

	STATE OF SOUTH DAKOTA	PR NH 0083(91)118 P 1806(26)14	OJECT 3, NH 0014(243)131, 15, P0047(123)52	SHEET	TOTAL SHEETS	
	Plotting Date:	01/29/2024	, , , , , , , , , , , , , , , , , , ,			
		INDEX	X OF SHEE	TS		
		C1 C2-C6	General Layo Estimate With Notes & Tabl	out W/I h Gene es	ndex eral	
		C10	Traffic Contro	ol Barri	ier	~
12		C11 C12-C16	Layout Pavement Ma Standard Pla	arking tes	Layout	ot Name -
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## SECTION C ESTIMATE OF QUANTITIES

#### PCN 081K - Str. No. 59-398-295

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
633E0010	Cold Applied Plastic Pavement Marking, 4"	630	Ft
633E0030	Cold Applied Plastic Pavement Marking, 24"	16	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	1	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	6	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	10	Gal
633E1272	High Build Waterborne Pavement Marking Paint, Arrow	1	Each
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	630	Ft
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	16	Ft
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	1	Each
634E0010	Flagging	40.0	Hour
634E0110	Traffic Control Signs	201.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0135	Traffic Control Supervisor	Lump Sum	LS
634E0275	Type 3 Barricade	4	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	52	Each
634E0700	Traffic Control Movable Concrete Barrier	52	Each
634E0750	Temporary Concrete Barrier End Protection	2	Each
634E0755	Remove and Reset Temporary Concrete Barrier End Protection	2	Each
634E1002	Detour and Restriction Signing	1,053.0	SqFt
634E2015	Temporary Pedestrian Access Route	Lump Sum	LS
634E2020	Temporary Curb Ramp	1	Each
634E2025	Longitudinal Pedestrian Barrier	750	Ft

# PCN 081L - Str. No. 36-145-015, 28-122-513, 59-023-299

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
633E1200	High Build Waterborne Pavement Marking Paint, White	6	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	4	Gal
634E0010	Flagging	60.0	Hour
634E0110	Traffic Control Signs	490.2	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0135	Traffic Control Supervisor	Lump Sum	LS
634E0310	Temporary Flexible Vertical Markers (Tabs)	381	Ft
634E0600	4" Temporary Pavement Marking Tape Type I	7,032	Ft
634E1002	Detour and Restriction Signing	1,026.0	SqFt

## PCN 08JA - Str. No. 43-216-034. 43-218-036

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
633E1200	High Build Waterborne Pavement Marking Paint, White	3	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	2	Gal
634E0010	Flagging	60.0	Hour
634E0110	Traffic Control Signs	221.8	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0135	Traffic Control Supervisor	Lump Sum	LS
634E0310	Temporary Flexible Vertical Markers (Tabs)	193	Ft
634E0600	4" Temporary Pavement Marking Tape Type I	4,688	Ft

# PCN 08JC - Str. No. 43-422-370

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
633E1200	High Build Waterborne Pavement Marking Paint, White	3	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	1	Gal
634E0010	Flagging	60.0	Hour
634E0110	Traffic Control Signs	163.4	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0135	Traffic Control Supervisor	Lump Sum	LS
634E0310	Temporary Flexible Vertical Markers (Tabs)	209	Ft
634E0600	4" Temporary Pavement Marking Tape Type I	2,344	Ft
634E1002	Detour and Restriction Signing	477.0	SqFt

# **SEQUENCE OF OPERATIONS**

The following sequences of operations will be followed:

#### PCN 081K

See Traffic Control Barrier Layout sheet in Section C, and follow Scope of Bridge Work & Sequence of Operations for 434' - 0" Cont. Comp. Girder Bridge in Section E.

# ALL OTHERS

- 1. Install traffic control as shown in Standard Plate 634.24 and Traffic Control Barrier Layout Sheet (Section C) to close one half of the structure for bridge structure work (see Section E). Install first pass of temporary pavement markings.
- 2. Perform all required structural work on the closed lane(s) of the bridge deck. (See Section E notes, Scope of Bridge Work & Sequence of Operations).
- 3. Switch traffic control to close the opposite half of the structure. Install second pass of temporary pavement markings.
- 4. Perform all required structural work on the closed lane(s) of the bridge deck. (See Section E notes).
- 5. Place permanent pavement markings.
- 6. Remove temporary traffic control, including signs.

