

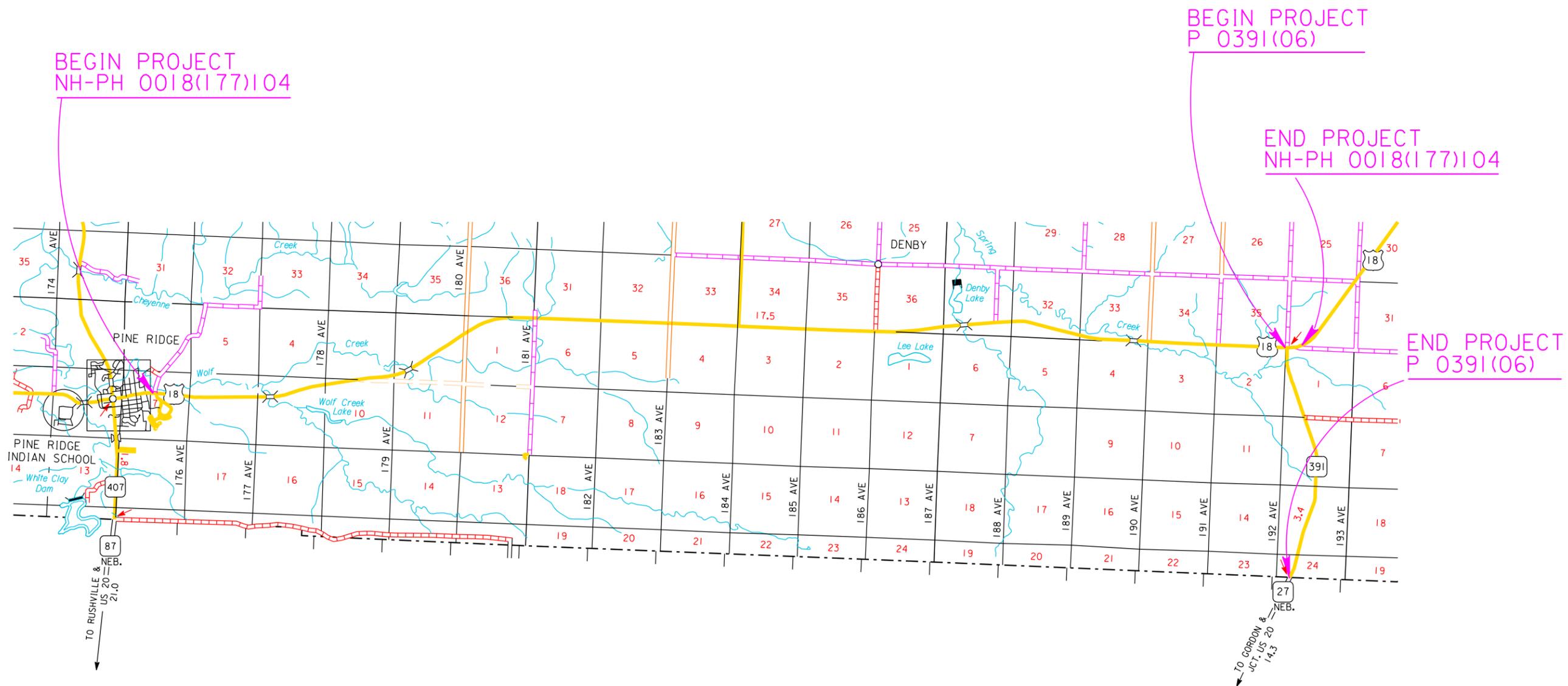
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH-PH 0018(177)104 P 0391(06)0		

Plotting Date: 09/15/2015

Section C: Traffic Control Plans

INDEX OF SHEETS

- C1 General Layout W/Index
- C2-C3 Estimate With General Notes & Tables
- C4-C6 Fixed Locations Signs
- C7-C8 Width Restriction Signing
- C9-C10 Typical Sign Details
- C11-C15 Standard Plates



PLOT SCALE - 1:201.258

PLOT NAME - 11

FILE - ... \SECTION C\020C TRAFFIC.DGN

PLOTTED FROM - TRCU10206

SECTION C – ESTIMATE OF QUANTITIES - NH-PH 0018(177)104

Bid Item Number	Item	Quantity	Unit
632E3526	Install State Furnished Sign	10.000	Each
634E0010	Flagging	6,000.000	Hour
634E0020	Pilot Car	2,000.000	Hour
634E0100	Traffic Control SIGNS	1,472.000	SQFT
634E0120	Traffic Control, Miscellaneous	1.000	LS
634E0280	Type 3 Barricade, 8' Single Sided	20.000	Each
634E0630	Temporary Pavement Marking	68.000	Each

SECTION C – ESTIMATE OF QUANTITIES – P 0391(06)0

Bid Item Number	Item	Quantity	Unit
632E3526	Install State Furnished Sign	10.000	Each
634E0010	Flagging	1,000.000	Hour
634E0020	Pilot Car	500.000	Hour
634E0100	Traffic Control SIGNS	294.000	SQFT
634E0120	Traffic Control, Miscellaneous	1.000	LS
634E0630	Temporary Pavement Marking	14.000	Mile

SEQUENCE OF OPERATIONS

Work shall proceed in accordance with the following sequence:

Phase 1 of the project will be the completion of the grading and surfacing from MRM 104.289 to the intersection of BIA Hwy 27 at approximate MRM 113 (Sta 497+80).

Phase 2 of the project will be the completion of the grading and surfacing from MRM 113 (Sta 497+80) to MRM 121.21 on US 18 and the mill and overlay of Hwy 391.

The Contractor will be allowed a maximum of 5 mile-lanes closed in succession at one time.

The Contractor will have placement of base course, topsoil, and permanent erosion control measures in the first 3 miles of the 5 mile closure before the Contractor can begin earth moving operations in miles 6 to 8. The base course will be bladed to create a wedge along the edge of the roadway to eliminate any drop offs before the Contractor will be allowed to work in miles 6 to 8.

The Contractor will not be allowed to work on the shoulder on opposite sides of the roadway at the same time and a vertical drop on both sides of the roadway will not be allowed. Prior to opening a lane of traffic, the grading shall be brought up so that the maximum vertical drop on the shoulder is 16".

Prior to opening a lane of traffic, drop offs on the shoulder shall be marked with signs and delineated with drums, 42" cones, or vertical panels at a maximum of 100' spacing. Drums or 42" cones will only be allowed when they will meet the minimum height requirements in the MUTCD of 28" above the driving surface. When the vertical drop off prevents the minimum 28" height requirement, vertical panels shall be placed on the edge of the driving surface. The Contractor shall have sufficient quantity of vertical panels on site to mark drop offs in the event of an emergency, or weather delays the resumption of work. Payment for signs shall be at the contract unit price for Traffic Control per unit. The cost for the drums, 42" cones, and vertical panels shall be incidental to the contract lump sum price for Traffic Control Miscellaneous.

The Contractor will restore traffic to one lane each direction at the end of the day, prior to nightfall. Prior to opening the roadway to traffic the Contractor shall clean the roadway surface each day.

Pipe replacement shall be phased ½ at a time to maintain an open lane of traffic unless specified differently in the Special Provision for Contract Time.

All grading work must be completed before surfacing can begin for each phase.

While the Contractor is present and work is being completed, the Contractor will be allowed to pilot car the traffic in a single lane through the project with minimal delineation. The Contractor will be required to restore traffic to one lane each direction prior to suspending work at the end of each day. The Contractor shall coordinate his work so that all requirements for opening traffic to one lane each direction can be met prior to nightfall and/or forecasted weather events.

A minimum lane width of 11' shall be maintained on the existing roadway through work areas. The Contractor shall adjust traffic control items to accommodate over width vehicles when necessary, up to 17' wide.

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 sequence of the work. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.

GENERAL MAINTENANCE OF TRAFFIC

Traffic shall not be delayed for a cumulative period longer than 15 minutes throughout the project.

At pipe installation locations the Contractor shall place the new pipe, place gravel surfacing and have the road open to traffic at the end of the day.

Cones with a height of 42" will be allowed in areas where drums will not fit on the road for maintaining traffic.

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 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.

Traffic control shall be in accordance with MUTCD Standards, the Specifications and these plans.

The Contractor shall keep the portion of the project being used by public traffic in a condition that will adequately and safely accommodate traffic. A power broom will be required to clean all loose debris off of paved surfacing. All costs associated with brooming will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Storage of vehicles, materials 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.

Non-applicable signing will be covered or removed and reset during periods of in-activity. All costs to do this work shall be incidental to the contract lump sum for Traffic Control, Miscellaneous.

Removing, relocating, covering, salvaging and resetting of permanent traffic control devices 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.

The pilot car shall be a four wheeled vehicle with the Contractor's name prominently displayed on both sides of the vehicle. A 36" x 18" black on orange sign G20-4, PILOT CAR (top line) FOLLOW ME (bottom line) shall be mounted in a conspicuous position on the rear of the vehicle. The pilot car will be equipped with a flashing amber light.

