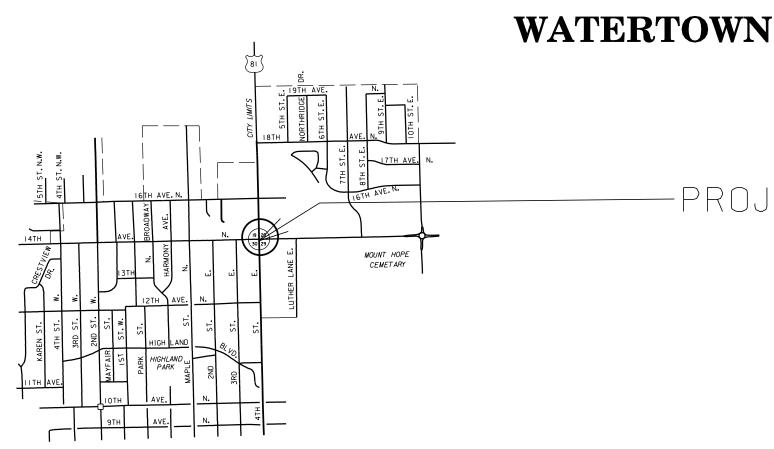


STATE OF SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION PLANS FOR PROPOSED **PROJECT 000N-171** US HIGHWAY 81 **CODINGTON COUNTY**

MODIFY TRAFFIC SIGNAL PCN i6YJ



DESIGN DESIGNATION <u>US81</u> 5311 7605 218 50% 4.1% 8.44% ADT (2023)) ADT (2043) DHV D т они T ADT 35mph V

STATE OF	PROJECT	SHEET	TOTAL	
SOUTH		NO.	SHEETS	
DAKOTA	000N-171	1	14	

INDEX OF SECTIONS Title Sheet Estimate of Quantities and Environmental Commitments Plan Notes Conduit And Cable Quantities Traffic Control Existing Signal Layout Signal Layout Signal Layout Signal timming Standard Plates Sheet Sheet . 2−3 Sheets 4-5 Sheet 6 Sheets 7-9 Sheet 10 Sheet 11 Sheet 12 Sheet 13 Sheet 14



PROJECT

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1520	Remove Signal Equipment	Lump Sum	LS
634E0110	Traffic Control Signs	188.8	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	2	Each
634E0420	Type C Advance Warning Arrow Board	2	Each
635E4040	4 Section Vehicle Signal Head	8	Each
635E7530	Relocate Signal Equipment	Lump Sum	LS
635E9505	5/C #14 AWG Copper Tray Cable, K2	260	Ft
635E9507	7/C #14 AWG Copper Tray Cable, K2	1,045	Ft

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf >

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW. The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Agriculture and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic

value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not by an individual solid waste pern 6-1.13, and ARSD 74:27:10:06. Failure to comply with the rec penalties in accordance with So 1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

State Historic Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

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The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

/The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting

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SUPPLYING AS BUILT PLANS

If the traffic signal system is constructed differently than what is stated in the plans, the Contractor will supply as built plans to the Engineer and a copy will be sent to the Traffic Design Engineer. The as built plans may include conduit layouts, wiring diagrams, or other drawings depicting the changes from the original plans.

SHOP DRAWING AND CATALOG CUTS SUBMITTALS

The Contractor will submit shop drawings and catalog cuts in accordance with Section 985 of the Specifications.

PDF submittals will be sent to the following email addresses:

Dan.martell@state.sd.us Stacy.Bartlett@state.sd.us

ON-SITE INSPECTION

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

SIGNAL BACKPLATES

All new vehicle signal heads will have backplates with retroreflective border. The vehicle signal head backplates will have a factory applied 3-inch wide yellow retroreflective border. Sheeting for the border will be Type XI or Type IX in conformance with ASTM D4956. Backplates will be polycarbonate, aluminum, or aluminum-composite. Minimum material thicknesses are:

Polycarbonate, 0.10-inch Aluminum, 0.06-inch Aluminum-Composite, 0.08-inch

Signal backplates will extend not less than 5 inches from the edge of the signal head at the top, bottom, and sides. The bottom of the backplate on vehicle signal faces mounted directly above pedestrian signal indications will be sized to permit the separate adjustment of the vehicle and pedestrian signal indication and may be less than 4 inches.