Contractor requests to deviate from the sequence of operations will 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 will be submitted for review a minimum of one week prior to potential implementation.

# **COORDINATION BETWEEN CONTRACTORS**

The Contractor will schedule the work so as not to interfere with or hinder the progress of the work performed by other Contractors for Project NH 0014(243)167 - PCN 05E9, Mill & AC Resurfacing of US 14 from MRM 190.03 to MRM 167.02+0.676 and upcoming projects NH-P 0031(59) -PCN 0973, Asphalt Surface Treatment, various locations in the Pierre Area and P 0034(206)245 - PCN06T0, Mill & AC Resurfacing & Bike Path AC Resurfacing of SD34, SD 34 E & W – Fm Cleveland Ave to Farm Island Road in Pierre. Conflicting traffic control devices may need to be temporarily adjusted or removed as directed by the Engineer at no additional cost to the contract. If the projects are occurring simultaneously, the work zones of the bridge deck polymer chip seals will be extended to the AC overlay project.

Central Specialties, Inc Attn: Alex Sweep Ph: (320) 760-7289

# **GENERAL TRAFFIC CONTROL**

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

movement.

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

of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL
		NH 0014(243)131, NH 0083(91)118, P 1806(26)145, P 0047(123)52	C2	C16

Revised 03/28/2024 JPJ

# 05E9 Contractor Contact Information:

All construction operations will be conducted in the general direction of traffic

Unless otherwise stated in these plans, work will not be allowed during hours

### **GENERAL TRAFFIC CONTROL (Continued)**

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment will be repaired at no expense to the Department.

The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.

If inappropriate or conflicting pavement markings exist, the markings will be removed and replaced with applicable temporary pavement markings when the work duration is more than 3 days. When the work duration is less than 3 days, the channelizing devices in the area where the pavement markings conflict will be placed at one-half of the normal channelizing device spacing. Pavement marking removals will be incidental to the contract unit price per foot for "Remove Pavement Marking, 4" or equivalent". Temporary pavement marking will be paid for at the contract unit price per mile/foot for "Temporary Pavement Marking". The additional channelizing devices will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

# TRAFFIC CONTROL SIGNS

Traffic control signs have been included in a table for each site. Payment will only be for those signs used on each site.

-		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W1-4	REVERSE CURVE (L)	1	48" x 48"	16.0	16.0
W1-4	REVERSE CURVE (R)	1	48" x 48"	16.0	16.0
W3-4	BE PREPARED TO STOP	2	48" x 48"	16.0	32.0
W4-2L	LEFT LANE ENDS (symbol)	1	48" x 48"	16.0	16.0
W4-2R	RIGHT LANE ENDS (symbol)	1	48" x 48"	16.0	16.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT LANE CLOSED AHEAD	1	48" x 48"	16.0	16.0
W20-5	RIGHT LANE CLOSED AHEAD	1	48" x 48"	16.0	16.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS (PCN 201 081K) SQFT		201.0	

# **ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS (PCN 081K)**

# ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS (PCN 081L)

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUM BER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	6	30"	5.2	31.2
W1-4	REVERSE CURVE (Lor R)	3	48" x 48"	16.0	48.0
W3-1	STOP AHEAD (symbol)	6	48" x 48"	16.0	96.0
W20-1	ROAD WORK AHEAD	6	48" x 48"	16.0	96.0
W20-4	ONE LANE ROAD AHEAD	6	48" x 48"	16.0	96.0
W20-7	FLAGGER (symbol)	6	48" x 48"	16.0	96.0
G20-2	END ROAD WORK	6	36" x 18"	4.5	27.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS (PCN 081L) SQFT		490.2	

## **ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS (PCN 08JA)**

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	4	30"	5.2	20.
W1-4	REVERSE CURVE (R)	2	48" x 48"	16.0	32.
W3-1	STOP AHEAD (symbol)	4	48" x 48"	16.0	64.
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS (PCN 08JA) SQFT		221.	

# ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS (PCN 08JC)

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQF
R1-1	STOP	2	30"	5.2	10
W1-4	REVERSE CURVE (L or R)	1	48" x 48"	16.0	16
W3-1	STOP AHEAD (symbol)	2	48" x 48"	16.0	32
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32
G20-2	END ROAD WORK	2	36" x 18"	4.5	9
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS (PCN 08JC) SQFT		163.	

### **OVERWIDTH RESTRICTION SIGNING**

The Contractor will furnish and install the overwidth restriction signs as shown in these plans. Prior to installing the signs, the Contractor will mark the sign locations and review them with the Engineer. Overwidth restriction signs will be installed on fixed location, ground mounted, breakaway supports. It will be the responsibility of the Contractor to maintain and reinstall these signs during the project as required by the construction progress. Upon completion of the project, the Contractor will remove the overwidth restriction signs.

The Contractor will coordinate with the Pierre Area Office to ensure that overwidth restriction signing does not conflict with overwidth restriction signing for PCN 03WN - Structure over the Missouri River on US14/US83/SD34. The Contractor will coordinate with the Pierre Area Office, as well as the prime contractor for the structure project, to only install the most restrictive signing at each location. The overwidth restriction signing, as required by this contract, will be produced and available for installation. Overwidth restriction signing will be paid for at plans quantity at the contract unit price per square foot for Detour and Restriction Signing unless changes are ordered by the Engineer

Ph: (515) 290-0591

### **Pierre Area Office** Ph: (605) 773-5294

All costs for furnishing the signs, posts, and mounting hardware, and for installing, maintaining, covering, and removing the overwidth restriction signs will be incidental to the contract unit price per square foot for "Detour and Restriction Signing".

# FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours.

It is required that the flaggers be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for "Flagging".

# TEMPORARY PAVEMENT MARKING

Upon completion of structure site work, temporary pavement markings will be used to mark centerline of all new surfaces as per Specifications.

specifications.

Temporary pavement marking paint will not be allowed.

The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs after each installation as detailed below at no additional cost to the State.

One pass after the polymer chip seal

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		NH 0014(243)131, NH 0083(91)118, P 1806(26)145, P 0047(123)52	C3	C16

Revised 02/23/2024

JPJ

**03WN Contractor Contact Information:** Jensen Construction Company

Attn: Landon Streit (Rasmussen Group)

Temporary flexible vertical markers (tabs) will be used as detailed in the

Quantities of Temporary Pavement Markings consist of:

#### **TEMPORARY PAVEMENT MARKING (Continued)**

In the absence of a signed lane closure or pilot car operation, FLAGGER (W20-7) symbol signs and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of the temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1) sign, a WORKER (W21-1) symbol sign or a BE PREPARED TO STOP (W3-4) sign will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work must be approved by the Engineer.

Prior to nightfall, tabs will be required to mark centerline on segments of roadway where existing centerline markings have been removed and new markings have not been installed.

#### **TEMPORARY PAVEMENT MARKING TAPE, TYPE I**

Temporary pavement marking for stop lines will consist of 4" Temporary Pavement Marking Tape Type I. Placement of each 24" white stop line will be accomplished by placing six pieces of 4" x 12' tape adjacent to one another. Each workspace requires two stop lines which is an equivalent of approximately 144' of 4" tape (6 workspaces at 144' = 864'). Temporary Pavement Marking Tape Type I will be required for centerline markings shown on standard plate 634.25. (Estimate 6 workspaces x 2.200' per workspace = 13.200'). Temporary tape will be removed upon completion of the project.

#### INCIDENTS

An incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic such as a crash, hazardous materials spill, or other event.

The Contractor will set up a meeting prior to start of work to plan and coordinate responses to an incident. The Contractor will invite the Department of Transportation, the South Dakota Highway Patrol, the Sheriffs' Departments in Haakon, Jackson, Lyman, and Stanley Counties, and local emergency response entities to the meeting.

The Contractor will assist to maintain traffic as required by these plan notes and as agreed to at that meeting.

Emergency vehicle access through the project will be considered and discussed at the meeting.