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 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, ground mounted, breakaway supports at the time of initial installation.

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.

Work activities shall only be during daylight hours. Daylight hours are considered to be ½ hour before sunrise until ½ hour after sunset.

The Contractor or designated traffic control subcontractor shall make night (after dark) 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 related contract items.

GENERAL MAINTENANCE OF TRAFFIC (CONTINUED)

The Contractor shall communicate with and provide passage for school buses, public transportation, and EMS vehicles during all phases of construction.

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.

During periods of working hours the Contractor shall maintain one lane of traffic through the construction zone at all times with traffic being controlled with a pilot car.

The Contractor shall place Bump signs where appropriate.

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.

The Contractor shall not allow mainline traffic to run on a milled surface at any location on the project for more than 14 calendar days.

TEMPORARY PAVEMENT MARKING

The Contractor shall place temporary pavement marking. Temporary pavement marking paint shall be used on the milled surface. Temporary Flexible Vertical Markers (Tabs) shall be used on the finished asphalt surface. 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. A cycle length of 20 feet shall be used. Covers on tabs shall be removed prior to opening roadway to normal traffic flow.

The Contractor shall use protective marker covers to be removed after the application of the flush seal.

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.

In addition, No Passing Zone areas shall be marked by signs as noted below.

The Contractor shall use DO NOT PASS and PASS WITH CARE signs to mark no passing zones. These signs will be State provided and payment for install shall be covered by the contract quantity for the Install State Furnished Sign bid item.

Flagger symbol signs (W20-7) and flaggers, or a shadow vehicle equipped with high-intensity rotating, flashing, oscillating or strobe lights shall be positioned on the roadway shoulder in advance of the workers for 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) sign, a worker symbol sign (W21-1) or a BE PREPARED TO STOP (W3-4) 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.

All costs for temporary pavement marking including furnishing, applying, uncovering, maintenance and removal of tabs shall be incidental to the contract unit price per mile for Temporary Pavement Marking.

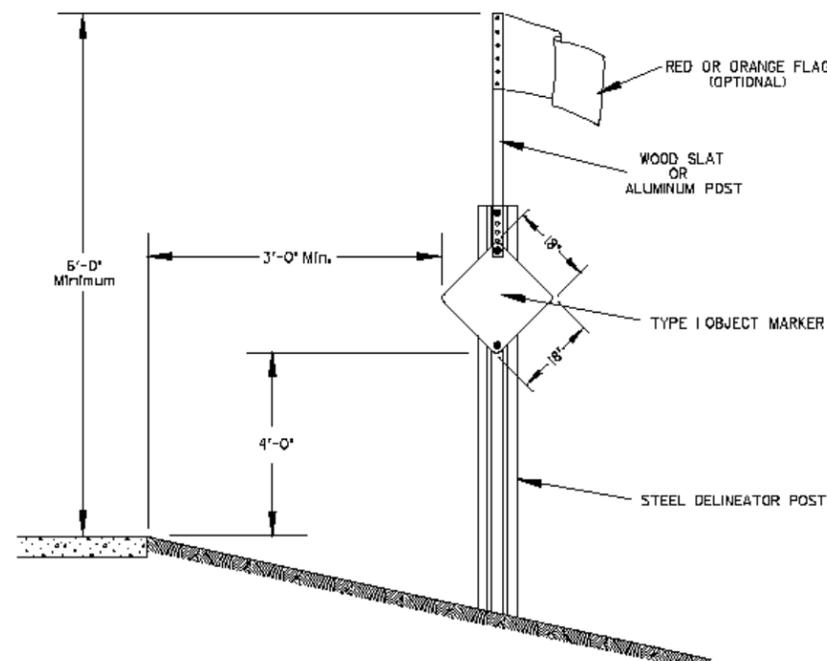
BUMP MARKERS

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.

The steel delineator post shall be 1.12 lb/ft flanged channel post for ground mounted installation. If the duration is less than 3 days, the Type 1 Object Marker can be installed on temporary supports.

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



SIGN INVENTORY

PCN 02QC

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT	2	24" x 30"	5	10
R2-6aP	FINES DOUBLE (plaque)	4	24" x 18"	3	12
R4-7	KEEP RIGHT (symbol)	2	24" x 30"	5	10
W1-4	REVERSE CURVE (L or R)	2	48" x 48"	16	32
W1-6	LARGE ARROW (one direction)	4	48" x 24"	8	32
W3-4	BE PREPARED TO STOP	4	48" x 48"	16	64
W3-5	SPEED REDUCTION AHEAD (MPH)	4	48" x 48"	16	64
W8-1	BUMP	10	48" x 48"	16	160
W8-6	TRUCK CROSSING	4	48" x 48"	16	64
W8-7	LOOSE GRAVEL	8	48" x 48"	16	128
SPECIAL	WINDROW	2	36" x 36"	9	18
W8-9a	SHOULDER DROP-OFF	2	48" x 48"	16	32
W13-1P	ADVISORY SPEED (plaque)	8	30" x 30"	6	48
W20-1	ROAD WORK AHEAD	20	48" x 48"	16	320
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16	64
W20-7	FLAGGER (symbol)	4	48" x 48"	16	64
W21-2	FRESH OIL	8	48" x 48"	16	128
W21-3	ROAD MACHINERY AHEAD	2	48" x 48"	16	32
W21-5a	LEFT or RIGHT SHOULDER CLOSED	4	48" x 48"	16	64
G20-1	ROAD WORK NEXT MILES	4	36" x 18"	5	20
G20-2	END ROAD WORK	20	36" x 18"	5	100
-	TYPE III OBJECT MARKER	2	12" x 36"	3	6
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			1472

PCN 02NH

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	2	48" x 48"	16	32
W8-1	BUMP	2	48" x 48"	16	32
SPECIAL	WINDROW	2	36" x 36"	9	18
W20-1	ROAD WORK AHEAD	4	48" x 48"	16	64
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-2	FRESH OIL	4	48" x 48"	16	64
G20-2	END ROAD WORK	4	36" x 18"	5	20
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			294

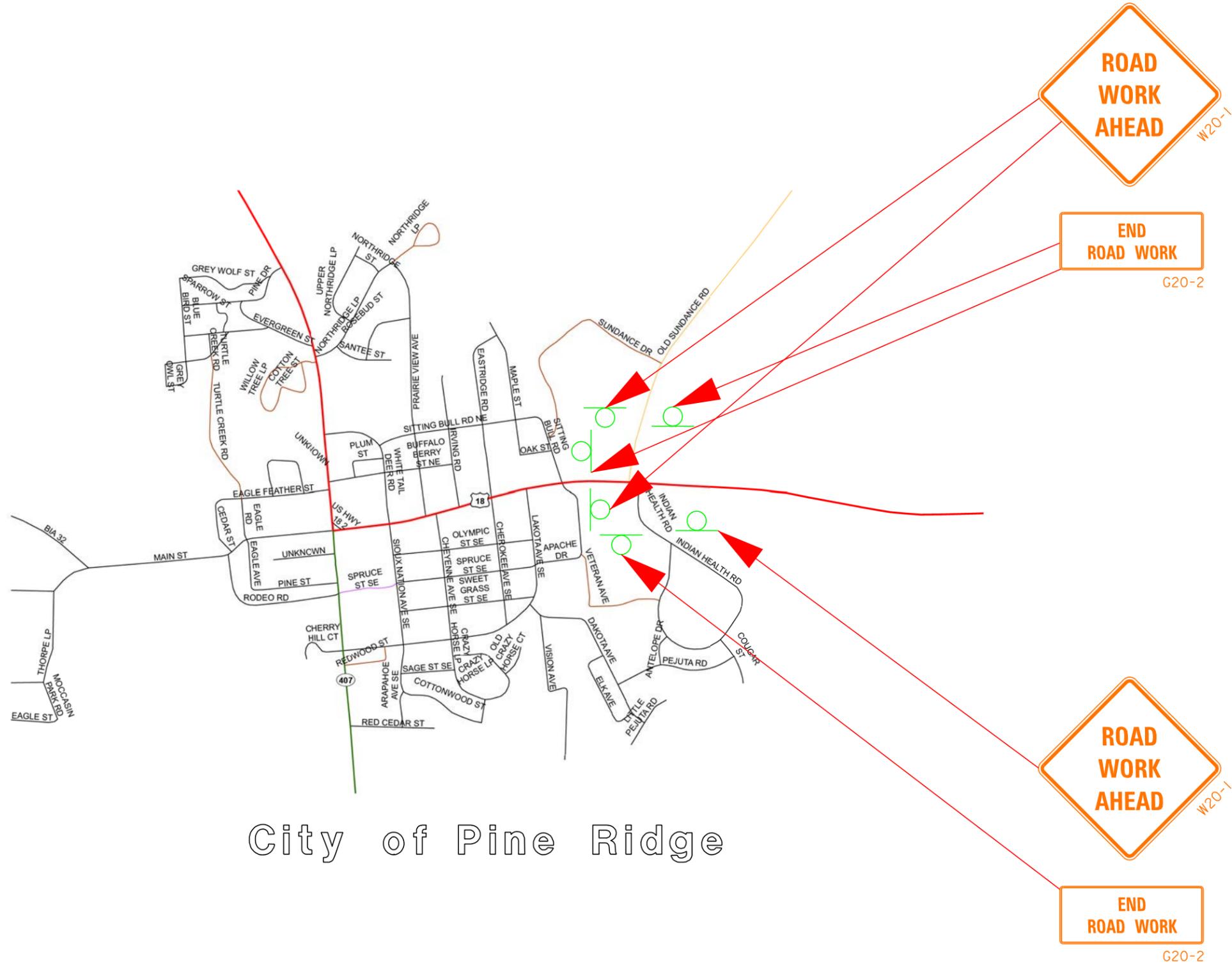
PRESS RELEASE ANNOUNCEMENTS

The DOT will prepare a Press Release to be released 48 hours prior to any phase change or any other major change that affects traffic flow. The DOT will be responsible to keep law enforcement, emergency services, and the traveling public notified of changes in project access. The Contractor shall provide the Engineer with pertinent information 4 days prior to any major change that affects traffic flow.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH -PH 0018(177)104 P 0391(06)0		