All costs involved with furnishing and installing backplates with retroreflective border for the new vehicle signal heads will be incidental to the contract unit price per each for "4 Section Directional Vehicle Signal Head".

CONTROLLER PROGRAMMING

Existing controller will be reprogrammed to use the patterns and timings specified on the Signal Timing Sheets by a qualified technician. Costs for reprogramming the controllers will be incidental to the contract unit price for the various contract items.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the 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.

GENERAL TRAFFIC CONTROL

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.

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

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

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

A Type 3 Barricade will be installed at the end of a lane closure taper as detailed in these plans.

S	STATE OF	PROJECT	SHEET	TOTAL SHEETS
	SOUTH DAKOTA	000N-171	4	14

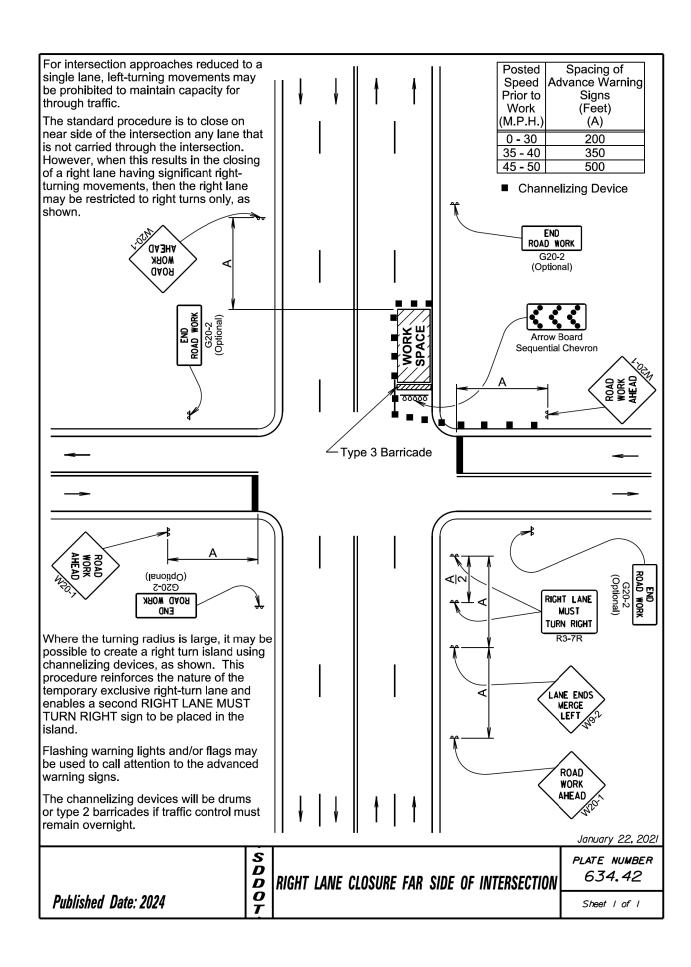
ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