The Contractor may be required to modify messages on portable changeable message signs or relocate portable changeable message signs, and to provide flaggers to direct or detour traffic. The Contractor should be prepared to relocate advance warning signs if determined to be necessary for a major traffic incident lasting more than two hours. Fixed location ground mounted signs may be covered and additional portable signs provided.

No additional payment will be made for the modification of portable changeable message sign messages or the relocation of portable changeable message signs. Cost for the relocation of an advance warning sign due to an incident will be 50% of the designated sign rate. Flaggers will be paid for at the contract unit price per hour for "Flagging".

#### **TEMPORARY PEDESTRIAN ACCESS ROUTE**

A Temporary Pedestrian Access Route (TPAR) will be provided when crosswalks, sidewalks, or other pedestrian facilities are blocked, closed, or relocated. A TPAR may consist of a combination of existing and/or temporary pedestrian facilities. The TPAR will be kept free of any obstructions and hazards, such as holes, debris, mud, snow, construction equipment, traffic control signing, stored materials, etc.

The Contractor will notify the Engineer at least 72 hours prior to start of any construction operation that will necessitate a change in pedestrian access. Pedestrian traffic signal displays controlling a crosswalk that is closed will be covered or removed.

#### **TEMPORARY PEDESTRIAN SIDEWALK**

Temporary pedestrian sidewalk will be a smooth, continuous, non-slip, hard surface. There should be no curbs or abrupt changes in grade or terrain that could cause tripping or be a barrier to wheelchair use.

Temporary pedestrian sidewalk will have a minimum width of 48 inches, with 60 inches recommended. The Contractor will try to provide boulevard sidewalk. whenever possible, for temporary pedestrian sidewalk that is 48 inches wide. Temporary pedestrian sidewalk less than 60 inches wide will provide for a 60inch x 60-inch passing space at intervals not to exceed 200 feet. Temporary pedestrian sidewalk will have a maximum cross slope of 2%. The maximum grade will be 5% where the temporary pedestrian sidewalk does not follow the grade of the road.

All costs associated with installing and maintaining a temporary pedestrian access route, including temporary pedestrian sidewalk, will be incidental to the contract lump sum price for "Temporary Pedestrian Access Route".

#### **TEMPORARY CURB RAMP**

Temporary curb ramps should be firm, stable, and have a non-slip surface. They will not warp or buckle, and should be made of materials strong enough to support a weight of 800 pounds. Temporary curb ramps will be yellow or color contrasting and contain marked edges, so they are noticeable by pedestrians who have visual impairments. Lateral joints or gaps between surfaces will be a maximum of 0.5 inches in width. Temporary curb ramps will include detectable warning panels.

Temporary curb ramps will be the same width as the temporary pedestrian access route, with a recommended width of 60 inches and a minimum width of 48 inches. Temporary curb ramps will have a maximum slope of 8.3% and have free draining surfaces with a maximum cross slope of 2%. Handrails on temporary curb ramps are not required unless the curb ramp has a rise exceeding 6 inches and a length exceeding 72 inches.

All costs will be incidental to the contract unit price per each for "Temporary Curb Ramp".

# LONGITUDINAL PEDESTRIAN BARRIER

When used to separate pedestrians from vehicular traffic for TPARs in the roadway, longitudinal pedestrian barrier must meet or exceed the crashworthy requirements of NCHRP 350 or MASH Test Level 2 or 3. The bottom and top surfaces of the traffic side of devices will have retroreflective sheeting or delineation for improved nighttime visibility.

When longitudinal pedestrian barriers are combined in a series, the maximum gap between devices that do not interlock will be one inch. Joints between devices that do interlock should be closed and flush to prevent canes or small wheels from being trapped and to facilitate safe hand trailing. Channelizing devices should provide a color contrasting pattern. Black should not be used to color any base on a device. The devices should comply with the general color and stripe pattern requirements of Chapter 6F of the MUTCD.

Longitudinal pedestrian barriers will have continuous bottom and top surfaces. The top surface will be smooth to allow safe hand trailing.

Pedestrian Barrier".

#### PEDESTRIAN CHANNELIZING DEVICE DETAILS



- the walkway.
- trailing.