Plotting Date: 12/03/2014

FIXED SIGN LOCATION NH-PH 0018 (177)104



PLOT SCALE - 1:201.258

PLOTTED FROM - TRCU10206

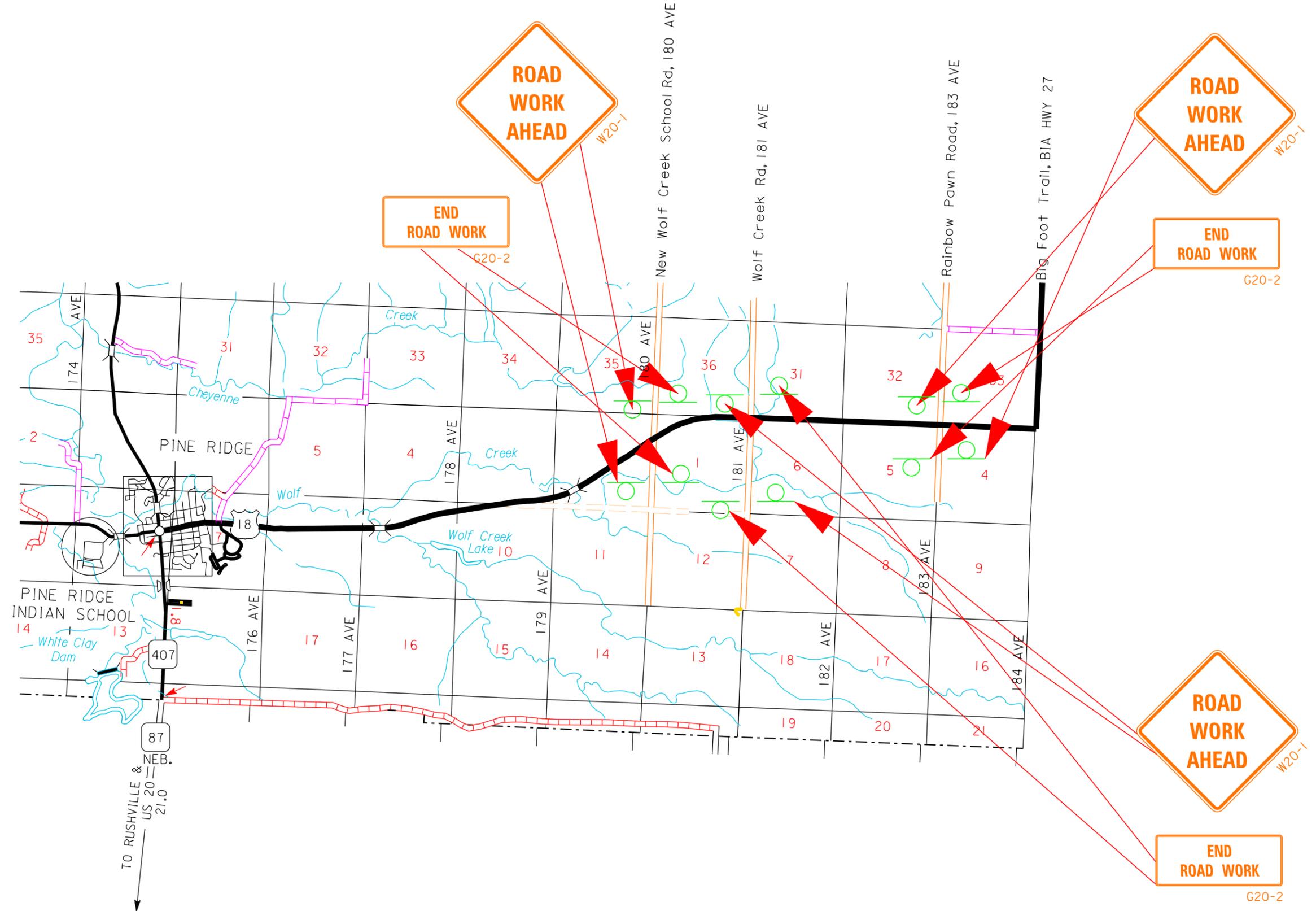
PLOT NAME - 1

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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH-PH 0018(177)104 P 0391(06)0		

Plotting Date: 12/03/2014

FIXED SIGN LOCATION NH-PH 0018 (17 7)104



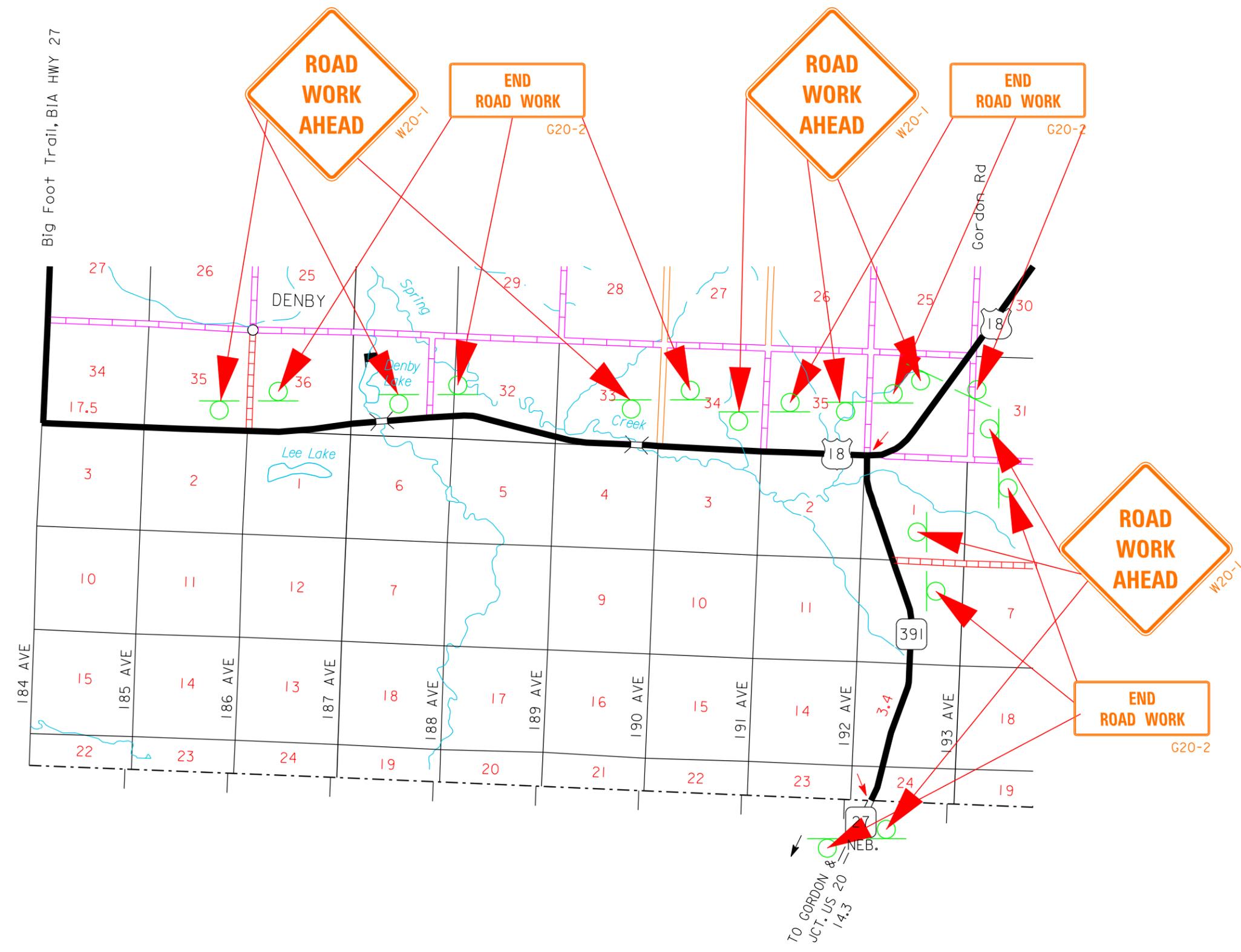
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PLOTTED FROM - TRCU10206