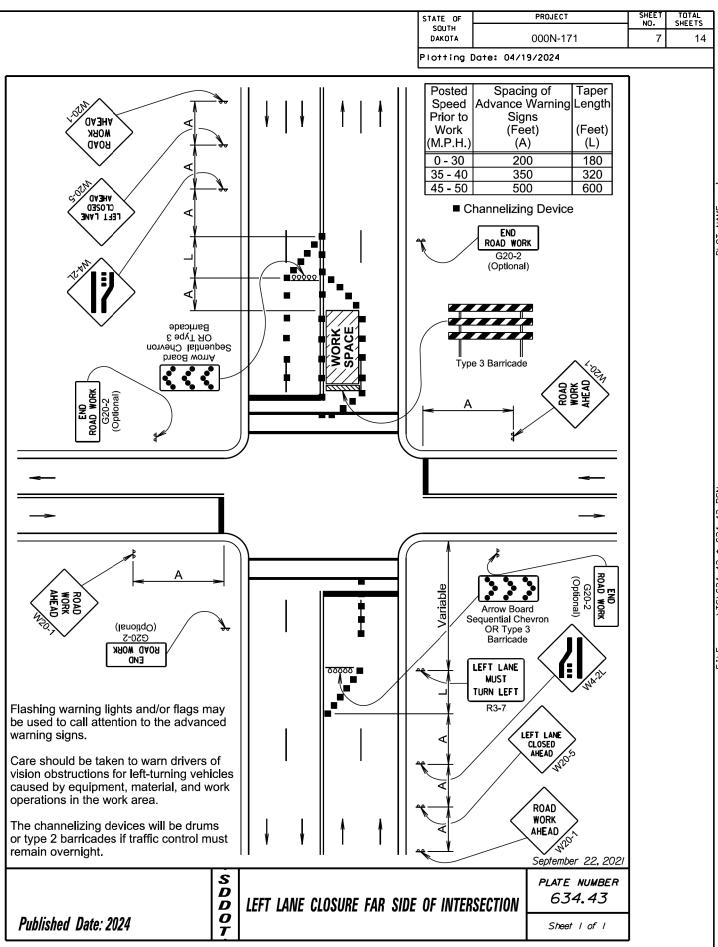
			CONVENTIONAL ROAD					
SIGN CODE	SIGN DESCRIPTION	NUMBER	NUMBER SIGN SQFT SIZE PER SIZE SIGN				SQFT	
R1-1	STOP	1	30"			5.2	5.2	
R3-2	LEFT TURN PROHIBITION (symbol)	1	24"	х	24"	4.0	4.0	
R3-7R	RIGHT LANE MUST TURN RIGHT	1	30"	х	30"	6.3	6.3	
R3-7L	LEFT LANE MUST TURN LEFT	1	30"	х	30"	6.3	6.3	
R4-7	KEEP RIGHT (symbol)	1	24"	х	30"	5.0	5.0	
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48"	х	48"	16.0	32.0	
W9-2	LANE ENDS MERGE LEFT	1	48"	х	48"	16.0	16.0	
W20-1	ROAD WORK AHEAD	4	48"	х	48"	16.0	64.0	
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48"	х	48"	16.0	32.0	
G20-2	END ROAD WORK	4	36"	x	18"	4.5	18.0	
			CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 188.8				188.8	

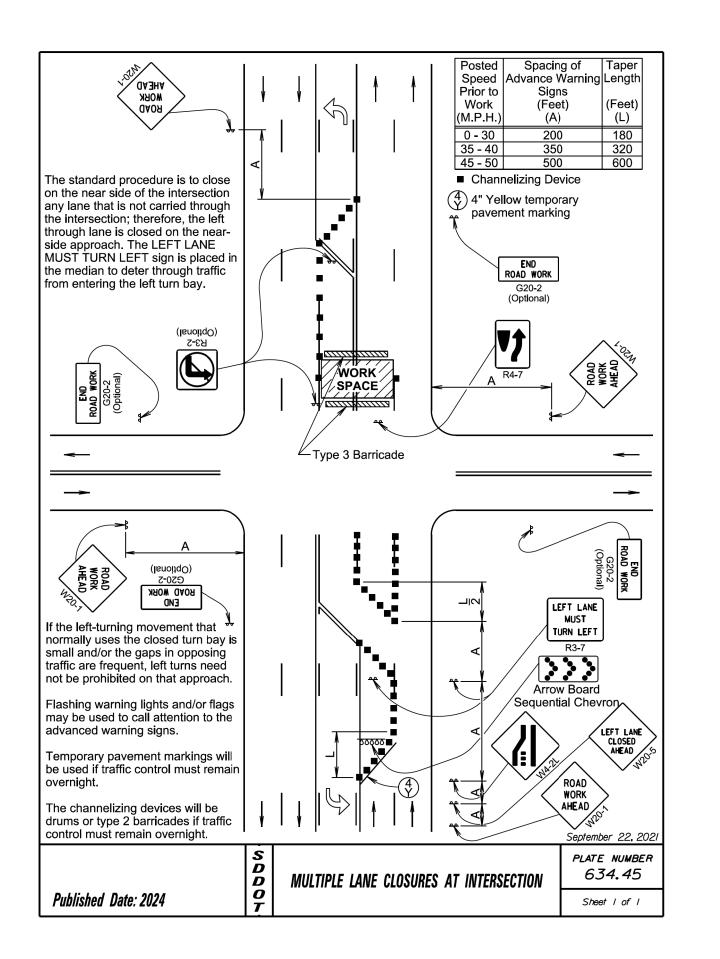
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	SOUTH DAKOTA	000N-171	5	14