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All costs will be incidental to the contract unit price per foot for "Longitudinal

#### Longitudinal Pedestrian Barrier

1. Barricade rail supports may not extend into the pedestrian walkway more than 4 inches from the face of the barricade.

2. The top edge of the bottom portion will be a minimum of 8 inches above

3. Devices will not block water drainage from the walkway. A gap height or opening from the walkway surface up to a maximum of 2 inches in height is allowed for drainage purposes.

4. The top edge of the longitudinal pedestrian barricade is to be used as a guiderail to provide visual and tactile guidance to pedestrians along a designated route. The top surface should have a minimum width of 0.5 inches to allow the hand to feel the surface. The surface should be smooth and free of any sharp or abrasive elements to allow safe hand

5. Longitudinal pedestrian barrier used to provide positive protection from traffic to pedestrians should be crashworthy.

Longitudinal Pedestrian Barricade

#### **TEMPORARY CURB RAMP DETAILS**



- 1. Curb ramps will be 48-inch minimum width with a firm, stable, and non-slip surface.
- 2. Protective edging with a 2-inch minimum height will be installed when the curb ramp or landing platform has a vertical drop of 6 inches or greater or has a side apron slope steeper than 3:1 (33%). Protective edging should be considered when curb ramps or landing platforms have a vertical drop of 3 inches or more.
- 3. Detectable edging with 6 inches minimum height and contrasting color will be installed on all curb ramp landings where the walkway changes direction (turns).
- 4. Curb ramps and landings should have a 50:1 (2%) maximum cross slope.
- 5. A minimum clear space of 48 inch x 48 inch minimum will be provided above and below the curb ramp, with a 60 inch x 60 inch clear space preferred.
- The curb ramp walkway edge will be marked with a contrasting color 2 to 4 inch wide marking. The marking is optional where color contrasting edging is used.
- 7. Water flow in the gutter system will have minimal restriction.
- 8. Lateral joints or gaps between surfaces will be less than 0.5 inches in width.
- Changes between surface heights should not exceed 0.5 inches. Lateral edges between 0.25 inches and 0.5 inches in height, should be vertical up to 0.25 inches in height and beveled at 2:1 between 0.25 inches and 0.5 inches in height.

#### TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS

Concrete barriers will be provided by the State and are available for pickup from the SDDOT Murdo Maintenance Yard located at 24305 US Hwy 83 in Murdo. The barriers will be hauled back to the SDDOT Murdo Maintenance Yard when they are no longer needed on the project.

Barriers to be adjusted or moved will be disconnected from adjacent barriers to minimize damage to connecting pins. Pins damaged by the Contractor will be replaced at no cost to the Department.

Concrete barrier sections will be placed as depicted in the plans to comply with clear zone requirements and as required by the Engineer. The barriers will be pinned and bolted together as directed by the Engineer.

All costs associated with picking the barriers up from the SDDOT Maintenance Yard, transporting, setting, connecting, and hauling them back to the SDDOT Maintenance Yard will be incidental to the contract unit price per each for Traffic Control Movable Concrete Barrier.

After the initial placement, the concrete barriers may need to be adjusted. Adjustment of the barriers, where they do not need to be loaded on a truck for transport, will be incidental to the contract unit price per each for Traffic Control Movable Concrete Barrier. All costs associated with removing, loading, unloading, and resetting of the barriers at a new site, will be incidental to the contract unit price per each for Remove and Reset Traffic Control Movable Concrete Barrier. No additional payment will be made for barriers that are not immediately reset at a new location on the project and stored on-site until they are either reset on the project or returned to the SDDOT as indicated in these plans.

#### TEMPORARY CONCRETE BARRIER END PROTECTION

Crash attenuators meeting the requirements of NCHRP 350 or MASH TL-3 will be furnished and installed by the Contractor. Attachment of the attenuators to the concrete barriers will be by approved methods.

All costs associated with furnishing, transporting, initial setup, connecting, maintaining, and removing the crash attenuators will be incidental to the contract unit price per each for Temporary Concrete Barrier End Protection.

All costs associated with moving and resetting crash attenuators to accommodate traffic flows after initial set-up will be paid for at the contract unit price per each for Remove & Reset Temporary Concrete Barrier End Protection. All costs associated with removing from initial placement and resetting at a new location will be incidental to the contract unit price per each. No additional payment will be made for crash attenuators that are not immediately reset at a new location on the project and stored on-site until they are either reset or removed from the project as determined by the Engineer. No additional payment will be made for minor adjustments.