PLOT NAME - 2

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FIXED SIGN LOCATION NH-PH 0018 (177)104 & P 0391(06)0



PLOT SCALE - 1:201.258

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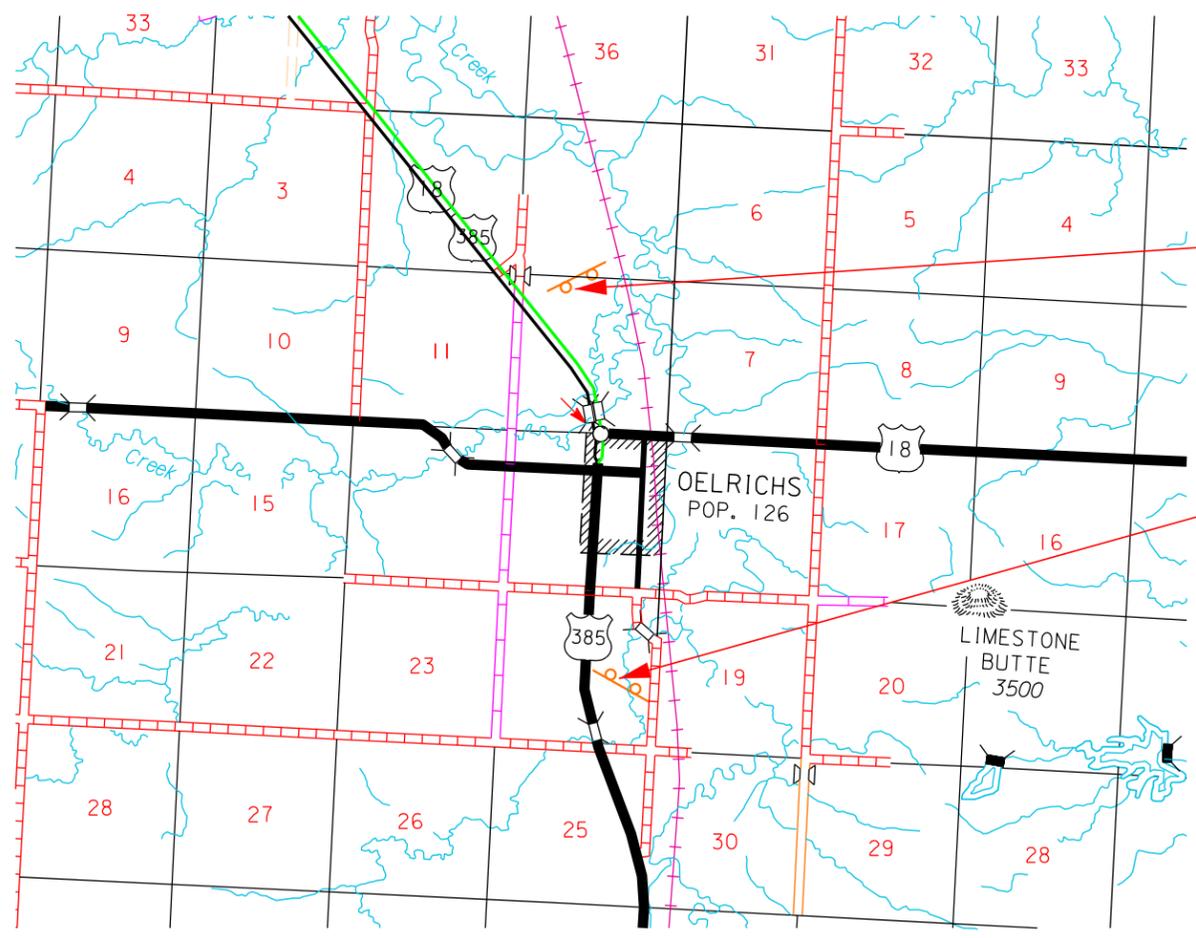
PLOT NAME - 3

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL
	NH-PH 0018(177)104 P 0391(06)0	NO.	SHEETS
		C7	C16

Plotting Date: 12/03/2014

Width Restriction Signing



WIDTH RESTRICTION

18 EAST

OVER 12 FT WIDE
XXX MILES AHEAD
USE ALT ROUTE

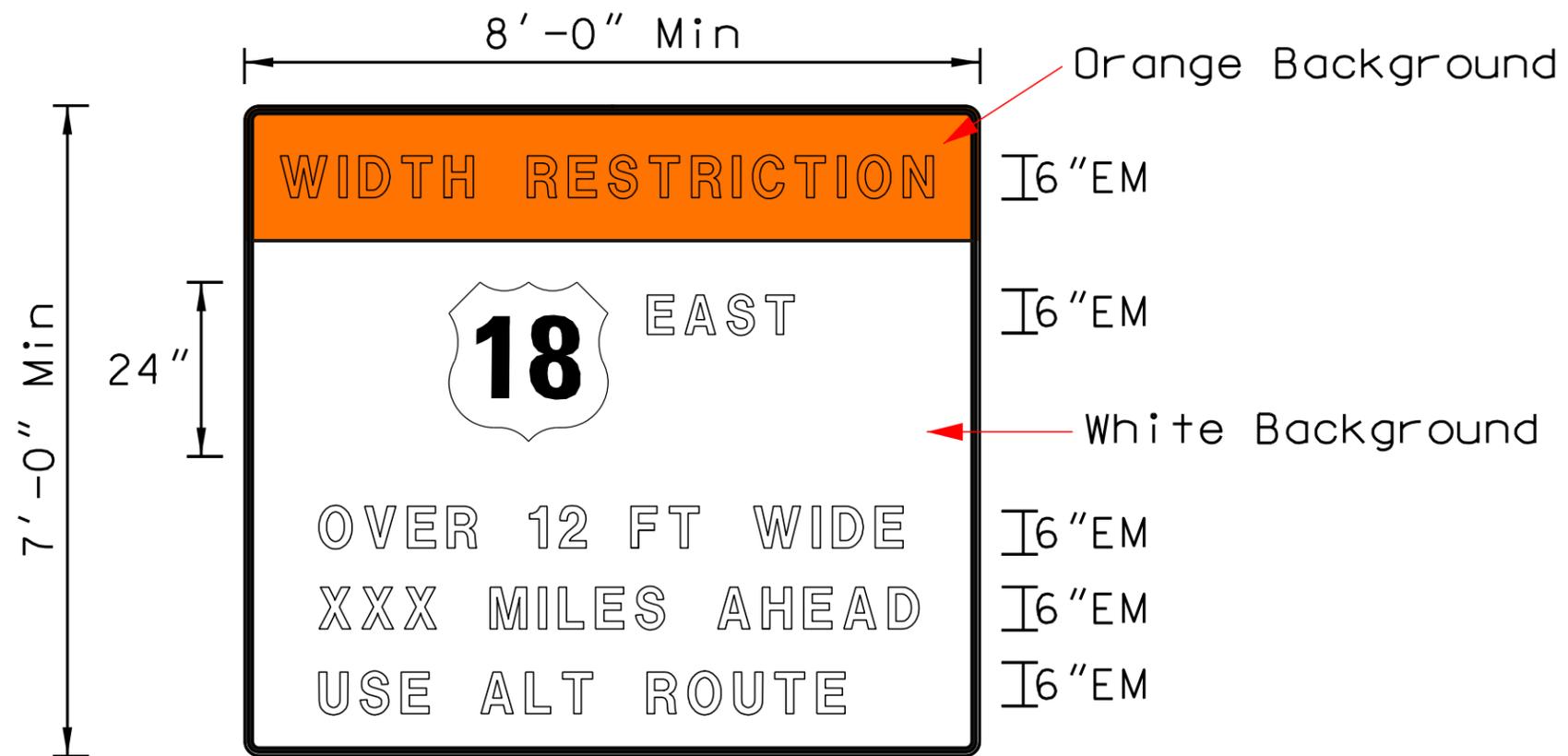
PLOT SCALE - 1:201.258

PLOTTED FROM - TRCU10206

PLOT NAME - 4

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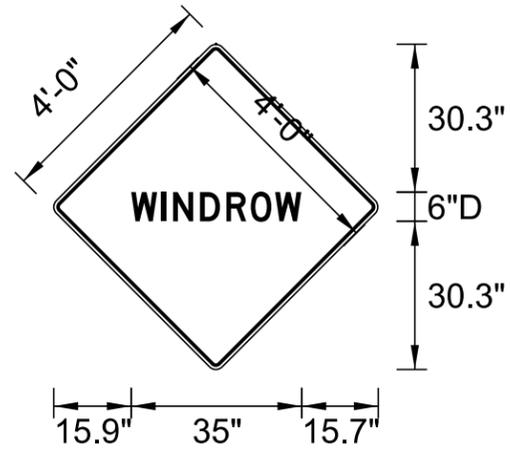
Width Restriction Signing



Plotting Date: 09/10/2015

SIGN DETAIL

1:50



Panel Style: construction_warning.ssi
M.U.T.C.D.: 2009 Edition

Panel Style: construction_warning.ssi
Dimensions are in inches.tenths
Letter locations are panel edge to lower left corner

SIGN NUMBER	Windrow
WIDTH x HGHT.	5'-7" x 5'-7"
BORDER WIDTH	0"
CORNER RADIUS	0"
MOUNTING	Ground
BACKGROUND	TYPE: Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: Reflective
	COLOR: Black/Black

SYMBOL	ROT	X	Y	WID	HT

LETTER POSITIONS (X)							LENGTH	SERIESSIZE
W	I	N	D	R	O	W		D 2000
15.9	22.1	24.5	30	35.4	40.4	45.4	35	6

Manned Work Space Signing

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

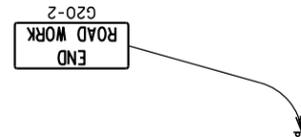
For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The END ROAD WORK sign may be omitted when the work zone is located within the limits of the project and the sign is duplicated at the end of the project.