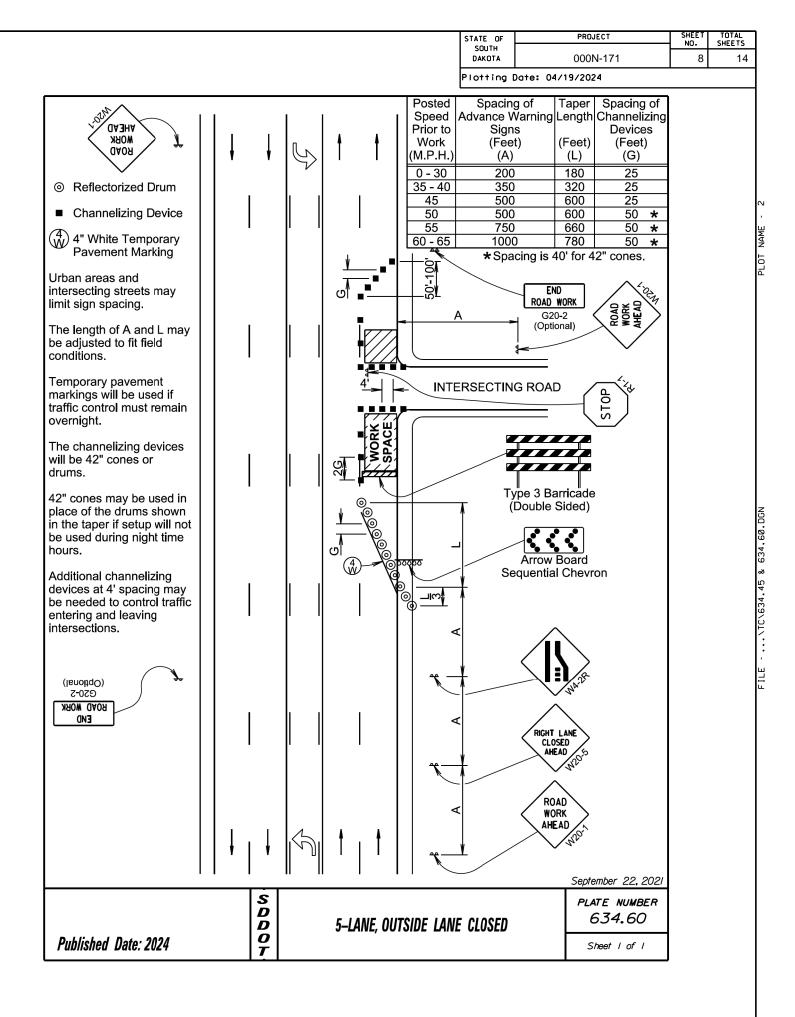
CONDUIT AND CABLE QUANTITIES							
		5/C	7/C				
		Ft	Ft				
CONTROLLER	JB1		225				
JB1	JB5		150				
JB5	В3		60				
JB5	JB7		120				
JB7	B2		60				
JB1	B4		60				
JB1	JB3		240				
JB3	B1		130				
SIGNAL POLE	B1	55					
SIGNAL POLE	B2	65					
SIGNAL POLE	B3	75					
SIGNAL POLE	B4	65					
PCN 04TW	Total:	260	1,045				