The Contractor will have replacement hardware available so that in the event the crash attenuator is hit and made unusable, the crash attenuator can be made functional within 24 hours. The cost of replacement will be incidental to the contract unit price per each for Temporary Concrete Barrier Module Set or Repair Kit. No payment will be made for the Temporary Concrete Barrier Module Set or Repair Kit if no repairs are necessary. Upon completion of the project, crash attenuators will remain the property of the Contractor.

# BARRIER MOUNTED LINEAR DELINEATION SYSTEM PANELS

A linear delineation system (LDS) panel will be attached to each barrier section. The color will be the same as the nearest pavement marking, white along outside edgelines or yellow for the left side on one way traffic sections. The LDS will be 34 inches long and 6 inches in height and be constructed of aluminum formed into a shape to provide retroreflective properties across a wide range of angles. It will be sheeted with sheeting meeting the requirements of ASTM D4956 Type XI. The panels will be evenly spaced, with the top of the panel 4 inches below the top of the barrier. Installation will be as per the manufacturer's recommendations. This will allow for easy removal for replacement of damaged panels or to replace with an alternate color. The Contractor will furnish and install one panel along each side of the barrier if any panels are missing from the barriers. Replacement of damaged linear delineation system panels will be furnished and replaced by the Contractor. All costs associated with furnishing, installing, and replacing, if needed, will be incidental to the contract unit price per each for Linear Delineation System Panel, Barrier Mounted.

All LDS panels will remain attached to the barrier sections and will become the property of the State of South Dakota upon completion of the project.

The Contractor will verify the number of LDS panels that will need to be installed or replaced on the Traffic Control Movable Concrete Barriers. The contract amount of LDS panels is an estimate and the full contract amount may not be needed.

Maintaining the linear delineation system, including moving LDS panels from one side of the barrier to the other side of the barrier to match the applicable color of the nearest pavement marking will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

# PAVEMENT MARKING PAINT

The Contractor will advise the Engineer a minimum of 3 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones.

Application of permanent pavement marking will be completed within 14 calendar days following completion of the final surfacing.

# COLD APPLIED PLASTIC PAVEMENT MARKING

All materials will be applied as per the manufacturer's recommendations.

approved equal.

# HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer's recommendations. High build waterborne pavement marking paint will conform to the supplemental specifications for Section 980.1 B.

Reflective media will consist of glass beads.

	STATE OF SOUTH DAKOTA	OF PROJECT		TOTAL	
		NH 0014(243)131, NH 0083(91)118, P 1806(26)145, P 0047(123)52	C5	C16	

Cold Applied Plastic Pavement Markings will be 3M Series 380 AW or an

### RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4" line = 27.8 Gal/Mile Dashed 4" line = 7.6 Gal/Mile Glass Beads = 8 Lbs/Gal.

All cost for materials, labor and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

# **RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT**

The Department may take retroreflectivity readings on the pavement marking lines after 2 days and within 30 days of the line application using either a portable or mobile retroreflectometer that conforms to 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

If the Department chooses to take retroreflectivity readings, three readings will be taken on the edge lines and lane lines in the direction of application. For combination solid yellow and skip yellow lines for turn lanes and for centerline markings on two-way roadways, three readings will be taken in one direction, the reflectometer will be turned 180 degrees and three more readings will be taken. The six readings for the centerline markings will be averaged and become the test reading for that test location.

If the Department chooses to take readings, the minimum retroreflectivity values will be 275 mc/m<sup>2</sup>/lux for white and 170 mc/m<sup>2</sup>/lux for yellow.

# **GROOVING FOR COLD APPLIED PLASTIC PAVEMENT MARKING**

The Contractor will establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving will be vacuumed. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners. Residue from wet grooving will 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, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. The cleaning of the residue for grooving will be to the satisfaction of the Engineer and may require more than one pass to adequately remove material. All costs for removal of grinding and/or grooving residue will be included in the contract unit price per foot, or each for "Grooving for Cold Applied Plastic Pavement Marking" contract items.