For tack and/or flush seal operations 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 if traffic control must remain overnight or longer. During daylight hours, 42" cones may be used in lieu of drums along the centerline.

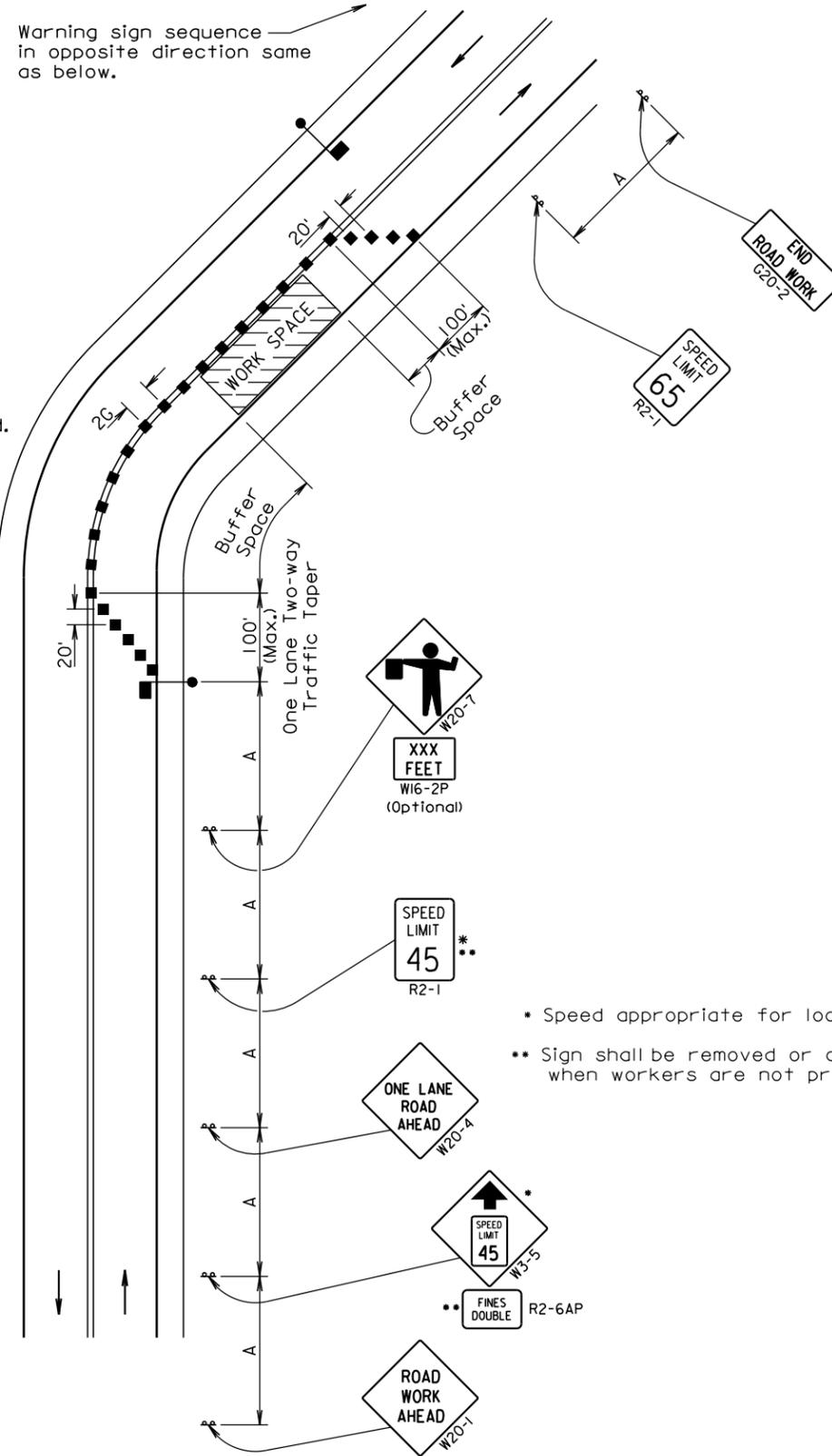


Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

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

The buffer space shall be a sufficient length so that the channelizing devices are visible to approaching traffic.

Speed Reduction may extend into unmanned work zones, or stay up during hours of inactivity, when a hazard to the public or workers remains, at the Engineer's discretion.

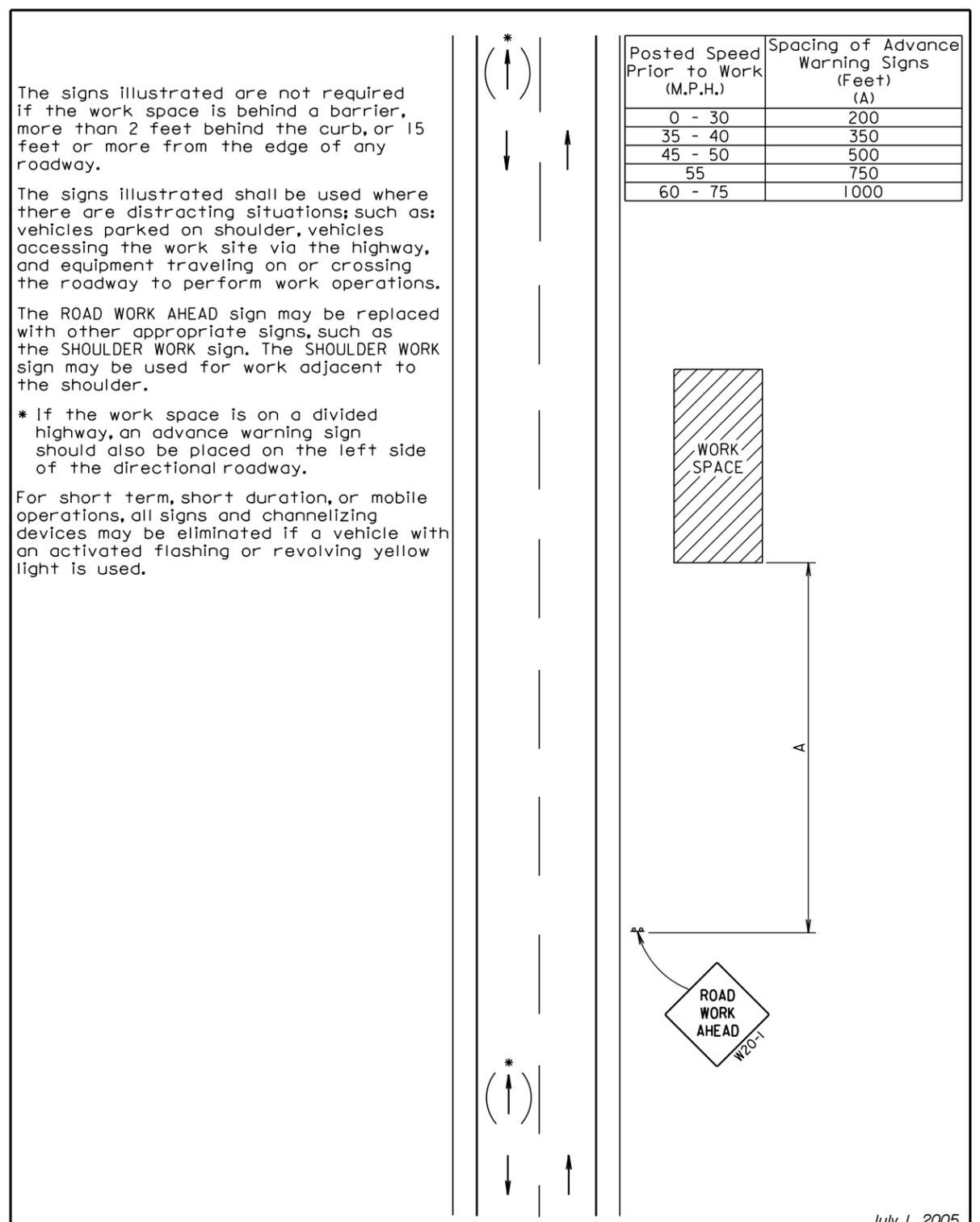


- * Speed appropriate for location.
- ** Sign shall be removed or covered when workers are not present.