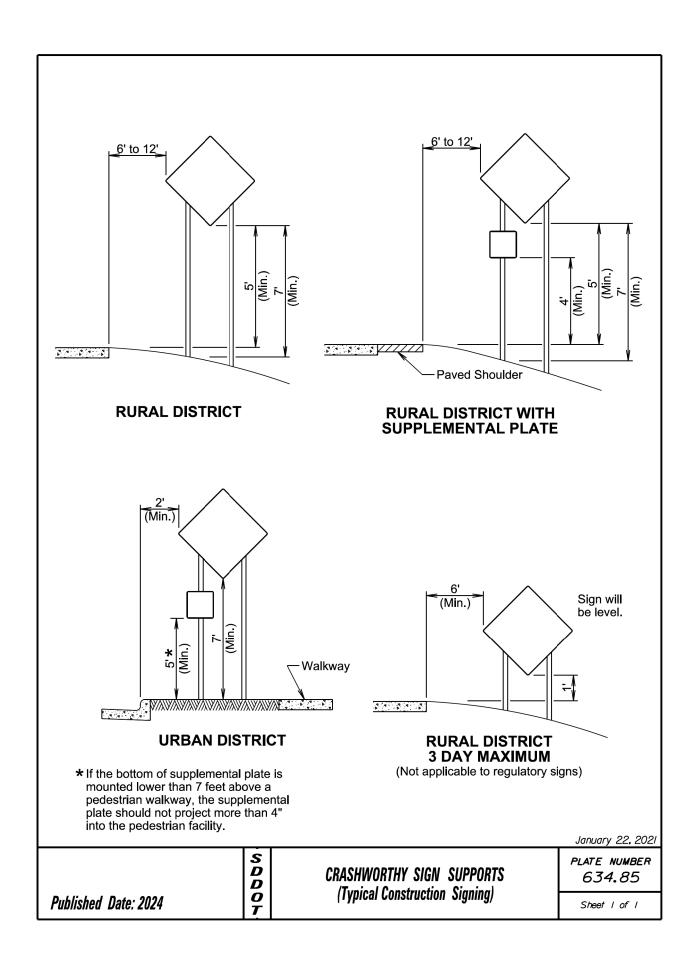
SOUTH COONLY 171	STATE OF	PROJECT	SHEET	TOTAL SHEETS
		000N-171	6	14







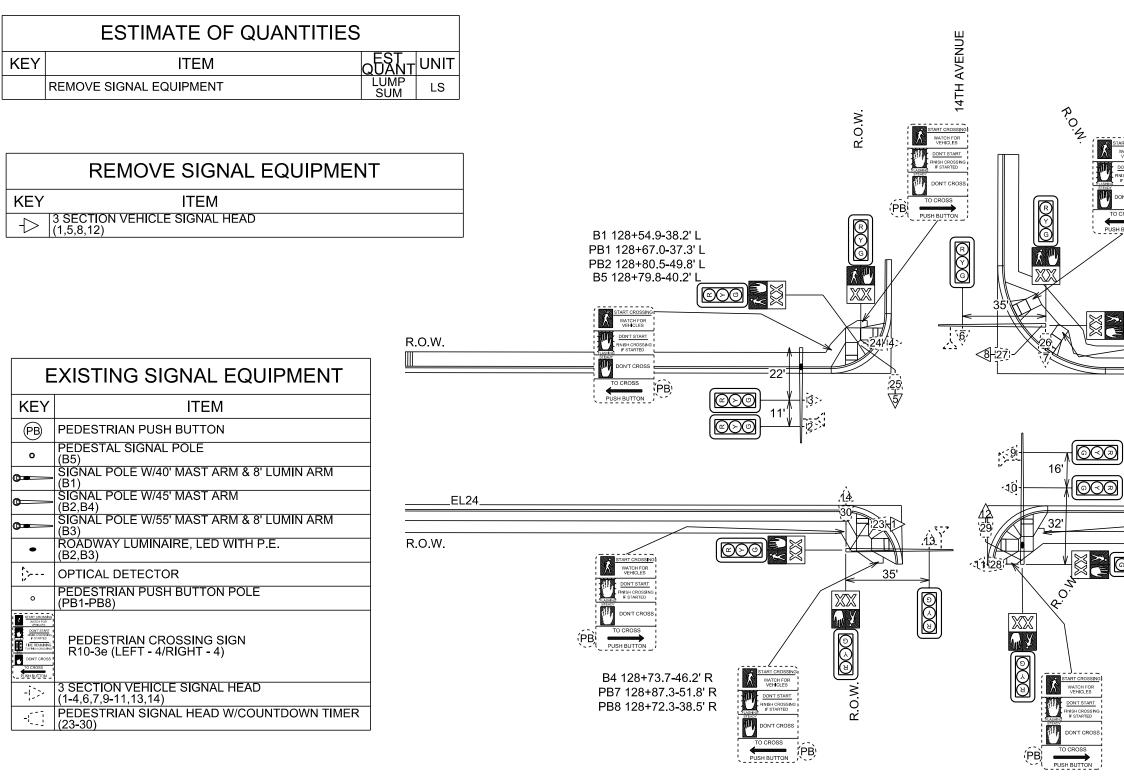




STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS		
SOUTH DAKOTA	000N-171	9	14		
Plotting Date: 04/19/2024					

