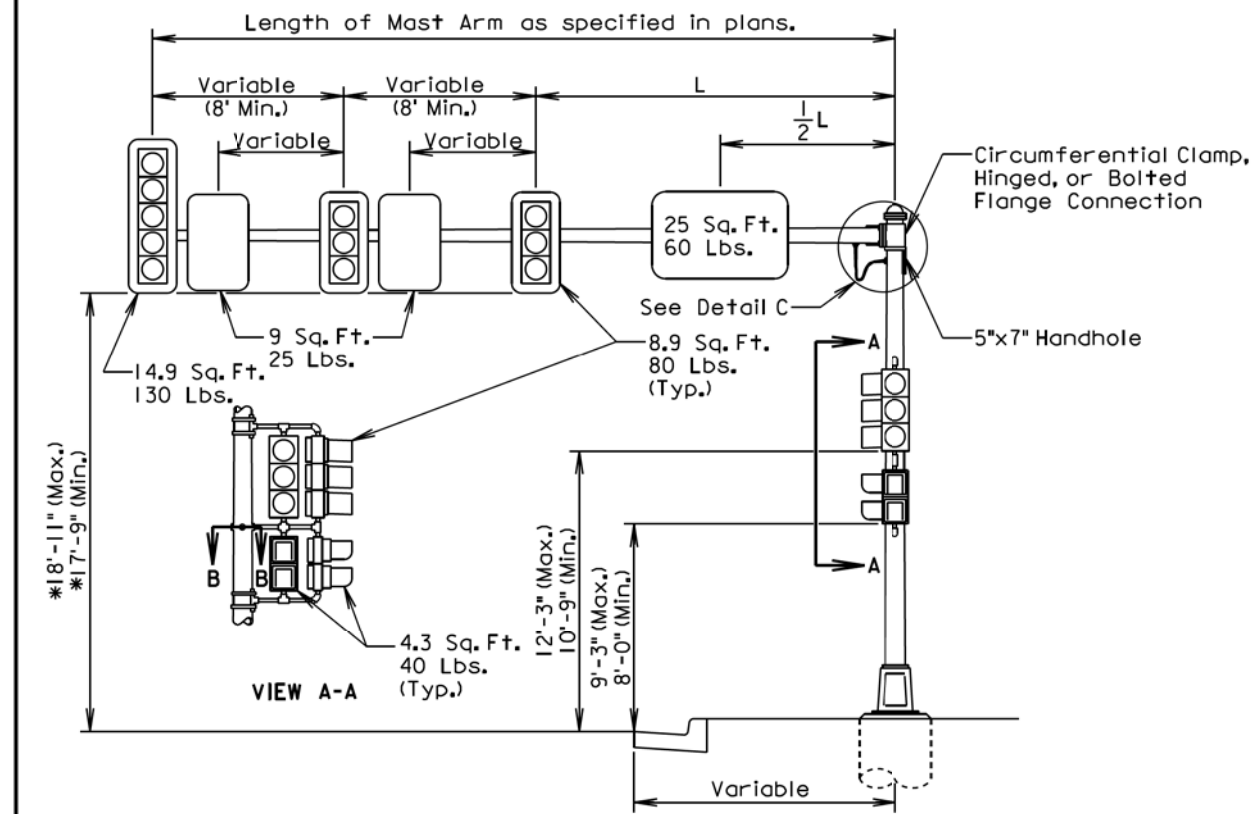
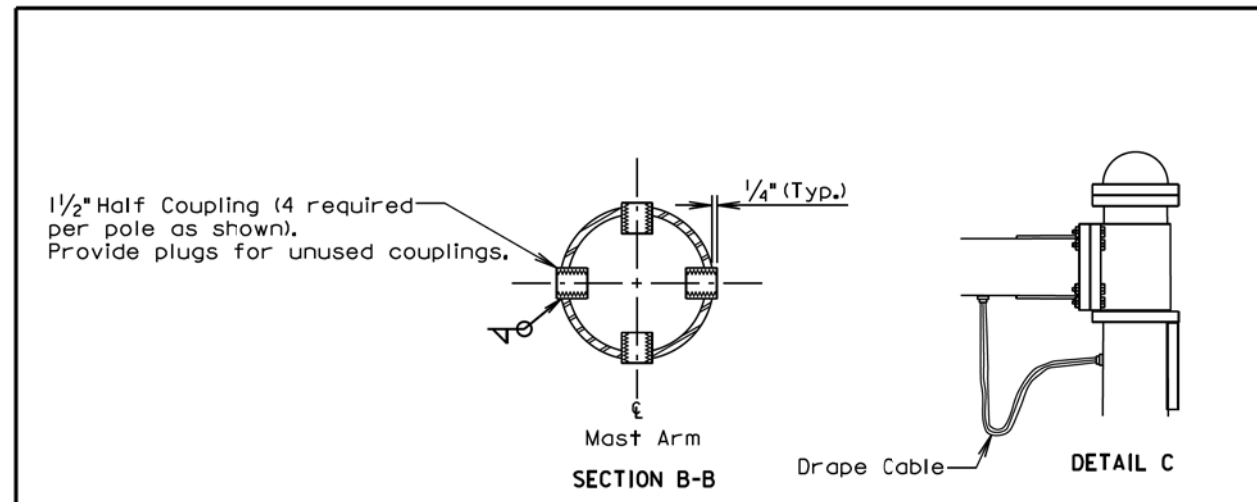
At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

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

S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
	<i>Published Date: 1st Qtr. 2013</i>	Sheet 1 of 1

- Plotted From - trab17879



GENERAL NOTES:

Some of the signal heads are shown with backplates removed so that the mounting hardware is visible.

*The signal height allowances shown above are based on a horizontal distance greater than 53' between the signals and stop line. For horizontal distance of 53' and less between the signals and the stop line, the height allowances shall be as specified in Section 4D.15 of the MUTCD.

December 23, 2008

S D D O T	SIGNAL POLE (WITH MAST ARM)	PLATE NUMBER 635.31
	<i>Published Date: 1st Qtr. 2013</i>	Sheet 1 of 1

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ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
R1-1	48" x 48"	STOP	4	34	136
R3-7R	30" x 30"	RIGHT LANE MUST TURN RIGHT	1	21	21
W4-7	48" X 48"	THRU TRAFFIC MERGE LEFT	1	34	34
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	4	34	136
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED	1	40	40
TOTAL UNITS					367