PLOT SCALE - 1:201.258

PLOT NAME - 7
FILE - ... \SECTION C\020C TRAFFIC.DGN

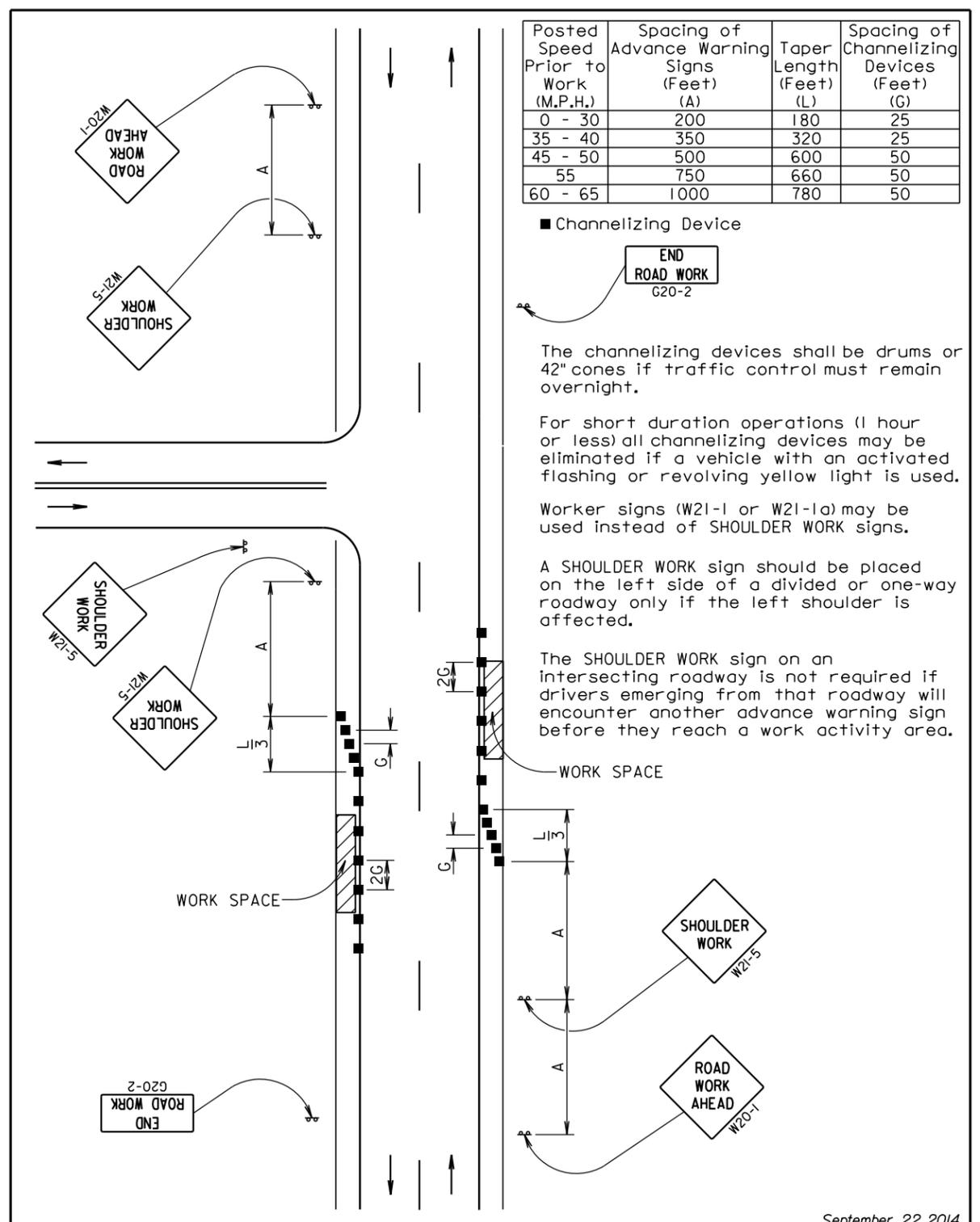
PLOT SCALE - 1:201.258



July 1, 2005

Published Date: 4th Qtr. 2014	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
			Sheet 1 of 1

PLOT NAME - 8



September 22, 2014

Published Date: 4th Qtr. 2014	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
			Sheet 1 of 1

PLOTTED FROM - TRCU10206

FILE - H:\PCN 020C\020C TRAFFIC.DGN

PLOT SCALE - 1:201,258

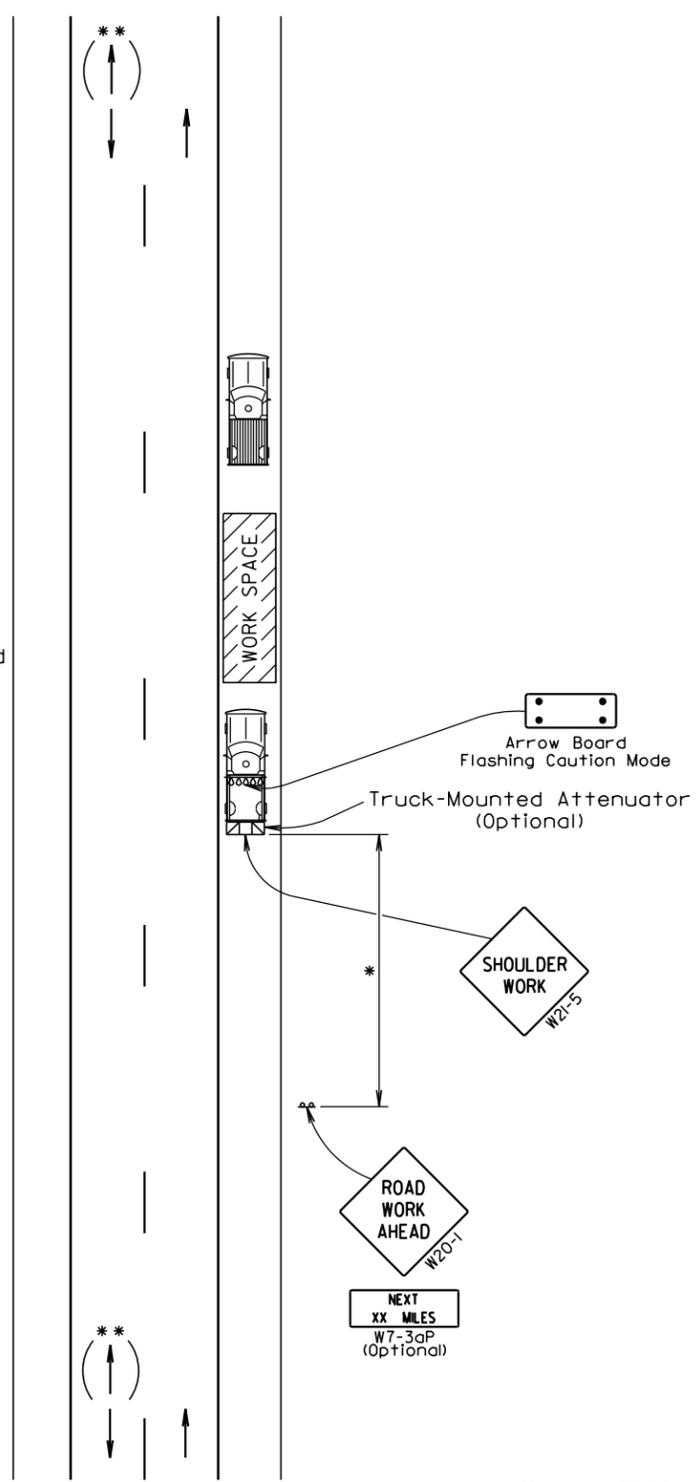
* In situations where multiple work locations in a limited distance make it practical to place stationary signs, the distance between the advance warning sign and the work should not exceed 5 miles.

The ROAD WORK NEXT xx MILES sign may be used instead of the ROAD WORK AHEAD sign if the work locations occur over a distance of more than 2 miles.

Arrow board is required for intermittently and continuously moving mobile operations when work exceeds 1 hour.

** 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.

In situations where the distance between the advance warning signs and the work is 2 miles to 5 miles, a Supplemental Distance plaque should be used with the ROAD WORK AHEAD sign.



September 22, 2014

Published Date: 4th Qtr. 2014	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES MOBILE OPERATIONS ON SHOULDER	PLATE NUMBER 634.04
			Sheet 1 of 1

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.