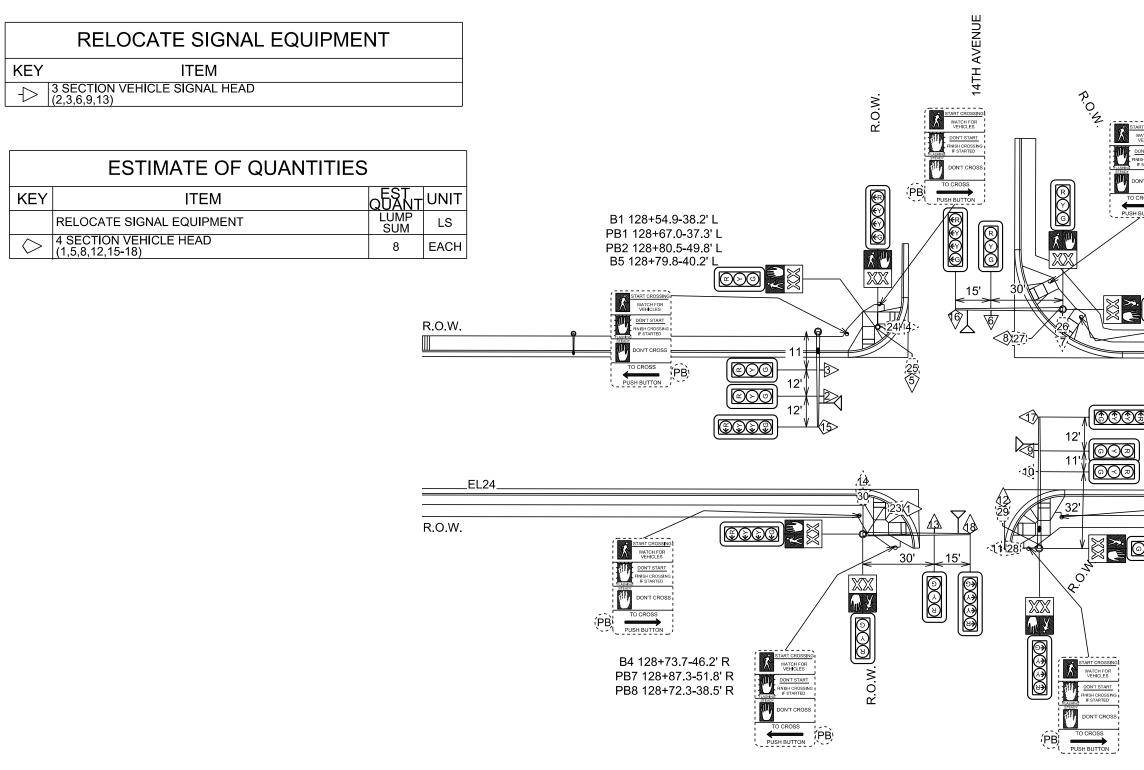
PLOT NAME - 3

EXISTING SIGNAL LAYOUT US HWY 81/4TH STREET E & 14TH AVENUE



	STATE OF	PROJECT		SHEET NO.	TOTAL SHEETS
	SOUTH DAKOTA	000N-171		10	14
	Plotting Do	ote: 05/06/2024			
_	SCALE 1" = 40'				PLDT NAME - 2
	32 129+56.8 B3 129+51.4 B4 129+64.{	4-59.3' L			9ES, DGN
	LON FLASHING STEADY	→ :	R.O.W.		GI ONANPRJVCODNI 6Y JV129ES, DGN
	US HV	VY 81/4TH STRE	ETE		. \REGI
))					- - - - - - - - - - - - - - - - - - -
	START CRO WATCH VEHICL				
<u>609</u>)			 R.O.W.		
PB5 129	+47.3-51.9' 9+56.6-38.9 9+42.9-52.1	' R			