STATE OF PROJECT		SHEET	TOTAL SHEETS
SOUTH DAKOTA	NH 0014(243)131, NH 0083(91)118, P 1806(26)145, P 0047(123)52	C6	C16

WIDTH RESTRICTION SIGN LAYOUT

STRUCTURE 59-398-295 ON US 83 IN THE CITY OF FORT PIERRE PCN 081K



	WIDTH RESTRICTION SIGNS - PCN 081K								
	SIGNITEYT				AREA	AREA			
INDEX	SIGNTEXT	REIGHT		COONT	(EACH)	(TOTAL)			
Α	US 83 NORTH, OVER 10 FT WIDE, BAD RIVER, USE ALT ROUTE	96 in	108 in	6 ea	72.0 SF	432 SF			
В	US 83 SOUTH, OVER 10 FT WIDE, BAD RIVER, USE ALT ROUTE	96 in	108 in	7 ea	72.0 SF	504 SF			
С	US 83, OVER 10 FT WIDE, BAD RIVER, USE ALT ROUTE	96 in	108 in	1 ea	72.0 SF	72 SF			
Х	NO VEHICLES, OVER 10 FT WIDE	30 in	108 in	2 ea	22.5 SF	45 SF			
		TOTAL (	OVERWI	DTH SIG	N AREA:	1053 SF			



# NOTES:

THE ENGINEER WILL DETERMINE THE EXACT LOCATIONS OF THE SIGNS IN THE FIELD.

\*WIDTH RESTRICTION SIGNING WILL BE COORDINATED WITH PIERRE AREA DUE TO ADDITIONAL WIDTH RESTRICTIONS ON US 14, PCN 05E9; AND ON THE MISSOURI RIVER BRIDGE, PCN 03WN.



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# WIDTH RESTRICTION SIGN LAYOUT

THREE STRUCTURE SITES ON US 14 HAAKON, JACKSON, & STANLEY COUNTIES PCN 081L

WIDTH RESTRICTION SIGNS - PCN 081L									
					AREA	AREA			
INDEX	SIGNTEXT	HEIGHI	WIDTH	COUNT	(EACH)	(TOTAL)			
D	US 14 EAST US 14 WEST, OVER 14 FT WIDE, USE ALT ROUTE	96 in	108 in	4 ea	72.0 SF	288 SF			
Е	US 14 EAST, OVER 14 FT WIDE, USE ALT ROUTE	96 in	108 in	5 ea	72.0 SF	360 SF			
W	US 14 WEST, OVER 14 FT WIDE, USE ALT ROUTE	96 in	108 in	4 ea	72.0 SF	288 SF			
Z	NO VEHICLES, OVER 14 FT WIDE	30 in	108 in	4 ea	22.5 SF	90 SF			
		τοται (	OVERWI	DTH SIG		1026 SE			



NOTE:

THE ENGINEER WILL DETERMINE THE EXACT LOCATIONS OF THE SIGNS IN THE FIELD.





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STATE OF	PROJECT	SHEET	TOTAL
SOUTH	NH 0083(91)118, NH 0014(243)131,		SHEETS
DAKOTA	P 1806(26)145, P0047(123)52	C8	C16
Plotting Date:	01/26/2024		

# WIDTH RESTRICTION SIGN LAYOUT



# STRUCTURE 43-422-370 ON SD 47 LYMAN COUNTY PCN 08JC

WIDTH RESTRICTION SIGNS - PCN 08JC								
	CIONTEXT				AREA	AREA		
INDEX	SIGNTEXT	HEIGHT	WIDIH	COUNT	(EACH)	(TOTAL)		
F	SD 47 NORTH, OVER 14 FT WIDE, BULL CREEK, USE ALT ROUTE	96 in	108 in	3 ea	72.0 SF	216 SF		
G	SD 47 SOUTH, OVER 14 FT WIDE, BULL CREEK, USE ALT ROUTE	96 in	108 in	3 ea	72.0 SF	216 SF		
Z	NO VEHICLES, OVER 14 FT WIDE	30 in	108 in	2 ea	22.5 SF	45 SF		
		TOTAL	OVERWI	DTH SIG	N AREA	477 SF		



#### NOTE:

THE ENGINEER WILL DETERMINE THE EXACT LOCATIONS OF THE SIGNS IN THE FIELD.