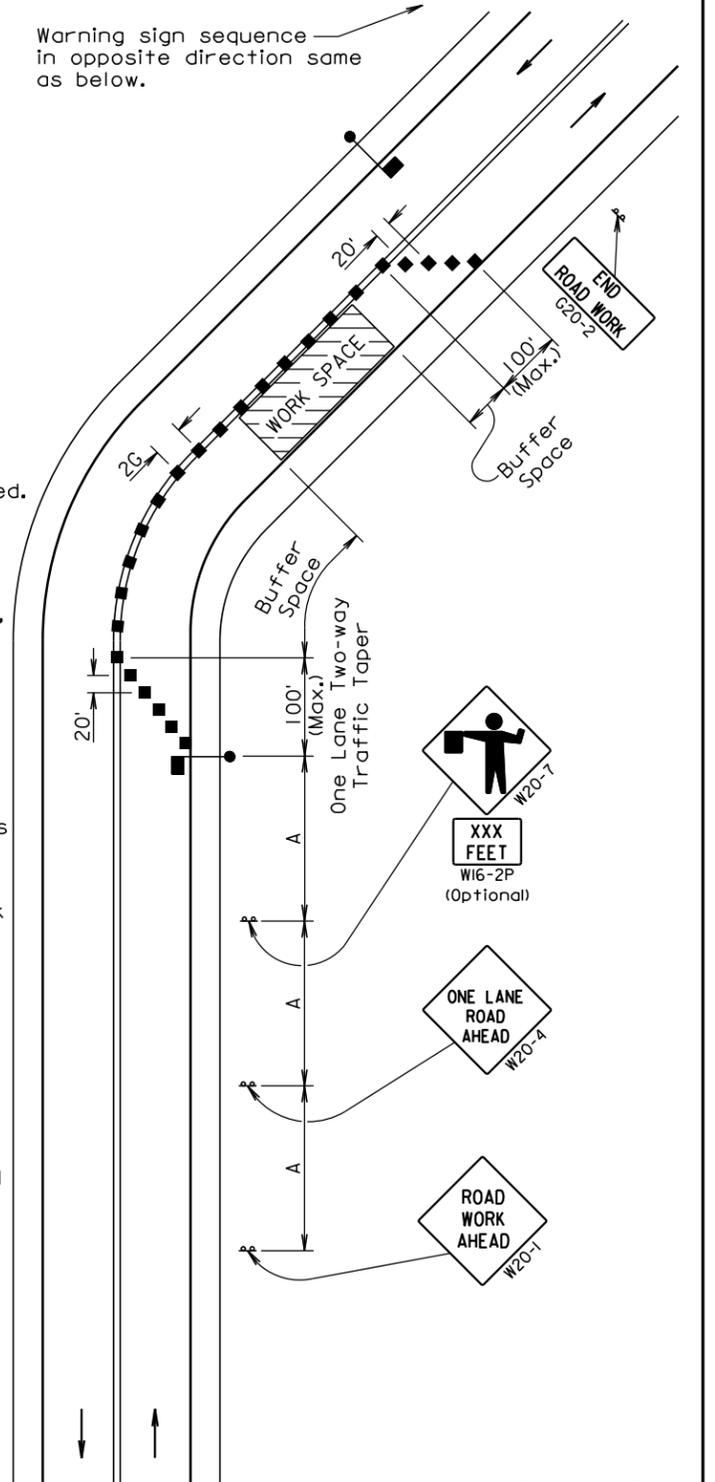
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

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.

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

Warning sign sequence in opposite direction same as below.



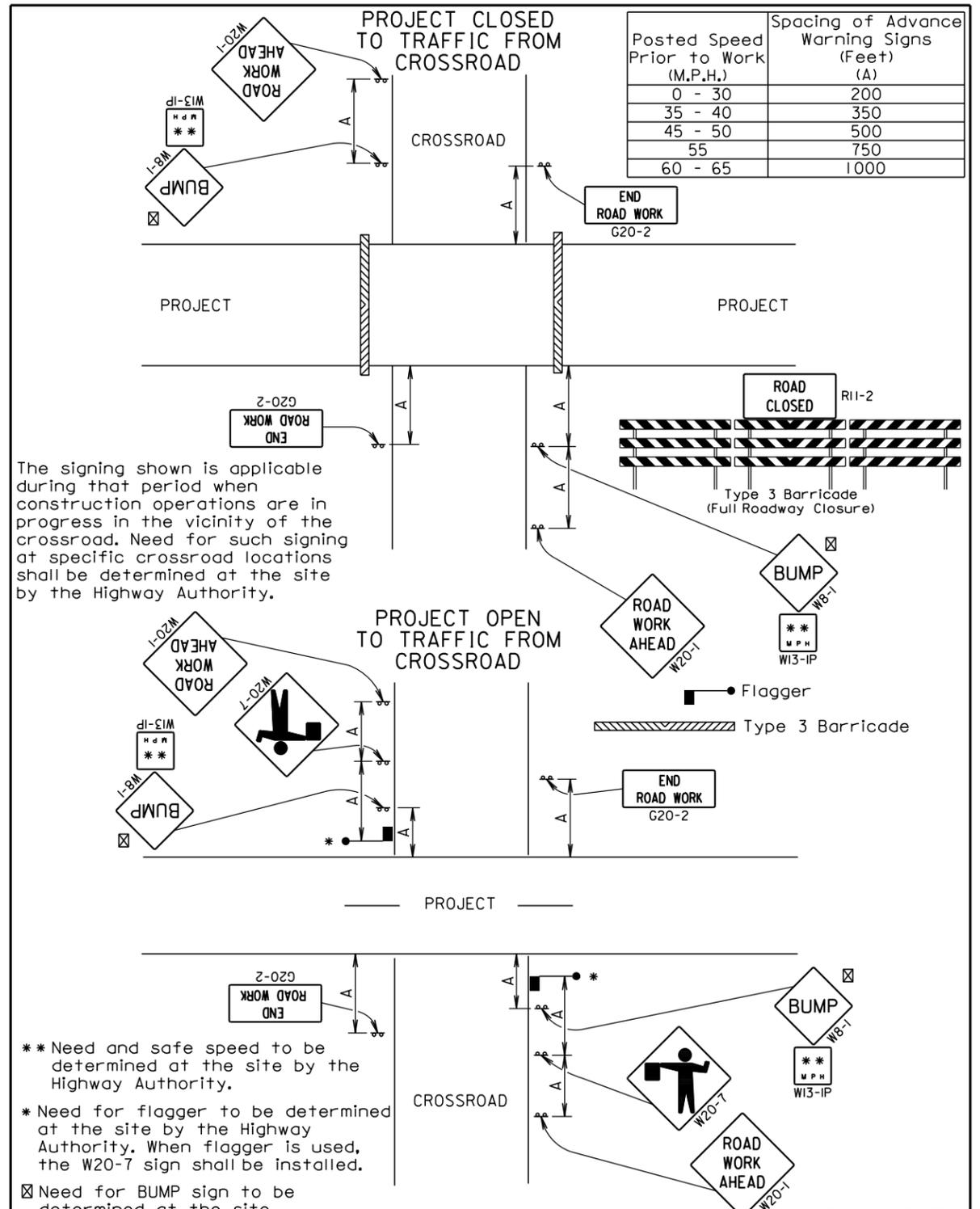
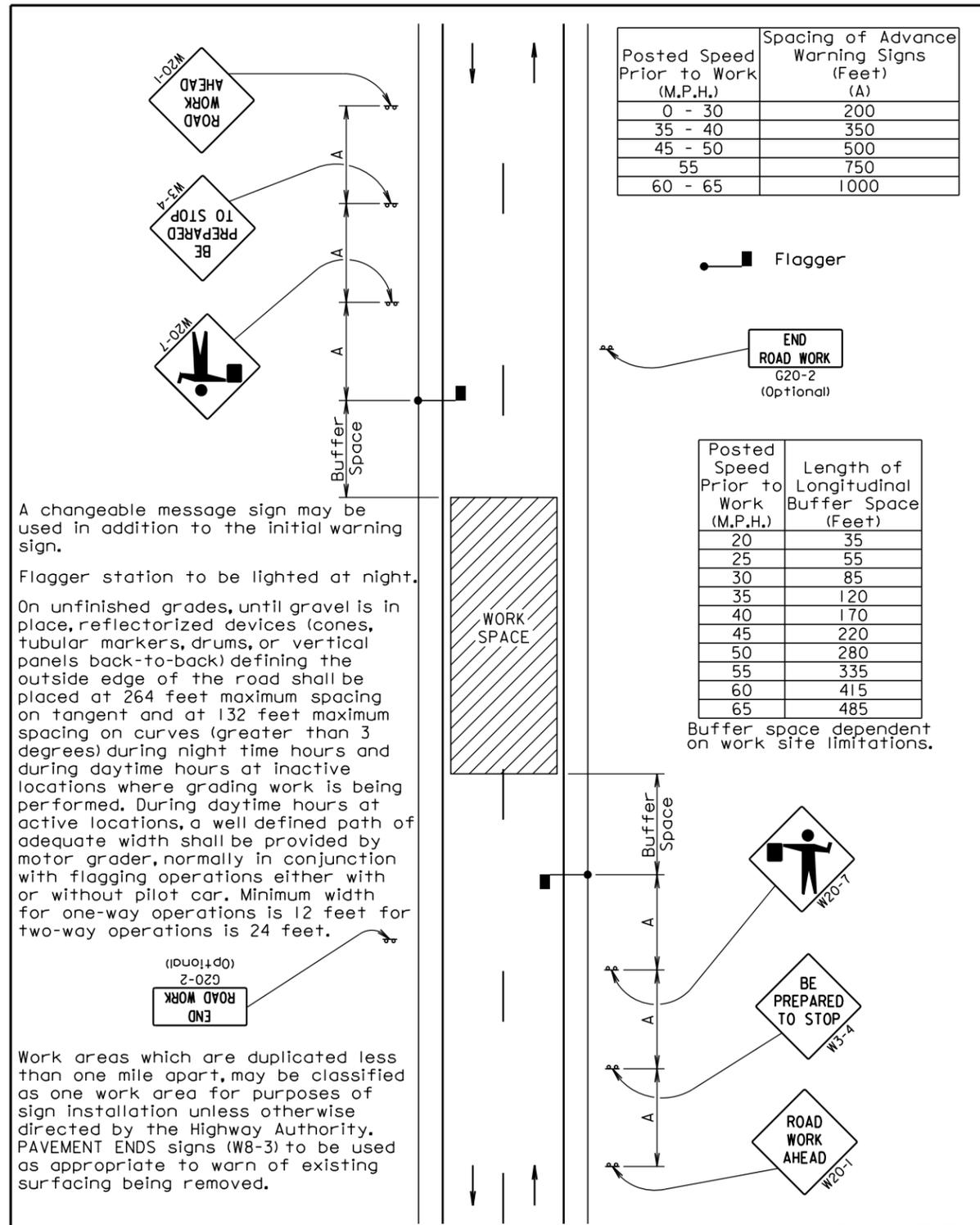
September 22, 2014