SIGNAL LAYOUT US HWY 81/4TH STREET E & 14TH AVENUE



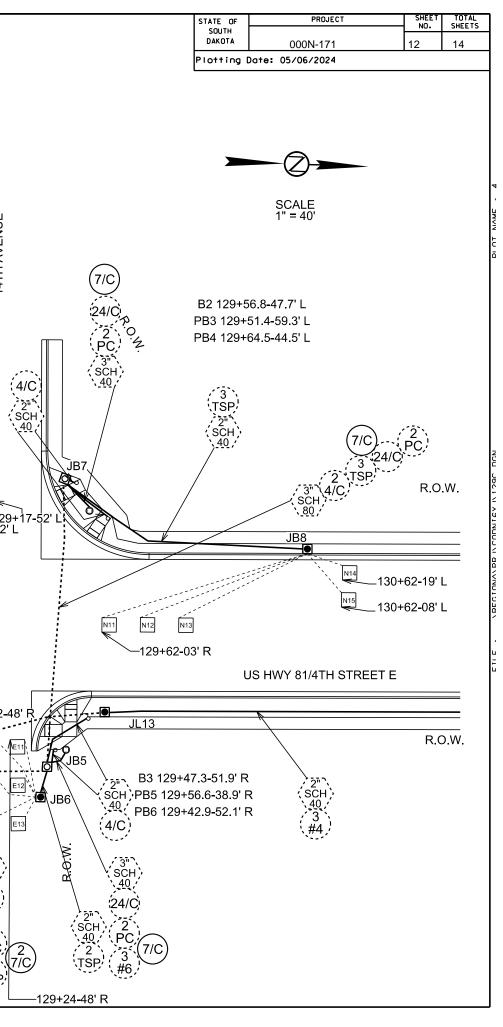
	STATE OF SOUTH		Р	ROJECT		SHEET NO.	TOTAL SHEETS	
	DAKOTA			0N-171		11	14	
l	Plotting	Date:	05/03/2	2024				
	SCA 1"=	LE 40'					PI DT NAME - 3	
	B2 129+; PB3 129+ PB4 129+	51.4 -	59.3' L					
6009		DON'T CF	OR IS ART SSING ID ROSS		R.O.W.		GIDNANPRJACDDNIGYJNJ299. DGN	
	US	S HWY	′ 81/4TI	H STREI	ET E		AFG.	
		WATCH FOR VEHICLES						
000		DON'T START FINISH CROSSIN IF STARTED DON'T CROSS D CROSS			R.O.W	;		
PB5 12	9+47.3-5 29+56.6-3 29+42.9-4	38.9' F						

CONDUIT LAYOUT US HWY 81/4TH STREET E & 14TH AVENUE

ESTIMATE OF QUANTITIE	S		
ITEM			Ш Э
#14 AWG COPPER TRAY CABLE, K2 LE BASE TO 4 SECTION VEHICLE SIGNAL HEAD	260 FT		C EN
#14 AWG COPPER TRAY CABLE, K2	1045 FT	\sim	2). (2). (2). (2). (2). (2). (2). (2). (
G SIGNAL EQUIPMENT	(3)	(7/C) (3) #6) (7/C) (19/C) PC) (19/C) PB1 128+54.9-38.2' L PB1 128+67.0-37.3' L (12/C) (12/C	2 ¹ CH A0 O A/C 2 ¹ A/C CH A1 CH
ITEM	, #3,	B5 128+79.8-40.2' L 🤇 SCH 🤆 🔪 🔪	
	、2ごう、 、SCH 、40		
ECTRICAL JUNCTION BOX			
ECTRICAL JUNCTION BOX 36,JB8) ECTRICAL JUNCTION BOX		L22 127+53-37.2' L	
35,JB7) AL SERVICE CABINET	R.O.W. ,		129+17-52' L -129+05-52' L
CKET ITEM	<u>*************************************</u>		
IGNAL CONTROLLER ED DETECTOR LOOP		127+69-08' R	
1-N15,S11-15,W11-W16)		127+69-08' R(19/C) - (12/C) - (12/	S11
		127+69-19' R- §14	(4/C)
ONDUIT, SCHEDULE 40			2" SCH
DNDUIT, SCHEDULE 40	EL	24JF2 JB9JB2JF2	
ONDUIT, SCHEDULE 40			-129+12-48' R.
ONDUIT, SCHEDULE 80	R.O.W./		
ONDUIT, SCHEDULE 80		B4 128+73.7-46.2' R	
G COPPER WIRE		∠ PB7 128+87.3-51.8' R (^{2^m}), H → C ^{2^m} PB8 128+72.3-38.5' R → 40 ↔	
G COPPER WIRE			
WG COPPER TRAY CABLE, K2	/ 24	H TSP! 120/240 v.a.c., 60 hz., 1 Phase, 3 Wire Service (Fiber) By Watertown	
WG COPPER TRAY CABLE, K2	(Fib イマット・シー	By Watertown Municipal Utilities (#10) SCH 40/	
WG COPPER TRAY CABLE, K2	(SCH) (#1		
OPPER TWISTED SHIELDED PAIR	(3) (#4) (#4)	$\begin{pmatrix} 3 \\ \#A \end{pmatrix}$ (5), #6, 10), (
G COPPER POLE & BRACKET CABLE	SULV.		7/C 3 CH 4 40 SCH 4 40 SCH 4 40 SCH 4 2 4/C 2 7/C 7/C TSP
ON CABLE		(12/C):>;(4/C) ``;(19/C):>;	3 2 4/C 2 4/Z #4 3 24/C 5 7/C TSP' 3 #6 4 TSP' #6 PC 129+24-48' R
			129+24-48' R