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			STATE OF	PROJECT		SHEET	TOTAL
			SOUTH DAKOTA	NH 0083(91)118, NH 001 P 1806(26)145, P0047	4(243)131, (123)52	C12	C16
			Plotting Date:	01/29/2024			
GENERAL NOTES:							
The detailed drawings are for illu	strativ	e purpose and depicts the curren	t version of	the F shape			
concrete barrier. If new movable according to the F shape movab	conci le con	ete barriers are requested on a pr crete barrier details on standard p	oject, they late 628.10	will be constructed			
Each movable concrete barrier s	ectior	weighs 5030 ± pounds.					
Each movable concrete barrier s of a pin through steel loops.	ectior	is detailed to provide end "A" to e	end "B" cor	nection by insertion			
The Jersey shape or any version on a project, however, only the s	of the	e F shape traffic control movable o ype or version will be used for eac	concrete ba ch run of ba	nriers may be used arriers.			
Movable concrete barrier section surface as approved by the Engi	is will neer.	be placed to provide uniform bear	ing of the s	ections with the pay	ved		
Movable concrete barrier section	ıs will	never be moved or lifted using the	e end loops				6
Movable concrete barrier section considered damaged if the loops there is exposed rebar from fract	s that are e	have been damaged will not be und welded onto existing damaged concrete.	ised. Barrie I loops, loo	er sections are ps are fractured, or			Std Plates.d
All cost for transporting the barrie	ers fro	m the specified location to the pro	piect site, in	stalling, and			081K
returning the barriers to the spec "Traffic Control Movable Concret	ified I te Bar	ocation will be incidental to the corrier".	ntract unit	price per each for			/CAD
If the concrete barriers need to b	e mov	ed and reset on the project, requi	ring the ba	rriers to be transpor	ted		- -
by truck, all cost for removing, tra price per each for "Remove and in alignment of the barriers, not r	anspo Reset equiri	rting, and resetting the barriers wi Traffic Control Movable Concrete ng the barriers to be transported b	Barrier". A by truck, wi	ntal to the contract L Il cost for small shif I be incidental to va	init ts rious		μ
contract items.							
				Sentembe	r 14, 2018		
	S			PLATE I	NUMBER		
	D D	TRAFFIC CONTROL MOVABLE CO	IC CONTROL MOVABLE CONCRETE BARRIERS	ARRIERS 628	3.01		
Published Date: 2024		(F SHAPE INTERIOR	SECTION)	Sheet 2	of 2		
	<u> </u>				]		



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The leng fit field c	th of A may be adj onditions.	usted to				1
Channel be used control in required The buff so that th placed b curve to distance of stoppe	izing devices and f at intersecting road trasecting road tra- er space should be he two-way traffic t efore a horizontal provide adequate for the flagger and ed vehicles.	flaggers will ds to affic as e extended aper is or vertical sight d queue	I	7		
along the area whe escorting area.	e centerline adjace en pilot cars are ut g traffic through the <u>2-029</u> NUOM OYOU ONJ	ent to work ilized for e work				
The cha or 42" co Channel	nnelizing devices v ones. izing devices are r	vill be drum	IS			
Flashing may be advance	warning lights and used to call attention warning signs.	d/or flags on to the				
For tack when fla FRESH in advan	and/or flush seal o ggers are not bein OIL sign (W21-2) v ice of the liquid asp	operations, g used, the will be displ ohalt areas.	ayed			⊥ _}
The RO/ WORK s duration	AD WORK AHEAD signs may be omitte operations (1 hour	and the El ed for short or less).	ND R	OAD		
For low- with sho roadway to road u direction	volume traffic situa rt work zones on s s where the flagge users approaching s, a single flagger	tions traight r is visible from both may be use	ed.		/	//.
•	Channelizing De	vice				
60 - 65	1000 Flagger	50				
50 55	500 750	50 50				
45	500	25				
0 - 30 35 - 40	200	25				
(M.P.H.)	(A)	(F CCL) (G)				45 50
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Prior to	Auvance warning		ng			vvan











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