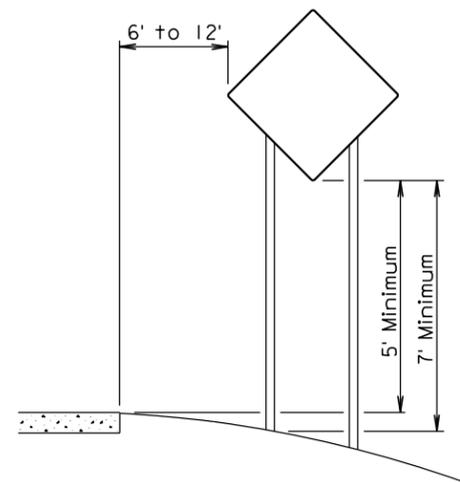
Published Date: 4th Qtr. 2014	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

PLOTTED FROM - TRCU10206

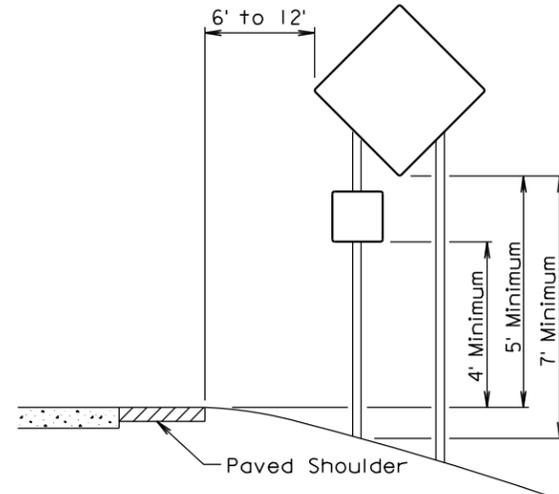
PLOT NAME - 9

FILE - H:\PCN 020C\020C TRAFFIC.DGN

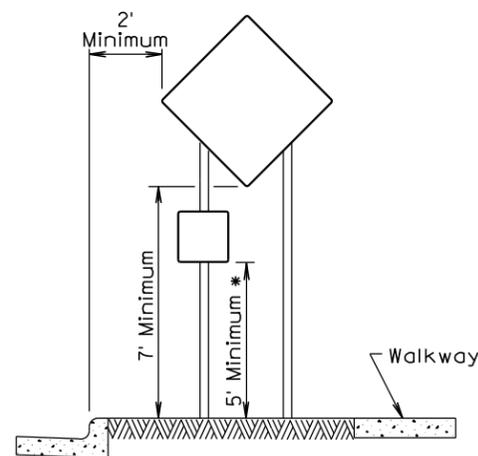




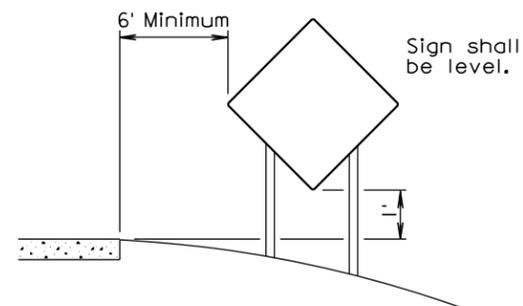
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

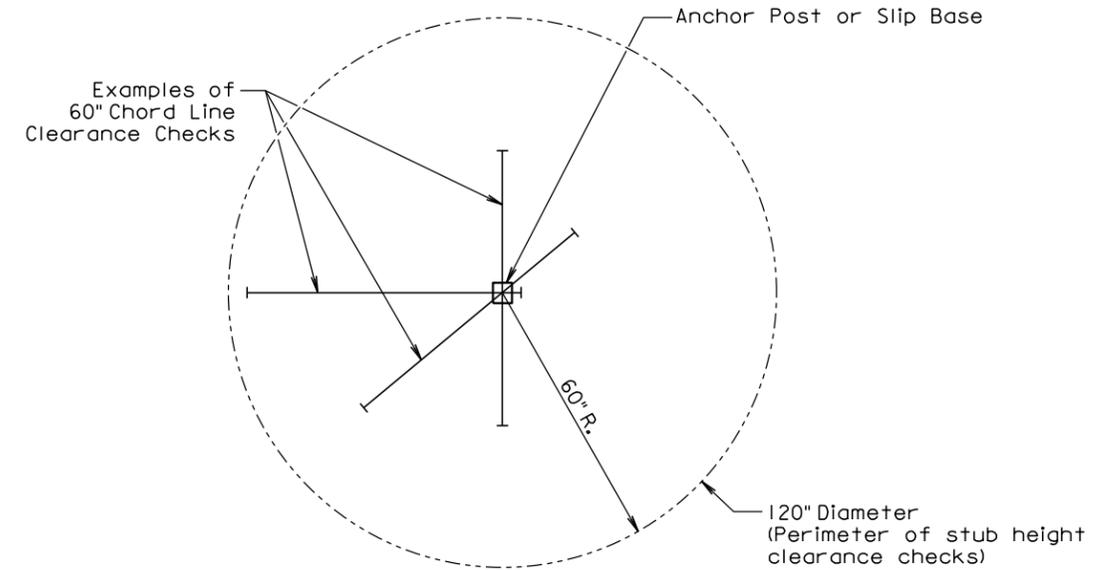


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

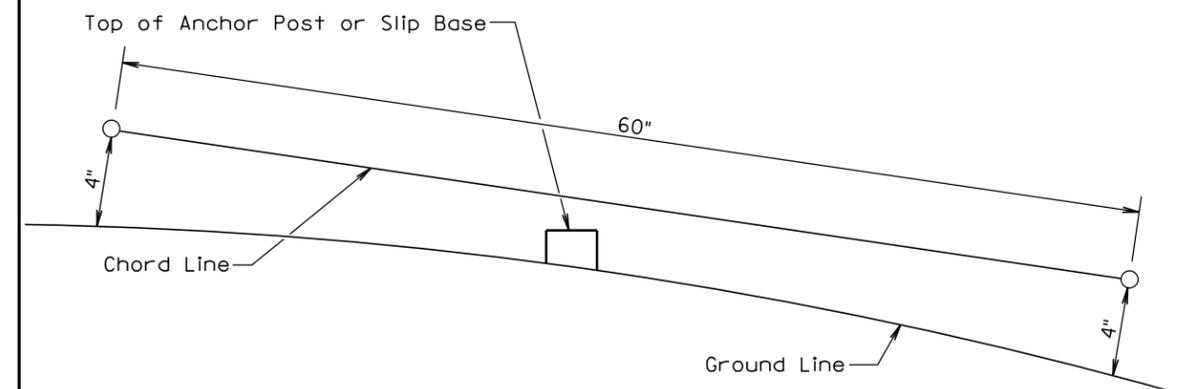
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

September 22, 2014

Published Date: 4th Qtr. 2014	S D D O T	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: 4th Qtr. 2014	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1