KEY 5/C # (POLI 7/C 7/C #*

EXISTING SIGNAL EQUIPMENT				
KEY	ITEM			
0	3' DIAMETER FOOTING (B1-B4)			
o	2' DIAMETER FOOTING (B5)			
۲	TYPE 2 ELECTRICAL JUNCTION BOX (JB2,JB4,JB6,JB8)			
Ø	TYPÉ 3 ÉLECTRICAL JUNCTION BOX (JB1,JB3,JB5,JB7)			
	ELECTRICAL SERVICE CABINET			
	METER SOCKET NOT A BID ITEM			
	TRAFFIC SIGNAL CONTROLLER			
	PREFORMED DETECTOR LOOP (E8-E13,N11-N15,S11-15,W11-W16)			
	DETECTOR UNIT			
2" SCH 40	2" RIGID CONDUIT, SCHEDULE 40			
3" SCH 40	3" RIGID CONDUIT, SCHEDULE 40			
5" SCH 40	5" RIGID CONDUIT, SCHEDULE 40			
3" SCH <u>80</u>	3" RIGID CONDUIT, SCHEDULE 80			
4" SCH <u>80</u>	4" RIGID CONDUIT, SCHEDULE 80			
#4	1/C #4 AWG COPPER WIRE			
#6	1/C #6 AWG COPPER WIRE			
4/C				
12/C	12/C #14 AWG COPPER TRAY CABLE, K2			
19/C	19/C #14 AWG COPPER TRAY CABLE, K2			
24/C	24/C #14 AWG COPPER TRAY CABLE, K2			
TSP	#16 AWG COPPER TWISTED SHIELDED PAIR			
	2/C #10 AWG COPPER POLE & BRACKET CABLE			
(PC)	PREEMPTION CABLE			



SIGNAL TIMING US HWY 81/4th STREET E & 14TH AVENUE NE

BASIC INTERVALS										
Phase	Phase 1 2 3 4 5 6 7 8									
Movement	SBL	NB	WBL	EB	NBL	SB	, EBL	WB		
Min Green	5	12	5	7	5	12	5	7		
	5	12	5	- 1	5	12	5	/		
Extension										
Max 1	7	25	10	25	7	25	5	25		
Max 2										
Yellow	3	3.5	3	3.5	3	3.5	3	3.5		
All Red	2	2	2	2	2	2	2	2		
WALK		7		8		7		8		
Ped Clearance		12		16		12		16		
Recall		SOFT				SOFT				
Prog Flash Display	R	Y	R	R	R	Y	R	R		
Start Up Ø		Х				Х				

WEEKLY PROGRAM							
Sun Mon Tue Wed Thu Fri Sat				Sat			
Timing Plan	1	1	1	1	1	1	1

TIMING PLAN 1				
Time of Day (TOD)	Pattern (C/S/O)			
00:00	FLASH			
06:00	FREE			

RING AND BARRIER DESIGN						
Φ1		Φ3				
Φ5	6 6	Ф7 Су	^{Φ8}			

14TH AVE NE

7 ____^ 4 ____>

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SOUTH DAKOTA	000N-171	13	14
Plotting [



